

PROPOSED MINING ON A PORTION OF THE REMAINING EXTENT OF THE FARM ELANDS SPRUIT NO 5523, ALFRED DUMA MUNICIPAL AREA, KWAZULU-NATAL PROVINCE

AMENDED DRAFT BASIC ASSESSMENT REPORT

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EXECUTIVE SUMMARY

The Applicant, Raubex Construction (Pty) Ltd, is applying for environmental authorisation (EA) and a mining permit (MP) over 4.9 ha of the Remaining Extent of the farm Elands Spruit No 5523, uThukela Magisterial District, KwaZulu-Natal Province.

The project will entail the extension of the existing quarry pit via conventional open cast mining methods. The mining method will make use of blasting to loosen the hard rock; upon which the loosened material will be transported to the crushing and screening processing plant where it will be screened to various sized stockpiles before it is transported from site. The permit holder will be responsible for the rehabilitation of the entire area upon closure. The infrastructure will be of temporary nature as a mining permit can only be valid for a maximum of 5 years. The farm track will be improved to allow movement of the project related vehicles. No water will be abstracted from the site, and the plant will be powered with generators. Chemical toilets will be used, and the project will appoint ±8 local employees.

Supplement to the mining of the quarry (this application), the Applicant also intends to establish an area for additional stockpiling and crushing (when needed) of the material that is to be mined at the quarry, on 10.5 hectares of the abovementioned property. The establishment of the additional stockpiling area was separately authorised by the Department of Economic Development, Tourism and Environmental Affairs (DEDTEA) in January 2023 with reference number DC23/0005/2022.

The proposed project requires an EA & MP from the Department of Mineral Resources and Energy (DMRE). This report, the amended Draft Basic Assessment Report, forms part of the departmental requirements.

Preferred Site Alternative

Site Alternative 1 is the most practical alternative as the area was previously approved for mining, there is an existing quarry, topsoil and/or overburden layer of the footprint is relatively shallow, the resource is of good grade, access and rehabilitation is simplified, and the environmental related impacts are acceptable.

Public Participation Process

Initial public participation entailed the placement of English and isiZulu notices at conspicuous points. The project was advertised in the Ladysmith Gazette (in English and isiZulu), and isiZulu flyers explaining the project were distributed in Matiwane. Stakeholders and I&AP's were informed of the project with notification letters. A hard copy of the DBAR (with isiZulu executive summary) was

available at the Ladysmith Library for 30 days. The commenting period for perusal of the documentation and submission of comments ended 31 October 2022.

Due to a *bona fide* error on the earlier public documents, an erratum advertisement (English and isiZulu) was placed in the Ladysmith Gazette on 11 November 2022. English and isiZulu on-site notices correcting the earlier error were placed at conspicuous places, and the stakeholders and I&AP's were notified of the error. The commenting period was extended until 12 December 2022. I&AP's and stakeholders were also invited to comment on the updated TBIA and 2022 Wetland Opinion on/or before 12 December 2022. Upon request, a meeting was held with the ward councillor and Matiwane community members where the project was discussed.

The comments received during the initial public participation period (30 September 2022 – 31 October 2022), and the extended commenting period on the DBAR (11 November 2022 – 12 December 2022), were incorporated into this amended DBAR. Subsequently, the project team commissioned an additional (2023) Wetland Assessment and Terrestrial Biodiversity Impact Assessment that were ultimately incorporated into this amended DBAR. The amended DBAR will be available for a 30-days commenting period that will expire on 20 March 2023. Any comments received on the amended DBAR will be incorporated into the final BAR to be submitted to the DMRE for approval.

Basic Assessment Report

The key findings of the basic assessment report are:

Topography:

- ❖ Due to the impracticality of importing large volumes of fill material to restore the quarry to its original topography, the rehabilitation option (upon closure) is to render the quarry safe and leave it as a minor landscape feature, while the areas surrounding the excavation will return to grazing.

Visual Characteristics:

- ❖ The viewshed analyses shows that the visual impact will be of medium concern as the mining area will mainly be visible from the south.
- ❖ Should both the mining permit area and the additional stockpiling area (separately authorised) be established on site, the cumulative visual impact on the receiving environment is deemed to be of medium significance.

Air and Noise Quality:

- ❖ Should the Applicant implement the proposed mitigation measures the impact on the air quality of the surrounding environment is of low-medium significance.

- ❖ Although the proposed activity will have a cumulative impact on the ambient noise levels, the development will not take place in a pristine environment, and the impact is therefore deemed compatible with the current operations and of low-medium significance.
- ❖ Should both the mining permit area and the additional stockpiling area (separately authorised) be established on site, the cumulative dust nuisance on the receiving environment (after mitigation) is deemed to be of low-medium significance, while the cumulative noise nuisance (after mitigation) will be of medium significance.

Hydrology:

- ❖ Two wetland units a channelled valley bottom and a seep was identified within 500 m (± 166 m away) of the proposed development footprint.
- ❖ No wetlands or watercourse were identified within the application footprint.
- ❖ A buffer of 40 m was proposed as no-go area around the identified wetland units. The proposed mining area does not extend into or near to (>100 m away) the proposed buffer area.
- ❖ The 2023 wetland study concluded that impacts can be potentially reduced to acceptably 'low' impact significance levels.
- ❖ The specialist notes (2023) that the proposed development can be considered acceptable from an ecological perspective based on the provision that the various mitigation measures are strictly adhered to during the various phases of the quarry.
- ❖ DWS approved a General Authorisation for the project regarding mining within 500 m of a wetland.

Terrestrial Biodiversity (including Fauna and Flora):

- ❖ The site has been impacted by clearing of vegetation for subsistence agriculture and the development of roads since 1944.
- ❖ One distinct terrestrial vegetation community (Degraded Northern KwaZulu-Natal Moist Grassland) was observed that is in a relatively 'poor' condition.
- ❖ The provincially protected plant, *Aloe marlothii* (Mountain Aloe) is present on site within large colonies (to be relocated). No other SCC's were identified on site.
- ❖ The western region near the existing quarry pit is mapped as CBA: Optimal but is in fact heavily disturbed and degraded. While the slopes are associated with rocky outcrops, the area was previously mined and is representative of a dense and well-established community of Invasive Alien Plants.
- ❖ The proposed mining area covers ± 5 ha of Medium SEI Vegetation.
- ❖ Given the relatively small size of the project development and the existing land use of the area (disturbed and encroached grasslands used for grazing) impacts to faunal movement is unlikely to be a significant concern.

- ❖ Given that impacts to grassland is unlikely to negate meeting conservation targets set for this type at this stage, biodiversity offsets are not considered relevant to this project.
- ❖ Eco-Pulse rates the overall post-mitigation impact of the proposed activity on the current vegetation- and faunal structure of the application area to be of moderately low - low significance during construction, and moderate – low significance during operation.
- ❖ Under a best practical mitigation scenario, the project is environmentally acceptable from a terrestrial biodiversity perspective, provided that the mitigation and management recommendations are strictly adhered to.
- ❖ EDTEA approved the development of the additional stockpile area in January 2023.

Fauna:

- ❖ Ground truthing revealed that the high animal sensitivity (DFFE screening tool) was inaccurate due to the extent of habitat disturbance and fragmentation by Collings Pass Road that acts as a barrier for migration by faunal species.
- ❖ None of the sensitive avifauna or faunal species obtained from SANBI were observed on site.
- ❖ Eco-Pulse further noted that visual observations during the site inspection identified no faunal SCC, and no evidence was found indicating their probable occurrence within the project area. It is therefore unlikely, given the present habitat conditions and degree of disturbance that faunal species of conservation concern occur within the proposed project area. Impacts to fauna of conservation concern are therefore unlikely and inconsequential overall.
- ❖ There is no evident fatal flaw regarding fauna that would prevent this development from being authorised if the mitigation and monitoring measures proposed by the specialist are implemented by the Applicant.
- ❖ EDTEA approved the development of the additional stockpile area in January 2023.

Cultural and Heritage Environment:

- ❖ No sites of archaeological, palaeontological, or cultural importance exist at the study area.

Existing Infrastructure:

- ❖ Should the mitigation measures proposed in this document be implemented the existing infrastructure on the farm/neighbouring properties will not be impaired.

Since the application area is already earmarked for mining (current mining permit), and the outcome of the basic assessment showed that the proposed project can be allowed provided that the mitigation measures and monitoring programmes are implemented, no fatal flaws could be identified that prevents the activity continuing. The financial provision amount that will be necessary for the rehabilitation of the operation is R 429 124.35.

LIST OF ABBREVIATIONS

ADLM	Alfred Duma Local Municipality
ADT	Articulated Dump Truck
AMAFA	Heritage Kwazulu-Natal
ASTM	American Standard Test Method
BGIS	Biodiversity GIS
CARA	Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)
CBA	Critical Biodiversity Area
CM	Contracts Manager
CPG	Contract Participation Goals
DBAR	Draft Basic Assessment Report
DEDTEA	Department of Economic Development, Tourism and Environmental Affairs
DFFE	Department of Forestry, Fisheries and Environment
DMRE	Department of Mineral and Resources and Energy
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EIA Regulations	Environmental Impact Assessment Regulations, 2014 (as amended)
EIS	Ecological Importance and Sensitivity
EMPR	Environmental Management Programme
ESA	Ecological Support Areas
eWULAAS	Electronic Water Use Licence Application and Authorisation System
EZEMVELO	KZN Wildlife
FBAR	Final Basic Assessment Report
GDP	Gross Domestic Product
GNR	Government Notice
GPS	Global Positioning System
HDSA	Historically Disadvantaged South Africans
HGM	Hydrogeomorphic
HIA	Heritage Impact Assessment
HSA	Hazardous Substances Act, 1973 (Act No. 15 of 1973)
I&AP's	Interested and Affected Parties
IDP	Integrated Development Plan
MHSA	Mine Health and Safety Act, 1996 (Act No. 29 of 1996)

MP	Mining Permit
MPRDA	Minerals and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEM:AQA	National Environmental Management: Air Quality Control Act, 2004 (Act No. 39 of 2004)
NEM:BA	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)
NEM:PAA	National Environmental Management: Protected Areas Amendment Act, 2014 (Act No. 21 of 2014)
NEM:WA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
NFA	National Forest Act, 1998 (Act No. 84 of 1998)
NFEPA	National Freshwater Ecosystem Priority Areas
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
NPAES	Nationals Protected Area Expansion Strategy
NRTA	National Road Traffic Act, 1996 (Act No. 93 of 1996)
NWA	National Water Act, 1998 (Act No. 36 of 1998)
OHSA	Occupational Health and Safety Act, 1993 (Act No. 85 of 1993)
OHSAS	Occupational Health and Safety Management Systems
PCB's	Polychlorinated Biphenyl
PCO	Pest Control Officer
PES	Present Ecological State
POC	Species of Conservation Concern Potential Occurrence
PPE	Personal Protective Equipment
PSM	Palaeontological Sensitivity Map
RBX-KZN	Raubex-KZN (Pty) Ltd
REC	Recommended Ecological Category
ROMs	Recommended Management Objectives
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
SAMBF	South African Mining and Biodiversity Forum
SANRAL	South African National Roads Agency SOC Ltd
SANS	South African National Standards
SCA	Systematic Conservation Assessments
SCC	Species of Conservation Concern
SDS	Safety Data Sheet
SWSA	Strategic Water Source Area

TBIA	Terrestrial Biodiversity Impact Assessment
TSCP	Terrestrial Systematic Conservation Plan
USBM	US Bureau of Mines
WMA	Water Management Area
WUL	Water Use Licence
WULA	Water Use Licence Application

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mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

BASIC ASSESSMENT REPORT
And
ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

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

NAME OF APPLICANT:	Raubex Construction (Pty) Ltd
TEL NO:	031 700 6411
FAX NO:	086 236 5670
POSTAL ADDRESS:	P.O. Box 66192, Highveld, 0169
PHYSICAL ADDRESS:	06 Highgrove Office Park, 50 Tegel Avenue, Centurion
FILE REFERENCE NUMBER SAMRAD:	KZN 30/5/1/3/2/10817 MP

IMPORTANT NOTICE

In terms of the Mineral and Petroleum Resources Development Act (Act 29 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 can be concluded that the said activities will not result in unacceptable pollution, ecological degradation or damage to the environment.

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

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

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

OBJECTIVE OF THE BASIC ASSESSMENT PROCESS

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

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

PART A

SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

1. CONTACT PERSON AND CORRESPONDENCE ADDRESS

a) Details of: Greenmined Environmental

In terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) the proponent must appoint an independent Environmental Assessment Practitioner (EAP) to undertake the environmental impact assessment (EIA) of any activities regulated in terms of the Act. Raubex Construction (Pty) Ltd (hereafter referred to as the "Applicant") appointed Greenmined Environmental (Pty) Ltd (hereafter referred to as "Greenmined") to undertake the study needed. Greenmined has no vested interest in Raubex Construction (Pty) Ltd or the proposed project and declares its independence as required by the Environmental Impact Assessment Regulations, 2014 (as amended) (EIA Regulations).

i) Details of the EAP

Name of the Practitioner:	Ms Christine Fouché (Senior Environmental Specialist)
Tel No.:	021 851 2673
Fax No.:	086 546 0579
E-mail address:	christine.f@greenmined.co.za

ii) Expertise of the EAP.

(1) The qualifications of the EAP

(with evidence).

Ms. Fouché has a Diploma in Nature Conservation and a B.Sc. in Botany and Zoology. Full curriculum vitae with evidence is attached as Appendix O.

(2) Summary of the EAP's past experience.

(In carrying out the Environmental Impact Assessment Procedure)

Ms Fouché has seventeen years' experience in doing Environmental Impact Assessments in South Africa. Ms. Fouche is a registered Environmental Assessment Practitioner (registration no: 2019/1003) with EAPASA (Environmental Assessment Practitioners Association of South Africa) since 2019. See a list of past projects attached as Appendix O.

b) Location of the overall Activity.

Table 1: Location of the proposed project.

Farm Name:	Remaining Extent of the farm Elands Spruit No 5523
Application area (Ha)	4.9 ha
Magisterial district:	Alfred Duma Local Municipality uThukela District Municipality
Distance and direction from the nearest town	±26 km north-east of Ladysmith between Collings Pass and the N11 national road. Using the N11 leaving Ladysmith drive towards Newcastle for ±23 km. Take the Collings Pass turnoff to the left, following the road for ±1.4 km to the farm gate on the right hand side.
21 digit Surveyor General Code for each farm portion	N0GS00000000552300000

c) Locality map

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

The requested map is attached as Appendix B.



Figure 1: Satellite view of the proposed mining permit area (yellow square) submitted by Raubex Construction (Pty) Ltd (image obtained from Google Earth).

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

Provide a plan drawn to a scale acceptable to the competent authority but not less than 1:10 000 that shows the location, and area (hectares) of all aforesaid main and listed activities, and infrastructure to be placed on site

The Applicant, Raubex Construction (Pty) Ltd, is applying for environmental authorisation to extend the existing quarry pit on a portion of the Remaining Extent of the farm Elands Spruit No 5523 GS in the uThukela Magisterial District of the KwaZulu-Natal Province.

The proposed mining footprint will be 4.9 ha and will entail the extension of the existing quarry pit (± 0.3 ha) on the property through open-cast mining of the hard rock. The proposed mining method will make use of blasting to loosen the hard rock; the material will then be loaded and hauled to the crushing plant where it will be screened to various sized stockpiles. The material will be stockpiled until it is transported from site using tipper trucks.

The proposed MP project will therefore entail the:

- ❖ site establishment and infrastructure development;
- ❖ stripping and stockpiling of topsoil from the proposed mining footprint area;
- ❖ blasting and excavation of the mining area;
- ❖ crushing and screening of the loosened material at the processing plant; and
- ❖ stockpiling the product until needed and transported from site.

The Applicant proposes to upgrade the farm road to allow comfortable movement of mining related equipment and vehicles. Haul roads into the excavation will be extended as mining progresses. The surface of the road will be improved, re-gravelled where needed, and the width increased to ± 10 m.

The proposed quarry will appoint ± 11 employees (including management), and due to the small scale of the operation no permanent infrastructure will be built at the mining area. The Applicant plans to establish the following mobile/temporary infrastructure within the mining footprint:

- ❖ Chemical ablution facilities to be serviced by a registered contractor;
- ❖ Crushing and screening plant (mobile); and
- ❖ Weighbridge with associated control room.

See attached as Appendix C a copy of the site activities map for the proposed project.

i) Listed and specified activities

Table 2: Listed and specified activities triggered by the associated mining activities

NAME OF ACTIVITY	Aerial extent of the activity	LISTED ACTIVITY	APPLICABLE LISTING NOTICE
<p>(E.g. For prospecting – drill site, site camp, ablution facilities, accommodation, equipment storage, sample storage, site office, access route etc... etc... etc</p> <p>E.g. for mining – excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)</p>	Ha or m ²	Mark with an X where applicable or affected	(GNR 324, GNR 325, GNR 326 OR GNR 327)
Demarcation of site with visible beacons.	4.9 ha	N/A	Not listed
Site establishment and infrastructure development.	±1 ha	X	GNR 327 LN 1 Activity 26 GNR 324 LN 3 Activity 4, 18
<p>GNR 327 Listing Notice 1 Activity 26:</p> <p><i>Residential, retail, recreational, tourism, commercial or institutional developments of 1 000 square metres or more, on land previously used for mining or heavy industrial purposes –</i></p> <p><i>excluding –</i></p> <p><i>(i) where such land has been remediated in terms of part 8 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies; or</i></p> <p><i>(ii) where an environmental authorisation has been obtained for the decommissioning and closure of such an industry in terms of this Notice or any previous NEMA notice; or</i></p> <p><i>(iii) where a closure certificate has been issued in terms of section 43 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) for such land.</i></p>			
<p>GNR 324 Listing Notice 3 Activity 4:</p> <p><i>The development of a road wider than 4 metres with a reserve less than 13,5 metres</i></p> <p><u>d. KwaZulu-Natal</u></p> <p><i>viii. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</i></p>			
<p>GNR 324 Listing Notice 3 Activity 18:</p> <p><i>The widening of a road by more than road by more than 4 metres, or the lengthening of a road by more than 1 kilometre.</i></p>			

NAME OF ACTIVITY	Aerial extent of the activity	LISTED ACTIVITY	APPLICABLE NOTICE	LISTING
<p><u>d. KwaZulu-Natal</u></p> <p><i>viii. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</i></p>				
Stripping and stockpiling of topsoil and/or overburden.	±3.9 ha	X	GNR 517 LN 1 Activity 21 GNR 327 LN 1 Activity 26, 27, 28 GNR 324 LN 3 Activity 12	
<p>GNR 517 Listing Notice 1 Activity 21:</p> <p><i>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.</i></p>				
<p>GNR 327 Listing Notice 1 Activity 26:</p> <p><i>Residential, retail, recreational, tourism, commercial or institutional developments of 1 000 square metres or more, on land previously used for mining or heavy industrial purposes –</i></p> <p><i>excluding –</i></p> <p><i>(i) where such land has been remediated in terms of part 8 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies; or</i></p> <p><i>(ii) where an environmental authorisation has been obtained for the decommissioning and closure of such an industry in terms of this Notice or any previous NEMA notice; or</i></p> <p><i>(iii) where a closure certificate has been issued in terms of section 43 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) for such land.</i></p>				
<p>GNR 327 Listing Notice 1 Activity 27:</p> <p><i>The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for—</i></p> <p><i>(i) the undertaking of a linear activity; or</i></p> <p><i>(ii) maintenance purposes undertaken in accordance with a maintenance management plan.</i></p>				
<p>GNR 327 Listing Notice 1 Activity 28:</p> <p><i>Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development:</i></p> <p><i>(i) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or</i></p> <p><i>(ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare;</i></p> <p><i>excluding where such land has already been developed for residential, mixed, retail, commercial, industrial or institutional purposes.</i></p>				
<p>GNR 324 Listing Notice 3 Activity 12:</p> <p><i>The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</i></p>				

NAME OF ACTIVITY	Aerial extent of the activity	LISTED ACTIVITY	APPLICABLE NOTICE	LISTING
<i>d. KwaZulu-Natal</i>				
<i>v. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</i>				
Drilling and blasting.	±3.9 ha	X	GNR 517 LN 1 Activity 21 GNR 327 LN 1 Activity 26, 28	
Excavation, loading and hauling to processing area.	±3.9 ha	X	GNR 517 LN 1 Activity 21 GNR 327 LN 1 Activity 26, 28	
Processing, stockpiling, and transporting of material.	±1 ha	X	GNR 517 LN 1 Activity 21 GNR 327 LN 1 Activity 26, 28	
Sloping and landscaping upon closure of the mining area.	4.9 ha	X	GNR 517 LN 1 Activity 21	
Replacing the topsoil and vegetating the disturbed area.	4.9 ha	X	GNR 517 LN 1 Activity 21	

ii) Description of the activities to be undertaken

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

Background Information:

Raubex KZN (Pty) Ltd (hereafter referred to as RBX-KZN) holds a mining permit (DMRE ref no: KZN 30/5/1/3/2/10518 MP) to mine aggregate from a 4.9 ha area on the Remaining Extent of the farm Elands Spruit No 5523, uThukela District. The RBX-KZN permit was valid until 05 February 2020, upon which the first renewal was approved until 06 February 2021, the second, and third renewal applications are still pending approval at the DMRE, and if the applications are successful the permit could be valid until February 2023. Due to the mining of the area being dependant on a SANRAL tender for the upgrade of the N11 (that was only awarded in 2023), mining did not yet commence at the site.

Project Proposal:

With the forthcoming lapsing of the existing mining permit (RBX-KZN), and the awarding of the SANRAL contract (January 2023) for the upgrade of the N11, Raubex Construction (Pty) Ltd (hereafter referred to as the "Applicant") identified the need for a new mining permit on the above mentioned 4.9 ha area. The aim of the application is to secure the resource for the SANRAL contract to upgrade the N11 that borders the farm to the east. The Applicant entered into an agreement with RBX-KZN to apply for

the proposed mining permit over the current mining permit area of RBX-KZN. See Appendix F2 for a copy of this agreement.

Subsequently, the Applicant applied for environmental authorisation and a mining permit (MP) over 4.9 ha of the above mentioned property. The following table lists the GPS coordinates of the proposed mining area as shown on the Regulation 2.2 Mine Plan attached as Appendix A. The MP application was also accompanied by a Transfer of Liabilities form, where the Applicant will take over the environmental liability of RBX-KZN should the new mining permit application be approved.

Table 3: GPS Coordinates of the proposed mining footprint

NUMBER	DEGREES, MINUTES, SECONDS		DECIMAL DEGREES	
	LAT (S)	LONG (E)	LAT (S)	LONG (E)
A	28°22'05.174"	29°56'23.636"	-28.368104°	29.939899°
B	28°22'01.211"	29°56'24.968"	-28.367003°	29.940269°
C	28°22'03.551"	29°56'37.694"	-28.367653°	29.943804°
D	28°22'07.241"	29°56'37.288"	-28.368678°	29.943691°



Figure 2: Satellite view showing the location of the MP application area (yellow polygon) in relation to the surrounding area where the blue lines indicate the farm boundaries (image obtained from Google Earth).

Should the MP be issued, and the mining activity be allowed, the proposed project will comprise of activities that can be divided into three key phases (discussed in more detail below) namely the:

- (1) *Site establishment/construction phase* which will involve the demarcation of the permitted mining area. Site establishment will also necessitate the relocation of the Mountain Aloes (discussed in more detail later in the report), clearing of vegetation, the stripping and stockpiling of topsoil, and the introduction of mining machinery and equipment.
- (2) *Operational phase* that will entail the extension of the existing quarry pit (± 0.3 ha) within the approved footprint area via conventional open cast mining methods. The mining method will make use of blasting to loosen the hard rock; upon which the loosened material will be transported to the crushing and screening processing plant where it will be screened to various sized stockpiles before it is transported from site.
- (3) *Decommissioning phase* which entails the rehabilitation of the affected environment prior to the submission of a closure application to the Department of Mineral Resources and Energy (DMRE). The permit holder will further be responsible for the seeding of all rehabilitated areas. Once the full mining area is rehabilitated, the mining permit holder will be required to submit a closure application to the DMRE in accordance with section 43(4) of the MPRDA, 2002. The Closure Application will be submitted in terms of Regulation 62 of the MPRDA, 2002, and Government Notice 940 of NEMA, 1998 (as amended).

PHASES OF THE PROJECT

1. Site Establishment Phase:

Site establishment entails the demarcation of the mining boundaries, relocation of the Mountain Aloes, clearance of vegetation, and stripping and stockpiling of topsoil to access the mineral as detailed below:

❖ Demarcation of Mining Boundaries:

Pursuant to receipt of the Environmental Authorisation (EA) and Mining Permit (MP), and prior to site establishment, the boundaries of the mining area will be demarcated with visible beacons.

❖ Access Road:

The proposed mining area will be reached via the existing farm road turning from Collings Pass Road. No mining equipment or vehicles will access the N11

directly from the mining area without prior approval from SANRAL. The Applicant proposes to upgrade the road to allow comfortable movement of mining related equipment and vehicles and to comply with the requirements of the Mine Health and Safety Act, 1996 (Act No 29 of 1996). Haul roads into the excavation will be extended as mining progresses.

The surface of the road will be improved, re-gravelled where needed, and the width increased to ± 10 m. Upon closure of the site, the upgraded road will be returned to the landowner for future use.

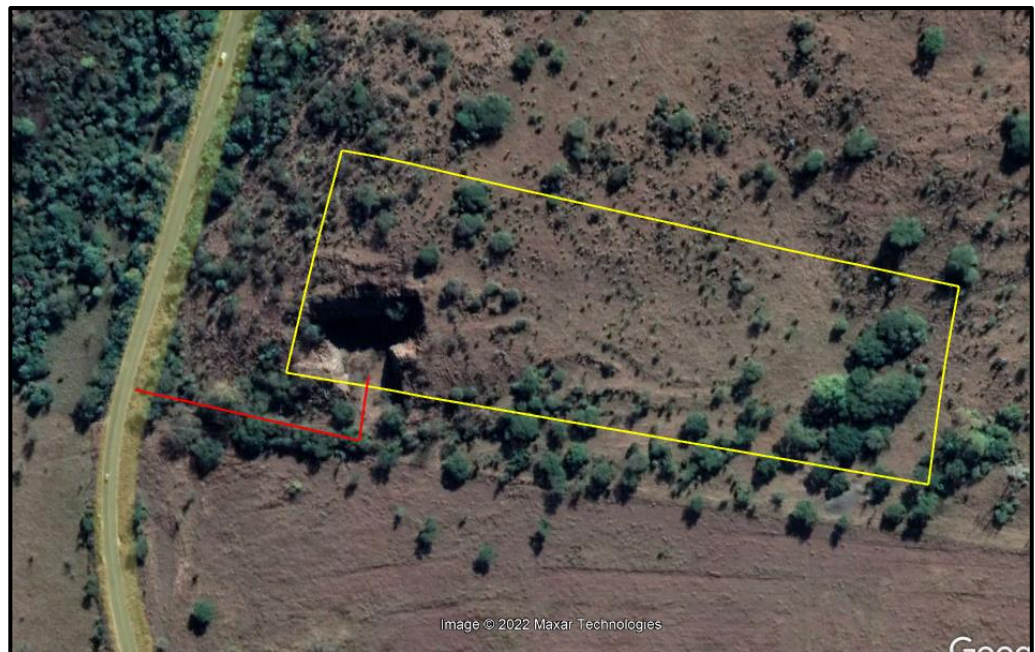


Figure 3: Satellite view showing the path of the existing access road (red line) to the proposed mining area (yellow polygon).

❖ **Clearing of Vegetation:**

(Also refer to Part A(1)(h)(iv)(c) Description of specific environmental features and infrastructures on the site – Site Specific Terrestrial Biodiversity (including fauna and flora)

Although the footprint of the proposed mining area extends over a historically abandoned quarry (± 0.3 ha) and therefore highly disturbed area, the proposed activity will still require the removal of indigenous vegetation during the site establishment- and operational phases. The vegetation type of the earmarked footprint is classified as Northern KwaZulu-Natal Moist Grassland (Gs 4), and mainly consists of rocky vegetation comprising of low to tall trees with grassland on open areas. In terms of species of special concern, the provincially protected *Aloe marlothii* (Mountain Aloe) is present on site. The Applicant will strive to conserve as much vegetation within the mining footprint area as

possible and will apply for relocation permits for the Mountain Aloes from Ezemvelo/KZN-Wildlife. Bush clearance will only commence upon receipt of the applicable plant permit and relocation of the aloes. The environmental control officer (ECO) will assess the compliance of the permit holder with the conditions of said permits.

❖ **Topsoil Stripping:**

It is proposed that topsoil removal will be restricted to the exact footprint of areas required during the operational phase of the activity. The topsoil will be stockpiled at a designated signposted area (>200 m from the power lines) within the mining boundary to be replaced during the rehabilitation of the area. It will be part of the obligations of site management to prevent the mixing of topsoil heaps with overburden/other soil heaps. The complete A-horizon (the top 100 – 200 mm of soil which is generally darker coloured due to high organic matter content) will be removed. If it is unclear where the topsoil layer ends the top 300 mm of soil will be stripped. The topsoil berm will measure a maximum of 1.5 m in height to preserve micro-organisms within the topsoil, which can be lost due to compaction and lack of oxygen.

❖ **Introduction of Mining Machinery and Site Equipment:**

As mentioned earlier, the Applicant plans to establish mobile/temporary infrastructure within the mining footprint. It is proposed that the processing area (including mobile crusher, ablutions, and weighbridge with control room) will occupy ±1 ha of the proposed 4.9 ha area. As no fixed/permanent infrastructure will be established, the production rate will dictate the layout of the proposed footprint area, however, as agreed with Eskom no stockpiles will be nearer than 200 m to the adjacent power lines. The use of diesel and petrol on site will be below the threshold of the NEMA, 1998 EIA Regulations, 2014 (as amended).

Presently, the mining infrastructure/equipment is expected to consist of at least:

- ADT trucks;
- Chemical ablation facilities;
- Crushing and screening plant (mobile);
- Drilling equipment;
- Earthmoving- and excavating equipment;
- Weighbridge with control room;

- Generators; and a
- Water truck.

2. Operational Phase:

The Applicant submitted this application for environmental authorisation and a mining permit in anticipation of a SANRAL road works tender to upgrade the N11 in the vicinity of Ladysmith. Since applying for this mining permit, SANRAL awarded the said tender to the Applicant to be commenced with as soon as possible. The product to be generated at the proposed quarry will be used, by the Applicant, as fill material for the N11 road works project.

The Applicant intends to expand the existing quarry pit (± 0.3 ha) on the property (still unrehabilitated) through the open-cast mining method. The hard rock of the quarry will be loosened by blasting, upon which it will be mechanically recovered with drilling-, excavating- and earthmoving equipment. The rock will then be delivered to the crushing and screening plant where it will be reduced to various sized gravels. The screened material will be delivered to various size category stockpiles (>200 m from the power lines).

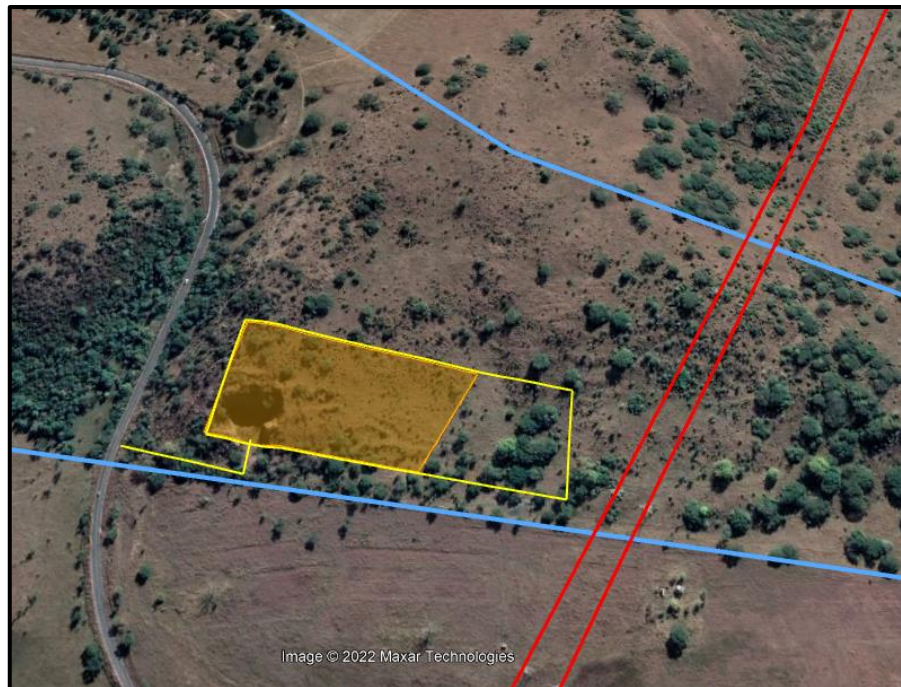


Figure 4: All stockpiles (orange shaded area) will be >200 m from the adjacent power lines (red lines) (image obtained from Google Earth).

Transportation of the final product will be from the stockpile area to the end point by means of trucks. The proposed quarry will appoint ±11 employees (including management), ±8 of which will be sourced from the surrounding area and daily be transported to site. The work hours of the quarry will be from 07:00 to 18:00 Monday – Saturday (no work on Sundays).

❖ **Water Use:**

Any water required for the implementation of the project will be bought from a legal source and transported to the mining area (in a truck) where it will be stored in tanks until used. Presently, no washing of material is proposed, and the Applicant will therefore mainly use water for dust suppression purposes on denuded areas, the processing plant, and access road (when needed).

Dust generation will, as far as possible, be managed through alternative dust suppression methods to restrict water use to the absolute minimum. These measures will include a combination of the following:

- The speed of all mining equipment/vehicles will be restricted to 40 km/h on the internal farm road to minimize dust generation;
- Site management will attempt to lessen denuded areas (dust source) to the absolute minimum;
- Strips of used conveyor belts can be attached to the drop end of the crusher plant where crushed material falls onto the stockpiles. This lessens the blowing of fines from the minerals;
- Compacted dust will weekly be cleaned of the crusher plant to eliminate it as a dust source.

Under very windy/dusty conditions the permit holder might have to substitute the above mentioned dust suppression methods with the spraying of water, in which case a water truck will moisten the problem areas, and sprayers at the processing plant will moisten the material to alleviate dust generation at the conveyor belts. The water truck driver will receive proper training to ensure effective use of the water on problem areas preventing water wastage. It is proposed that approximately 20 000 litres of water will be needed per day during the dry months (amount to decrease during the rainy season). At present no water is proposed to be drawn from dams or other surface water sources/courses.

❖ **Electricity Use:**

The proposed project will make use of diesel generators to power the mining infrastructure. All generators will have secondary containment in the form of a bund wall/drip tray that can contain 110% of the generator's maximum capacity. The petrol needed to power the generators will not be stored on site, but brought to site when needed. As mentioned earlier, the use of dangerous goods (such as diesel and petrol) on site will not trigger the NEMA, 1998 EIA Regulations, 2014 (as amended). Drip trays will be used when refuelling is required.

❖ **Servicing and Maintenance:**

No workshop will be established in the proposed mining area and therefore servicing and/or routine maintenance of the equipment will take place off site. If emergency repairs are needed on equipment not able to move off site, drip trays will be used under the machinery and all waste will be contained and removed from the emergency service area to an off-site workshop to ensure proper disposal.

There will be no bulk storage of fuel and very little (if any) chemicals will be needed on site. Any chemicals/hazardous substances needed will be kept in the control room of the weighbridge, alternatively the products will be contained in the vehicles and removed from the site at the end of each day.

❖ **Waste Handling:**

Solid (general) waste, generated during the operational phase, will be contained in sealable refuse bins that will be placed at the office area until the waste is transported to a registered general waste landfill site. A recognized contractor will service the chemical toilets that will serve as ablution facilities to the employees.

Due to the nature of the project very little generation of hazardous waste is expected and will mainly be the result of accidental spillages or breakdowns. Such contaminated areas will be cleaned up immediately (within two hours of the occurrence) and the contaminated soil will be contained in designated hazardous waste containers that will be kept in a bunded area with

impermeable surface until it is removed from site by a registered hazardous waste handling contractor to an approved facility.

❖ **Additional Stockpiling of Material (authorised by EDTEA):**

Supplement to the mining of the quarry (this application), the Applicant also intends to establish an area for additional stockpiling and crushing (when needed) of the material that is to be mined at the quarry, on 10.5 hectares of the abovementioned property. The establishment of the additional stockpiling area was separately authorised by the Department of Economic Development, Tourism and Environmental Affairs (DEDTEA) in January 2023 with reference number DC23/0005/2022.

The use of the proposed additional stockpile area will be of temporary nature corresponding with the duration of the construction works needed on the N11 (± 6 years).

The Applicant will transport the material from the quarry into the stockpile area. The rock will then be delivered to the crushing and screening plant (if needed) where it will be reduced to various sized gravels. Transportation of the final product will be from the stockpile area to the end point by means of trucks.

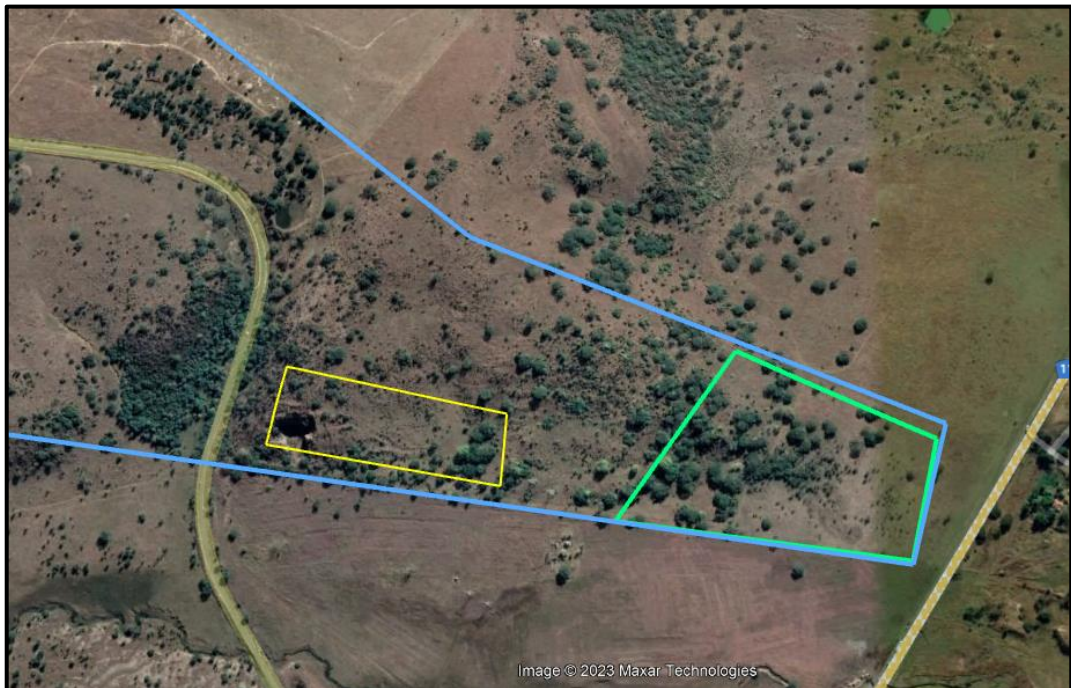


Figure 5: Image showing the position of the additional stockpiling area (green polygon) in relation to the proposed mining area (yellow polygon), where the blue lines indicate the farm boundaries (image obtained from Google Earth).

Decommissioning Phase:

The decommissioning phase will entail the reinstatement of the processing area by removing the stockpiled material, and site infrastructure/equipment and landscaping the disturbed footprints. Due to the impracticality of importing large volumes of fill to restore the quarry area to its original topography, the rehabilitation option is to develop the quarry into a minor landscape feature. This will entail creating a series of irregular benches along the quarry faces, the top edges of each face being blasted away to form scree slopes on the benches below, thereby reducing the overall face angle. The benches will be top-dressed with topsoil and vegetated with an appropriate indigenous grass mix if vegetation does not naturally establish in the area within six months of the replacement of the topsoil (see Appendix K for the Closure Plan).

The decommissioning activities will therefore consist of the following:

- ❖ Sloping and landscaping the quarry pit;
- ❖ Removing all stockpiled material;
- ❖ Removing all mining machinery and equipment from site;
- ❖ Landscaping all disturbed areas and replacing the topsoil;
- ❖ Vegetating the reinstated area; and
- ❖ Controlling/monitoring the invasive plant species.

Upon rehabilitation, the area around the excavation will once again be available for grazing purposes, and the planting of the indigenous grass layer (to protect the topsoil) will tie in with the proposed land use.

The Applicant will comply with the minimum closure objectives as prescribed by the DMRE and detailed below:

❖ Rehabilitation of the excavated area:

The excavated area must serve as a final depositing area for the placement of overburden. Rocks and coarse material removed from the excavation must be dumped into the excavation.

No waste may be permitted to be deposited in the excavations.

Once overburden, rocks and coarse natural materials have been added to the excavation and it was profiled with acceptable contours and erosion control measures, the topsoil previously stored must be returned to its original depth over the area.

The area must be fertilized if necessary to allow vegetation to establish rapidly. The site shall be seeded with a local or adapted indigenous seed mix to propagate the locally or regionally occurring flora, should natural vegetation not re-establish within 6 months from closure of the site.

If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining operation be corrected and the area be seeded with a vegetation seed mix to his or her specification.

❖ Rehabilitation of processing area:

Coarse natural material used for the construction of ramps must be removed and dumped into the excavations.

Stockpiles must be removed during the decommissioning phase, the area ripped, and the topsoil returned to its original depth to provide a growth medium.

On completion of operations, all structures or objects shall be dealt with in accordance with section 44 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002):

- Where sites have been rendered devoid of vegetation/grass or where soils have been compacted owing to traffic, the surface shall be scarified or ripped.
- The site shall be seeded with a vegetation seed mix adapted to reflect the local indigenous flora.

Photographs of the camp and office sites, before and during the mining operation and after rehabilitation, shall be taken at selected fixed points and kept on record for the information of the DMRE Regional Manager.

On completion of mining operations, the surface of these areas, if compacted due to hauling and dumping operations, shall be scarified to a depth of at least 200 mm and graded to an even surface condition. Where applicable/possible topsoil needs to be returned to its original depth over the area.

The area shall then be fertilized if necessary to allow vegetation to establish rapidly. The site shall be seeded with a local, adapted indigenous seed mix.

If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the DMRE Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining operation be corrected and the area be seeded with a seed mix to his or her specification.

❖ Final rehabilitation:

Rehabilitation of the surface area shall entail landscaping, levelling, top dressing, land preparation, seeding (if required) and maintenance, and invasive plant species clearing.

All mining equipment, and other items used during the mining period must be removed from the site (section 44 of the MPRDA).

Waste material of any description, including receptacles, scrap, rubble, and tyres, must be removed entirely from the mining area and disposed of at a recognized landfill facility. It will not be permitted to be buried or burned on the site.

The management of invasive plant species must be done in a sporadic manner during the life of the mining activities. Species regarded as Category 1a and 1b invasive species in terms of NEM:BA (National Environmental Management: Biodiversity Act 10 of 2004 and regulations applicable thereto) will be eradicated from the site.

Final rehabilitation shall be completed within a period specified by the Regional Manager.

Once the mining area was rehabilitated the permit holder is required to submit a closure application to the Department of Mineral Resources and Energy in accordance with section 43(4) of the MPRDA, 2002 that states: *“An application for a closure certificate must be made to the Regional Manager in whose region the land in question is situated within 180 days of the occurrence of the lapsing, abandonment, cancellation, cessation, relinquishment or completion contemplated in subsection (3) and must be accompanied by the prescribed environmental risk report”*. The Closure Application will be submitted in terms of Regulation 62 of the MPRDA, 2002, and Government Notice 940 of NEMA, 1998 (as amended).

e) Policy and Legislative Context

Table 4: Policy and Legislative Context.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process)	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT. (E.g. in terms of the National Water Act a Water Use License has/has not been applied for)
Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983).	Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity: <i>Physical Environment – Geology and Soil.</i> Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – <i>Management of invader plant species.</i>	The mitigation measures proposed for the site includes specifications of the CARA, 1983.
Electricity Act, 1987 (Act No 41 of 1987) as amended.	Part A(1)(h)(iii) Summary of issues raised by I&AP's	The mining activities will be conducted in accordance with the said act.
Integrated Environmental Management Guideline: Guideline on Need and Desirability (2017).	Part A(1)(f) Need and desirability of the proposed activity.	The need and desirability of the proposed project was assessed in terms of this guideline.
KwaZulu-Natal AMAFA and Research Institute Act, 2018 (Act No 05 of 2018)	Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – <i>Human Environment.</i> Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – <i>Archaeological, Heritage and Palaeontological Aspects.</i>	An application in terms of Section 41 of the said act was submitted to AMAFA on 04 August 2022 and approved and closed by AMAFA on 19 August 2022.
KwaZulu-Natal Nature Conservation Ordinance No 15 of 1974	Part A(1)(h)(iv)(1)(a) Type of environment affected by the	The Applicant will apply for relocation permits from Ezemvelo

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.
	<p>proposed activity - <i>Biological Environment</i></p> <p>Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – <i>Management of Vegetation Removal & Management of invader plant species.</i></p>	for the Mountain Aloes on site prior to bush clearance.
<p>Mine Health and Safety Act, 1996 (Act No 29 of 1996) read together with applicable amendments and regulations thereto including relevant OHS Act regulations.</p>	<p>Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – <i>Management of Health and Safety Risks.</i></p>	The mitigation measures proposed for the site includes specifications of the MSHA, 1996
<p>Mineral and Petroleum Resources Development Act, 2002, (Act No. 28 of 2002) read together with applicable amendments and regulations thereto.</p> <p>❖ Section 27</p>	<p>Part A(1)(d) Description of the scope of the proposed overall activity</p>	<p>Application for a mining permit submitted to DMRE-KZN.</p> <p>Ref No: KZN 30/5/1/3/2/10817 MP</p>
<p>National Environmental Management Act, 1998 (Act No. 107 of 1998) and the Environmental Impact Assessment Regulations, 2014 (as amended)</p> <p>❖ GNR 517 Listing Notice 1 Activity 21</p> <p>❖ GNR 327 Listing Notice 1 Activity 26</p> <p>❖ GNR 327 Listing Notice 1 Activity 27</p> <p>❖ GNR 327 Listing Notice 1 Activity 28</p> <p>❖ GNR 324 Listing Notice 3 Activity 4</p> <p>❖ GNR 324 Listing Notice 3 Activity 12</p> <p>❖ GNR 324 Listing Notice 3 Activity 18</p>	<p>Part A(1)(d)(i) Listed and specified activities.</p>	<p>Application for environmental authorisation submitted to DMRE-KZN.</p> <p>Ref No: KZN 30/5/1/3/2/10817 MP</p>
<p>National Environmental Management: Air Quality Control Act, 2004 (Act No 39 of 2004) read together with applicable amendments and regulations thereto specifically the National Dust Control Regulations, GN No R827</p>	<p>Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – <i>Air and Noise Quality.</i></p> <p>Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk –</p>	The mitigation measures proposed for the site consider the NEM:AQA, 2004 and the National Dust Control Regulations.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.
	<i>Fugitive Dust Emission Mitigation Measures.</i>	
National Environmental Management Act: Biodiversity Act, 2004 (Act No. 10 of 2004) read together with applicable amendments and regulations thereto.	Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity - <i>Biological Environment</i> Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – <i>Management of Vegetation Removal & Management of invader plant species.</i>	The mitigation measures proposed for the site includes specifications of the NEM:BA, 2004.
National Environmental Management: Waste Act, 2008 (Act No 59 of 2008) read together with applicable amendments and regulations thereto. NEM:WA, 2008: National norms and standards for the storage of waste (GN 926)	Part A(1)(d)(ii) Description of the activities to be undertaken. Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – <i>Waste Management.</i>	The mitigation measures proposed for the site consider the NEM:WA.
National Forest Act, 1998 (Act No 84 of 1998)	Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – <i>Management of Vegetation Removal.</i>	The mitigation measures proposed for the site includes specifications of the NFA, 1998.
National Heritage Resources Act. 1999 (Act No 25 of 1999).	Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – <i>Human Environment.</i> Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – <i>Archaeological, Heritage and Palaeontological Aspects.</i>	The mitigation measures proposed for the site includes specifications of the NHRA, 1999. An application in terms of Section 41 of the said act was submitted to AMAFA on 04 August 2022 and approved and closed by AMAFA on 19 August 2022.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.
National Water Act, 1998 (Act No 36 of 1998) read together with applicable amendments and regulations thereto.	<p>Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – <i>Hydrology</i>.</p> <p>Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – <i>Mitigating the potential impact on the wetland system</i>.</p> <p>Part B(1)(d)(iii) Has a water use licence been applied for?</p>	<p>The mitigation measures proposed for the site includes specifications of the NWA, 1998.</p> <p>In January 2023 the proposed mining within 500 m of a wetland was authorised under general authorisation in terms of section 39 of the NWA, 1998 by the DWS.</p>
Electrical Machinery Regulations, 2011 of the Occupational Health and Safety Act, 1993 (Act No 85 of 1993)	Part A(1)(h)(iii) Summary of issues raised by I&AP's	The mining activities will be conducted in accordance with the said regulations.
Public Participation Guideline in terms of the NEMA EIA Regulations	Part A(1)(h)(ii) Details of the Public Participation Process Followed	Public participation was conducted in accordance with the guidelines published in terms of the NEMA EIA Regulations.
Alfred Duma Local Municipality Final Integrated Development Plan 2020/2021 (IDP).	Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – <i>Socio-economic Environment</i> .	The description of the study area's socio-economic status is in accordance with that of the IDP.

f) Need and desirability of the proposed activities.

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

The Remaining Extent of the farm Elands Spruit 5523 GS harbours an abandoned quarry that was historically (±1970's) mined for aggregate used in the road building industry. The application area is also approved for mining under a valid mining permit due to expire in 2023 (subject to approval of the renewals).

Raubex Construction (Pty) Ltd specialise in earthworks, surfacing and re-surfacing of roads with a client component that range from public bodies such as the Department of Transport, SANRAL and municipalities to private clients such as mines, malls and other small contractors requiring earthworks or surfacing services. The Applicant identified the

earmarked site in anticipation of a SANRAL road works tender to upgrade the N11 in the vicinity of Ladysmith, that was awarded in January 2023. The proposed mining area is ideally located to supply the anticipated road works project with fill material. The proposed mining activity will further guarantee the rehabilitation of the quarry on the Remaining Extent of the farm Elands Spruit 5523 GS, as it will be included in the closure conditions of the mining permit.

The proposed labour complement of the activity will be eleven employees (including management). The operation will contribute to the local economy of the area, both directly and through the multiplier effect that its presence will create. Equipment and supplies will be purchased locally, and wages will be spent at local businesses, generating both jobs and income in the area. Although the employees will not be resident on the site, they will be selected from the surrounding community.

The mining of the resource from the proposed site will benefit the general society in that it will contribute to the upgrading of road infrastructure of the region, thereby enabling road users to safely travel through the district. The upgrading and maintenance of roads is of high priority and contributes to the improvement of the infrastructure network of South Africa.

The need and desirability of the proposed project was assessed in terms of the National Department of Environmental Affairs' Guideline on Need and Desirability (first version published in terms of section 24J of the NEMA in 2014, and second version in 2017)). The following table shows the questions that were considered in this regard.

Table 5: Need and desirability determination.

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	Response	Level of Desirability
How were ecological integrity considerations taken into account?	<p>As discussed under Part A(1)(g)(iv)(1)(a) <i>Type of environment affected by the proposed activity</i>, the Mining and Biodiversity Map shows that the proposed footprint extends over an area of highest biodiversity importance, and a portion of the application area extends into a CBA: Optimal. The DFFE screening tool shows the animal theme as highly sensitive, the plant theme as medium, and the terrestrial biodiversity theme as very high.</p> <p>The Degraded Northern KwaZulu-Natal Moist Grassland community identified on site is in poor condition, highly degraded and infested with alien invasive vegetation. The CBA: Optimal section that extends into the mining permit footprint was also found to be heavily disturbed and degraded. The Mountain Aloe was the only protected plant species and/or species of special concern identified on site. None of the fauna highlighted as possible being present were found on site. The 2023 TBIA rates the overall post-mitigation impact of the proposed activity on the current vegetation- and faunal structure of the application area to be of moderately low - low significance during construction, and moderate – low significance during operation. It is the opinion of the specialist that the proposed project is environmentally acceptable from a terrestrial biodiversity perspective provided that the mitigation measures are implemented.</p> <p>Further to this, the proposed area does not extend across a SWSA, and no other aquatic/wetland features occur within the application area. The 2023 Wetland Assessment reasoned that through appropriate design, planning and impact mitigation the potential impact of the operation on the wetlands (±166 m removed) can be reduced to acceptably “low” impact significance levels. The specialist notes that the proposed development can be considered acceptable from an ecological perspective based on the provision that the various mitigation measures (proposed in this report) are strictly adhered to.</p> <p>The proposed project was also authorised under General Authorisation by the DWS, and the development of the additional stockpile area was authorised by EDTEA.</p>	Desirable
How will this development disturb or enhance ecosystems and/or result in the loss or protection of biological diversity?		

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES

How will this development impact on the ecological integrity of the area?

Question	Response	Level of Desirability
	<p>Also refer to:</p> <ul style="list-style-type: none"> ❖ Part A(1)(d)(ii) Description of the activities to be undertaken – Clearing of Vegetation; ❖ Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – Mining and Biodiversity; ❖ Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – Biodiversity Conservation Areas; ❖ Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – Groundcover; ❖ Part A(1)(h)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – Site Specific Terrestrial Biodiversity (including fauna and flora), ❖ Part A(1)(h)(viii) The possible mitigation measures that could be applied and the level of risk. 	
<p>How will this development pollute and/or degrade the biophysical environment?</p>	<p>Due of the nature of the proposed activity, it is inevitable that the present vegetation cover of the earmarked footprint will eventually be removed to allow access to the dolerite resource, only to be replaced (to some extend) during the rehabilitation phase. Taking the above mentioned into consideration, the TBIA (2023) concluded that the project may be allowed if the Mountain Aloes are relocated prior to bush clearance. Therefore, should the permit holder adhere to the conditions of the 2023 TBIA (incorporated into this report) it is believed that the impact on the biophysical environment is of acceptable significance.</p>	<p>Desirable</p>
<p>What waste will be generated by this development?</p>	<p>The general waste to be generated at the mine will mainly consist of paper, plastic, tin, and/or glass from the daily operations of the employees. All general waste will be contained in sealable refuse bins that will be placed at the weighbridge office until it is transported to a registered general waste landfill site. A registered contractor will service the chemical toilets and be responsible for the removal of the sewerage to a registered sewerage handling facility.</p> <p>As mentioned earlier, hazardous waste may result from accidental spillages/breakdowns. Such contaminated areas will immediately (within two hours of occurrence) be cleaned, and the contaminated soil will be contained in a designated hazardous waste container that will be kept in a bunded area with impermeable surface until it is removed from site by a registered</p>	<p>Highly Desirable</p>

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES

How will this development impact on the ecological integrity of the area?

Question	Response	Level of Desirability
	hazardous waste handling contractor to an approved facility. No waste will be disposed of, buried, burned, or treated on the site.	
How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage?	During the application process for the current mining permit (held by RBX-KZN), a Heritage Impact Assessment (HIA) was done by HCAC in collaboration with Dr Lloyd Rossouw. The HIA did not find any archaeological sites or artefacts of significance, and the palaeo report concluded that there are no major palaeontological grounds to suspend the proposed development provided that all excavations are restricted to within the boundaries of the footprint. Furthermore, AMAFA approved the application regarding the proposed development in August 2022. Concerning this, the proposed development will not impact any landscapes and/or sites that constitute the nation's cultural heritage.	Highly Desirable
How will this development use and/or impact on non-renewable natural resources?	If approved the Applicant will mine the resource identified on the Remaining Extent of the farm Elands Spruit No 5523. Presently, it is believed that the mineable area (4.9 ha) may have an inferred dolerite reserve of >2 000 000 m ³ . Based on the proposed production rate, the dolerite resource shows a potential life of mine of >6 years. Considering this, the permit holder will responsibly consume the resource on the property.	Highly Desirable
How will this development use and/or impact on renewable natural resources and the ecosystem of which they are part?	It is proposed that approximately 20 000 litres of water will be needed per day during the dry months (amount to decrease during the rainy season) to manage dust emissions from the proposed operation. As mentioned earlier, the contractor will strive to manage dust generation through alternative suppression methods to restrict water use to the absolute minimum. Presently, it is proposed that water will be bought from a legal source and transported to site. The contractor will be encouraged to consider the use of non-potable water for mining related activities. The use of solar power should also be considered as an alternative power source to the weighbridge.	Desirable
How were a risk-averse and cautious approach applied in terms of ecological impacts?	The Applicant will apply for a relocation permit of the aloes from KZN-Wildlife (Ezemvelo) prior to bush clearance. Bush clearance will only commence upon receipt of the applicable plant permit and relocation of the aloes. The environmental control	Highly Desirable

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES

How will this development impact on the ecological integrity of the area?

Question	Response	Level of Desirability
	officer (ECO) will assess the compliance of the permit holder with the conditions of the said permit. The permit holder is also committed to adhere to the conditions of the GA (issued by the DWS).	
How will the ecological impacts resulting from this development impact on people's environmental right?	The mine will be managed in accordance with the specifications of the lease agreement with the landowner and should the mitigation measures proposed in this document be implemented the potential visual-, dust-, and noise impacts associated with the mining operation will be of medium significance. If the monitoring programs, proposed in this document, is implemented it is believed that no environmental rights of the surrounding residents/public will be affected by ecological impacts associated with the proposed activity.	Highly Desirable
Describe the linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area in question and how the development's ecological impacts will result in socio-economic impacts.	If approved, the quarry will create at least eight new work opportunities to residents and will also contribute an additional source of income (compensation) to the landowner. It is proposed that the quarry will contribute to the local economy of the area, both directly and through the multiplier effect that its presence will create. Equipment and supplies will be purchased locally, and wages will be spent at local businesses, generating both jobs and income in the area. The mining of the resource from the proposed site will benefit the general society in that it will contribute to the upgrading of road infrastructure of the region, thereby enabling road users to safely travel through the district. The upgrading and maintenance of roads is of high priority and contributes to the improvement of the infrastructure network of South Africa.	Highly Desirable
Based on all of the above, how will this development positively or negatively impact on ecological integrity objectives/targets/considerations of the area?	If the mitigation measures proposed in this document are adhered to, the project entails the mining of the 4.9 ha area without influencing the status of the ecosystem type, red data species or the conservation targets set out for a CBA area. Also refer to:	Desirable
Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified, resulted	<ul style="list-style-type: none"> ❖ Part A(1)(d)(ii) Description of the activities to be undertaken – Clearing of Vegetation; ❖ Part A(1)(h)(i) Details of the development footprint alternatives considered; ❖ Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – Mining and Biodiversity; ❖ Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – Biodiversity Conservation Areas; 	

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES

How will this development impact on the ecological integrity of the area?

Question	Response	Level of Desirability
in the selection of the “best practicable environmental option” in terms of ecological considerations	<ul style="list-style-type: none"> ❖ Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – Groundcover; ❖ Part A(1)(h)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – Site Specific Terrestrial Biodiversity (including fauna and flora). 	

2. PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT

What is the socio-economic context of the area?

Question	Response	Level of Desirability
What is the socio-economic context of the area?	Please refer to Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – Socio-Economic Environment.	Highly Desirable
Considering the socio-economic context, what will the socio-economic impacts be of the development, and specifically also on the socio-economic objectives of the area?	If approved, the quarry will create at least eight new work opportunities to residents and will also contributed an additional source of income (compensation) to the landowner. It is proposed that the quarry will contribute to the local economy of the area, both directly and through the multiplier effect that its presence will create. Equipment and supplies will be purchased locally, and wages will be spent at local businesses, generating both jobs and income in the area. The mining of the resource from the proposed site will benefit the general society in that it will contribute to the upgrading of road infrastructure of the region, thereby enabling road users to safely travel through the district. The upgrading and maintenance of roads is of high priority and contributes to the improvement of the infrastructure network of South Africa.	
How will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities?		

2. PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT

What is the socio-economic context of the area?

Question	Response	Level of Desirability
Will the development result in equitable impact distribution, in the short- and long-term?	The proposed mine will be operated in a socially and economically sustainable manner during both the short- and long term. Raubex Construction (Pty) Ltd is focused on Historically Disadvantaged South Africans, especially women, empowerment. The procurement progression plan of the Applicant entails the support of local enterprises, of which preference will be given to HDSA & women owned local suppliers. Raubex Construction's employment equity is also in line with the provisions of the Employment Equity Act, 1998 (as amended).	Highly Desirable
In terms of location, describe how the placement of the proposed development will contribute to the area.	<p>Mining the resource on the property will contribute to the area in that the landowner will receive compensation, the project will create employment opportunities, and the use of the material will directly and indirectly promote the economy of the area as mentioned earlier. The quarry on the property will also be rehabilitated upon closure of this project.</p> <p>As mentioned earlier, the material to be mined at the quarry will be used at the SANRAL N11 roadworks project. During the meeting with the community members, municipal representatives, and ward councillor, the attendees emphasised the need for development and job creation in the region. Although the proposed mine will only appoint a small workforce (± 8 locals), the proposed operation forms part of the larger N11 upgrade that presents significant opportunities to SMME's and the unemployed as the contract stipulates that at least 6% of the project value must be spend on local labour. Further to this the CPG target of the project is 30% of the project value.</p>	Highly Desirable
How were a risk-averse and cautious approach applied in terms of socio-economic impacts?	No negative socio-economic impacts could, at this stage, be identified that cannot be managed through the implementation of mitigation measures included in this report.	Highly Desirable
How will the socio-economic impacts resulting from this development impact on people's environmental right?	As mentioned in Part A(1)(t)(i)(1) <i>Impact on the socio-economic conditions of any directly affected person</i> , the activity may have an impact on the visual characteristics of the surrounding environment and may affect air quality and the noise ambiance of the study area. However, the mine will be managed in accordance with the specifications of the lease agreement with the landowner and should the mitigation measures proposed in this document be implemented the potential visual-, dust-, and	Highly Desirable

2. PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT

What is the socio-economic context of the area?

Question	Response	Level of Desirability
	noise impacts associated with the mining operation will be of medium significance. If the monitoring programs, proposed in this document, is implemented it is believed that no environmental rights of the surrounding residents/public will be affected by the ecological impacts associated with the proposed activity.	
Considering the linkages and dependencies between human wellbeing, livelihoods and ecosystem services, describe the linkages and dependencies applicable to the area in question and how the development's socio-economic impacts will result in ecological impacts?	If approved, the quarry will create at least eight new work opportunities to residents and will also contributed an additional source of income (compensation) to the landowner. It is proposed that the quarry will contribute to the local economy of the area, both directly and through the multiplier effect that its presence will create. Equipment and supplies will be purchased locally, and wages will be spent at local businesses, generating both jobs and income in the area. The mining of the resource from the proposed site will benefit the general society in that it will contribute to the upgrading of road infrastructure of the region, thereby enabling road users to safely travel through the district. The upgrading and maintenance of roads is of high priority and contributes to the improvement of the infrastructure network of South Africa.	Highly Desirable
What measures were taken to pursue the selection of the "best practicable environmental option" in terms of socio-economic considerations?	If the mitigation measures proposed in this document are adhered to, the project entails the mining of the 4.9 ha area without influencing the status of the ecosystem type, red data species or the conservation targets set out for a CBA area. Should the permit application be approved, the project will directly contribute to the socio-economic status of the receiving environment through the employment of at least eight residents, support of the local economy, and development brought to the region as part of the N11 road upgrade. Also refer to: ❖ Part A(1)(h)(vii) The positive and negative impacts that the proposed activity and alternatives will have on the environmental and the community that may be affected.	Highly Desirable
What measures were taken to pursue environmental justice so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons?		
What measures were taken to pursue equitable access to environmental resources, benefits and	The mine will operate in accordance with, amongst others, the following: ❖ CARA, 1983 – to ensure agriculture related compliance;	Highly Desirable

2. PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT

What is the socio-economic context of the area?

Question	Response	Level of Desirability
<p>services to meet basic human needs and ensure human wellbeing, and what special measures were taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination?</p> <p>What measures were taken to ensure that the responsibility for the environmental health and safety consequences of the development has been addressed throughout the development's life cycle?</p>	<ul style="list-style-type: none"> ❖ Financial Provision Regulations, 2015 – to ensure compliance in terms of rehabilitation; ❖ Mine Health and Safety Act, 1996 (as amended) – to ensure employee safety; ❖ MPRDA, 2002 (as amended) – to ensure mining related compliance; ❖ NEM:AQA, 2004 – to ensure air quality related compliance; ❖ NEM:BA, 2004 – to ensure biodiversity related compliance; ❖ NEM:WA, 2008 – to ensure waste related compliance; ❖ NEMA, 1998 (as amended) – to ensure environmental related compliance; <p>As mentioned earlier, the Applicant is focussed on Historically Disadvantaged South Africans, especially women, empowerment. The procurement progression plan of the Applicant entails the support of local enterprises, of which preference will be given to HDSA & women owned local suppliers. Raubex Construction's employment equity is also in line with the provisions of the Employment Equity Act, 1998 (as amended).</p>	
<p>Considering the interests, needs and values of all the interested and affected parties, describe how the development will allow for opportunities for all the segments of the community that is consistent with the priority needs of the local area.</p>	<p>Presently, it is proposed that the mine will create a minimum of eight employment opportunities to residents. In a municipal area with an unemployment rate of 38%, new job opportunities are of high significance. Further to this, and as mentioned earlier, the procurement progression plan of Raubex Construction supports local enterprises, of which preferences are given to HDSA & women owned local suppliers (where possible).</p> <p>As mentioned earlier, the proposed operation forms part of the larger N11 upgrade that presents significant opportunities to SMME's and the unemployed as the contract stipulates that at least 6% of the project value must be spend on local labour. Further to this the CPG target of the project is 30% of the project value.</p>	Highly Desirable
<p>What measures have been taken to ensure that current and/or future workers will be informed of work that potentially might be harmful to human</p>	<p>The mine will operate in accordance with the specifications of the Mine Health and Safety Act, 1996 as well as the Occupational Health and Safety Act, 1993. Site management will arrange regular toolbox talks with the site personnel</p>	Highly Desirable

2. PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT

What is the socio-economic context of the area?

Question	Response	Level of Desirability
health or the environment or of dangers associated with the work, and what measures have been taken to ensure that the right of workers to refuse such work will be respected and protected.	regarding the work to be performed and the environment in which the work will take place. Grievances/concerns can be lodged during the toolbox sessions and site meetings.	
Describe how the development will impact on job creation in terms of, amongst other aspects?	As mentioned earlier, the proposed quarry will appoint ±11 employees (including management), of which at least eight will be from the surrounding area.	Highly Desirable
What measures were taken to ensure that the environment will be held in public trust for the people, that the beneficial use of environmental resources will serve the public interest, and that the environment will be protected as the people's common heritage.	The proposed mine will operate under a valid environmental authorisation and mining permit to be issued by the DMRE-KZN as well as a GA issued by the DWS. Compliance of the site with the approved EMPR, EA- and GA conditions will be reported on as per departmental specifications. Considering this, the proposed activity will take place in an environmentally sustainable manner with the least possible impact on the receiving environment.	Highly Desirable
Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left.	It is believed that the mitigation measures proposed in this document is realistic and can be implemented (when applicable) by the mine. As mentioned earlier, due to the impracticality of importing large volumes of fill to restore the quarry pit to its original topography, the rehabilitation option is to develop the quarry into a minor landscape feature that will be rendered safe upon final site closure. The benches will be top-dressed with topsoil and vegetated with an appropriate indigenous grass mix and the area will be returned to grazing. If the disturbed areas are successfully rehabilitated no long-term management burden will be left behind.	Highly Desirable
What measures were taken to ensure that the costs of remedying pollution, environmental degradation, and consequent adverse health effects and of	In terms of Section 41 of the MPRDA, 2002 a mining permit holder must submit a financial provision to the DMRE that is sufficient to rehabilitate or manage the negative environmental impacts related to the mining activity. Upon approval of this application, the Applicant will lodge a financial guarantee with the DMRE that will be deemed sufficient to cover the financial	Highly Desirable

2. PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT

What is the socio-economic context of the area?

Question	Response	Level of Desirability
preventing, controlling or minimising further pollution environmental damage or adverse health effects will be paid for by those responsible for harming the environment.	provision amount needed to rehabilitate the mining footprint. The environmental liability of the operation will annually be reviewed and if a shortfall is indicated, the guarantee will be accordingly adjusted.	
Considering the need to secure ecological integrity and a healthy bio-physical environment, describe how the alternatives identified, resulted in the selection of the best practicable environmental option in terms of socio-economic considerations	<p>If the mitigation measures proposed in this document are adhered to, the project entails the mining of the 4.9 ha area without influencing the status of the ecosystem type, red data species or the conservation targets set out for a CBA area.</p> <p>Also refer to:</p> <ul style="list-style-type: none"> ❖ Part A(1)(h)(vii) The positive and negative impacts that the proposed activity and alternatives will have on the environmental and the community that may be affected. 	Highly Desirable
Describe the positive and negative cumulative socio-economic impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and other planned developments in the area.	<p>The surrounding landscape is mainly used for agricultural purposes. East of the application area there are old coal mine heaps and as mentioned earlier the Collings Pass Road and N11 pass through the area. The Matiwane Community is ±2 km west of the site. The proposed project will be developed in co-operation with the landowner and create ±8 employment opportunities to residents of the area. The project will be of temporary nature (5 years maximum) and although it will add visual-, air- and noise impacts to the surroundings it is believed that these impacts can be mitigated to an acceptable level. The socio-economic benefit of mining the existing quarry as a material source for the upgrade of the N11 is however of substantial importance. Upon closure the quarry will be rehabilitated, and the area left in an acceptable manner for the landowner to continue the use of the camp.</p>	Highly Desirable

g) Motivation for the overall preferred site, activities, and technology alternative.

The project entails the extension of the existing quarry within the proposed GPS coordinates (Table 6). As no permanent infrastructure will be established, the production rate will dictate the layout of the proposed footprint area provided that all stockpiles are >200 m from the power lines.

The proposed site was identified as the preferred site and only viable site alternative based on the following:

- ❖ The existing quarry pit on the property remains unrehabilitated. Siting the proposed mining area in a greenfield site (higher up the koppie), while the existing quarry pit is not completely mined or rehabilitated is not deemed the best sustainable development option. Considering the above, the impacts associated with establishing a quarry pit in a greenfield site will have a high significance without the need or motivation to justify it.
- ❖ Should the Applicant be allowed to mine the area, the existing quarry will be rehabilitated as part of the closure requirements of this mining permit.
- ❖ The landowner uses the camp in which the proposed quarry will be established as a conditioning camp for cattle. Fencing the mining area from the rest of the activities on the farm will be relatively easy when the impact is contained in the lower corner of the camp.
- ❖ Containing the mining related activities to the already disturbed area on the farm, will reduce the visual impact on the surrounding environment.
- ❖ The existing farm road can be used to access the proposed mining area with minor upgrading needed.
- ❖ Moving the proposed mining area further to the east, will not only exclude the existing quarry pit from the mining area, but also move the mine too close to the adjacent power lines that pass the site ± 50 m to the east.
- ❖ Moving the mining area to the west is not possible as the Collings Pass Road borders the site.

- ❖ The mining area cannot be moved to the south as the resource which the Applicant intends to mine is concentrated on the hill and not found further to the south.
- ❖ The 2023 TBIA notes that the project is environmentally acceptable from a terrestrial biodiversity perspective, provided that the mitigation and management recommendations are strictly adhered to. The ecologist determined that the overall post-mitigation impact of the proposed activity on the current vegetation- and faunal structure of the application area will be of moderately low - low significance during construction, and moderate – low significance during operation.
- ❖ The 2023 Wetland Assessment confirmed that there are no wetlands/watercourses within the proposed footprint, and that the proposed site will not impact the adjacent wetland provided that the proposed mitigation measures are implemented.

During the environmental impact assessment process the feasibility of the proposed site alternative was assessed to identify fatal flaws that are deemed as severe as to prevent the activity continuing or warrant a site- or project alternative. The outcome of the assessment showed that should the mitigation measures and monitoring programmes proposed in this document be implemented, no fatal flaws could be identified that prevents the activity continuing. Considering the above, the mining proposal was updated to incorporate the project related mitigation measures and monitoring programmes identified during the assessment process. The preferred development footprint was subsequently finalized and is depicted on the attached site activities plan (Appendix C).

h) Full description of the process followed to reach the proposed preferred alternatives within the site.

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

i) Details of the development footprint alternatives considered.

With reference to the site plan provided as Appendix 4 and the location of the individual activities on site, provide details of the alternatives considered with respect to:

- (a) the property on which or location where it is proposed to undertake the activity;
- (b) the type of activity to be undertaken;
- (c) the design or layout of the activity;
- (d) the technology to be used in the activity;
- (e) the operational aspects of the activity; and
- (f) the option of not implementing the activity.

Site Alternative 1 (S1) (Preferred Site Alternative): Site Alternative 1 entails the expansion of the existing quarry within the GPS coordinates as listed in the table below and depicted in Figure 2 above.

Table 6: GPS Coordinates of Site Alternative 1 (preferred site alternative)

NUMBER	DEGREES, MINUTES, SECONDS		DECIMAL DEGREES	
	LAT (S)	LONG (E)	LAT (S)	LONG (E)
A	28°22'05.174"	29°56'23.636"	-28.368104°	29.939899°
B	28°22'01.211"	29°56'24.968"	-28.367003°	29.940269°
C	28°22'03.551"	29°56'37.694"	-28.367653°	29.943804°
D	28°22'07.241"	29°56'37.288"	-28.368678°	29.943691°

Site Alternative 1 was identified during the assessment phase of the environmental impact assessment, by the Applicant and project team, as the **preferred and only viable site alternative** due to the following:

- ❖ The existing quarry pit on the property remains unrehabilitated. Siting the proposed mining area in a greenfield site (higher up the koppie), while the existing quarry pit is not completely mined or rehabilitated is not deemed the best sustainable development option. Considering the above, the impacts associated with establishing a quarry pit in a greenfield site will have a high significance without the need or motivation to justify it.
- ❖ Should the Applicant be allowed to mine the area, the existing quarry will be rehabilitated as part of the closure requirements of this mining permit.
- ❖ The landowner uses the camp in which the proposed quarry will be established as a conditioning camp for his cattle. Fencing of the mining area from the rest of the activities on the farm will be relatively easy when the impact is contained in the lower corner of the camp.
- ❖ Containing the mining related activities to the already disturbed area on the farm, will reduce the visual impact on the surrounding environment.
- ❖ The existing farm road can be used to access the proposed mining area with minor upgrading needed.
- ❖ Moving the proposed mining area further to the east, will not only exclude the existing quarry pit from the mining area, but also move the mine too close to the adjacent power lines that passes the site ± 50 m to the east.
- ❖ Moving the mining area to the west is not possible as the Collings Pass Road borders the site.

- ❖ The mining area cannot be moved to the south as the resource which the Applicant intends to mine is concentrated on the hill and not found further to the south.
- ❖ The 2023 TBIA notes that the project is environmentally acceptable from a terrestrial biodiversity perspective, provided that the mitigation and management recommendations are strictly adhered to. The ecologist determined that the overall post-mitigation impact of the proposed activity on the current vegetation- and faunal structure of the application area will be of moderately low - low significance during construction, and moderate – low significance during operation.
- ❖ The 2023 Wetland Assessment confirmed that there are no wetlands/watercourses within the proposed footprint, and that the proposed site will not impact the adjacent wetland provided that the proposed mitigation measures are implemented.

Considering the above mentioned, S1 is believed to be the most practical alternative as the area was previously approved for mining, there is an existing quarry, topsoil and/or overburden layer of the footprint is relatively shallow, the resource is of good grade, access and rehabilitation is simplified, and the environmental related impacts are acceptable.

No-go Alternative: The no-go alternative entails no change to the *status quo* and is therefore a real alternative that must be considered. The resource to be mined will be used for road rehabilitation/maintenance and associated construction industry; if however, the no-go alternative is implemented the Applicant will not be able to exploit the mineral resource on the property.

The no-go alternative was not deemed to be the preferred alternative as:

- ❖ the Applicant will not be able to utilize the resource deposit available within the proposed mining area, and will need to acquire fill material for the N11 national road upgrade from other commercial sources, which will increase the building cost;
- ❖ the existing quarry pit on the property will not be rehabilitated as a requirement of this project;
- ❖ the landowner will not receive compensation from the Applicant, and in so doing diversity the income generated from the property;
- ❖ the proposed job opportunities, associated with the development of the quarry, will be lost to the surrounding community.

ii) Details of the Public Participation Process Followed

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

English and isiZulu site notices that invited comments on the project and the DBAR were placed at the site entrance, Matiwane Community, turnoff from the N11 onto the Collings Pass Road, as well as the Ladysmith Library on 20 September 2022. As the southern neighbour (represented by Me Khumalo) does not have access to email, a meeting was held with her on 20 September 2022 in Ladysmith where the project was explained, and any comments invited. Me Khumalo was also supplied with an isiZulu Executive Summary of the DBAR for her perusal and commenting.

The project was advertised in the Ladysmith Gazette (30 September 2022), and isiZulu flyers explaining the project were distributed in Matiwane. Stakeholders and I&AP's were informed of the project with notification letters. The newspaper advertisement, flyers, and notification letters all invited comments on the project as well as the DBAR. A hard copy of the DBAR (with isiZulu executive summary) was also available at the Ladysmith Library for 30 days. The commenting period for perusal of the documents (listed above as well as the DBAR) and submission of comments ended 31 October 2022.

Due to a *bona fide* error on the earlier public documents, an erratum advertisement (in English and isiZulu) was placed in the Ladysmith Gazette on 11 November 2022. English and isiZulu on-site notices correcting the earlier error were placed on 10 November 2022 at the site entrance, Matiwane Community, the Stolo Phezulu Shop, the turnoff from the N11 onto the Collings Pass Road, as well as the Ladysmith Library. The stakeholders and I&AP's were also notified (11 November 2022) of the error on the earlier documents and the commenting period was extended until 12 December 2022. I&AP's and stakeholders were also invited to comment on the updated TBIA and the 2022 Wetland Opinion on/or before 12 December 2022. Upon request, a meeting was held with the ward councillor and community representatives in Ladysmith on 23 November 2022 where the project was discussed.

The comments received during the initial public participation period (30 September 2022 – 31 October 2022), and the extended commenting period on the DBAR (11 November 2022 – 12 December 2022), were incorporated into this amended DBAR.

Subsequently, the project team commissioned an additional (2023) Wetland Assessment and Terrestrial Biodiversity Impact Assessment that were ultimately incorporated into this amended DBAR. The amended DBAR will be available for a 30-days commenting period that will expire on 20 March 2023. Any comments received on the amended DBAR will be incorporated into the final BAR to be submitted to the DMRE for approval.

The following I&AP's and stakeholders were thus far consulted with regarding the project:

Table 7: List of the I&AP's and stakeholders that were consulted with during the application.

SURROUNDING LANDOWNERS & INTERESTED AND AFFECTED PARTIES	STAKEHOLDERS
<p><u>Landowner:</u></p> <ul style="list-style-type: none"> ❖ Mr FP Oosthuizen Remaining Extent of the farm Elands Spruit No 5523; Portion 4 of the farm Elands Laagte No 1239; Portion 20 of the farm Elands Laagte No 1239. <p><u>Surrounding landowners & lawful occupiers:</u></p> <ul style="list-style-type: none"> ❖ Mr WS Mitchell-Innes (care of Mr IF Mitchell-Innes); Portion 6 of the farm Roode Poort No 1045. ❖ Matiwane Trust (care of the ward councillor); Portion 2 of the farm Elands Spruit No 5523. ❖ Me Z Khumalo (lawful occupier); ❖ Me H Mitchell-Innes (care of Mr IF Mitchell-Innes) Elands Spruit No 16154; ❖ Rotimode (Pty) Ltd (prospecting right holder); ❖ Mr S Zwane (I&AP); ❖ Bukhali Environmental Resource Consulting on behalf of Afrimat Aggregates (Pty) Ltd (I&AP). 	<ul style="list-style-type: none"> ❖ Alfred Duma Local Municipality; ❖ Alfred Duma Municipal Ward Councillor (Ward 23); ❖ Alfred Duma Municipal Ward Councillor (Ward 24); ❖ AMAFA / Heritage KZN; ❖ Department of Agriculture and Rural Development; ❖ Department of Agriculture, Land Reform and Rural Development (National); ❖ Department of Economic Development, Tourism and Environmental Affairs; ❖ Department of Human Settlements, Water and Sanitation; ❖ Department of Labour; ❖ Department of Transport; ❖ Eskom Ltd (Distribution and Transmission); ❖ Ezemvelo / KZN Wildlife; ❖ SANRAL; ❖ South African Heritage Resources Agency; and ❖ uThukela District Municipality.
ENTITIES THAT COMMENTED/RESPONDED ON THE PROJECT	
<ul style="list-style-type: none"> ❖ Bukhali Environmental Resource Consulting on behalf of Afrimat Aggregates (Pty) Ltd; ❖ Cllr. TP Dlamini (Ward 23); ❖ Department of Agriculture and Rural Development; ❖ Eskom Ltd; and ❖ Mr S Zwane. 	

Refer to the following table for an explanation on how the public participation process of this project took the methods stipulated in Regulation 41 of the NEMA Regulations into account. Proof of the public participation process that was followed is attached as Appendix F to this document.

Table 8: Table comparing the required methods with the public participation process of this project.

REQUIREMENTS IN TERMS OF NEMA REGULATION 41	PUBLIC PARTICIPATION PROCESS FOLLOWED
<ul style="list-style-type: none"> ❖ Regulation 41(2)(a): <i>Fixing a notice board at a place conspicuous to and accessible by the public at the boundary, on the fence or along the corridor of-</i> <ul style="list-style-type: none"> (i) <i>The site where the activity to which the application or proposed application relates is or is to be undertaken; and</i> (ii) <i>Any alternative site.</i> ❖ Regulation 41(3): <i>A notice, notice board or advertisement referred to in subregulation (2) must—</i> <ul style="list-style-type: none"> (a) <i>give details of the application or proposed application which is subjected to public participation; and</i> (b) <i>state—</i> <ul style="list-style-type: none"> (i) <i>whether basic assessment or S&EIR procedures are being applied to the application;</i> (ii) <i>the nature and location of the activity to which the application relates;</i> (iii) <i>where further information on the application or proposed application can be obtained; and</i> (iv) <i>the manner in which and the person to whom representations in respect of the application or proposed application may be made.</i> ❖ Regulation 41(4): <i>A notice board referred to in subregulation (2) must—</i> <ul style="list-style-type: none"> (a) <i>be of a size of at least 60cm by 42cm; and</i> (b) <i>display the required information in lettering and in a format as may be determined by the competent authority.</i> 	<p>Notice boards in both English and isiZulu were fixed at the following conspicuous and public accessible areas:</p> <ul style="list-style-type: none"> ❖ Entrance to the farm/site; ❖ Public area at an intersection in the Matiwane Community; ❖ Turnoff from the N11 onto the Collings Pass Road; and ❖ Ladysmith Library. <p>Erratum notification boards (English and isiZulu) were also placed at the following public accessible areas:</p> <ul style="list-style-type: none"> ❖ Entrance to the farm/site; ❖ Public area at an intersection in the Matiwane Community; ❖ Stolo Phezulu Shop; ❖ Turnoff from the N11 onto the Collings Pass Road; and ❖ Ladysmith Library. <p>All the notice boards that were placed complied with the requirements of Regulation 41(3) as presented in Appendix F2 attached to this document.</p> <p>The notices were printed on boards of 60 x 42 cm in Arial font of sufficient size.</p>

REQUIREMENTS IN TERMS OF NEMA REGULATION 41	PUBLIC PARTICIPATION PROCESS FOLLOWED
<p>❖ Regulation 41(2)(b): <i>giving written notice, in any of the manners provided for in section 47D of the Act, to-</i></p> <ul style="list-style-type: none"> (i) <i>the occupiers of the site and, if the proponent or applicant is not the owner or person in control of the site on which the activity is to be undertaken, the owner or person in control of the site where the activity is or is to be undertaken and to any alternative site where the activity is to be undertaken;</i> (ii) <i>owners, persons in control of, and occupiers of land adjacent to the site where the activity is or is to be undertaken and to any alternative site where the activity is to be undertaken;</i> (iii) <i>the municipal councillor of the ward in which the site and alternative site is situated and any organisation of ratepayers that represent the community in the area;</i> (iv) <i>the municipality which has jurisdiction in the area;</i> (v) <i>any organ of state having jurisdiction in respect of any aspect of the activity;</i> (vi) <i>any other party as required by the competent authority;</i> 	<ul style="list-style-type: none"> (i) The Landowner (and Applicant) signed an agreement regarding this project and is kept apprised of the EIA (BA) process. To date, no additional comments were received. (ii) The surrounding landowner were invited to comment on the project and the DBAR. This invitation will also be extended toward the amended DBAR. (iii) The Ward Councillors of both Wards 23 and 24 were invited to comment on the project and DBAR, and a meeting was held to discuss the project. No ratepayers association could be identified in the area. The councillors will also be invited to comment on the amended DBAR. (iv) Both the Alfred Duma Local Municipality and the uThukela District Municipality were invited to comment on the project and DBAR. The Mayor of the Alfred Duma Local Municipality joined the ward councillor's meeting, and the meeting was chaired by the Speaker of the Mayor. Both municipalities will also be invited to comment on the amended DBAR. (v) As listed in Table 7 the relevant state departments and entities were invited to comment on the project and DBAR. This invitation will also be extended toward the amended DBAR. (vi) All the above mentioned entities were also supplied with the erratum notice and invited to comment on the updated TBIA and 2022 Wetland Opinion.
<p>❖ Regulation 41(2)(c): <i>Placing an advertisement in-</i></p> <ul style="list-style-type: none"> (i) <i>One local newspaper; or</i> (ii) <i>any official Gazette that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations.</i> 	<ul style="list-style-type: none"> ❖ The project and availability of the DBAR was advertised in the Ladysmith Gazette in both English and isiZulu. ❖ The erratum advertisement was also published in both languages in the Ladysmith Gazette.
<p>❖ Regulation 41(2)(d): <i>Placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or district municipality in which it is or will be undertaken...</i></p>	<p>Not applicable, as the proposed activity will not extend beyond the boundaries of the metropolitan or district municipality in which it will be undertaken.</p>
<p>❖ Regulation 41(2)(e): <i>Using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desirous of but unable to participate in the process due to—</i></p>	<p>❖ A meeting was held with Me Khumalo (in Ladysmith) to request her comments on the project, as the Khumalo's do not have access to platforms such as websites and do not make use of email. In addition to the physical meeting held</p>

REQUIREMENTS IN TERMS OF NEMA REGULATION 41	PUBLIC PARTICIPATION PROCESS FOLLOWED
<p>(i) illiteracy; (ii) disability; or (iii) any other disadvantage.</p>	<p>with Me Khumalo, she was also supplied with a copy of the isiZulu Executive Summary of the DBAR through WhatsApp as this was the most convenient way for her to access the document. Me Khumalo will also be invited to comment on the amended DBAR if interested.</p> <ul style="list-style-type: none"> ❖ Apart from informing the ward councillors, on behalf of the Matiwane Community, of the project and availability of the DBAR, 2 500 isiZulu flyers were also distributed in and around the Matiwane Community by a professional media distribution company (Vibrant Direct). The project description was illustrated (images and pictures) on the flyers to simplify comprehension. ❖ A hard copy of the DBAR with an isiZulu executive summary was placed at the Ladysmith Library for ease of perusal by the public that does not have access to the internet. The availability of the DBAR at the Library was advertised in all the public participation documents that were distributed. ❖ A meeting was held with Cllr TP Dlamini, four community members and the Speaker of the Mayor in Ladysmith on 23 November 2022.
<ul style="list-style-type: none"> ❖ Regulation 41(5): <i>Where public participation is conducted in terms of this regulation for an application or proposed application, subregulation (2)(a), (b), (c) and (d) need not be complied with again during the additional public participation process contemplated in regulations 19(1)(b) or 23(1)(b) or the public participation process contemplated in regulation 21(2)(d)...</i> 	<ul style="list-style-type: none"> ❖ Not applicable to this application.
<ul style="list-style-type: none"> ❖ Regulation 41(6): <i>When complying with this regulation, the person conducting the public participation process must ensure that—</i> <ul style="list-style-type: none"> (a) <i>information containing all relevant facts in respect of the application or proposed application is made available to potential interested and affected parties; and</i> (b) <i>participation by potential or registered interested and affected parties is facilitated in such a manner that all potential or registered interested and affected parties are provided with a reasonable opportunity to comment on the application or proposed application.</i> 	<ul style="list-style-type: none"> ❖ The DBAR containing all relevant facts in respect of the application was available to potential I&AP's for perusal and commenting over a 30-days commenting period. The DBAR was available on the company (Greenmined) website as well as in hard copy in the application area. I&AP's were invited to contact the EAP should additional information be required. ❖ The erratum notice was publicly advertised and directly sent to all I&AP's and stakeholders, and the commenting period was extended with another 30 days (until 12 December 2022). ❖ The updated TBIA and 2022 Wetland Opinion were available on the company website and comments on the documents were invited over a 30-days commenting period (12 December 2022).

REQUIREMENTS IN TERMS OF NEMA REGULATION 41	PUBLIC PARTICIPATION PROCESS FOLLOWED
	<ul style="list-style-type: none"> ❖ The amended DBAR, inclusive of the 2023 Wetland Assessment and TBIA, will be made available to the I&AP's and stakeholders for perusal and commenting over a 30-days commenting period. The amended DBAR will be available on the company (Greenmined) website. I&AP's and stakeholders will be invited to contact the EAP should additional information or a hard copy of the document be required.
<ul style="list-style-type: none"> ❖ Regulation 41(7): <i>Where an environmental authorisation is required in terms of these Regulations and an authorisation, permit or licence is required in terms of a specific environmental management Act, the public participation process contemplated in this Chapter may be combined with any public participation processes prescribed in terms of a specific environmental management Act, on condition that all relevant authorities agree to such combination of processes.</i> 	<ul style="list-style-type: none"> ❖ Not applicable to this project.

iii) Summary of issues raised by I&AP's

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

Table 9: Summary of issues raised by IAPs

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 Received	Comments	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
AFFECTED PARTIES	X	-	-	-	-
Landowner/s		-	-	-	-
Mr FP Oosthuizen ❖ Remaining Extent of the farm Elands Spruit No 5523; ❖ Portion 4 of the farm Elands Laagte No 1239; ❖ Portion 20 of the farm Elands Laagte No 1239.	X	Mr Oosthuizen supports the application and signed a landowner agreement with the Applicant. Mr Oosthuizen was also invited to comment on the DBAR; however, no additional comments were received.			
Lawful occupier/s of the land	-	-			
Me Khumalo ❖ Lawful occupier south of the application area.	X	20 September 2022	A meeting was held with Me Khumalo (in Ladysmith) to inform her of the application. The meeting was held in English and isiZulu, and English and isiZulu pamphlets introducing the project were also handed to Me Khumalo during the meeting. Me Khumalo mentioned that she is concerned with the effect that blasting at the quarry will have on the integrity of their houses as well as their cattle, she also mentioned the potential of flyrock falling on their infrastructure. It was explained to Me Khumalo that prior to the first blast an assessment of the structural integrity of their houses will be done. They will be notified prior to each blast and vibration monitoring will be done with each blast. Should the results indicate that the blast has a real impact on the infrastructure, the blast designs will be amended. Any damage to the infrastructure as a direct result of the mining	Appendix F2 – Proof of Public Participation Process	

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			activities will be refurbished by the permit holder at his cost. Prior to each blast the perimeter of the quarry will be checked for animals. Notice of the blast will be well in advance to allow the surrounding landowners time to move their cattle away from the quarry. Any flyrock that may fall outside the permit boundary will be collected by the permit holder after each blast. Me Khumalo was also invited to comment on the DBAR. No additional comments were received.		
	05 October 2022		Following earlier discussions with Me Khumalo, the isiZulu Executive Summary of the DBAR was sent to Me Khumalo for her perusal and commenting. No comments were received from Me Khumalo.		
	11 November 2022		The erratum notice was sent to Me Khumalo. No comments were received from Me Khumalo.		
Rotimode (Pty) Ltd ❖ Holder of a prospecting right over the property.	X		No comments were received from Rotimode (Pty) Ltd on the proposed project.		
Landowners or lawful occupiers on adjacent properties	X	-			
Mr WS Mitchell-Innes (care of Mr IF Mitchell-Innes) ❖ Portion 6 of the farm Roode Poort No 1045	X		No comments were received from Mr Mitchel-Innes on the proposed project.		
Mr SB Mgaga ❖ Portion 1 of the farm Roode Poort No 1045	X	After numerous attempts to contact Mr Mgaga and request his comments on the project, no reply was received.			

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Matiwans Kop Trading Co ❖ Portion 2 of the farm Elands Spruit No 5523	X	After numerous attempts to contact the Matiwane Kop Trading Co (Mr Ali) and request their comments on the project, no reply was received.			
Me F Mitchell-Innes (care of Mr IF Mitchell-Innes) ❖ Elands Spruit No 16154	X	No comments were received from Mr Mitchel-Innes on the proposed project.			
❖ Matiwane Community (care of the ward councillor)	X	Refer to comments listed under Cllr. Dlamini below.			
Municipal councillor		-	-	-	-
Cllr. Thobani Dlamini (Ward 23)	X	15 November 2022	Cllr Dlamini requested a meeting to discuss the proposed project.	A meeting was arranged with Cllr. Dlamini on 23 November 2022 at the Alfred Duma municipal offices in Ladysmith.	Appendix F2 – Proof of Public Participation Process
Attendees: ❖ Cllr T.P Dlamini (Ward 23 Councillor); ❖ Mr S Sithole (Community Representative); ❖ Mr J.B Madondo (Speaker of the Mayor); ❖ Mr S.C Ngubane (Councillor’s Secretary); ❖ Mr W.S.Z Kunene (Community Representative); ❖ Mr T.F Nkomonde (Community Representative); ❖ Mr G Catin (Raubex Construction (Pty) Ltd Representative); and					

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<p>❖ Ms C Fouche (EAP).</p> <p>Summary of the discussions held with Cllr Dlamini and the community representatives on 23 November 2022:</p> <p>Mr Catin introduced the pending SANRAL N11 construction project to the meeting, as the proposed mine (<i>this application</i>) on the farm Elands Spruit will be developed in support of the N11 project. Following this, Ms Fouche explained the mining permit application and associated EIA process to the meeting.</p> <p>Mr Madondo observed that job creation is of high importance in the municipality and enquired how the proposed projects (N11 upgrade & proposed mine) will benefit the community. It was explained that the most employment and SMME opportunities will originate from the N11 construction project as the contract stipulates that at least 6% of the project value must be spend on local labour. Further to this the CPG target of the project is 30% of the project value. The proposed mining (<i>this application</i>) on the farm Elands Spruit will create ±8 employment opportunities if the Applicant is successful in winning the tender for the N11 construction project and the mine is developed.</p> <p>Mr Madondo suggested to Cllr Dlamini that a suggestion box be placed at the municipality where interested parties can comment and preferably support the proposed project. It was also suggested that the councillor send an email to Greenmined on behalf of the mayor's office in support of the proposed project.</p> <p>The maintenance of Collings Pass Road (during the operational phase of the quarry) was discussed at the meeting, as the community members were concerned that the trucks transporting material may destroy the road. It was explained that Collings Pass Road is governed by the Department of Transport (DoT) and the Applicant will need permission from DoT before maintenance/upgrades can be done on the road. It was agreed that if the mining permit was approved the Applicant will liaise with the DoT regarding maintenance of the road (Collings Pass Road) between the quarry and the N11 for the lifespan of the mine. The community reiterated that the condition of the road may not deteriorate because of the proposed mining activities.</p> <p>The possible placement of road signage along the N11 showing the turnoff to Matiwaneskop was also discussed. It was agreed that the possibility of such signage will be investigated further once the N11 construction project commences.</p> <p>The Mayor joined the meeting and reiterated that the municipality appreciates the projects coming to their area. The attendees also noted their appreciation that they were contacted and informed of the proposed projects (mining application and pending N11 project) as this will enable them to explain the development in the area to their community.</p> <p>The attendees were all provided with a document explaining the proposed mining project that they could use when talking to the community. The mining project was also explained (at the meeting) with the use of A3 layout maps.</p>					

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<i>To date no additional comments/response was received from the councillor and/or community.</i>					
<p>List of references where the comments from the meeting were incorporated into this report:</p> <ul style="list-style-type: none"> ❖ Part A(1)(d)(ii) Description of the activities to be undertaken – 2. Operational Phase; ❖ Part A(1)(h)(viii) The possible mitigation measures that could be applied and the level of risk – Management of the Access Road; ❖ Part A(1)(m) Proposed impact management objectives and the impact management outcomes for inclusion in the EMPR; ❖ Part B(1)(d)(iv) Impacts to be mitigated in their respective phases; ❖ Part B(1) Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon, including g) – k). ❖ Appendix F1: Comments and Response Report ❖ Appendix F2: Proof of Public Participation Process 					
Cllr. Thembinkosi Ngcobo (Ward 24)	X	No comments were received from the ward councillor on the proposed project.			
Municipality		-	-	-	-
Alfred Duma Local Municipality	X	Refer to the above summary of the meeting held at the Alfred Duma Local Municipality on 23 November 2022.			
Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA e	-	-	-	-	-
Department of Transport	X	No comments were received from the Department of Transport on the proposed project.			

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Eskom Ltd	X	11 November 2022	Me Samantha Naicker from the Land Development section of Eskom requested layout plans and additional project information.	Greenmined supplied the requested information on 16 November 2022, upon which the following comments were received from Eskom.	Appendix F2 – Proof of Public Participation Process

Summary of the comments received from the Distribution division of Eskom on 17 November 2022:

“...Eskom 11-kV Overhead Lines are the only Distribution assets showing to exist on our system....There are also 275-kV Transmission Overhead Lines located within the application areas, please contact Miss Lungile Motsisi, Transmission Division of Eskom for comments....

The following Eskom Distribution regulations shall apply.

Building Restrictions for a 11-kV Overhead Power Lines:

No building or structures may be erected or installed above or below the surface of the ground, neither may any material which might endanger the safety of this power line be placed within 12 (twelve) metres from the centre line of this power line, or either side (overall servitude width 24 metres).

The applicant will adhere to all relevant environmental legislation. Any cost incurred by Eskom as a result of non-compliance will be charged to the applicant. Dimensions and specifics will be in accordance to ESKOM standards so as to not obstruct Eskom’s existing infrastructure in any way.

Eskom shall not be liable for the death of or injury to any person or for the loss of or damage to any property whether as a result of the encroachment or of the use of the servitude area by the applicant, his/her agent, contractors, employees, successors in title, and assigns.

The applicant indemnifies Eskom against loss, claims or damages including claims pertaining to consequential damages by third parties and whether as a result of damages to or interruption of or interference with Eskom’s services or apparatus or otherwise. Eskom will not be held responsible for damage to the applicant’s equipment. The applicant’s attention is drawn to the Electricity Act, 1987, (Act 41 of 1987, as amended in 1994), Section 27(3), which stipulates that the applicant can be fined and/or imprisoned as a result of damage to Eskom’s apparatus.

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<p>No mechanical equipment, including mechanical excavators or high lifting machinery, shall be used in the vicinity of Eskom's apparatus and/or services, without prior written permission having been granted by Eskom. If such permission is granted the applicant must give at least seven working days prior notice of the commencement of work. This allows time for arrangements to be made for supervision and/or precautionary instructions to be issued.</p> <p>The clearances between Eskom's live electrical equipment and the proposed construction work shall be observed as stipulated by Regulation 15 of the Electrical Machinery Regulations of the Occupational Health and Safety Act 85 of 1993. Equipment shall be regarded electrically live and therefore dangerous at all times.</p> <p>Mining and the use of explosives of any type within 500 metres of Eskom's services shall only occur with Eskom's prior written permission. If such permission is granted the applicant must give at least fourteen working days prior notice of the commencement of blasting. This allows time for arrangements to be made for supervision and/or precautionary instructions to be issued in terms of the blasting process. Refer to the attached application form.</p> <p>Any third party servitudes encroaching on Eskom land shall be registered against Eskom's Notaries deed at the applicant's own cost. If such servitude is brought into being, its existence should be endorsed on the Eskom servitude deed concerned, while the third party's servitude deed must also include the rights of the affected Eskom servitude.</p> <p>A developer taking a new supply from Eskom, an increase of supply or line deviation is required to make an application to Eskom via the Eskom toll free number 0860037566. This application will be processed in terms of Eskom's standard customer connection tariffs, conditions and policies at the developers cost.</p> <p>Customers requiring Substation or Powerlines to be installed for their purposes/supply their development must grant all servitudes (a piece of ground on the property to be developed) to Eskom at no cost.</p> <p>Prior any construction activities, the applicant is required to contact Eskom and detailed Surveyed Plans are to be submitted to this office. This letter outlines the Eskom (Distribution) building restrictions and is by no means an approval for construction works.</p>					
<p>Mr Samke Ndlovu submitted the following additional comments from the Distribution division of Eskom on 22 November 2022:</p> <p>"...As per the information on your application, the following are the only Eskom assets showing to exist on our system.</p>					

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<p>❖ Platberg NB33 11kV Line</p> <p>...Eskom has no objection to the proposed application as long as the conditions listed below are adhered to and considerations made for all Eskom's infrastructure when planning or developing the area.</p> <p>It is very important to note that Eskom's LV data is not reflected on the drawing supplied. It is advisable you contact Eskom immediately, should you physically detect any conductors and/or underground cables on the ground and not reflected on the drawing. Eskom's call centre number is 08600 37566. It is imperative that you make contact with Eskom's Senior Supervisor, Mr Brad Cooper on 031 782 7903 / 064 902 3003 and email cooperbj@eskom.co.za before construction close to Eskom's infrastructure. There should be at least a week (seven days) notice prior to construction. A site agreement form should be signed at the site meeting by all parties concerned....."</p> <p>Mr Ndlovu listed the same Building Restrictions for a 11-kV Overhead Power Line as included in the previous row.</p>					
<p>On 30 November 2022, Nomzamo Mdunyelwa submitted the following questions from the Transmission division of Eskom that was responded to on 06 December 2022 by Greenmined:</p> <p><i>1. The application has no blast design – please include</i></p> <p>Seeing that this application is still pending approval at the DMRE, the mine does not yet have a blast design. The Applicant will however submit all appropriate applications and designs to Eskom once the mining permit application was approved and the proposed mining activity may continue. No blasting will take place at the mine prior to receipt of the applicable permits/permissions from Eskom.</p> <p><i>2. How high is the stockpile and what measures are in place to ensure that there is dust suppression. It seems like a very large area marked out, we do not want any pollution settling on the powerlines which could cause flashovers.</i></p> <p>If approved the mining permit area will be 4.9 ha in total, and the proposed stockpile area (adjacent to the mining permit area) will be 10.5 ha. None of the application areas require the stockpiling of material underneath or within 45 m of the power line. The maximum height of the stockpiles will be 10 m. The potential dust impact of material stockpiled in the mining permit area on the nearby power line is deemed of low probability as the prevalent wind direction of the region is in a north-western direction for most of the year. This means that the wind will carry dust that may be generated at the mining area away from the power line. Dust will daily be mitigated at the stockpile area through the following means that were included in the EMPR to be implemented during the operational phase of the project:</p>					

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<ul style="list-style-type: none"> • The liberation of dust into the surrounding environment must be effectively controlled using, inter alia, straw, water spraying and/or environmentally friendly dust-allaying agents that contains no PCB's (e.g. DAS products). • The site manager must ensure continuous assessment of all dust suppression equipment to confirm its effectiveness in addressing dust suppression. • Speed on the haul roads must be limited to 20 km/h and 40 km/h on the access road to prevent the generation of excess dust. • Areas devoid of vegetation, which could act as a dust source, must be minimized and vegetation removal may only be done immediately prior to mining. • The crusher plant must have operational water sprayers to alleviate dust generation from the conveyor belts. • Fines, blowing from the drop end of the crusher plant, can be minimized by attaching strips of used conveyor belts to the conveyor's end. • Compacted dust must weekly be removed from the crusher plant to eliminate the dust source. • Loads must be flattened to prevent spillage during transportation on public roads. • Weather conditions must be taken into consideration upon commencement of daily operations. Limiting operations during very windy periods would reduce airborne dust and resulting impacts. • All dust generating activities shall comply with the National Dust Control Regulations, GN No R827 promulgated in terms of NEM:AQA (Act 39 of 2004) and ASTM D1739 (SANS 1137:2012). • Best practice measures shall be implemented during the stripping of topsoil, excavation, and transporting of material from site to minimize potential dust impacts. 					
<p>If required the monitoring of fallout dust levels could also be implemented at the stockpiling area to ensure adequate dust levels that complies with Eskom standards to prevent flashovers.</p>					
<p><i>3. Will our grid persons have access to do maintenance?</i></p> <p>The grid personnel will at all times have access to the power line and servitude to do maintenance.</p>					
<p><i>4. Is the applicant planning to use any large machinery in our servitude or near the powerline? If so, they must state it so that we can check clearances.</i></p> <p>The operation of the mining area does not require any large machinery to be moved underneath the powerline. The machinery will enter the site from the Collings Pass Road onto the farm road and then enter the mining permit area without crossing the power line.</p>					
<p>Should the stockpile area be approved and established, the mobile crusher plant will be the highest machine that would need to cross below the power line (once during site establishment). The crusher will also have to be removed at the end of the project. The height of the crusher plant (in transit) is ±4.5 m. During the operational phase only tipper</p>					

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<p>trucks and a front end loader will need to traverse the power line. The clearances between Eskom’s live electrical equipment and any project related machinery shall be observed as stipulated by Regulation 15 of the Electrical Machinery Regulations of the Occupational Health and Safety Act 85 of 1993. Equipment shall be regarded electrically live and therefore dangerous at all times. No large equipment will be moved underneath the power line without written permission from Eskom. It must also be mentioned that the adjacent 11 kV power line will dictate the maximum height of machinery that can pass underneath the power line infrastructure, once the machinery are cleared to pass underneath the 11 kV power line, it will easily comply with the ground clearance requirements for a 275 kV power line.</p> <p><i>5. I’m also not sure if this is shallow mining or deep mining, nevertheless no mining under the powerline is allowed. Around the towers we should ensure a 20m radius.</i></p> <p>All mining will be confined to the actual footprint of the application (4.9 ha) that does not extend into, or nearer than ±45 m to the power line. There will be no excavations nearer than 20 m to the power line towers.</p>				
<p>On 07 December 2022 the Transmission division of Eskom submitted the following principle approval subject to the comments of the Engineers being addressed, a blasting design and revision of the stockpile area:</p> <p>“Principle Approval:</p> <p>....Eskom Transmission’s (Tx) powerlines will be affected by this project:</p> <ul style="list-style-type: none"> ❖ Eskom Transmission (Tx’s) Ingagane-Bloukrans 1 275kV powerline ❖ Eskom Transmission (Tx’s) Ingagane-Danskraal 2 275kV powerline <p>.... Further to the above Eskom Tx in principle will raise no objection to the proposed mining permit application in close proximity to the mentioned powerlines provided Eskom Tx’s rights and services are acknowledged and respected at all times. The following terms and conditions pertaining to the proposed mining permit must also be borne in mind:</p> <ol style="list-style-type: none"> 1. Eskom Tx’s rights and services must be acknowledged and respected at all times. 2. Eskom Tx shall at all times retain unobstructed access to and egress from its servitudes. 3. Eskom Tx’s consent does not relieve the applicant from obtaining the necessary statutory, landowner or municipal approvals. 4. The applicant will adhere to all relevant environmental legislation. Any cost incurred by Eskom Tx as a result of non-compliance will be charged to the applicant. 				

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<p>5. All work within Eskom's servitude areas shall comply with the relevant Eskom earthing standards in force at the time.</p> <p>6. No construction or excavation work shall be executed within 23.5 metres from any Eskom powerline structure, and/or within 23.5 metres from any stay wire.</p> <p>7. If Eskom Tx has to incur any expenditure in order to comply with statutory clearances or other regulations as a result of the applicant's activities or because of the presence of his equipment or installation within the servitude restriction area, the applicant shall pay such costs to Eskom Tx on demand. Detailed designs of the proposed mining operations must be referred to Eskom Tx. In these designs Raubex Construction must cater for design specific issues such as acute angle crossings, separation distances and clearances between Eskom Tx's 275kV power lines and the proposed mining area.</p> <p>8. The use of explosives of any type within 500 metres of Eskom Tx's services, shall only occur with Eskom Tx's previous written permission. If such permission is granted the applicant must give at least fourteen working days prior notice of the commencement of blasting. This allows time for arrangements to be made for supervision and/or precautionary instructions to be issued in terms of the blasting process. It is advisable to make application separately in this regard.</p> <p>9. Changes in ground level may not infringe statutory ground to conductor clearances or statutory visibility clearances. After any changes in ground level, the surface shall be rehabilitated and stabilised so as to prevent erosion. The measures taken shall be to Eskom Tx's requirements.</p> <p>10. Eskom Tx shall not be liable for the death of or injury to any person or for the loss of or damage to any property whether as a result of the encroachment or of the use of the servitude area by the applicant, his/her agent, contractors, employees, successors in title and assignee. The applicant indemnifies Eskom Tx against loss, claims or damages including claims pertaining to consequential damages by third parties and whether as a result of damage to or interruption of or interference with Eskom Tx's services or apparatus or otherwise. Eskom Tx will not be held responsible for damage to the applicant's equipment.</p> <p>11. No mechanical equipment, including mechanical excavators or high lifting machinery, shall be used in the vicinity of Eskom Tx's apparatus and/or services, without prior written permission having been granted by Eskom Tx. If such permission is granted the applicant must give at least seven working days' notice prior to the commencement of work. This allows time for arrangements to be made for supervision and/or precautionary instructions to be issued by the Lines- and Servitudes Manager.</p> <p>12. Eskom Tx's rights and duties in the servitude shall be accepted as having prior right at all times and shall not be obstructed or interfered with. Note: Where an electrical outage is required, at least fourteen work days are required to arrange it.</p> <p>13. Under no circumstances shall rubble, earth or other material be dumped within the servitude restriction area. The applicant shall maintain the area concerned to Eskom Tx's satisfaction. The applicant shall be liable to Eskom Tx for the cost of any remedial action which has to be carried out by Eskom Tx.</p> <p>14. The clearances between Eskom Tx's live electrical equipment and the proposed construction work shall be observed as stipulated by the Regulation 19 of Electrical Machinery Regulations 2011 (with reference to SANS10280-1) of the Occupational Health and Safety Act, 1993 (Act 85 of 1993).</p> <p>15. Equipment shall be regarded electrically live and therefore dangerous at all times.</p> <p>16. In spite of the restrictions stipulated by Regulation 19 of Electrical Machinery Regulations 2011 (with reference to SANS10280-1) of the Occupational Health and Safety Act, 1993 (Act 85 of 1993)., as an additional safety precaution, Eskom Tx will not approve the erection of houses, or structures occupied or frequented by human beings, under the powerlines or within the servitude restriction area.</p>				

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<p>17. Eskom Tx may stipulate any additional requirements to eliminate any possible exposure to Customers or Public to coming into contact or be exposed to any dangers of Eskom Tx plant.</p> <p>18. It is required of the applicant to familiarise himself with all safety hazards related to Electrical plant.</p> <p>The final design (blasting and stockpiles) of your proposed mining area should be referred to this office for final approval. This will be referred to the applicable Eskom Tx Engineer for perusal and final approval. It is noted that your application was also forwarded to Eskom Distribution KwaZulu Natal OU (The Land Development Manager) for comments on the Distribution Division services affected and direct reply to you.”</p> <p>Engineer’s comments on the response previously (06 December 2022) sent to Eskom:</p> <ol style="list-style-type: none"> <p><i>Blast design:</i> Engineer’s Comment – <i>We need this to be finalized and submitted to approve. We will have to wait for this. Please submit upon receipt.</i></p> <p><i>Height of the stockpiles and dust suppression measures:</i> Engineer’s Comment - <i>I’m still not comfortable with the 45m distance being at a height of 10m. This stockpile is therefore in an adjacent servitude to the powerline (since every 400kV powerline servitude is about 55m and 275kV about 40m). Our line conductors blow out quite significantly almost to the end of the servitude which in other words could come swing very close to the stockpile. This really needs to be revisited as 45m is certainly too close and will not be acceptable. I would be comfortable with atleast 200m away or more will be great. Primarily for the reasons attributed to dust, considering the height of the stockpile, and the blow out of ur conductors. * Very important to revisit this point*</i></p> <p><i>How often will this (assessment of dust suppression equipment) be done? And does this comply with dust control standards?</i></p> <p><i>Who will ensure this (compacted dust removed weekly from crusher plant)?</i></p> <p><i>Yes this monitoring (fallout dust monitoring) will assist to ensure flashovers do not occur, or even the degradation of our lines due to the increased presence of dust/pollution.</i></p> <p><i>Access to of grid persons:</i> Engineer’s Comment: <i>Great.</i></p> 				

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<p>4. <i>Use of large machinery in power line servitude:</i> Engineer's Comment: <i>Logically, it will be fine, however for audit purposes if you are crossing a transmission line, it can not be implied that if distribution approve then its automatic that transmission will approve. The committee's are different and carry responsibility and accountability for the traversing of their own infrastructure. It therefore must be brought to transmission as well.</i></p> <p>5. <i>Mining under the power line:</i> Engineer's Comment: <i>OK so no mining within 20m radius around the tower is good.</i></p>					
<p>Greenmined acknowledged receipt of the principle approval on 08 December 2022 and responded as follows on the Engineer's comments:</p> <p>1. <i>Blast design:</i> Greenmined's Response: The Applicant takes note of this and commits to submitting the blasting design as soon as it is available. No mining will take place prior to approval of the blasting design by Eskom.</p> <p>2. <i>Height of the stockpiles and dust suppression measures:</i> Greenmined's Response: The comment of the Engineer was noted. To accommodate this, the Applicant concedes to keep all stockpiles at least 200 m away from the power line. See attached a schematic representation of the proposed areas where the stockpiles will be placed (orange shading). (Refer to Figure 4 in this report).</p> <p><i>How often will this be done? And does this comply with dust control standards?</i> Greenmined's Response: Site management will daily monitor the dust suppression equipment, and a water truck will daily moisten the road and denuded areas around the sites. The fallout dust levels of the site will be evaluated in terms of the fall-out standards of the National Dust Control Regulations, 2013. Should Eskom have additional standards in this regard, please do not hesitate to provide those to us.</p> <p><i>Who will ensure this?</i> Greenmined's Response: The on-site ECO (environmental control officer) will be responsible for the day to day compliance of the site with the conditions of the EMPR (environmental management programme). The site will further be audited by an external Environmental Assessment Practitioner that will annually report on the compliance of the site to the DMRE and DEDTEA.</p> <p><i>Yes this monitoring will assist to ensure flashovers do not occur, or even the degradation of our lines due to the increased presence of dust/pollution.</i></p>					

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<p>Greenmined's Response: Comment noted. Fallout-dust monitoring will be added as an additional condition/requirement to the EMPR.</p> <p>3. <i>Use of large machinery in power line servitude:</i> Greenmined's Response: Comment noted, applications will be submitted to both Transmission and Distribution.</p>				
<p>List of references where the comments from Eskom were incorporated into this report:</p> <ul style="list-style-type: none"> ❖ Part A(1)(d)(ii) Description of the activities to be undertaken – 2. Operational Phase; ❖ Part A(1)(e) Policy and legislative context; ❖ Part A(1)(h)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – Site Specific Infrastructure ❖ Part A(1)(h)(viii) The possible mitigation measures that could be applied and the level of risk – Fugitive Dust Emission Mitigation Measures; ❖ Part A(1)(h)(viii) The possible mitigation measures that could be applied and the level of risk – Managing the Power Lines; ❖ Part A(1)(m) Proposed impact management objectives and the impact management outcomes for inclusion in the EMPR; ❖ Part A(1)(n) Aspects for inclusion as conditions of authorisation; ❖ Part B(1)(d)(iv) Impacts to be mitigated in their respective phases; ❖ Part B(1) Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon, including g) – k). ❖ Appendix F1: Comments and Response Report ❖ Appendix F2: Proof of Public Participation Process 				
SANRAL- Eastern Region	X	No comments were received from SANRAL on the proposed project.		
Communities Matiwane Trust (c/o Ward Councillor)	Refer to comments listed under Cllr. Dlamini above.			

Interested and Affected Parties		Date Received	Comments	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.
<p>List the name of persons consulted in this column, and</p> <p>Mark with an X where those who must be consulted were in fact consulted</p>						
Dept. Land Affairs	X	21 October 2022		The Commission of Restitution of Land Rights confirmed that at the date of their letter, no land claims appear on their database in respect of the property described as the Remaining Extent of the farm Elands Spruit No. 5523. This includes the database for claims lodged by 31 December 1998 and those lodged between 01 July 2014 and 27 July 2016 in terms of the provisions of the Restitution of Land Rights Act, 22 of 1994 (as amended).		Appendix F2 – Proof of Public Participation Process
Traditional Leaders	N/A	-		-	-	-
Dept. Environmental Affairs						
Department of Economic Development, Tourism and Environmental Affairs (DEDTEA)	X		No comments were received from DEDTEA on the proposed project.			
Other Competent Authorities affected	-	-		-	-	-
AMAFA / Heritage KZN	X	04 August 2022		Greenmined applied in terms of Section 41 of the KwaZulu-Natal AMAFA and Research Institute Act (5/2018) and the NHRA, 1999 for comments on the proposed development of a site to AMAFA.		Appendix F2 – Proof of Public Participation Process
		17 August 2022		Greenmined presented the project at the Heritage Officers' Committee Meeting of AMAFA.		
		19 August 2022		AMAFA approved and closed the application on the SAHRIS website without any additional comments.		

Interested and Affected Parties		Date Received	Comments	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.
<p>List the name of persons consulted in this column, and</p> <p>Mark with an X where those who must be consulted were in fact consulted</p>						
Department of Agriculture and Rural Development	X	06 October 2022		DARD confirmed receipt of the application and mentioned that the application was captured in the electronic land use database with reference number: 2020/12/4975.		Appendix F2 – Proof of Public Participation Process
		27 October 2022		The following listed comments were received from DARD on 27 October 2022.	Greenmined acknowledge receipt of the comments on 01 November 2022 and incorporated the requirements into this report.	

Comments received from DARD on the DBAR of the Applicant's mining permit application (KZN 30/5/1/3/2/10817 MP):

“1. PURPOSE

To provide comments from the KZN Department of Agriculture and Rural Development (DARD): Agricultural Resources Management (ARM) – Land Use Regulatory Unit (LURU), in response to the Proposed Mining on a portion of the remaining extent of the Farm Elands Spruit No. 5523, Alfred Duma Municipal Area, KwaZulu-Natal Province.

2. BACKGROUND

2.1 The Applicant, Raubex Construction (Pty) Ltd applied for environmental authorisation (EA) and mining permit (MP) over a footprint of 4.9 Ha of the remaining extent of the farm Elands Spruit No. 5523 (317.74 HA in total extent), uThukela Magisterial District, KwaZulu-Natal. This is located along the Collings pass (P263 road) just of the N11 road about 26 km north east of Ladysmith in the direction of New Castle. The mine is approximately 10 m from the P263 road. This small 10 m stretch will need an upgrade to accommodate haulage trucks from the quarry. According to the Environmental Assessment practitioner the old quarry was an historical mine used for the building of N11 Road way back in the 70's. There is no previous mining permit for the previous operation.

2.2 The proposed mining operation will entail extension of the existing quarry via conventional open cast mining methods. The following mining processes are involved; site establishment and infrastructure development, striping and stockpiling topsoil from the proposed mining footprint area, the mining method will make use of blasting to loosen the hard rock. The loosen material will then be transported to crushing and screening processing plant where it will be screened to various sized stockpiles before it is sold and transported from the mining sites.

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2.3 It should be noted that the impact on the quality of the air of the surrounding environment if properly managed, should be at an acceptable level of low-medium significance. The same applies to ambient noise levels.

2.4 The proposed mining area falls within 550 m from wetland and requires a Water Use Authorisation in terms of the National Water Act, 1998. The stock pile area has been selected as areas without notable seeps or wetlands within the confines of the mining footprint. The stock pile area is more than 170 m from the outer boundary of the wetland, and therefore outside the 70 m buffer proposed by the specialist.

2.5 The Proposed project will utilise chemical toilets for approximately 8 staff under its employment. Storm water management plan for the site must be properly planned to prevent erosion in the adjacent farmlands and pollutions of nearby wetland systems.

2.6 The studies indicated on the aspects of terrestrial Biodiversity, conservation Areas and ground cover shows that a critical Biodiversity area (CBA) extends across the western boundary of the site. This area has been disturbed by the existing quarry therefore the section categorised as CBA optimal does not qualify to be in that category as a result. Aloe species observed in this area must be rescued and relocated to safer environment within the farm.

2.7 It has been determined that No sites observation of archaeological, palaeontological or cultural importance exist within the study area. It is therefore important to ensure that all mitigation measures proposed for notable impact studies be observed in the strictest sense to ensure that existing infrastructures on the farm or neighbouring properties will not be adversely impacted by the proposed project.

2.8 This application is submitted in terms of the Mineral and Petroleum Resources Development Act (Act 29 of 2002) as amended. It is required that the applicant is fully compliant in terms of the provisions of the National Environmental Management Act NEMA (Act 107 of 1998). In terms of section 16(3)(b) and 17(c) under EIA regulations, 2014.

3. COMMENTS

3.1 A site inspection was conducted to the Farm Elands Spruit on 11 October 2022. The property is a stock grazing farm. According to the KZN Department of Agriculture and Rural Development Land category's Map of 2012, The Farm is a Category B Land.

3.2 The mining operations must be conducted in accordance with the best practice guideline for small scale mining in relation to storm water management, erosion/sediment control, and waste management. It should be noted that any other measures such as prevention of contaminated water from spilling into clean water system such as ground water and wetland systems must be ensured through collection and containment of contaminated water in systems such as berms, pools, dams or attenuation ponds with this regard.

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 Received	Comments	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.
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3.3 It should be noted that all impact mitigations identified must be strictly implemented as there are a number of them that ranges from noise, storm water attenuation for erosion/silting control, ground water and air pollution prevention to blasting impact on the farm and neighbouring infrastructure. The rehabilitated land must be continuously utilised for one form of agriculture or the other after the useful life of the quarry.

3.4 It must be ensured that the mining area is properly fenced off to prevent incursion by livestock and human which can lead to injury of animals or in extremity the death of livestock. The applicant must ensure that proper sanitation of the environment is ensured and wastes must be disposed of appropriately in designated disposal systems at all times.

3.5 The EAP consultant has indicated that blasting impact on the nearest buildings will be measured by a vibrometer to be installed at both the blasting site and by the buildings to ensure monitoring of blasting activity within regulated limits. It was further expressed that no significant impact is expected as the buildings are said to be more than 500m from the blasting site.

4. RECOMMENDATION

This office has no objection to the proposed mining on a portion of the remaining extent of the Farm Elands Spruit No. 5523, subject to 3.2, 3.3, 3.4 and 3.5 above.”

Response from Greenmined on the comments received from DARD sent 01 November 2022:

“Greenmined herewith acknowledge receipt of the comments submitted by DARD on the mining permit application submitted by Raubex Construction (Pty) Ltd over the Remaining Extent of the farm Elands Spruit No 5523 in the Ladysmith region. We would like to thank you for the interest you took in this project and the comments that were submitted. The comments will be incorporated into the final Basic Assessment Report to be submitted to the DMRE for decision making in due course. The DARD will be informed of the DMRE’s decision within 7 days of receipt thereof.”

List of references where the comments from the DARD were incorporated into this report:

- ❖ Part A(1)(h)(viii) The possible mitigation measures that could be applied and the level of risk – Management of health and safety risks;
- ❖ Part A(1)(m) Proposed impact management objectives and the impact management outcomes for inclusion in the EMPR;
- ❖ Part B(1)(d)(iv) Impacts to be mitigated in their respective phases;

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 Received	Comments	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.
<ul style="list-style-type: none"> ❖ Part B(1) Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon, including g) – k). ❖ Appendix F1: Comments and Response Report ❖ Appendix F2: Proof of Public Participation Process 					
<p>Comments received from DARD on 31 January 2023:</p> <p>“1. PURPOSE</p> <p>To provide comments from the KZN Department of Agriculture and Rural Development (DARD): Agricultural Resource Management (ARM) – Land Use Regulatory unit (LURU), in response to the Erratum Notice for the Raubex Construction (Pty) Ltd Mining Permit application (KZN30/5/1/3/2/10817 MP) over the remaining extent of the Farm Elands Spruit No 5523, uThukela District, KZN. This in order to revise the description of the NEMA EIA Regulations, 2014 (as amended) Listing Notice 3 activities.</p> <p>2. BACKGROUND</p> <p>2.1 An erratum notice was submitted to correct the public documents regarding the Raubex Construction (Pty) Ltd mining permit application as per reference 2020/12/4975 submitted over the Remaining Extent of the farm Elands Spruit No 5523, uThukela Magisterial District KZN.</p> <p>2.2 The purpose is to revise the description of the NEMA EIA Regulations, 2014 (as amended) Listing Notice 3 activities namely: GNR 324 Activity 4, the development of a road wider than 4 meters with a reserve less than 13.5 metres. KwaZulu-Natal: viii. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; GNR 324 Activity 12, The clearance of an area of 300 square metres or more of indigenous vegetation. d. KwaZulu-Natal: v. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; GNR 324 Activity 18, The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre. d. KwaZulu-Natal: viii. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans.</p>					

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<p>3.0 COMMENTS</p> <p>3.1 The above requests are infrastructural development to facilitate movement of mined materials to and from the mining area to the loading zone and out of the mine. Reference is made to the relevant legislative prescript of the Subdivision of Agricultural Land Act (Act 70 of 1970) in this case section 6A(1)(a) for a right of way with a width not exceeding 15 m is applicable for compliance.</p> <p>3.2 Every care must be taken to ensure that land degradation is avoided by every means during construction and after construction through regular maintenance measures at regular intervals.</p> <p>3.3 Please note that the previous mining licence application remains unchanged by this erratum request.</p> <p>4. RECOMMENDATION</p> <p>This office does not object to this erratum notice requests for the Raubex Construction (Pty) Ltd Mining Permit application over the remaining extent of the farm Elands Spruit No 5523, uThukela District KZN.”</p>					
<p>The comments submitted by DARD in 2023 were all noted and incorporated into this amended DBAR.</p>					
Department of Agriculture, Land Reform and Rural Development (National)	X	No comments were received from the Department on the proposed project.			
Department of Human Settlements, Water and Sanitation	X	No comments were received from the Department on the proposed project.			
Department of Labour	X	No comments were received from the Department on the proposed project.			
Ezemvelo / KZN Wildlife	X	No comments were received from Ezemvelo on the proposed project.			

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uThukela District Municipality	X		No comments were received from the UDM on the proposed project.		
South African Heritage Resources Agency	X		AMAFSA approved the project on behalf of SAHRA.		
<u>OTHER AFFECTED PARTIES</u>	-	-	-	-	
N/A	-	-	-	-	
<u>INTERESTED PARTIES</u>	-	-	-	-	
Bukhali Environmental Resource Consulting on behalf of Afrimat Aggregates (Pty) Ltd (Bukhali)	31 October 2022	Bukhali submitted the following objections against the proposed application on behalf of Afrimat Aggregates (Pty) Ltd.	Greenmined replied as listed below to the objection received from Bukhali.	Appendix F2 – Proof of Public Participation Process	
<p>“...1. We have been appointed by our client Afrimat Aggregates KZN (Pty) Ltd to assist them in providing comments on the proposed application for a mining permit, however, we have drafted this letter as an objection to the proposed application due the absence of material and substantive information as part of this process.</p> <p>2. A copy of this objection will simultaneously be submitted to the DMRE as the Competent Authority (CA) in this application.</p> <p>3. The purpose of this letter is two-fold:</p> <p>3.1. to provide comments on the application for an Environmental Authorisation (“EA”) to conduct mining activities on the Farm Elands Spruit No. 5523, Alfred Duma Municipal Area, KwaZulu-Natal Province, and registered under Reference Number: KZN 30/5/1/3/2/10817 MP, the Draft Basic Assessment Report (“DBAR”) dated September 2022, all relevant documents and specialist assessments forming part of this application; and</p> <p>3.2. to object against the issuing of an EA in terms of the EIA Regulations, 2014 as amended due to incorrect/misleading/outdated information pertaining to this process.</p> <p>Identification of the correct listed activities in terms of the NEMA EIA Regulations, 2014 as amended</p> <p>4. A copy of the advert as part of the Public Participation Process (“PPP”) as it appeared in the Ladysmith Gazette on Friday 30 September 2022, is attached as Annexure “A”.</p>					

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<p>5. The details of the advert inter alia identified mining activities that triggers certain listed activities in terms of the relevant NEMA EIA Regulations, 2014 as amended as they apply to the proposed mining activities:</p> <p>5.1. It is indicated in this advert that the "...proposed mining footprint will be 4.9 ha and will entail the expansion of the existing quarry on the property." The identified listed activities as they appear in this advert does not address any of the listed activities that refer to "expansion" in the relevant EIA Regulations, 2014 as amended.</p> <p>5.2. You further identify Listing Notice 3 ("LN3") activities for inter alia the "...development of a road wider than 4 metres with a reserve less than 13.5 metres g. Northern Cape ii(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans" (Activity 4), "The clearance of an area of 300 square metres or more of indigenous vegetation g. Northern Cape ii. within critical biodiversity areas identified in bioregional plans;" (Activity 12) and "The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre g. Northern Cape ii(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans" (Activity 18).</p> <p>Critical Biodiversity Areas (CBAs) – Terrestrial Biodiversity Impact Assessment (Mora Ecological Services (Pty) Ltd 2022)</p> <p>5.3. The Terrestrial Biodiversity Impact Assessment ("Terrestrial Assessment") compiled by Mora Ecological Services (Pty) Ltd, 2022 indicates on p13 of their assessment that "...only less than 20% of site falls within a CBA Optimal."</p> <p>5.4. The Terrestrial Assessment further states on p13 that "...the current impacts on the quarry, the section categorized as CBA Optimal does not qualify to be in that category."</p> <p>5.5. In section 7 of the Terrestrial Assessment, the specialist indicate that "...the site does not have important plant species that warrant conservation but is relatively in good health."</p> <p>5.6. Under the "Background and Executive Summary" of the Terrestrial Assessment, the specialist indicate that "...the site was visited during a field survey in August 2022. This allowed for the assessment of the habitat integrity and status of the vegetation that was identified during the desktop review."</p> <p>Specialist Wetland Assessment Report – Proposed Expansion of the Elandspruit Quarry near Ladysmith (February 2017)</p> <p>5.7. The Specialist Wetland Assessment Report ("Wetland Assessment") is dated as February 2017, however, the header of the entire report refers to February 2016.</p> <p>Conclusion on objection and relief sought</p> <p>6. We request that the Department of Mineral Resources and Energy (DMRE) refuse the current application for an EA, on the following grounds:</p> <p><u>Material error of facts and misrepresentation of information in newspaper advert</u></p> <p>6.1. The advert dated Friday 30 September 2022 and placed in the Ladysmith Gazette calling for the registration of Interested and Affected Parties stated, incorrectly, and as a material fact that the proposed activity triggers certain listing notice 3 related activities in the Northern Cape. It is our opinion that misleading information was published to inform</p>					

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 Received Comments	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.
<p>the public of the proposed activities and that as a minimum, the applicant should re advertise this process including all the correct and relevant information pertaining to this application.</p> <p><u>Lack of substantive minimum legislative information – Terrestrial Assessment</u></p> <p>6.2. The Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts (“Terrestrial Minimum Requirements Protocol”) on Terrestrial Biodiversity published in Government Notice No. 320 of 20 March 2020 contain the minimum requirements that a Terrestrial Assessment should adhere to, especially in dealing with biodiversity features of a “very high sensitivity rating.”</p> <p>6.3. The Terrestrial specialist indicated that a section of the proposed mining permit application site is classified as a Critical Biodiversity Area (CBA) Optimal, which are areas that are optimally located to meet both the various biodiversity targets and other criteria defined in the analysis. Although these areas are not ‘irreplaceable’ they are the most efficient land configuration to meet all biodiversity targets and design criteria.</p> <p>6.4. The Terrestrial Minimum Requirements Protocol clearly stipulates that “If any part of the proposed development footprint falls within an area of “very high” sensitivity, the assessment and reporting requirements prescribed for the “very high” sensitivity apply to the entire footprint...” Minimum baseline requirements for such an assessment will include inter alia the following:</p> <p>6.4.1. ecological functioning and ecological processes (e.g. fire, migration, pollination, etc.) that operate within the preferred site;</p> <p>6.4.2. the ecological corridors that the proposed development would impede including migration and movement of flora and fauna;</p> <p>6.4.3. ecological connectivity, habitat fragmentation, ecological processes and fine scale habitats;</p> <p>6.4.4. species, distribution, important habitats (e.g. feeding grounds, nesting sites, etc.) and movement patterns identified; and</p> <p>6.4.5. the assessment must identify any alternative development footprints within the preferred site which would be of a “low” sensitivity as identified by the screening tool and verified through the site sensitivity verification.</p> <p>6.5. It is our opinion that the Terrestrial Specialist Assessment failed to address the minimum baseline requirements for an assessment of such a magnitude as indicated in point 4.4 above. Their statement on p13 of the Terrestrial Assessment that “...the section categorised as CBA Optimal does not qualify to be in that category”, is a total disregard for the presence and future of these sensitive ecological systems as part of the development footprint and falls far short of the minimum standard of addressing impacts associated with a CBA.</p> <p>6.6. At the very least, where the information gathered from the site sensitivity verification differs from the designation of “very high” terrestrial biodiversity sensitivity on the screening tool and it is found to be of a “low” sensitivity, then a Terrestrial Biodiversity Compliance Statement must be submitted This is not the case, as on their on version, Figure 7: Conservation plan of the study site on p21 of the Terrestrial Assessment clearly indicate a large portion of the site as “High Sensitivity”.</p> <p>6.7. Under section 7 of the Terrestrial Assessment the specialist indicate that “...the site does not have important plant species that warrant conservation but is relatively in good health.” However, under section 8 on p24 of the very same report, the specialist concludes that “Of great concern are the Aloe species that area located within the project boundary”</p>				

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<p>and under Floral features on piii it is stated that "In terms of Species of Conservation Concern, only Aloes were observed on site." It is our opinion that this assessment fails to consider the serious nature dealing with sites that are identified as sites with biodiversity features of very high importance.</p> <p>6.8. The Terrestrial Assessment identified the vegetation type on site consisting of Northern KwaZulu-Natal Moist Grassland, however, their report is silent on the fact that this vegetation type is regarded as Vulnerable, and no further assessment was conducted to identify and describe the negative impacts the proposed mining operation will have on this grassland.</p> <p>6.9. It is trite that the physical site assessment was conducted on or about August 2022, however, the report is silent on the specific date this assessment took place. It is our opinion that the specialist failed to appreciate the minimum content required for a Terrestrial Biodiversity Specialist Assessment Report, especially in an area consisting of ecological features with very high sensitivity. The Terrestrial Minimum Requirements Protocol list these under section 3, and the wording of "...must contain, as a minimum..." removes any discretion to ignore the inclusion of these minimum standards in terrestrial assessment reports.</p> <p>6.10. Some of the minimum substantive information absent from the Terrestrial Assessment includes inter alia the following:</p> <p>6.10.1. a statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;</p> <p>6.10.2. any direct, indirect and cumulative impacts of the proposed development;</p> <p>It is our opinion, especially taking into consideration the presence of CBAs</p> <p>6.11. as part of the proposed mining footprint, the specialist failed to consider the most appropriate time of year to conduct their physical site assessment. It is common practice that these investigations, especially dealing with CBAs, should at least take place during Spring and after the first rain. It should also, as a minimum consider Herpetological species that hibernate during the colder winter months, and migratory avifauna species.</p> <p>6.12. The Terrestrial Assessment does not contain any reference to a consideration or discussion of cumulative impacts that the proposed development will have on the sensitive ecological features on site.</p> <p>6.13. It is our opinion that the Terrestrial ecologist should re-consider the required minimum requirements for terrestrial assessments and that as a minimum a physical site assessment should be conducted during the most appropriate time of year to properly assess all the relevant biological and ecological factors associated with CBAs.</p> <p>6.14. It is stated that the current Terrestrial Assessment falls substantially short of the minimum requirements of these type of assessments and that as a minimum this report should be revised to incorporate all the relevant aspects pertaining to these minimum requirements.</p> <p>6.15. It is further requested that an updated version of the Terrestrial Report should be objectively and externally reviewed by an appropriate Ecologist.</p> <p><u>Validity of Specialist Wetland Assessment</u></p> <p>6.16. The Department of Forestry, Fisheries and the Environments' (DFFE) GIS database Screening Tool was accessed to identify sensitive freshwater ecological areas that may be impacted on by the proposed development. One of the site features is that the proposed mining activity will take place within a Strategic Water Source Area with a Very High Terrestrial Biodiversity.</p>					

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<p>6.17. The Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Aquatic Biodiversity published in Government Notice No. 320 of 20 March 2020 contains the minimum requirements and criteria a for the specialist assessment and minimum report content requirements for impacts on aquatic biodiversity for activities requiring environmental authorisation.</p> <p>6.18. As much as we would like to comment on the contents of the Specialist Wetland Assessment conducted by Eco-Care Consultancy (Pty) Ltd dated February 2017 pertaining to the minimum requirements of the relevant protocol, we submit that the report is wholly outdated for an application submitted in 2022.</p> <p>6.19. We request that the wetland specialist indicate in a signed affidavit the date that the physical site assessment took place due to the discrepancy in their report as to February 2016 versus February 2017.</p> <p>6.20. We require as a minimum an updated physical site assessment, and an updated Freshwater Ecological Assessment to adhere to the relevant minimum requirements of the protocol for the assessment of freshwater ecological assessments.</p> <p>6.21. It is submitted that the current specialist wetland assessment is outdated and that the Competent Authority (CA) cannot take an informed decision on this application in the absence of update information.</p> <p>Conclusion</p> <p>7. Based on the foregoing, we submit that we have made a compelling case for the Competent Authority (CA) to request further detailed and updated information regarding the identification of the correct listed activities and specialist assessments, and that our client reserve their right to further provide comments on the EA application process of the applicant.</p> <p>8. We submit that this application for an EA in its current format falls short of the minimum requirements for such applications, especially having regard to the permanent impacts of mining on the environment.</p> <p>9. We have not provided any comments on the DBAR and the EMPr, as it is our opinion that the relevant Terrestrial and Wetland Assessments lack material and substantive minimum information to be incorporated in the relevant DBAR and EMPr. This should not be construed as a failure by our client to exercise their right to further participate in this process.”</p>					
<p>Greenmined responded as follows to the objection received from Bukhali against the application:</p> <p>1. “The above matter as well as your objection letter dated 31 October 2022 refers. We take note that you act on behalf of Afrimat Aggregates (Pty) Ltd and herewith we respond on behalf of the applicant in point form, corresponding with your letter’s paragraphs.</p>					

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<p>2. The content of your paragraph 2 is noted, which comment will be included in the FBAR (Final Basic Assessment Report).</p> <p>3. The content of your paragraph 3 is noted, which comment will be included in the FBAR.</p> <p>4. The content of your paragraph 4 is noted, which comment will be included in the FBAR.</p> <p>5. The content of your paragraph 5 is noted, which comment will be included in the FBAR.</p> <p>5.1 None of the listed activities that refer to expansion in the EIA Regulations, 2014 (as amended) is applicable to the proposed project, and therefore none of them were applied for nor advertised.</p> <p>5.2 It is clear from the content of the application that the inclusion of the words “Northern Cape” as part of the listed activities of Listing Notice 3 is a <i>bona fide</i> error, which will be corrected during the current public participation process.</p> <p>5.3 The content of your paragraph 5.3 is noted, which comment will be included in the FBAR. It should be noted that the section was removed from the revised TBIA. Kindly refer to Figure 5 of the revised TBIA (Terrestrial Biodiversity Impact Assessment), which shows the extent of the CBA in comparison to the mining permit area. Furthermore, please refer to paragraph 2 of page 27, in which section the CBA is more fully discussed.</p> <p>5.4 The content of your paragraph 5.4 is noted, which comment will be included in the FBAR. It should be noted that this section was removed from the revised TBIA. Kindly refer to page 27 of said TBIA for further clarification.</p> <p>5.5 The content of your paragraph 5.5 is noted, which comment will be included in the FBAR. Kindly note that said section was removed from the revised TBIA.</p> <p>5.6 Kindly note that the ecologist conducted a subsequent site inspection on 04 November 2022 to verify the initial findings of the TBIA. Please also refer to the last paragraph on page 25 of the revised TBIA.</p> <p>5.7 It should be noted that the date contained in the header was a mistake by the specialist. This was corrected in the 2017 report and the specialist confirmed that the original wetland delineation and assessment field work was conducted on 02 January 2017, with the final report submitted on 22 February 2017 (refer to page 3 of the 2022 Wetland Specialist Opinion).</p>					

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<p>6. It should be noted that the FBAR has not yet been submitted and therefor the DMRE is unable to make a determination at this stage. Once the FBAR has been submitted, which report will include all specialist studies, with comments and objections received from interested and affected parties, the DMRE will be in a position to make an informed decision.</p> <p>6.1. Although the province was erroneously referred to on the advertisement as the Northern Cape, the content of the listed activities remains the same. Therefore, it should be clear that the inclusion of the incorrect province was indeed a <i>bona fide</i> mistake and that it was never the intention of the applicant to mislead the public. In support hereof, an erratum advertisement will appear in the Ladysmith Gazette on 11 November 2022. On-site notices informing the public of the bona fide mistake were positioned at the entrance to the farm (site), the Matiwane Community, Stolo Phezulu Store, turnoff from the N11 onto Collings Pass Road, and the Ladysmith Library on 10 November 2022. An email notification was also sent to all I&AP's and stakeholders. Consequently, an additional 30-day period has been provided for comments on the application, which period comes to an end on 12 December 2022.</p> <p>6.2. Section 2 of the Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Biodiversity notes that: "<i>Prior to commencing with a specialist assessment, the current use of the land and the potential environmental sensitivity of the site under consideration as identified by the screening tool must be confirmed by undertaking a site sensitivity verification.</i>"</p> <p>2.3: "<i>The outcome of the site sensitivity verification must be recorded in the form of a report that:</i> <i>(a) confirms or disputes the current use of the land and environmental sensitivity as identified by the screening tool;</i> <i>(b) contains a motivation and evidence (e.g. photographs) of either the verified or different use of the land and environmental sensitivity; and</i> <i>(c) is submitted together with the relevant assessment report prepared in accordance with the requirements of the Environmental Impact Assessment Regulations.</i>"</p> <p>This was done by the specialist and discussed in the TBIA on page 18 and page 26 that concluded that the site is of Low Ecological Function due to the habitat fragmentation and previous disturbance. The areas that harbor the provincially protected <i>Aloe marlothii</i> plants were categorised as Medium Sensitive Areas (Figure 12 of the 2022 TBIA).</p> <p>According to the Screening Tool the reason for the Very High Sensitivity of the site is that it falls within a CBA and Strategic Water Source Area (SWSA). The position of the CBA in relation to the mining permit footprint is shown in Figure 5 page 17 of the TBIA, and the wetland specialist confirmed in the 2022 Wetland Opinion on page 17 Figure 1 that the mining area is located ±12.5 km away from the nearest SWSA. As a small section of the mining permit footprint does extend into a CBA (even though it is highly disturbed) a TBIA was commissioned.</p>					

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<p>Furthermore, in terms of the Gazetted Terrestrial Biodiversity Assessment Protocols you will note that all the minimum requirements have been met, save for provision 3.3, which will be complied with as part of the FBAR.</p> <p>6.3. The content of your paragraph 6.3 is noted, which comment will be included in the FBAR. Kindly refer to page 15 (Figure 5) and page 26 of the TBIA.</p> <p>6.4. The TBIA was conducted for the entire 4.9 ha application area (not only the CBA section) with the following objectives:</p> <ul style="list-style-type: none"> • To provide a description of the flora and fauna occurring around the proposed project area. • To provide description of any threatened species occurring or likely to occur within the study area in terms of the National Red List Status (SANBI, 2012) and Red Data List (IUCN, 2018) specifying species that are either: rare, threatened, endangered, or critically endangered. • Determine conservation priority areas according to authorised Critical Biodiversity Areas (CBAs). • To describe the available habitats on the study site including areas of important conservation value. • Identify and assess the potential impacts associated with a proposed development. <p>Although the assessment is applicable to the entire area, the revised TBIA concludes that the area indicated as a CBA on the 2014 KZN Biodiversity Sector Plan and Screening Tool does not warrant a rating of “very high” due to the reasons listed in the revised TBIA. Kindly refer to paragraph 6.2 above for the minimum protocol requirements.</p> <p>6.4.1. The content of your paragraph 6.4.1 is noted, which comment will be included in the FBAR.</p> <p>6.4.2. The content of your paragraph 6.4.2 is noted, which comment will be included in the FBAR.</p> <p>6.4.3. The content of your paragraph 6.4.3 is noted, which comment will be included in the FBAR.</p> <p>6.4.4. The content of your paragraph 6.4.4 is noted, which comment will be included in the FBAR.</p>				

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<p>6.4.5. The content of your paragraph 6.4.5 is noted, which comment will be included in the FBAR.</p> <p>6.5. The ground truthing of the area showed that there are no ecological features of very high sensitivity on site and did not identify any area that complies with the definition of a CBA in accordance with 2.3.7.1 of the Terrestrial Biodiversity Protocols. However, the statement as contained on page 13 of the revised TBIA has been amended and it should furthermore be noted that the application area has already been disturbed by mining. There is an existing mining permit over said application area, although mining has not yet commenced, as the holder is awaiting tender approvals. Due to the aforementioned the application area has already been identified as a “development” and therefore not as sensitive as indicated on the screening tool.</p> <p>6.6. The content of your paragraph 6.6 is noted. The TBIA was updated and no need for a Terrestrial Biodiversity Compliance Statement was identified.</p> <p>6.7. Ground truthing confirmed that there is no CBA present in the footprint of the application area. The specialist however did revisit the site in November 2022 as noted in the updated TBIA. The TBIA has been revised and the specialist found that the site sensitivity was not of Very High importance, but Medium at the most in the areas where there are Aloes. The Aloes will be relocated upon receipt of the relevant permits from Ezemvelo/KZN Wildlife, and this will then comply with the condition of the specialist prior to the commencement of development.</p> <p>6.8. Kindly refer to page 26 for a discussion on the findings of the ecological assessment.</p> <p>6.9. The inspection dates are contained on page 25 of the revised TBIA. It is also confirmed that none of the species that conform to the site sensitivity ratings for Very High in the screening tool were found on the site. Please refer to Table 1 on page 19 of the revised TBIA.</p> <p>6.10. The content of your paragraph 6.10 is noted, which comment will be included in the FBAR.</p> <p>6.10.1. Kindly refer to page 25 of the revised TBIA.</p> <p>6.10.2. Kindly note that the information as requested were added to the revised TBIA. See paragraph 6.9 above. In terms of the cumulative impacts kindly refer to page 29 to 41 of the revised TBIA.</p> <p>6.11. The specialist revisited the site during November 2022. The site was therefore visited during both the dry and wet seasons and no additional species of concern were noted. A further condition was added to the revised TBIA that prior to commencement of activities on the site, a specialist must do a walkthrough of the site.</p>				

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<p>6.12. Kindly note that the cumulative impacts were added to the revised TBIA.</p> <p>6.13. As previously mentioned in paragraph 6.11 above, the site was visited during both seasons, which was included in the revised TBIA.</p> <p>6.14. The TBIA has been revised accordingly and therefore complies with all the requirements.</p> <p>6.15. We take note of your request that the TBIA be reviewed by an external and objective Ecologist, however, it should be noted that the minimum requirements do not require the TBIA to be reviewed. Therefore, the TBIA, as revised, will be available for comments until 12 December 2022.</p> <p>6.16. We would like to refer you to page 15 of the 2022 Wetland Opinion. Even though the Screening Tool classified the site as Very High Sensitivity due to a Strategic Water Source Area (SWSA); the Strategic Water Source Areas spatial data (2017) however confirms that the project site is ±12.5 km from the nearest SWSA.</p> <p>6.17. The content of your paragraph 6.17 is noted, which comment will be included in the FBAR.</p> <p>6.18. Kindly refer to the 2022 Wetland Opinion compiled by Nkurenkuru Ecology and Biodiversity with specific reference to page 4 and page 11. Even though the report was compiled during 2017 the specialist confirmed that the results and findings of the 2017 report are still in effect as at November 2022.</p> <p>6.19. See response in paragraph 5.7 above.</p> <p>6.20. Kindly refer to page 3 of the 2022 Wetland Opinion compiled by Nkurenkuru Ecology and Biodiversity.</p> <p>6.21. The screening tool shows that the aquatic biodiversity theme of the footprint area is of Low Sensitivity, the KZN BSP (2016) does not show any aquatic/freshwater CBA within the proposed mine footprint. The SANBI SWSA spatial data furthermore confirms that the footprint does not extend across a SWSA, and the specialist determined that there are no aquatic/wetland features within the application site. The specialist further confirmed that the findings of the 2017 report is still in effect and addressed the matter of the minimum requirements of the protocols. Therefore, with due respect to your objection, no need for a new Freshwater Ecological Assessment could be identified.</p> <p>7. The additional public participation currently being conducted due to the <i>bona fide</i> error on the public participation documents, the updated/revised TBIA, and 2022 Wetland Opinion, as well as any additional comments that may be received as part of this process, will form part of the FBAR to be submitted to the DMRE for decision making. Neither</p>				

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<p>the amendment of the TBIA nor the findings of the 2022 Wetland Opinion effected significant changes to the DBAR nor presented significant new information that changes the outcome of the report; therefore, no need exists for the re-advertisement/re-publishing of the DBAR.</p> <p>8. We trust that the amendments made to the application satisfies the minimum requirements and therefore in its revised format the EA application conforms to the minimum requirements. Furthermore, it should be noted that the proposed mine will be of temporary nature, whereafter the affected area will be rehabilitated in accordance with the requirements of the MPRDA.</p> <p>9. As confirmed by both the ecologist and wetland specialist even with the additional information that were considered by the specialists, the outcome of the TBIA and Wetland Assessment Report is still a true reflection and does not necessitate significant changes to the DBAR and/or EMPR. Your client will not be prohibited from commenting on the DBAR and EMPR, and we will include all comments and/or objections received from the public, until the public participation process comes to an end, being 12 December 2022.</p> <p>10. We trust you will find the above in order and that the content hereof addresses your client's concerns."</p>					
<p>List of references where the aspects of concern raised by Bukhali/Afrimat were incorporated into the DBAR:</p> <ul style="list-style-type: none"> ❖ Part A(1)(d)(ii) Description of the activities to be undertaken – Clearing of Vegetation; ❖ Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – Hydrology; ❖ Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – Biodiversity Conservation Areas; ❖ Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – Groundcover; ❖ Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – Fauna; ❖ Part A(1)(h)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – Site Specific Hydrology ❖ Part A(1)(h)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – Site Specific Terrestrial Biodiversity (including fauna and flora); ❖ Part A(1)(h)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – Site Specific Fauna; ❖ Part A(1)(h)(viii) The possible mitigation measures that could be applied and the level of risk – Mitigating the potential impact on the wetland system; ❖ Part A(1)(h)(viii) The possible mitigation measures that could be applied and the level of risk – Management of vegetation removal; ❖ Part A(1)(h)(viii) The possible mitigation measures that could be applied and the level of risk – Protection of fauna; ❖ Part A(1)(m) Proposed impact management objectives and the impact management outcomes for inclusion in the EMPR; 					

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<ul style="list-style-type: none"> ❖ Part B(1)(d)(iv) Impacts to be mitigated in their respective phases; ❖ Part B(1) Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon, including g) – k); ❖ Appendix F1: Comments and Response Report; ❖ Appendix F2: Proof of Public Participation Process; ❖ Appendix G1: Wetland Assessment Report – 2017; ❖ Appendix G2: 2022 Wetland Opinion; ❖ Appendix H: Terrestrial Biodiversity Impact Assessment. 				
<p>Supplement objection received from Bukhali on behalf of Afrimat Aggregates (Pty) Ltd on 13 December 2022:</p> <p>“...1. This supplementation to the objection raised by our client Afrimat Aggregates KZN (Pty) Ltd (‘Afrimat’) is based on your reply email of 11 November 2022 wherein you have provided the following:</p> <ol style="list-style-type: none"> 1.1. Your Response Letter – KZN 30/5/1/3/2/10817 MP dated 11 November 2022 1.2. Wetland opinion by Mr Gerhard Botha dated 1 November 2022 1.3. Terrestrial Biodiversity Impact Assessment (“TBIA”) by MORA Ecological Services (Pty) Ltd dated November 2022. <p>2. Firstly, we will deal with the particulars of your response to our initial objection; secondly, we will deal with the particulars of the Wetland opinion and the TBIA respectively, whereafter the objection will be supplemented by additional substantive merits against mining taking place on-site without further detailed information being provided as to the cumulative impacts of site activities on the receiving environment.</p> <p>3. Our client reserves the right to appeal any decision taken by the Competent Authority (“CA”) in granting an Environmental Authorisation (“EA”) and resultant Mining Permit (“MP”) in the absence of sufficiently detailed and scientifically derived information pertaining to the negative environmental impacts on site.</p> <p>Your reply to the objection</p> <p>4. It is not our intention to respond to your reply letter paragraph by paragraph and our failure to do so should not be construed as an admission of the correctness of any submissions made by you in said letter.</p>				

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<p>5. In response to your paragraph 5.1: Our comment was based on your own version as it appeared in the advertisement which explicitly indicated "...proposed mining footprint will be 4.9 ha and will entail the expansion of the existing quarry on the property." Your clarification on this point is noted.</p> <p>6. In response to your paragraph(s) 5.3 – 5.6: Please see attached Annexure A.</p> <p>7. In response to your paragraph 6: We are aware that the DMRE are not able to make a determination at this stage, however, the objection forms part of the public record of this application, and the ground for objection is supplemented by this supplementation.</p> <p>8. In response to your paragraph 6.1 and 6.2: Please see attached Annexure A.</p> <p>9. In response to your paragraph 6.5 – 6.15: Your responses are noted; however, some further related issues will be discussed in our response to the amended TBIA below. Please see attached Annexure A.</p> <p>10. In response to your paragraphs 6.6 – 6.20: We will reply to these paragraphs as part of the response to the comments from the wetland specialist below.</p> <p>11. In response to your entire paragraph 6.4: We will reply to these paragraphs as part of the response to the amended TBIA below. Please see attached Annexure A.</p> <p>Response to the amended TBIA</p> <p>12. We have obtained an independent opinion from Rautenbach Biodiversity Consulting ('Rautenbach Report') on the substantive elements of the amended TBIA attached as ('Annexure A') to this supplementation objection.</p> <p>13. The CA cannot decide on the application in its current form as there are too many gaps in the TBIA that were not sufficiently addressed. We request that the concerns raised by the Rautenbach Report be adequately addressed by the EAP and Mora Ecological Services, respectively. We maintain our position that this TBIA does not conform to the minimum reporting standards for the CA to consider this report in its current form as part of your application.</p> <p>14. The Revised National List of Ecosystems that are Threatened and in Need of Protection, 2022 (GN R No. 2747 published in Government Gazette No. 47526), wherein Northern KwaZulu-Natal Moist Grasslands' threat status (2021) is declared as "Vulnerable". The assessment summary for this grassland type states the following: "Northern KwaZulu-Natal Moist Grassland is narrowly distributed with high rates of habitat loss in the past 28 years (1990-2018), placing the ecosystem type at risk of collapse."</p>					

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<p>15. This report, based on a single-line transect, is wholly inadequate considering the Vulnerable nature of the vegetation type and the need to investigate further the impacts of the mining operation as a contributing factor towards further habitat loss of this vegetation type.</p> <p>16. It is submitted that this report, in its current form, is fatally flawed and that this TBIA should be re-commissioned to fulfil all the legislated requirements for preparing and drafting these types of assessments.</p> <p>Wetland Report (2017) and Wetland Opinion (2022)</p> <p>17. Your Final Basic Assessment Report ('FBAR') for the proposed stockpiling on a portion of the remaining Extent of the Farm Elands Spruit No. 5523 registered under Reference Number: DC23/0005/2022: KZN/EIA/0001820/2022 dated November 2022 refers.</p> <p>18. Again, it is not our intention to respond to every paragraph by paragraph of the Wetland/Aquatic Comments (2022), and our failure to do so should not be construed as an admission of the correctness of the information presented therein.</p> <p>19. Your comment in paragraph 6.2.1 that there is “no need for a new Freshwater Ecological Assessment...” is respectfully rejected. We submit that the DMRE cannot make an informed decision on the extent of the proposed mining operation's impacts, nor the other cumulative impacts that the stockpiling area located towards the east of the mining operation will have on the freshwater ecology (wetland).</p> <p>20. Under the limitations section of the wetland report (2017), the wetland specialist stated that a “single survey limited the amount of biota identified at the site”; and “While every care is taken to ensure that the data presented are qualitatively adequate, inevitably conditions are never such that that is possible”; and “This specific study area is affected by a variety of disturbances (historic and active) which restricts the use of available wetland indicators such as hydrophytic vegetation or soil indicators. Hence, a wide range of available indicators including historic aerial photographs are considered to help determine boundaries as accurately as possible.”</p> <p>21. In Figure 18 of the Wetland Report (2017), the author provides a Google map “indication the boundaries and wetland area of HGM 2 (Channelled Valley Bottom Wetland)”, however, it is assumed that this should refer to the identified Hillslope Seepage Wetland instead. Please see image below from their report.</p>					

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22. This HGM is described by the author as “This HGM is not an isolated system be is connected to the Channelled Valley Bottom wetland, however outflow is not contained within a channel (Without Channelled Outflow) but occur as diffuse surface flow. The entire HGM is Never / Rarely Inundated with surface water. The bulk of the HGM is Intermittently / Temporarily Inundated with only a small portion being Seasonally Inundated.”

23. The wetland specialist further indicates that according to Ollis et al (2013), one of the dominating zones found within this wetland is “Never / rarely inundate zone: Covered by water for less than a few days at a time (up to one week at most), if ever.” The veracity of this statement is then confirmed by the wetland specialist in that “This is applicable for the entire HGM.” If this is applicable for the entire HGM, how did the wetland specialist determine whether water covered this area for less than a few days, if only a single survey was undertaken by him during 02 January 2017?

24. The wetland specialist determines that the bulk of the study area comprises a “temporary (outer) zone of a wetland, according to the terminology used in the DWAF (2005) wetland delineation manual.” We have included (below) two (2) Google Earth images of January 2017 and June 2021 respectively, clearly indicating saturated zones far exceeding the boundaries of their Figure 18 presented as the Hillslope Seepage wetland.

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25. On p48 of the Wetland Report (2017), the author indicates that the “hillslope seepage is not as much affected by the greater catchment area of the delineated wetland, but rather by the more immediate surroundings especially the dolerite koppie’s south facing midslope and crest as well as in situ impacts. Hydrological inputs have been slightly affected by the presence of the quarry (probably resulted in a slight/unnoticeable decrease).

26. Considering the above, the wetland report (2017) is silent on the location (GPS coordinates) of the auguring positions as it relates to the wetland soils of the study area, specifically concerning the wetland boundaries of the identified hillslope seepage wetland. Please kindly provide us with these auguring positions to determine the extent of this part of the assessment.

27. It is common cause that blasting activities will cause a direct increase in the bioavailability of salts resulting from the blasting of the earth's crust material which poses a risk of increasing salt loading in the receiving environment. Inevitably, this blasting residue and the build-up of nitrates in the water accumulating in the quarry must be investigated as

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<p>part of the direct impacts this will have on the Hillslope Seepage wetland with the commencement of site operations. The author did not identify and assess the possible effects on the receiving wetland systems.</p>					
<p>28. To precisely identify the impacts of blasting and mining activities on the wetland systems, a hydrogeology assessment must, as a minimum, supplement the application for an environmental authorisation. Being cognisant of not oversimplifying the aim of a hydrogeological evaluation, such a study aims to explain how hydrogeology, groundwater, surface water and wetlands interact to conceptualise the hydrological processes spatially. To protect these wetland systems from degradation, a conceptual understanding of the hydrogeological conditions, the interaction between the surface and groundwater systems, and the impacts of mining activities on sensitive receptors such as rivers, wetlands and groundwater is critical.</p>					
<p>29. We submit, considering the presence of this hillslope seepage wetland so close to blasting activities taking place, that the applicant commission a Hydrogeological Assessment to, among other things, identify the dominant hillslopes of the quarry site, determine the hydrogeological soil types of the quarry site and conceptualize the hillslope hydrogeological responses, and assess the significance of the potential impacts on sensitive receptors arising from the site activities.</p>					
<p>30. On p83 of the wetland report (2017), the author states that the “proposed footprint area for the quarry is located almost more than 170m from the outer boundary of the Hillslope Seepage” however, according to point 2.3.1 of the Wetland/Aquatic comments (2022), the “nearest aquatic/wetland feature is a seepage wetland located approximately 156 m to the south of the project site (outside of the development footprint).” This supports our claim and our insistence that an updated and revised Freshwater Ecological Assessment, including a more detailed site assessment of the Hillslope Seepage wetland, should be commissioned, as, on your own version, there are discrepancies as to the relevant distances of this wetland to the proposed site activities.</p>					
<p>Cumulative impacts</p>					
<p>31. The wetland specialist should have addressed cumulative impacts in the original wetland report (2017). However, the wetland specialist briefly addressed these impacts on p29 of the Wetland/Aquatic comments (2022). The author refers to the assessment of cumulative impacts concerning “mining projects in an approximate 30km radius of the proposed aggregate mining”.</p>					
<p>32. The Impact Nature of the cumulative impacts addressed on p29 of the Wetland/Aquatic comments (2022), includes the “Transformation of intact freshwater resource habitat could potentially compromise ecological processes as well as ecological functioning of important habitats and would contribute to habitat fragmentation and potential disruption of habitat connectivity and furthermore impair their ability to respond to environmental fluctuations. This is especially of relevance for larger watercourses and wetlands serving as important groundwater recharge and floodwater attenuation zones, important microhabitats for various organisms and important corridor zones for faunal movement.”</p>					

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<p>33. The wetland specialist failed to consider the cumulative impacts of the proposed mining operation comparatively concerning the proposed stockpile (crushing and screening) area approximately 200 m away from each other. It is further evident that this additional stockpiling area of approximately 10.5 ha will include “rock crushing” activities and will greatly exacerbate noise and dust impacts on the identified freshwater ecology.</p> <p>34. On p29 of the Wetland/Aquatic comments (2022), the author determines that the “Overall impact of the proposed project considered in isolation” has a significance rating of Low. In contrast, the cumulative impact on other projects within the area is Moderate. We submit that the wetland assessment report failed to address identified cumulative impacts sufficiently, especially considering that the specialist was aware of the additional stockpiling area forming part of their assessment. This leads to a misrepresentation of crucial facts about impacts on the wetlands.</p> <p>35. As part of the key findings of your Draft Basic Assessment Report (‘DBAR’) with Reference Number: KZN 30/5/1/3/2/10817 MP, you indicate that “Although the proposed activity will have a cumulative impact on the ambient noise levels, the development will not take place in a pristine environment”, failing to recognise and consider the overall setting of the proposed development concerning CBAs and identified wetlands.</p> <p>36. In your DBAR, you briefly describe cumulative impacts on “broad-scale ecological processes” yet fail to identify and describe the cumulative impacts of the mining operation and the related crushing, screening and stockpile area on the identified wetlands.</p> <p>Crushing and screening activities at the proposed additional site as part of the same mining operations</p> <p>37. Your DBAR as part of the MP application and the FBAR for a separate EA on the screening, crushing and stockpiling operation approximately 200 m from each other has reference.</p> <p>38. In relation to “mining operation”, DALE, SOUTH AFRICAN MINERAL AND PETROLEUM LAW ISSUE 24 at paragraph 42.8, Dale adds the following:</p> <p>38.1. ‘As was held in Commissioner of Taxes vs Nyasaland Quarries and Mining Co Limited 24 SATC 579 at 583, in the context of fiscal legislation, the intention of the legislator in enacting the definitions of mine and mining operations is to give those expressions an extended meaning which would cover the processing by the mining company of the mineral into its pure form.</p>				

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 Received	Comments	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.
<p>38.2. ...On an analysis of the phrase “including any operation or activity incidental thereto” in the definition of mine as a verb it appears that any such operations or activities which are directly or indirectly incidental thereto will be included, and then by reference to the definition of mining operations, additionally to the direct and indirect operations and activities covered by the definition of mine as a verb will be matters.</p> <p>38.3. At 45.2 Dale adds: ‘As pointed out in the commentary on the definition of mine as a verb in paragraph 42.8 above, that definition also expressly includes any operation or activity incidental thereto, so that although the intention of the legislature may have been to attribute a broader meaning to the term mining operation than to the term mine, in fact the distinction is difficult to discern, particularly since the definition of mining operation restricts such matters to those “directly” incidental thereto. As there submitted, the correct interpretation is probably that mining includes any operation or activity incidental thereto and additionally the term “mining operation” includes matters directly incidental to such incidental operations or activities. Both terms would, it is submitted, include prospecting in connection with mining as also processing of the mineral or metal into its pure form, but neither term would include use of the mineral in manufacturing process.’</p> <p>38.4. In <i>TERRA BRICKS AND ANOTHER V REGIONAL MANAGER, LIMPOPO REGION, DEPARTMENT OF MINERALS AND ENERGY AND OTHERS</i>: Case Number 5246/05 (TPD) delivered on 12 April 2007 Fourie AJ stated at page 12:</p> <p>38.4.1. ‘The meaning of the definition is clearly not the whole of the mining area. Only if part of the mining area or buildings etc. are used or intended to be used in connection with searching, winning, exploiting or processing of the mineral, do they form part of the mine. I am of the view that this phrase qualifies both mining area and the buildings situated in or on the mining area. On the basis set out above, I am of the view that the brick making activities are not activities aimed at searching or winning a mineral or exploiting a mineral deposit. The clay is searched for, where and exploited at the clay quarry.</p> <p>38.4.2. The next question is whether the activities at the brick factory are not possibly connected with “processing” of a mineral processing. The word “process” is defined in the Minerals Act to mean “in relation to any mineral the recovery, extracting, concentrating, refining, calcining, classifying, crushing, screening, washing, reduction, smelting or gasification thereof.</p> <p>39. On p18 of your FBAR under Project Proposal you state that: “In addition to the mining of the quarry (to be approved by DMRE), the Applicant also intends to establish an area for stockpiling and crushing (when needed) of the material that is mined at the quarry, on 10.5 hectares of the abovementioned property.”</p>					

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 Received	Comments	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.
<p>40. On p22 of the FBAR you describe the operational phase of the activity as follows: “The Applicant will transport the material from the quarry into the stockpile area. The rock will then be delivered to the crushing and screening plant where it will be reduced to various sized gravels. The screened material will be delivered to various size category stockpiles. Transportation of the final product will be from the stockpile area to the end point by means of trucks.”</p> <p>41. Based on the aforementioned, it is our submission that the inclusion of “crushing and screening” as an activity at the proposed stockpile area, somewhat 200 m apart from each other, is an operation and activity directly linked and incidental to your proposed mining operation.</p> <p>42. It is submitted that the applicant should have accommodated your application for the additional crushing and screening operation at the proposed stockpiling area within the MP footprint area. By adding a separate crushing and screening activity incidental to the mining operation, you have increased the footprint of the mining permit application beyond the legislated footprint of 5 ha.</p> <p>43. The applicant reserves their right to obtain further legal advice on this matter, and retain the right to appeal the granting of the permit and its antecedent environmental processes undertaken as part of the administrative authorisation process.</p> <p>Conclusion on supplementation objection and relief sought.</p> <p>44. We request that the Department of Mineral Resources and Energy (DMRE) refuse the current application for an EA, on the following grounds: TBIA is fatally flawed</p> <p>44.1. The amended TBIA lacks sufficient minimum required information, with significant omissions, unsubstantiated and contradicting statements, and does not provide adequate information to the relevant authorities to make an informed decision. Therefore, it is recommended that the entire study (desktop as well as field surveys) be repeated and the report as a whole revised to comply with national and provincial requirements and guidelines.</p> <p>Wetland Report (2017) and Wetland/Aquatic Comments (2022) lacks proper impact identification and assessment</p> <p>44.2. It is evident that the Wetland Report (2017) and subsequent Wetland/Aquatic Comments (2022) addressed some of the aspects identified during our first objection, however, it is our opinion that this assessment is incomplete for the following reasons:</p> <p>44.2.1. The wetland specialist failed to consider the impacts related to blasting activities in the vicinity of the identified wetland systems;</p>					

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<p>44.2.2. The wetland specialist failed to substantively address cumulative impacts on the identified wetlands of the proposed mining operation and the proposed additional crushing and screening area;</p> <p>44.2.3. It is clear from the Google Earth images that there are distinct drainage areas falling outside of the assessed and delineated area, and in the absence of detailed wetland and soil transects of the identified Hillslope Seepage Wetland, raise suspicion as to the exact nature and size of this wetland; and</p> <p>44.2.4. There are discrepancies between the relevant distance of the Hillslope Seepage Wetland and the proposed mining operations.</p> <p>Hydropedological Assessment as a minimum requirement</p> <p>44.3. It is submitted that the applicant should conduct the necessary Hydropedological Assessment to explain how pedology, groundwater, surface water and wetlands interact to conceptualise the hydrological processes spatially. To protect these wetland systems from degradation, a conceptual understanding of the hydropedological conditions, the interaction between the surface and groundwater systems, and the impacts of mining activities on sensitive receptors such as rivers, wetlands and groundwater is critical.</p> <p>Mining operations</p> <p>44.4. It is submitted that your application for the additional crushing and screening operation at the stockpiling area should have been accommodated within the MP footprint area, and by the addition of a separate crushing and screening activity you have increased the footprint of the mining permit application beyond the legislated footprint of 5 ha.</p> <p>Conclusion</p> <p>45. Based on the foregoing, we submit that we have made a compelling case for the Competent Authority (CA) to request further detailed and updated information to supplement the current application, and that the application in its current form is not sufficiently detailed to address the gaps in knowledge on the receiving environment of the proposed mining operation.”</p> <p>Refer to Appendix F2 – Proof of Public Participation Part 3 for a copy of the Comments on the TBIA as obtained from Rautenbach Biodiversity Consulting.</p>					

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 Received	Comments	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.
<p>The following response will be sent to Bukhali in response to the supplement objection received on 13 December 2022. Bukhali will also be invited to comment on the amended DBAR:</p> <p>“We take note of the content of your objections and will respond to the relevant sections as required under the circumstances. However, failure to address all allegations and objections should not be construed as an admission thereof, but rather denial thereof.</p> <p>We take note of the content of your paragraphs 1 to 11 under headings “<i>Introduction</i>” and “<i>Your reply to the objection</i>”.</p> <p><u>TBIA</u></p> <p>With regards to your paragraphs 12 to 16 (TBIA) and more specifically your request that the EAP and Mora Ecological Services adequately addresses the concerns raised in the Rautenbach Report, our client have obtained an additional TBIA report, which was conducted by Eco-Pulse Environmental Consulting Services during February 2023. Attached hereto as <u>Annexure A</u> said report.</p> <p>It is important to note that there are no significant environmental deviations between the latest report and the previous report by Mora Ecological Services. We trust that you and your client are now satisfied with the content of the latest report.</p> <p><u>Wetland Report (2017) and Wetland Opinion (2022)</u></p> <p>Your paragraphs 17 to 30 refer.</p> <p>Although the previous Wetland Assessment conducted by Eco-Care Consultancy (Pty) Ltd during February 2017 sufficiently addressed potential impacts, our client proceeded with the commissioning of Eco-Pulse Environmental Consulting Services to conduct a new Wetland Assessment Report. Attached hereto as <u>Annexure B</u> said report dated 13 February 2023. Once again it is important to note that no significant deviations were identified between the two assessments.</p>					

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 Received	Comments	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.
<p>From the content of the reports it is clear that both wetland specialists support the proposed mining operation in relation to the identified HGM units. Furthermore, the proposed mining operation and ancillary water use has already been authorized by the Department of Water and Sanitation (DWS) in terms of the National Water Act, 1998. Attached hereto as Annexure C general authorization granted on 30 January 2023.</p> <p>In terms of your requested Hydropedology Study, the potential impacts were identified as Low Significance, which study was also not required by the DWS, therefore this study would have been superfluous under the circumstances. Additionally, the potential impacts are sufficiently addressed in the studies conducted.</p> <p><u>Cumulative Impacts</u></p> <p>Your paragraphs 31 to 36 refer.</p> <p>Although cumulative impacts were previously considered as part of the TBIA and Wetland reports, said impacts were again assessed during the 2023 TBIA and Wetland Assessment. Therefore, please refer to Annexures A and B in terms of the cumulative impacts.</p> <p><u>Crushing and screening activities at the proposed additional site as part of the same mining operations</u></p> <p>Your paragraphs 37 to 43 refer.</p> <p>Please note that the stockpiling area has already been approved by the competent authority on 19 January 2023. Attached hereto as Annexure D granted Environmental Authorization (EA), which EA was already provided to your client as part of the public participation process thereof.</p>					

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 Received	Comments	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.
<p><u>Conclusion on supplementation objection and relief sought with Conclusion</u></p> <p>Your paragraph 44 and 45 refers.</p> <p>Considering our client's co-operation in the commissioning of additional Terrestrial Biodiversity and Wetland Assessments, which assessments do not significantly differ from the previous studies, the DMRE now has sufficient, if not an excess of, information to make an informed decision on our client's application."</p>					
<p>List of references where the aspects of concern raised by Bukhali/Afrimat were incorporated into the ADBAR:</p> <ul style="list-style-type: none"> ❖ Appendix H2: Terrestrial Biodiversity Impact Assessment, 2023; ❖ Appendix G3: Wetland Assessment Report, 2023; ❖ Part A(1)(i) Full description of the process undertaken to identify, assess and rank the impacts and risks the activity will impose on the preferred site (In respect of the final site layout plan) through the life of the activity. 					
Mr. S Zwane	10 November 2022	Mr Zwane requested copies of the project documents.	Greenmined emailed the requested documents to Mr Zwane on 11 November 2022. To date no additional comments were received.	Appendix F2 – Proof of Public Participation Process	

iv) The Environmental attributes associated with the alternatives.

(The environmental attributes described must include socio-economic, social, heritage, cultural, geographical, physical and biological aspects)

(1) Baseline Environment

(a) Type of environment affected by the proposed activity.

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

This section describes the biophysical, cultural, and socio-economic environment that may be affected and the baseline conditions, which are likely to be affected by the proposed mining activity.

PHYSICAL ENVIRONMENT

CLIMATE

The following chart shows the maximum, minimum and average temperatures (21°C daytime, 15°C night-time) of the Ladysmith region. Ladysmith experiences its highest temperatures during the summer months from November – March with peaks of up to 32°C; thereafter the mercury drops to lows of 7°C during June/July.

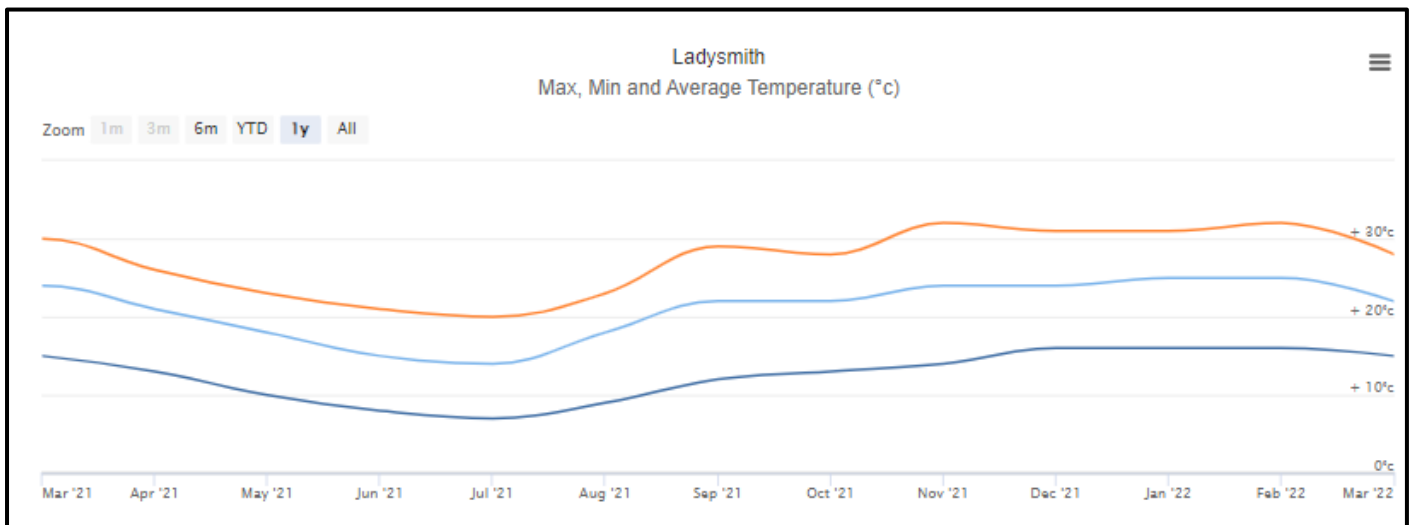


Figure 6: Maximum, minimum, and average temperature of the Ladysmith region where the orange line indicates the maximum temperature, the light blue line shows the averages, and the dark blue line shows the minimum temperatures (chart obtained from <http://www.worldweatheronline.com>)

The following chart obtained from World Weather Online shows that the measured rainfall average for 2021 was ±824 mm, while the area received the lowest rainfall during the winter months (May – August) and the highest in the summer (January - March).

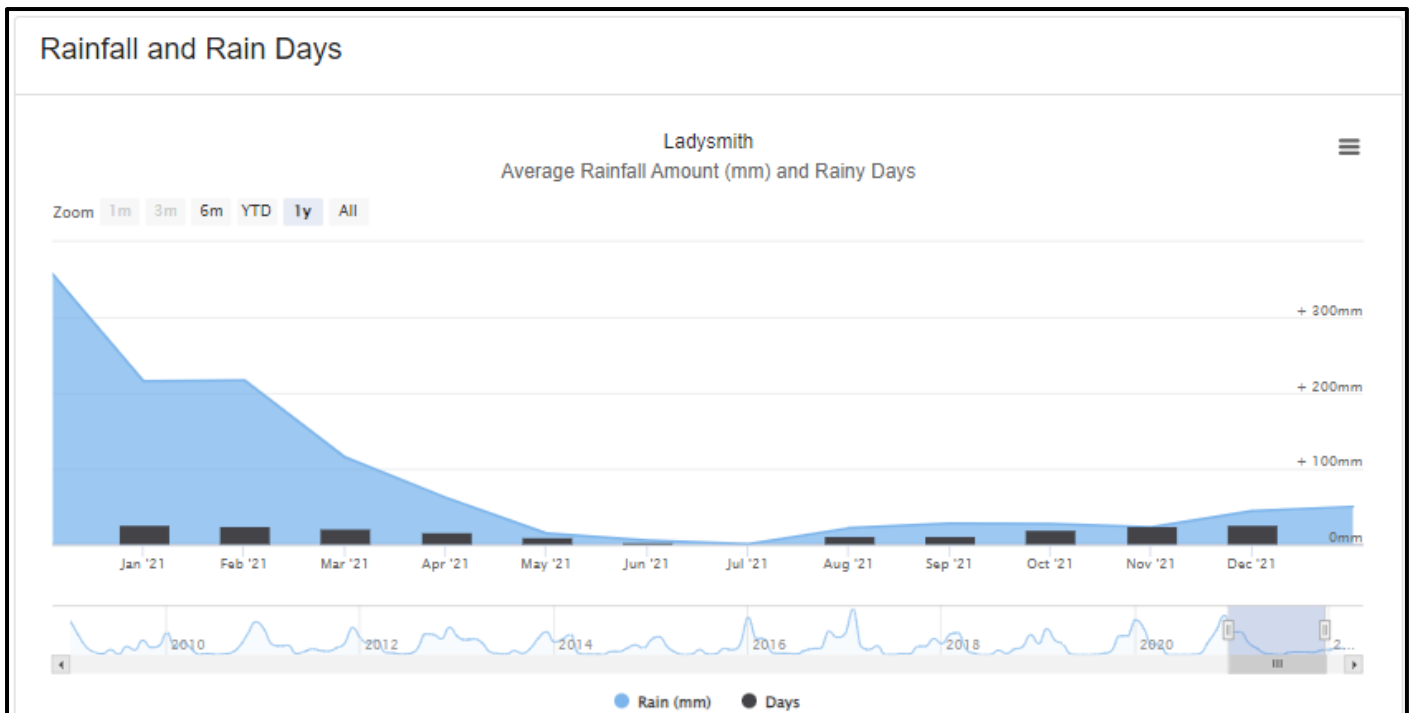


Figure 7: Average rainfall amount and rainy days count for the Ladysmith region (chart obtained from <http://www.worldweatheronline.com>)

The dominant wind direction of the Ladysmith region is fairly constant in a north-western direction (south-eastern wind), with the average wind speed being ± 4 knots (± 7.83 km/h) as shown in the figure below (measured at the Ladysmith Airport).

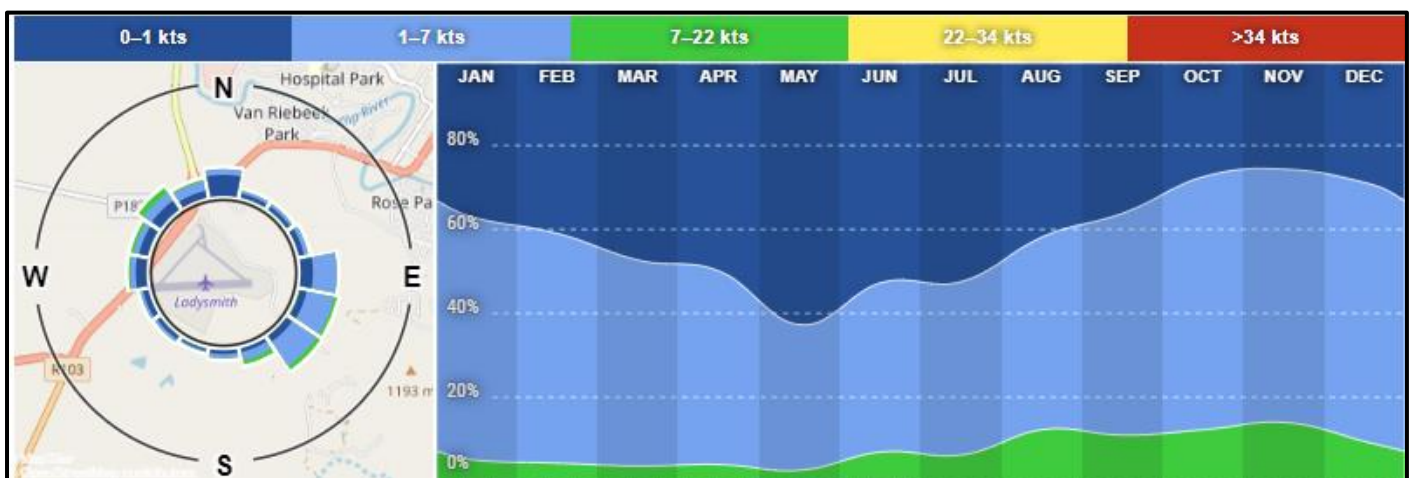


Figure 8: Image showing the dominant wind direction (first panel) and average wind speed over a 12 month period for the Ladysmith area (image obtained from <http://www.windfinder.com/windstatistics/ladysmith>).

TOPOGRAPHY

The topography of the greater study area can be described as an undulating terrain with broad valleys supporting tall tussock grassland usually dominated by *Hyparrhenia hirta*, with occasional savannoid woodlands with scattered *Acacia sieberiana* var. *woodii*. (Mucina and Rutherford, 2012). The area has elevations generally ranging between 1 634 – 922 mamsl.

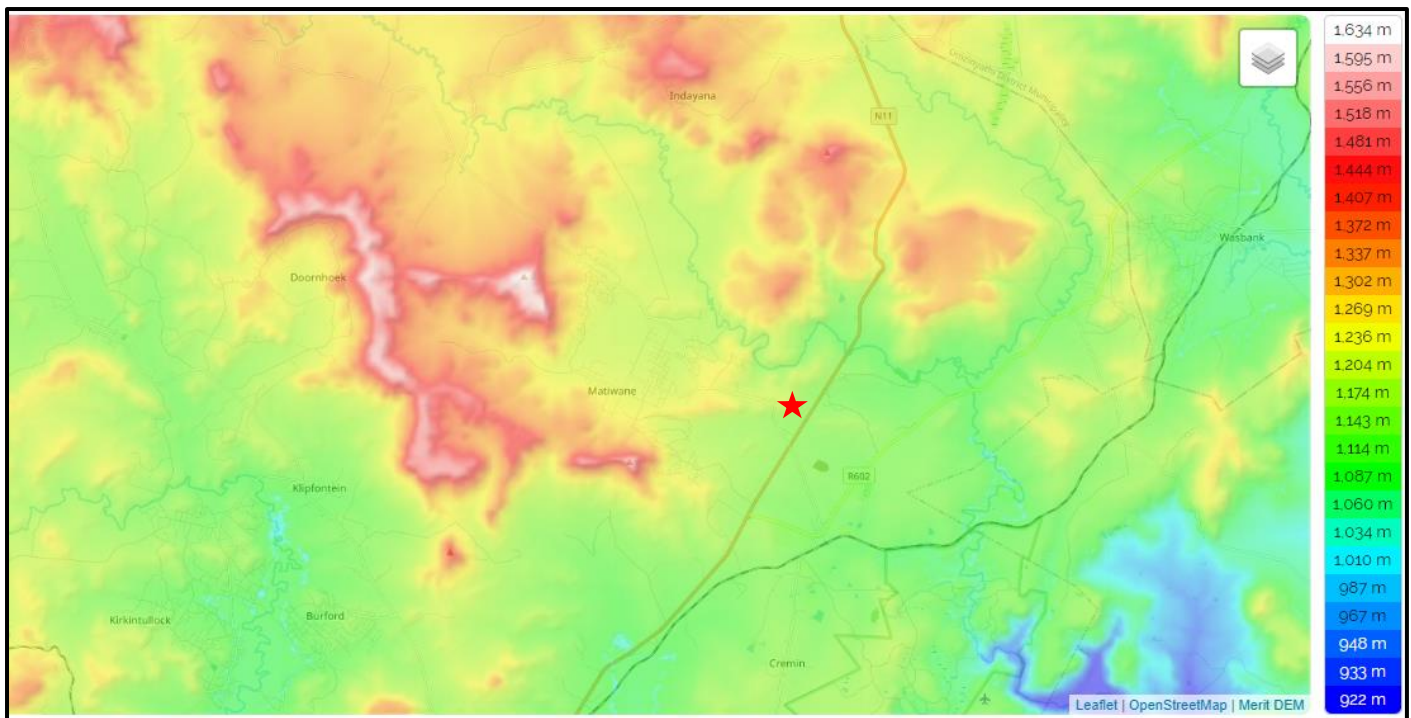


Figure 9: Map showing the topography of the greater Ladysmith area where the red star indicates the application area (image obtained from <http://www.en-za.topographic-map.com/maps/gwpq/South-Af>).

Also refer to Part A(1)(h)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – Site Specific Topography.

VISUAL CHARACTERISTICS

(Determined through site assessment by EAP)

The visual character of the surrounding areas mainly comprises of an agricultural setting, intersected by road- and electricity infrastructure, and transformed by the existing quarry (on the farm) and old coal mine dumps east of the farm.

The land use of the immediate surrounding properties is mainly used for agricultural purposes with the bulk of the land being natural to semi-natural rangelands grazed by cattle. Due to the topography of the area, the Remaining Extent of the farm Elands Spruit No 5523 is mainly visible from the higher lying north-eastern part of the farm.

Also refer to Part A(1)(h)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – Site Specific Visual Characteristics.

AIR AND NOISE QUALITY

(Determined through site assessment by EAP)

The background air quality of the surrounding area is relatively good due to low industrial activity in the region. The semi-rural Matiwane residential area, bordering the property to the north-west, has an impact on the natural air quality through emissions from cooking/heating fires. Other factors contributing to air pollution stem

from coal mining and vehicle emissions along the N11. Given the surrounding extent of mostly covered areas, no extreme dust generation, under windy conditions, is experienced. The noise ambiance of the surrounding area is highly impacted by traffic travelling along the N11 and Collings Pass roads bordering the property.

GEOLOGY AND SOIL

The interior parts of KwaZulu-Natal are characterised by a variety of Karoo Supergroup rocks, including Dwyka, Ecca and Beaufort Groups (Mucina & Rutherford, 2012). The Karoo Supergroup preserves a wide spectrum of depositional paleoenvironments ranging from glacial to deep marine, deltaic, fluvial and aeolian. Within the Ladysmith region, including the receiving environment of the proposed quarry the dominant geological formation is the Vryheid Formation of the Ecca Group. The Vryheid Formation is a fluviodeltaic deposit comprising fine- to coarse-grained sandstone, shales, siltstones, and subordinate coal beds (Whitmore et al., 1999 & Cairncross et al., 1998). Fractures and planes of weaknesses within these rocks acted as conduits to lava flow and the crystallisation of the magma within these fractures gave rise to Jurassic dolerite intrusion (dolerite sills and dykes). It is from such an intrusion where the resource will be mined.

Detailed soil information is not available for broad areas of the country. A surrogate land type data was used to provide a general description of soil in the study area (land types are areas with largely uniform soils, topography, and climate). The study area is primarily divided into two sections according to their land type units namely the Bb70 land type to the south (lower lying footslopes and valley bottom regions) and Fa802 to the north (mainly the midslope, crest and plateau areas). The Bb70 land type, as mentioned, covers the bulk of the study area (Land Type Survey Staff, 1987). Only a small section of the study area's northern boundary falls within Fa802.

The Bb group of land types are mainly characterised by Yellow apedal (structureless) soils which may be moderately (mesotrophic) to highly (dystrophic) leached and is characterised by a wide textural range, mostly sandy loam to sandy clay loam. Soils contain a greyish subsoil layer (plinthic) where iron and manganese accumulate in the form of mottles, due to a seasonally fluctuating water table. With time these mottles may harden (or even cement) to form concretions. These plinthic layers will cause restricted water infiltration and root penetration. In drier areas, however, they may help to hold water in the soil that plants can use (Land Type Survey Staff, 1987).

The Fa group of land types are generally characterised by Plinthic Catenas (upland duplex and marginal soils) containing shallow soils consisting of a topsoil directly underlain by weathered rock (Glenrosa form) or hard rock (Mispah form), sometimes

with surface rock and steep slopes. These land types are usually associated with moister areas or areas with acidic parent materials, where little lime exists.

A summary of the dominant soil forms found within the different terrain types are as follows:

- ❖ Midslope: Avalon, Westleigh, Glenrosa and Mispah
- ❖ Foothlope: Avalon, Valsrivier, Glencoe, Glenrosa, Dundee, Bainsvlei
- ❖ Valley Bottom: Valsrivier, Dundee

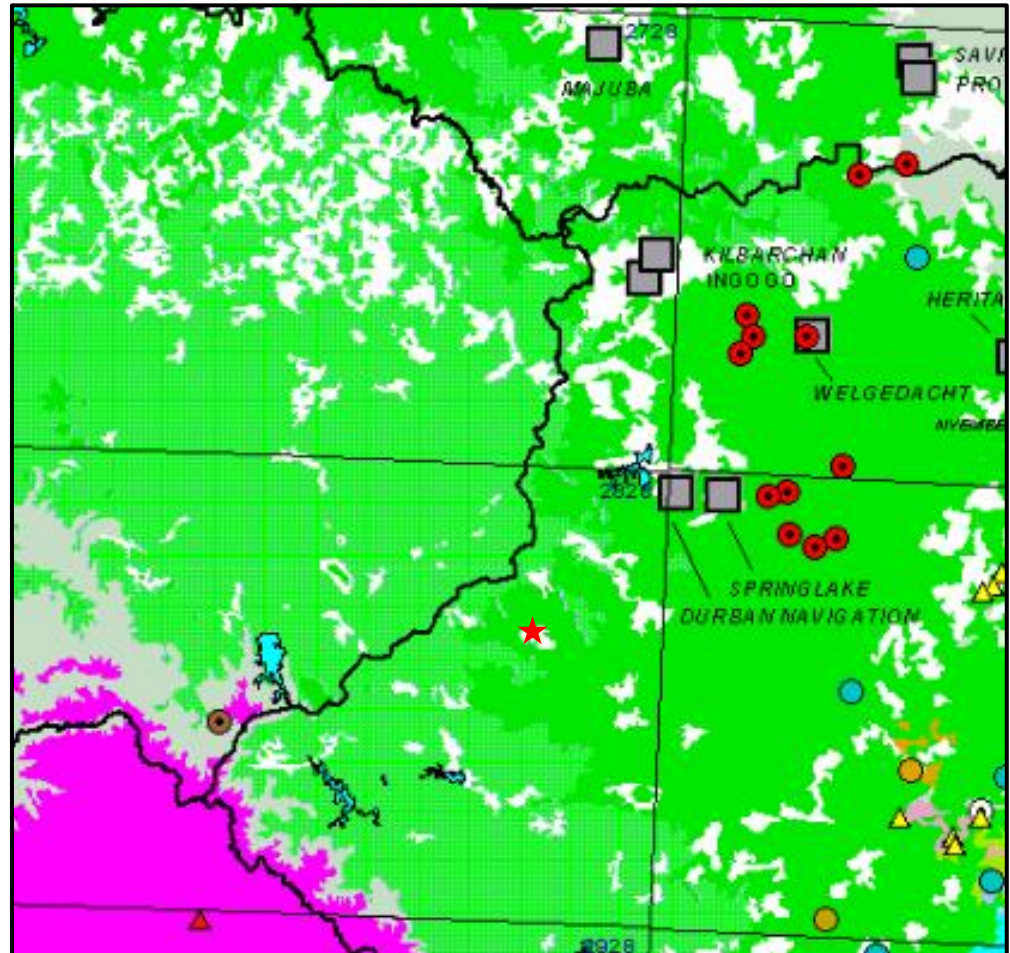


Figure 10: Indication of the simplified geology of the study area, where green represents the Dwyka and Ecca Groups (part of the Karoo Supergroup), white the dolerite intrusions, crossed green the Beaufort Group, grey the Molteno, Elliot and Clarens formations, and pink represents the Namaqua and Natal Metamorphic Provinces. The proposed mining area is indicated by the red star. (Image obtained from the Council for Geoscience)

HYDROLOGY

(Information extracted from the Environmental Impact Assessment Report and Environmental Management Programme Report of the RBX-KZN mining permit, 2017 and the 2023 Wetland Assessment attached as Appendix G3)

The study area is located within DWS Quaternary Catchments V60C & V60B. The quaternary catchments are primarily drained by the perennial Sundays River. The site is located on a catchment divide with most of the site draining southwards in the V60C catchment. The local drainage network in the vicinity of the study area consists of two

wetland systems located approximately 166 m downslope of the mining permit area. The valley bottom wetland drains in a south easterly direction which forms part of a left bank tributary of the middle Sundays River system.

The Sundays River Catchment forms part of the Pongola - Mtamvuma Water Management Area. The Sundays River flows in a south-easterly direction from the Eastern Escarpment to its confluence with the Thukela River near the Bushmans River confluence. Commercial dryland agriculture dominates the area and there are also fairly large tracts of trial/communal land in the lower reaches of the catchment. Other than the Slangdraai Dam, which has a full supply capacity of 10.3 million m³, there is no significant storage in this catchment area. Irrigation within the catchment is supplied from farm dams or from run-of-river flows. Coal mining abounds in the upper areas of the catchment which contributes both to water quality problems and is a source of return flows.

National Freshwater Ecosystems Priority Areas:

The National Freshwater Ecosystems Priority Areas (NFEPA) (2011) database provides strategic spatial priorities for conserving South Africa’s freshwater ecosystems and supports the sustainable use of water resources. The spatial priority areas are known as Freshwater Ecosystem Priority Areas (FEPAs). A review of the NFEPA coverage for the study area revealed the results as presented in the following table.

Table 10: Key ecological and conservation context details for the study area (table obtained from the 2023 Wetland Assessment).

NATIONAL LEVEL CONSERVATION PLANNING CONTEXT			
Conservation Planning Dataset		Relevant Conservation Feature	Conservation Planning Status
National Freshwater Ecosystem Priority Areas (NFEPA) (WRC, 2011)	Rivers	Catchment Planning Unit 3031	Upstream Management Area ⁶
		Catchment Planning Unit 2826	River FEPA ⁷
	Wetlands	Onsite NFEPA wetlands	No FEPA wetlands present
		Presence of wetland FEPAs within 500m of the study area	Least Threatened

NATIONAL LEVEL CONSERVATION PLANNING CONTEXT		
Conservation Planning Dataset	Relevant Conservation Feature	Conservation Planning Status
	Sub-Escarpment Grassland Group 4	Channelled valley bottom wetland 'Least Threatened'
		Seep 'Endangered'
2018 National Biodiversity Assessment – Inland Aquatic / Freshwater Realm (GIS Coverage)	Wetlands Sub-Escarpment Grassland Bioregion	Channelled valley bottom wetland 'Critically Endangered'
		Seep 'Critically Endangered'
PROVINCIAL AND REGIONAL LEVEL CONSERVATION PLANNING CONTEXT		
Conservation Planning Dataset	Relevant Conservation Feature	Conservation Planning Status
KZN Aquatic Systematic Conservation Plan (EKZNW, 2007)	Sub-quaternary catchment & nearby Wetland	Freshwater Planning Unit No. 2353 & 2360 'Available' (no status)

Several freshwater wetlands have been listed within the region (11), according to the NFEPA spatial coverage (Nel, et al., 2011). Almost all these wetlands have been classified as artificial wetland flats or seepages. Several natural wetland features are also found within the region and are typically channelled valley-bottom wetlands. No such wetlands, according to the spatial data are present within the development site, whilst the closest natural wetland feature is located approximately 682 m to the south-east of the project site (FEPA priority channelled valley-bottom wetland). Subsequently the proposed development will not impact any priority wetland features.

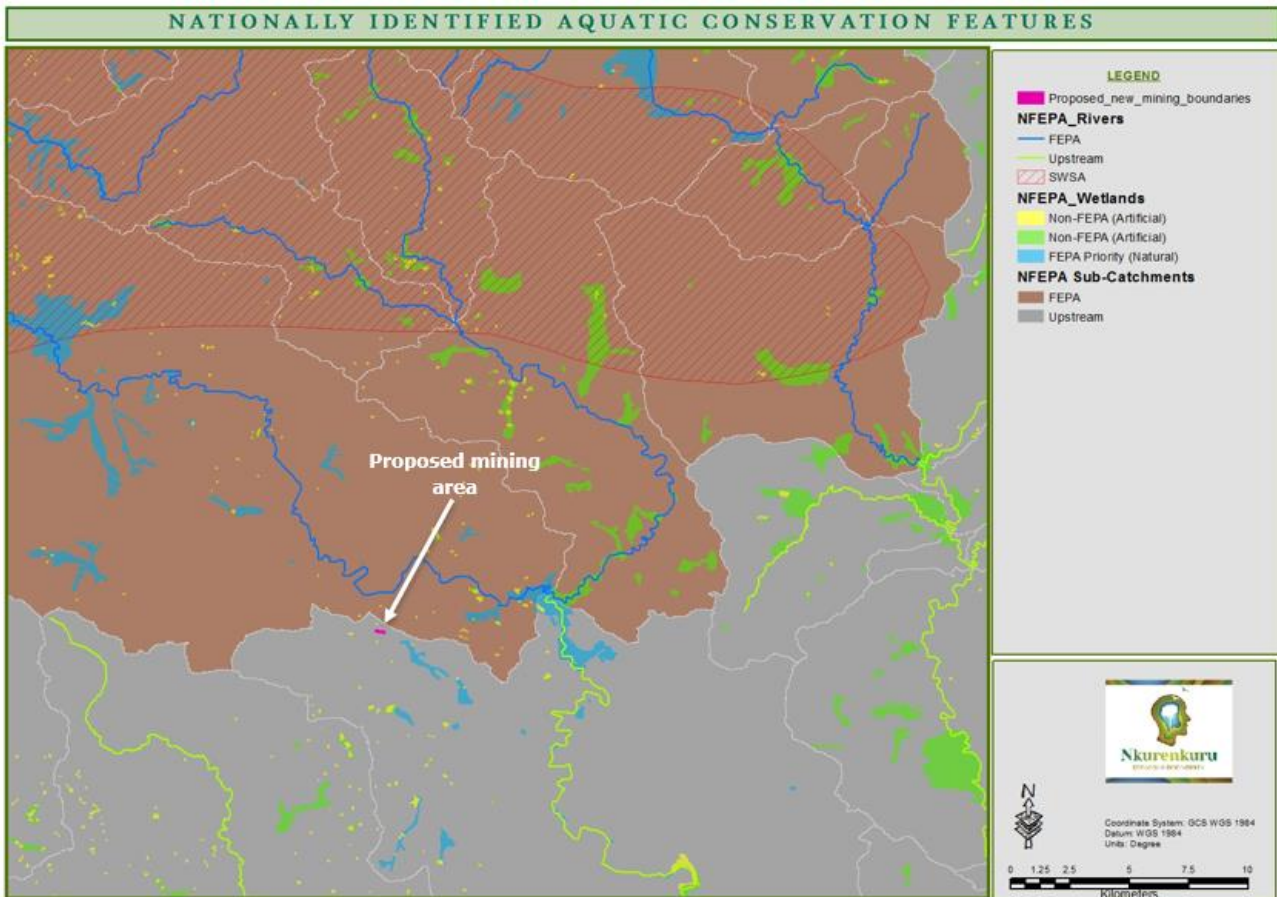


Figure 11: Nationally identified aquatic conservation features (image obtained from 2022 Wetland Opinion).

Strategic Water Source Areas:

Strategic Water Source Areas (SWSAs) are defined as areas of land that either:

- ❖ supply a disproportionate (i.e. relatively large) quantity of mean annual surface water runoff in relation to their size and so are considered nationally important;
- ❖ have high groundwater recharge and where the groundwater forms a nationally important resource;
- ❖ areas that meet both criteria mentioned above.

The project site is located well outside of any SWSA (Figure 11) and as such will not impact such areas.

Also refer to Part A(1)(h)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – Site Specific Hydrology.

BIOLOGICAL ENVIRONMENT

MINING AND BIODIVERSITY

(Information extracted from the Mining and Biodiversity Guideline: Mainstreaming Biodiversity into the Mining Sector, Department of Environmental Affairs, Department of Mineral Resources, Chamber of Mines, 2013)

The Mining and Biodiversity Guideline, compiled by the South African Mining and Biodiversity Forum (SAMBF) provides the mining sector with a practical, user-friendly manual for integrating biodiversity considerations into planning processes and managing biodiversity during the developmental and operational phases of a mine, from exploration through to closure.

When the potential mining footprint is layered over the Mining and Biodiversity Map (following figure), it falls in an area of highest biodiversity importance (dark brown) with a corresponding rating of highest risk for mining.

The Mining and Biodiversity Guideline's definition for areas of highest biodiversity importance stipulates that: *"these areas are viewed as necessary to ensure protection of biodiversity, environmental sustainability, and human well-being"*. The guidelines note that environmental screening, the EIA and specialists should focus on confirming the presence and significance of biodiversity features and provide a site-specific basis on which to apply the mitigation hierarchy to inform regulatory decision-making.



Figure 12: The Mining Guidelines map shows the proposed mining area (blue polygon) within an area of highest biodiversity importance with a highest risk for mining (dark brown) (image obtained from the BGIS Map Viewer – Mining Guidelines).

Also refer to Part A(1)(h)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – Site Specific Site Specific Terrestrial Biodiversity (including fauna and flora).

BIODIVERSITY CONSERVATION AREAS

(Information extracted from the Terrestrial Biodiversity Impact Assessment attached as Appendix H)

The Systematic Conservation Assessments (SCAs) is a strategic conservation plan developed in 2016 by the Provincial Conservation Authority, Ezemvelo KZN Wildlife (EKZNW) to ensure that representative samples of biodiversity are conserved. It is used as a land use decision support tool in KwaZulu-Natal and replaced the 2010 Terrestrial Systematic Conservation Plan (MINSET). The SCAs are derived from merging the Provincial Terrestrial Systematic Conservation Plan (TSCP) with other conservation datasets. In terms of terrestrial conservation, three conservation categories were developed including (i) CBA: Irreplaceable, (ii) CBA: Optimal, and (iii) Ecological Support Area. These conservation categories are described in the following table.

Table 11: Description and derivation of conservation categories (table obtained from the 2023 TBIA).

Conservation Category	Description	Development Process
Critical Biodiversity Area: Irreplaceable	Areas considered critical for meeting biodiversity targets and thresholds, and which are required to ensure the persistence of viable populations of species and the functionality of ecosystems.	The coverage was created by merging the following datasets: <ul style="list-style-type: none"> • 2010 MINSET – Irreplaceable and highly irreplaceable categories. • National Threatened Ecosystems – Critically endangered category • KZN Threatened Ecosystem – Critically Endangered and Endangered category. • Landscape Corridor critical linkages - Corridor type
Critical Biodiversity Area: Optimal	Areas that represent an optimised solution to meet the required biodiversity conservation targets while avoiding high-cost areas as much as possible.	The coverage was created by merging the following datasets: <ul style="list-style-type: none"> • 2010 MINSET – Optimal categories. • Local Knowledge – aquatic and terrestrial optimal categories.
Ecological Support Area	ESA are functional but not necessarily entirely natural terrestrial or aquatic areas that are required to ensure the persistence and maintenance of biodiversity patterns and ecological processes within the CBAs.	The coverage was created by merging the following datasets: <ul style="list-style-type: none"> • Local Knowledge – aquatic and terrestrial ESA categories. • Local corridor • Landscape corridor

According to the KwaZulu-Natal Terrestrial Systematic Conservation Plan (TSCP) (EKZNW, 2016) areas of CBA: Optimal are present within the project footprint as shown in the following figure. It is evident from the TSCP (EKZNW, 2011) spatial coverage that the ‘CBA: Optimal’ status assigned to these areas is vegetation driven

due to the current and potential presence of the Northern KwaZulu-Natal Moist Grassland. Other species driving the classification (based on the distribution of the vegetation type) include the mollusc: *Cochlitoma simplex*. *C. simplex* distribution (same as CBA) has been depicted as having a marginal presence within the mining area, as shown in the following figure. Given that this species is fairly data deficient and has not been previously recorded in the area, and that the quality of Northern KwaZulu-Natal Moist Grassland within this area is highly degraded and Invasive Alien Plant cover is dense, the inclusion of a CBA: Optimal within the mining area is not considered as a definitive concern.



Figure 13: Map showing the location and extent of areas identified as “CBA: Optimal” (shaded in blue) according to the terrestrial CPLAN (EKZNW, 2016), in relation to the study site (image obtained from the 2023 TBIA).

The DFFE screening tool shows the animal theme as being of high sensitivity, whereas the plant theme yielded medium sensitivity. However, according to the screening tool the overall site is highly sensitivity in terms of terrestrial biodiversity due to the area being within a Strategic Water Source Area (shown in Figure 11 as not applicable).

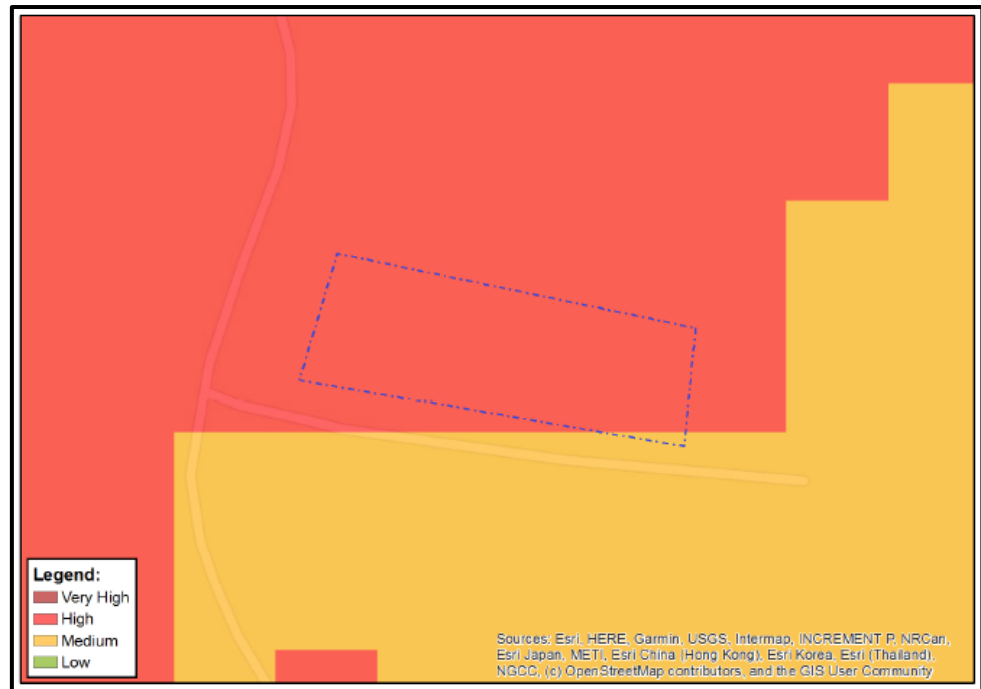


Figure 14: DFFE screening tool output for animal species (image obtained from DFFE screening tool report).



Figure 15: DFFE screening tool output for plant species (image obtained from DFFE screening tool report).

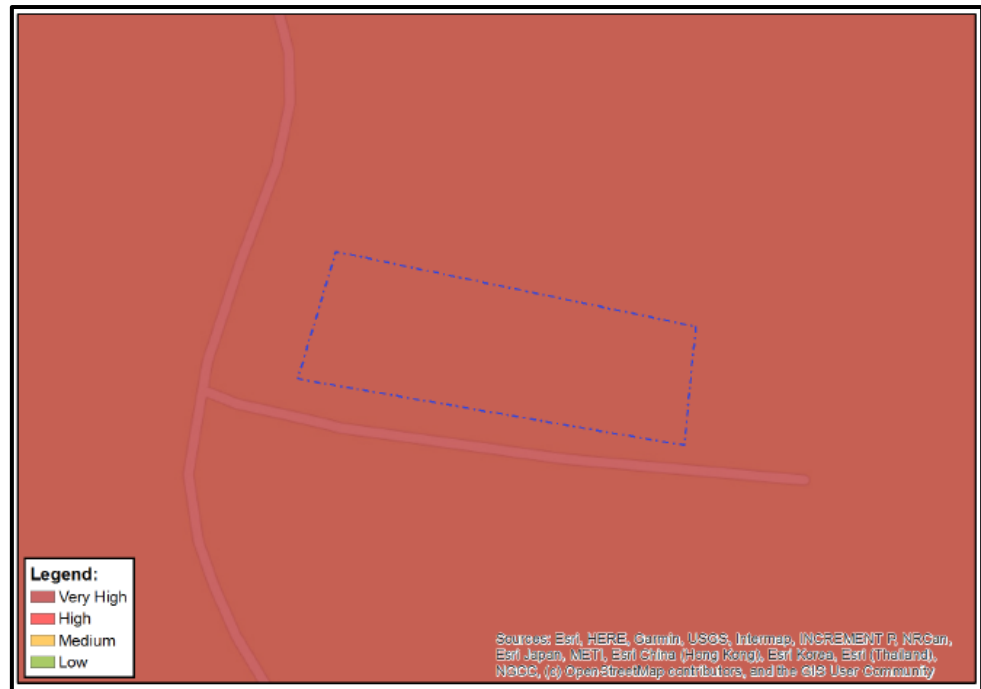


Figure 16: DFFE screening tool output for terrestrial biodiversity (image obtained from DFFE screening tool report).

The project site is more than 5 km from any NEM:PAA listed private game or nature reserve, or other conservation areas. According to the KZN Biodiversity Sector Plan (2014), no ecological corridor falls within the study area, nor within proximity to the study area. No areas in the immediate vicinity of the property have been flagged for future conservation as part of the KwaZulu-Natal Protected Areas Expansion 20-year Strategy (EKZNW, 2010) spatial coverage, and likewise no provincial protected areas or forests occur within the study area.

Also refer to Part A(1)(h)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – Site Specific Terrestrial Biodiversity (including fauna and flora).

GROUND COVER

(Information extracted from the 2022 Terrestrial Biodiversity Impact Assessment, and the 2023 Terrestrial Biodiversity Impact Assessment attached as Appendix H1 and H2 respectively)

The geographic region of the proposed development falls in the Grassland Biome. 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. According to Mucina and Rutherford (2006) the natural vegetation type of the study area is classified as Northern KwaZulu-Natal Moist Grassland (Gs 4).



Figure 17: Vegetation cover map showing the mining area (white polygon) and additional stockpile area (blue polygon) within the Northern KwaZulu-Natal Moist Grassland (Gs 4) vegetation type (image obtained from the 2023 TBIA).

According to the National Environmental Management: Biodiversity Act or NEMBA: revised national list of threatened terrestrial ecosystems (18 November 2022) this vegetation type is considered 'Vulnerable'. The provincial vegetation map identified the same vegetation types along the development footprint with the provincial status of 'Least Concern' for Northern KwaZulu-Natal Moist Grassland. According to the NPAES (National Protected Area Expansion Strategy) (SANBI, 2010) spatial outputs, there are no national protected areas found within the study area. Additionally, the study area has not been flagged for future formal protection.



Figure 18: Map of the red list for threatened ecosystems – remnants (SANBI, 2021) (image obtained from the 2023 TBIA).

This vegetation type is predominantly found in the northern and north-western regions of the KwaZulu-Natal Province, where it forms a discontinuous rim around the upper Thukela Basin and is situated almost entirely within the catchment of the Thukela River. The most extensive areas are in the vicinity of Winterton, Bergville, Fort Mistake, Dannhauser, Dundee, north of Ladysmith and west of Newcastle. Present at altitudes between 1 040–1 440 m.

The Northern KwaZulu-Natal Moist Grassland are characterised by the important/diagnostic, biogeographically significant and endemic taxa presented in the following table.

Table 12: Important taxa of the Northern KwaZulu-Natal Moist Grassland (Mucina and Rutherford, 2011) (table obtained from the 2023 TBIA).

Important taxa
<p><u>Graminoids:</u> <i>Alloteropsis semialata</i> subsp <i>eckloniana</i>, <i>Aristida congesta</i>, <i>Cynodon dactylon</i>, <i>Digitaria tricholaenoides</i>, <i>Elionurus muticus</i>, <i>Eragrostis patentissima</i>, <i>E. racemosa</i>, <i>Harporchloa falx</i>, <i>Hyparrhenia hirta</i>, <i>Themeda triandra</i>, <i>Tristachya leucothrix</i>, <i>Abildgaardia ovata</i>, <i>Andropogon appendiculatus</i>, <i>A. eucomus</i>, <i>A. schirensis</i>, <i>Aristida junciformis</i> subsp <i>galpinii</i>, <i>Brachiaria serrata</i>, <i>Cymbopogon caesius</i>, <i>C. pospischillii</i>, <i>Cynodon incompletes</i>, <i>Digitaria monodactyla</i>, <i>D. sanguinalis</i>, <i>Diheteropogon amplectens</i>, <i>D. filifolius</i>, <i>Eragrostis chloromelas</i>, <i>E. plana</i>, <i>E. planiculmis</i>, <i>Eragrostis sclerantha</i>, <i>Festuca scabra</i>, <i>Heteropogon contortus</i>, <i>Hyparrhenia dregeana</i>, <i>Melinis nerviglumis</i>, <i>Microchloa caffra</i>, <i>Panicum natalense</i>, <i>Paspalum scrobiculatum</i>, <i>Setaria nigrirostris</i>, <i>Sporobolus africanus</i>.</p> <p><u>Herbs:</u> <i>Acanthospermum austral</i>, <i>Argyrobium speciosum</i>, <i>Eriosema kraussianum</i>, <i>Geranium wakkerstroomianum</i>, <i>Pelargonium luridum</i>, <i>Acalypha penduncularis</i>, <i>Chamaecrista mimosoides</i>, <i>Dicoma anomala</i>, <i>Euryops transvaalensis</i> subsp <i>setilobus</i>, <i>Helichrysum caespititium</i>, <i>H. rugulosum</i>, <i>Hermannia depressa</i>, <i>Ipomoea crassipes</i>, <i>Pearsonia grandiflora</i>, <i>Pentanisia prunelloides</i> subsp <i>latifolia</i>, <i>Sebaea grandis</i>, <i>Senecio inornatus</i>, <i>Thunbergia atriplicifolia</i>, <i>Zaluzianskyia microsiphon</i>.</p> <p><u>Geophytic Herbs:</u> <i>Chlorophytum haygarthii</i>, <i>Gladiolus aurantiacus</i>, <i>Asclepias aurea</i>, <i>Cyrtanthus tuckii</i> var <i>transvaalensis</i>, <i>Gladiolus crassifolius</i>, <i>Hypoxis colchicifolia</i>, <i>H. multiceps</i>, <i>Morea brevistyla</i>, <i>Zantedeschia rehmannii</i>.</p> <p><u>Succulent Herbs:</u> <i>Aloe ecklonis</i>, <i>Lopholaena segmentata</i>.</p> <p><u>Low shrubs:</u> <i>Anthospermum rigidum</i> subsp <i>pumilum</i>, <i>Erica oatesii</i>, <i>Hermannia geniculata</i>.</p> <p><u>Succulent shrubs:</u> <i>Euphorbia pulvinata</i></p> <p><u>Biogeographically important taxa:</u> <i>Aloe modesta</i> and <i>Bowkeria citrina</i>.</p>

Table 13: Conservation targets, ecosystem status and level of protection based on 2011 accumulated transformation statistics of the KwaZulu-Natal vegetation types that occur on-site (extracted from Jewitt, 2018), and the extent in hectares of the vegetation types that occur within the two sites (table obtained from the 2023 TBIA).

KZN vegetation type	Conservation target (%)	Ecosystem status	Level of protection	Original extent (ha)	Remaining natural (ha)	Extent on site (ha)
Northern KwaZulu-Natal Moist Grassland	24	Vulnerable	Poorly Protected	696 920	391 958	15.4



Figure 19: Provincial vegetation map (EKZNW, 2011) (image obtained from the TBIA).

Also refer to Part A(1)(h)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – Site Specific Terrestrial Biodiversity (including fauna and flora).

FAUNA

(Information extracted from the 2022 Terrestrial Biodiversity Impact Assessment, and the 2023 Terrestrial Biodiversity Impact Assessment attached as Appendix H1 and H2 respectively.)

As mentioned earlier, the DFFE screening tool notes the animal theme as being of high sensitivity. Appendix C – F of the 2022 TBIA (Appendix H1) list historical records of faunal species recorded around in the greater study area, while Annexure B of the 2023 TBIA describes the SCC likelihood of occurrence assessment.

The largest part of the Remaining Extent of the farm Elands Spruit No 5523 is used for livestock grazing. Apart from the domestic animals, faunal action is mainly contained to the natural vegetated areas of the farm that provides shelter to the animals. Eco-Pulse further notes (in the TBIA) that the likelihood of *C. simplex* occurring on site is of no definitive concern due to the highly degraded nature of the vegetation structure.

Also refer to Part A(1)(h)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – Site Specific Fauna.

HUMAN ENVIRONMENT:

CULTURAL AND HERITAGE ENVIRONMENT

(Information extracted from the Environmental Impact Assessment Report and Environmental Management Programme Report of the RBX-KZN mining permit, 2017)

The South African Heritage Resources Agency (SAHRA) compiled the Palaeontological (fossil) Sensitivity Map (PSM) to guide developers, heritage officers and practitioners in screening palaeontologically sensitive areas at the onset of a project. When the footprint of the proposed mining area is placed on the PSM, it shows the study area to extend over an area of insignificant/zero (grey) concern as presented in the figure below. Considering this, no palaeontological study is required.

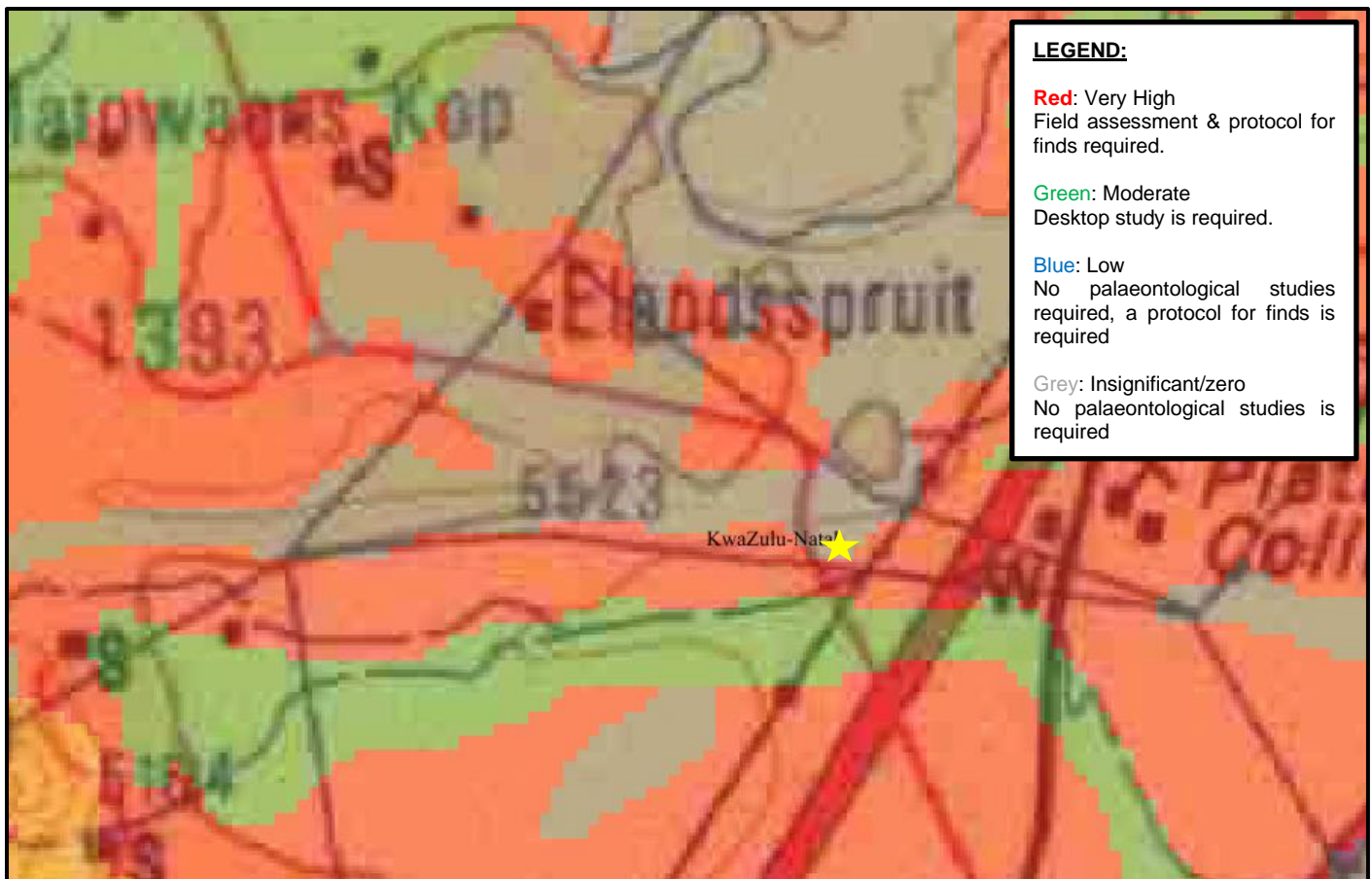


Figure 20: The SAHRA palaeontological sensitivity map shows the proposed mining footprint (yellow star) falls in an area of Insignificant/Zero (grey) concern.

Also refer to Part A(1)(h)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – Site Cultural and Heritage Environment.

SOCIO-ECONOMIC ENVIRONMENT

(Information extracted from the Alfred Duma Local Municipality Integrated Development Plan 2020/2021)

The proposed mining area is in Ward 24 of the Alfred Duma Local Municipality (ADLM). The ADLM was formed after the redetermination of boundaries in terms of section 21 of the Local Government, the Municipal Demarcation Act 1998 (Act No.27 of 1998) which resulted in municipalities being disestablished and their former areas of jurisdiction merged under new municipalities to be established. The Emnambithi/Ladysmith Municipality and Indaka Local Municipality are part of the municipalities that have merged to form the new Alfred Duma Local Municipality.

The ADLM is one of three municipalities in the uThukela District with Ladysmith, Ezakheni, Steadville and Colenso/Nkanyezi as main urban areas. Ladysmith is the primary urban area, located along the N11 national route, 20 kilometres off the N3 national route.

According to the ADLM IDP (2020/2021) the area has a population of 356 276 with an average annual population growth rate of 0.015%. South Africa is estimated to have

an average annual growth rate of 1.17% and the growth rate of the ADLM it therefore well below the national growth rate.

Gender Profile

The age/sex distribution of the ADLM shows that 46.3% of the population are under the age of 19 years old, which indicates that a large portion of the population is under the working area. An analysis of the population structure indicates a large drop in the population from those aged 20-24 years old and above. This could be due to out-migration of the youth in search of employment in other areas.

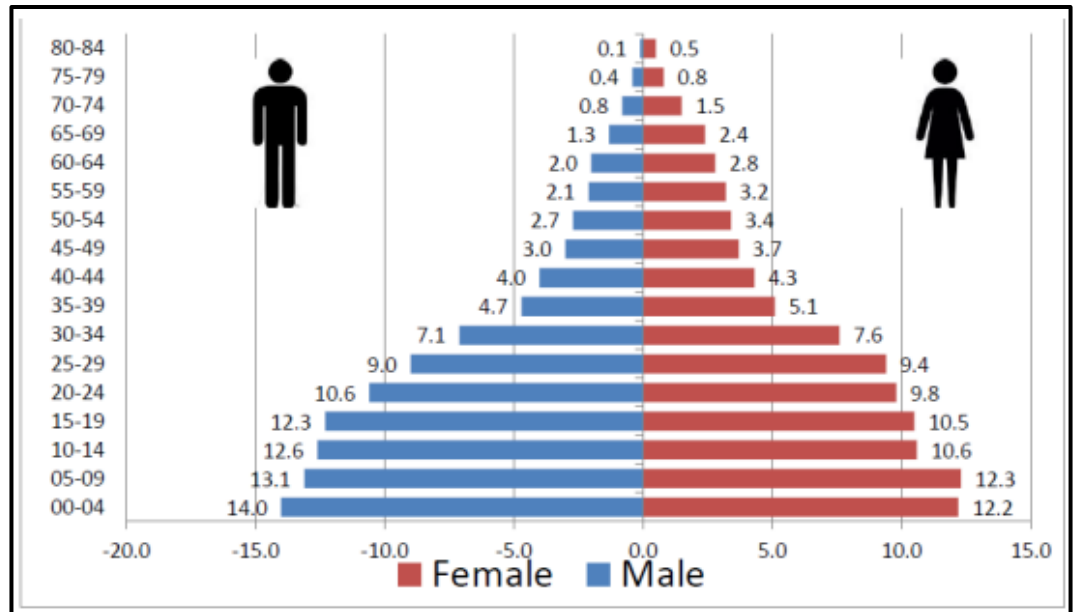


Figure 21: Gender and age distribution profile (image obtained from the ADLM IDP 2020/2021).

Population Profile

The municipality is highly dominated by the Black African population group which makes up over 80% of the municipality's population structure followed by Coloureds, Indians, and white people last.

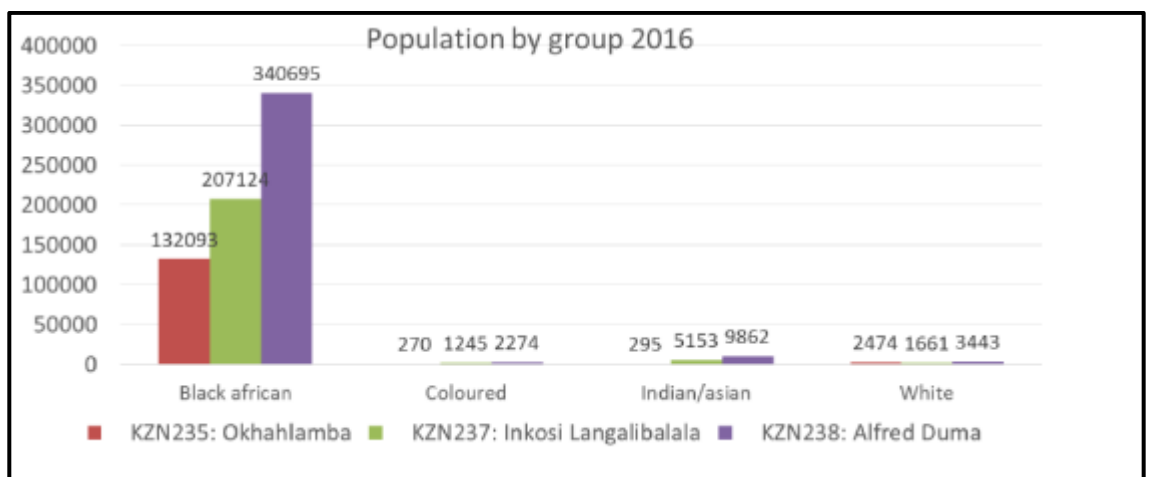


Figure 22: Racial distribution of the ADLM (image obtained from the ADLM IDP 2020/2021).

Economic Profile

Although agriculture occupies the largest amount of land in the Municipality, its significance as an economic sector has declined over time. The importance of the manufacturing sector has increased substantially in both contributions to total output and as a source of employment. However, this sector has itself experienced variable trends with signs of decline becoming evident in the last few decades. The growing sub-sector in the employment of people in Alfred Duma is the Retail, Accommodation and catering which are currently employing almost 24% of the economically active population, followed by General Government employing 18% and Community and Personal Services employing 16%. These three main employment contributors fall under the tertiary sector.

The employment status of the Alfred Duma Local Municipality depicts that most of the population are not economically active ($\pm 40.6\%$). The high number of unemployed individuals in the municipality can mainly be attributed to lack of education, poor healthcare, and the unavailability of employment opportunities in both the private and public sectors of the municipality.

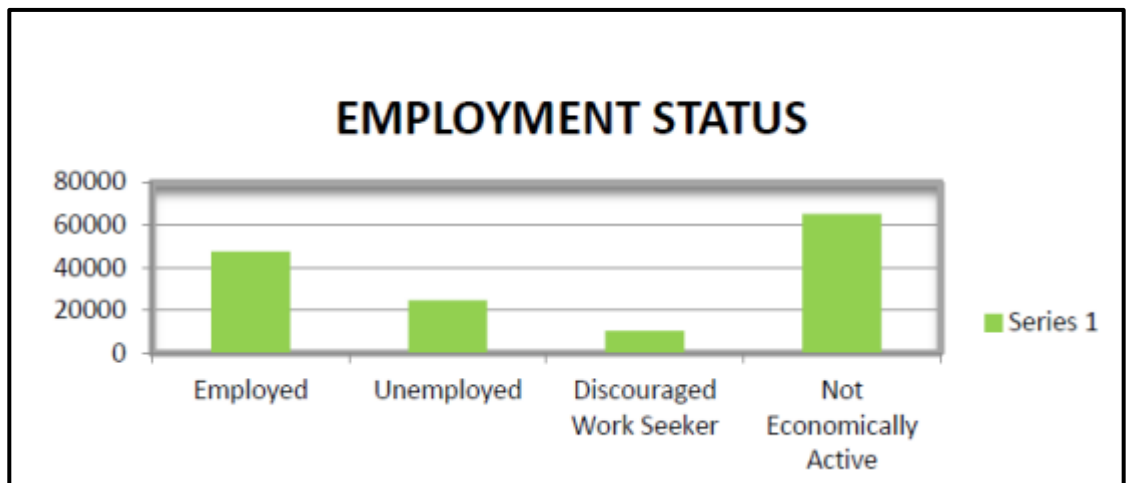


Figure 23: Employment status of the ADLM (image obtained from the ADLM IDP 2020/2021)

In Alfred Duma as of 2015, close to three fifths (59%) of the population accounted for the working age bracket (15-64 years). The unemployment rate was 38% in 2015.

In the ADLM 46.3% of the population do not earn an income while almost 22% earns between R 1-R4800 per year, which is less than R 400 per month. 39.6% of the income earning population earn below R 1 600 per month. Only 7.5% of the population earn over R 1 600 per month, which indicates that a significant percentage of the Alfred Duma population is living in poverty. As a result, the urbanisation that is currently taking place is the urbanisation of poverty.

Education Levels

Alfred Duma has a population with low literacy and education levels with about 75% of the population not having access to matric certificates. Education is one of the most fundamental factors to development. Education raises people productivity and promotes entrepreneurship and technological advances. In addition, it is very crucial in securing social and economic progress and improving income distribution.

(b) Description of the current land uses.

The Remaining Extent of the farm Elands Spruit No 5523 is situated in a rural setting intersected by road-, and electricity infrastructure, and transformed by the existing quarry (on the farm) and old coal mine dumps east of the farm. The earmarked property is zoned as Agricultural.

Land use within the greater landscape is predominantly for agricultural purposes with the bulk of the land (almost 70%) being natural to semi-natural rangelands (grasslands) grazed mostly by cattle. The higher lying areas to the north-west (around the headwaters of the non-perennial watercourse and smaller tributaries) falls mostly within tribal/communal land (12%) and is severely transformed and degraded through several disturbances including; the low to medium density village (Matiwane), associated small patches of cultivated lands (subsistence purposes), areas devoid of vegetation or covered by a low basal vegetative covering, and severely grazed and trampled areas. Cultivation for commercial purposes comprises only small portions of land use within this landscape (<4%) whilst cultivation for subsistence purposes (outside of the Matiwane boundaries) encompass a slightly larger percentage (~6%).

One coal mine is located within the area covering less than 1% of the total land cover. As mentioned earlier a few small farm dams are present (<1%) within the area and is mostly associated with small tributaries and drainage lines associated with the non-perennial watercourse. Outside of the boundaries of the tribal lands located to the north-west, which is characterized by large bare areas, bare patches are mostly associated with eroded areas around the non-perennial watercourse (6%). Plantations and woodlots are sparse with small patches found around some homesteads (<1%).

The following table provides a description of the land uses and/or prominent features that currently occur within a 500 m radius of the mining area:

Table 14: Land uses and/or prominent features that occur within 500 m radius of the proposed area.

LAND USE CHARACTER	YES	NO	DESCRIPTION
Natural area	YES	-	The study area is surrounded by natural areas used for agricultural purposes.
Low density residential	-	NO	-
Medium density residential	-	NO	-
High density residential	-	NO	-
Informal residential	-	NO	-
Retail commercial & warehousing	-	NO	-
Light industrial	-	NO	-
Medium industrial	-	NO	-
Heavy industrial	-	NO	-
Power station	-	NO	-
High voltage power line	YES	-	Two high voltage Eskom power lines (275kV) as well as a 11kV power line run past the proposed mining area with the nearest pylon being ± 50 m from the eastern boundary of the site.
Office/consulting room	-	NO	-
Military or police base / station / compound	-	NO	-
Spoil heap or slimes dam	-	NO	-
Quarry, sand or borrow pit	YES	-	This application is to extent the footprint of the existing quarry (± 0.3 ha) on the property.
Dam or reservoir	YES	-	A small earth dam, used by the landowner to water his stock, is ± 250 m north of the proposed mining area, with another earth dam ± 370 m south of the mining area. The proposed mining activities will have no impact on the dams surrounding it as all activities will be contained to the approved boundaries.
Hospital/medical centre	-	NO	-
School/ crèche	-	NO	-
Tertiary education facility	-	NO	-
Church	-	NO	-
Old age home	-	NO	-
Sewage treatment plant	-	NO	-
Train station or shunting yard	-	NO	-
Railway line	-	NO	-
Major road (4 lanes or more)	-	NO	The N11 that borders the site to the east does not have 4 lanes or more.
Airport	-	NO	-
Harbour	-	NO	-
Sport facilities	-	NO	-
Golf course	-	NO	-
Polo fields	-	NO	-
Filling station	-	NO	-
Landfill or waste treatment site	-	NO	-
Plantation	-	NO	-

LAND USE CHARACTER	YES	NO	DESCRIPTION
Agriculture	YES	-	As mentioned earlier the proposed mining area is situated within an area used for grazing/conditioning of livestock. Various fallow lands surround the study area.
River, stream, or wetland	YES	-	A wetland system is within 500 m (south) of the proposed mining area.
Nature conservation area	-	NO	-
Mountain, hill or ridge	YES	-	The proposed mining area is situated within the midslope region identified on the property. The surrounding area is also undulating/hilly.
Museum	-	NO	-
Historical building	-	NO	-
Protected Area	-	NO	-
Graveyard	-	NO	-
Archaeological site	-	NO	-
Other land uses (describe)	-	NO	-

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

SPECIFIC ENVIRONMENTAL FEATURES

SITE SPECIFIC TOPOGRAPHY

The site specific topography has a gradual to moderate sloping landscape, slanting mainly in a southerly direction, in which three terrain types can be distinguished namely, a Midslope region of a low hill along the northern boundary, transgressing into a relative narrow footslope region which finally terminates into a relative extensive valley bottom landscape containing lower lying watercourse channels (Botha, 2017).

The proposed quarry will be situated mostly within the midslope region of the low hill, slightly encroaching into the upper parts of the footslope. To the west of the focus area the hill forms a slight notch or saddle within which the Collings Road passes over the hill. The average elevation of the study area is 1 162.2 meters with the highest point recorded close to the top portion of the proposed quarry area (1 202 m) and the lowest point recorded within the wetland body (outside the proposed mining area) located within the valley bottom portion. The average loss of elevation from the highest to the lowest point is ~58.3m with an average slope (southerly) of 4.6% (Max. Slope: 13.2%).

- ❖ The Midslope region is characterized by a concave shape, although to the south of the focus area the terrain gradually changes into a slight convex shape. The average loss of elevation, from north (Max. Elevation: 1 202m) to south (Min Elevation: 1 169.3m), is ~26.2 meters. The average slope for this section is 10% (Max Slope: 15.2%)

- ❖ The Foothlope region is more gradual with less steep slopes and can be classified as mainly concave to slightly straight in some areas. The loss in elevation is also less than for the Midslope (~20.2m). The average slope is 7.2% with the maximum slope recorded being 15.3%.
- ❖ The Valley Bottom section forms a relative flat, outstretched piece of land with only small fluctuations in elevation due to the presence of channels (watercourses). The average north to south loss in elevation is only 4.56m, with an average slope of only 1.6% (Max Slope: 3.8%).

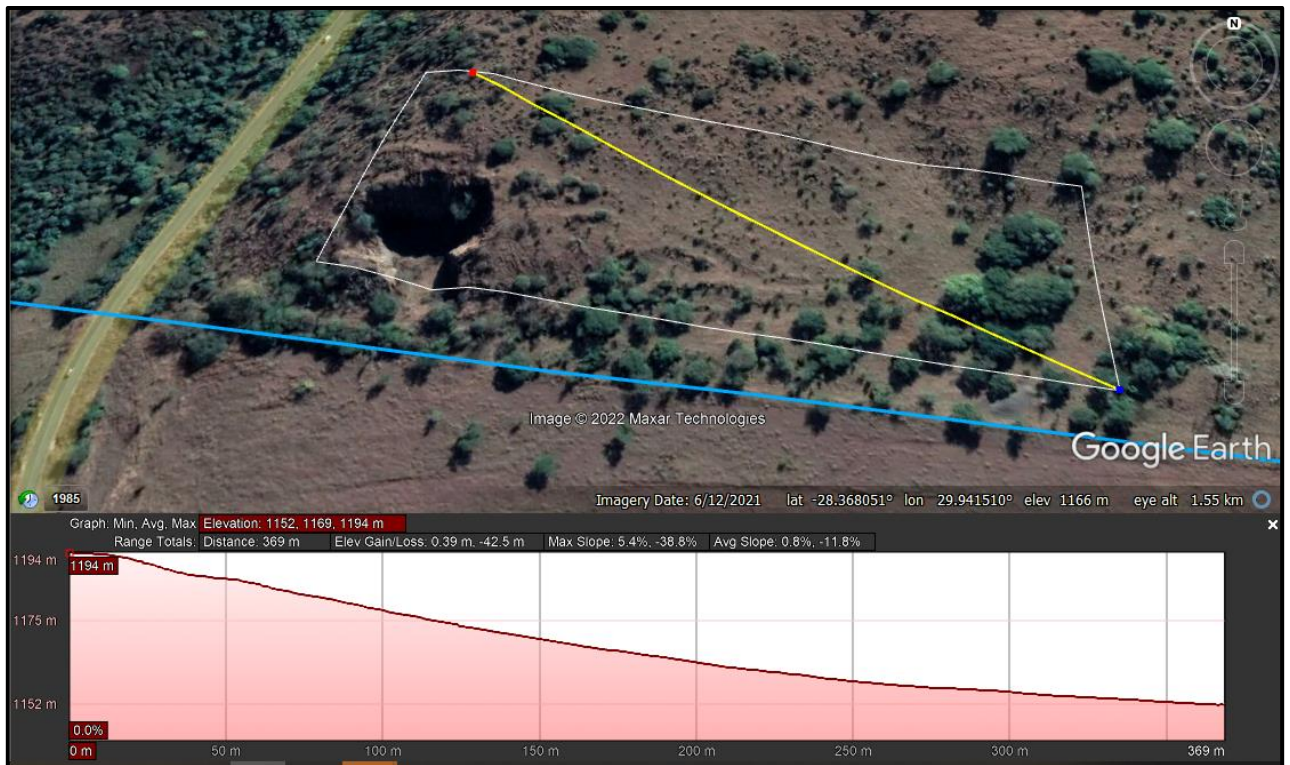


Figure 24: Elevation profile of Site Alternative 1 (Image obtained from Google Earth).

As mentioned earlier, extending the quarry into the southern face of the hill should create an excavation with more or less three faces that will be benched as the mining depth increases. Due to the impracticality of importing large volumes of fill material to restore the quarry area to its original topography, the rehabilitation option (upon closure) is to render the quarry safe and leave it as a minor landscape feature. If the proposed closure actions, as prescribed in the EMPR, are implemented the impact on the topography of the specific area is deemed to be of low significance.

SITE SPECIFIC VISUAL CHARACTERISTICS

(Determined through desktop studies, and site investigation by EAP)

The following figure shows the viewshed analysis (according to Google Earth) for the footprint of the study area within a ± 10 km radius around the study area. The green shaded areas indicate the positions from where the quarry will be visible. The analysis shows that the proposed visual impact will be of medium concern as the mining area

will mainly be visible from the south due to the position of the earmarked area against the side of the hill. Although the proposed mining area will be visible within the above mentioned ± 10 km radius south of the farm, it is proposed that as the distance between the development and the observer increases the visual impact will decrease.

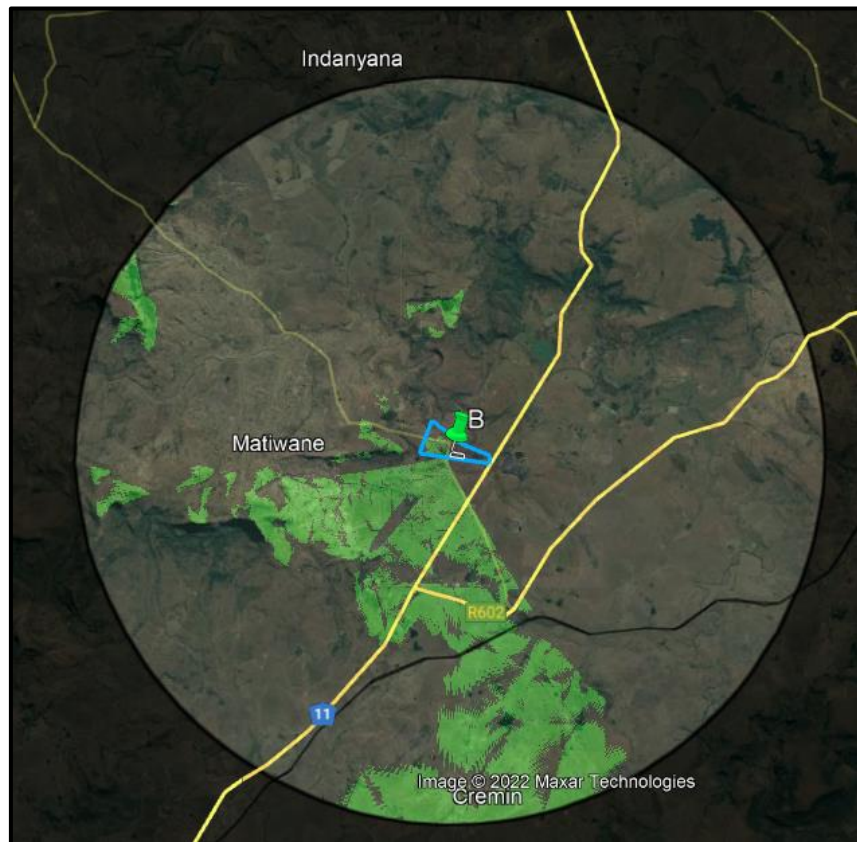


Figure 25: Viewshed analysis of the highest corner (B) of the earmarked area where the green shaded areas indicate the positions from where the earmarked area (white polygon) will be visible. (Image obtained from Google Earth).

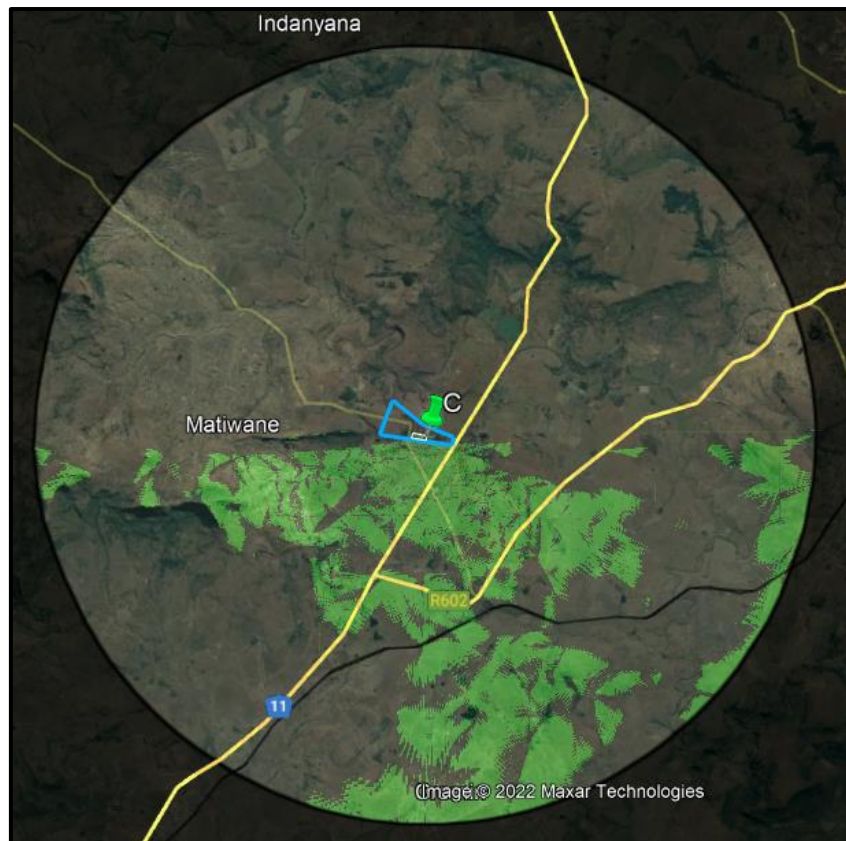


Figure 26: Viewshed analysis of the second highest corner (C) of the earmarked area where the green shaded areas indicate the positions from where the earmarked area (white polygon) will be visible. (Image obtained from Google Earth).

Should both the mining permit area and the additional stockpiling area (separately authorised) be established on site, the cumulative visual impact on the receiving environment is deemed to be of medium significance.

SITE SPECIFIC AIR AND NOISE QUALITY

The nearest residential dwellings to the earmarked area are those of the surrounding neighbour (Me. Khumalo) at ± 520 m southeast. The Collings Pass Road borders the mining area ± 80 m to the west, with the N11 passing the property more than 700 m to the east. As mentioned earlier, the prevalent wind direction of the study area is in a north-western direction for most of the year. Currently the air quality of the study area is mainly impacted on by traffic along the N11 and Collings Pass Road, agricultural practices such as the burning of sugar cane, and cooking/heating fires at the Matiwane residential area.

Emission into the atmosphere is controlled by the National Environmental Management: Air Quality Act, 2004. The proposed mining activity does not trigger an application in terms of the said act, and emissions to be generated is expected to mainly entail dust due to the displacement of soil, crushing and screening of hard rock, and the transport of material on gravel roads. As the prevalent wind direction is in a north-western direction dust generated at the proposed quarry will be blown away from

the residence of Me Khumalo. Should the Applicant implement the mitigation measures proposed in this document and the EMPR the impact on the air quality of the surrounding environment is deemed to be of low-medium significance.

As with air quality, the current activities on the property and surrounding environment already impact the noise ambiance of the study area. Traffic along the N11 and Collings Pass Road increase the natural noise levels of the receiving environment. The noise to be generated at the proposed quarry will contribute to these daily noise levels. The proposed activity will contribute noise generated because of blasting, as well as the crushing and screening and transporting of material. As mentioned earlier, the work hours of the mine will be restricted to Monday – Saturday from 07:00 to 18:00. No work will take place on Sundays. The nuisance value of noise generated by heavy earthmoving equipment, to residence in the near vicinity is deemed to be of low-medium significance. The noise caused by blasting will be instantaneous and of short duration.

Although the proposed activity will have a cumulative impact on the ambient noise levels, the development will not take place in a pristine environment, and the impact is therefore deemed compatible with the current operations and of low-medium significance.

Should both the mining permit area and the additional stockpiling area (separately authorised) be established on site, the cumulative dust nuisance on the receiving environment (after mitigation) is deemed to be of low-medium significance, while the cumulative noise nuisance (after mitigation) will be of medium significance.

SITE SPECIFIC GEOLOGY AND SOIL

The site specific geology resembles the geology as described under *Part A(h)(iv)(1)(a) Type of Environment Affected by the Proposed Activity – Geology and Soil*. The geology of the study area is intersected by a dolerite intrusion. This application is for the mining of dolerite that will be crushed to various sized gravels before it is used as fill material during the upgrade of the N11.

SITE SPECIFIC HYDROLOGY

(Information extracted from the Wetland Assessment Report compiled by Eco-care Consultancy (Pty) Ltd during the mining permit application of the RBX-KZN mining permit, 2017, the 2022 Wetland Opinion, and the 2023 Wetland Assessment. See Appendix G1, G2 and G3 for copies of the reports)

DFFE National Web Based Environmental Screening Tool:

The Screening Tool, developed by the Department of Environmental Affairs (“DEA”), now Department Forestry and Fisheries of Environment, (DFFE), is a geospatial web-

enabled application that aims to provide readily available information, known as 'spatial datasets', which enables applicants for Environmental Authorisation to screen their proposed site for environmental sensitivities.

According to the Screening Report (November 2022) the following terrestrial and aquatic biodiversity sensitivities were identified for the project area:

Table 15: Summary of the development site's environmental sensitivities (table obtained from the 2022 Wetland Opinion).

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity
Aquatic Biodiversity Theme				X
Terrestrial Biodiversity Theme	X			

1. Aquatic Biodiversity Theme:

The site visits of both hydrologists (2017 & 2023) confirmed that no sensitive aquatic features are present within the project site (4.9 ha) and the site is therefore deemed of low aquatic sensitivity.



Figure 27: DFFE screening tool output for aquatic biodiversity (image obtained from DFFE screening tool report).

2. Terrestrial Biodiversity Theme:

The DFFE screening tool portrays the sensitivity of the Terrestrial Biodiversity Theme of the study area as Very High due to the presence of a Critical Biodiversity Area 2 and a Strategic Water Source Area (refer to Figure 11).

Refer to Part A(1)(h)(iv)(i)(c) *Description of specific environmental features and infrastructure on the site - Site Specific Terrestrial Biodiversity (including fauna and flora)* for a discussion on the Critical Biodiversity Area 2 (CBA 2).

In terms of the Strategic Water Source Areas the 2022 Wetland Opinion interrogated the SWSA (2017) spatial data and it was determined that the project site is located quite a distance from any SWSA with the nearest SWSA located approximately 12.5 km to the north of the project site as shown in Figure 11. The proposed project will there not impact any SWSA.

Wetland Classification, Delineation and Habitat Characteristics:

The initial wetland assessment undertaken by Eco-Care Consultancy (Botha, 2017) focused on the wetland system and associated habitat downstream of the proposed mining permit area and did not address the broader wetland habitat further downstream of the proposed additional stockpile area. Eco-Care Consultancy provided a further supplementary wetland opinion letter undertaken in 2022 to inform the aspects not included within the original wetland assessment report and align the report with the current protocols. Subsequently, Eco-Pulse was appointed (2023) to undertake an additional wetland assessment for the proposed expansion of the quarry pit. The findings of the latest wetland assessment (Eco-Pulse, 2023) were incorporated into this document in support and to update (where applicable) the findings of the 2017 wetland assessment. However, it is important to note that both the 2017 and 2023 wetland assessments support the proposed mining project provided that the specified management and mitigation measures are implemented.

The infield sampling (by Eco-Pulse, 2023) of soil and vegetation in conjunction with the recording of diagnostic topographical/terrain indicators and features, enabled the delineation of two wetland units namely a channelled valley bottom wetland, and a seep wetland as presented in the following table.

Table 16: Summary of the wetland HGM unit type encountered and the general characteristics (table obtained from the 2023 Wetland Assessment).

Units	Classification (HGM unit)	Description
Wetland W01	Channelled Valley Bottom	Channelled valley bottom wetlands are characterised by their location on valley floors, the absence of characteristic floodplain wetland features (such as oxbows and natural levees) and the presence of channelled flow in the form of a river or stream running through the wetland. Water inputs are mainly from the adjacent hillslopes while the channels themselves are not typically major sources of water to the wetland except when channel banks overtop during high flows. Soils and vegetation sampled reflect both seasonal and permanent zones of water saturation.
Wetland W02	Seep	Seepage wetlands were found to be located in a valley-head setting and fed primarily by lateral subsurface water inputs controlled by generally low permeability shale bedrock at shallow depths. Water naturally moves through these wetlands as subsurface flow with some diffuse overland flow particularly after significant rainfall events. Soils and vegetation sampled reflect both seasonal and permanent zones of water saturation.

The location and extent of Wetland W01 (±33.82 ha in extent) and Wetland W02 (±5.77 ha) is shown in the following image.

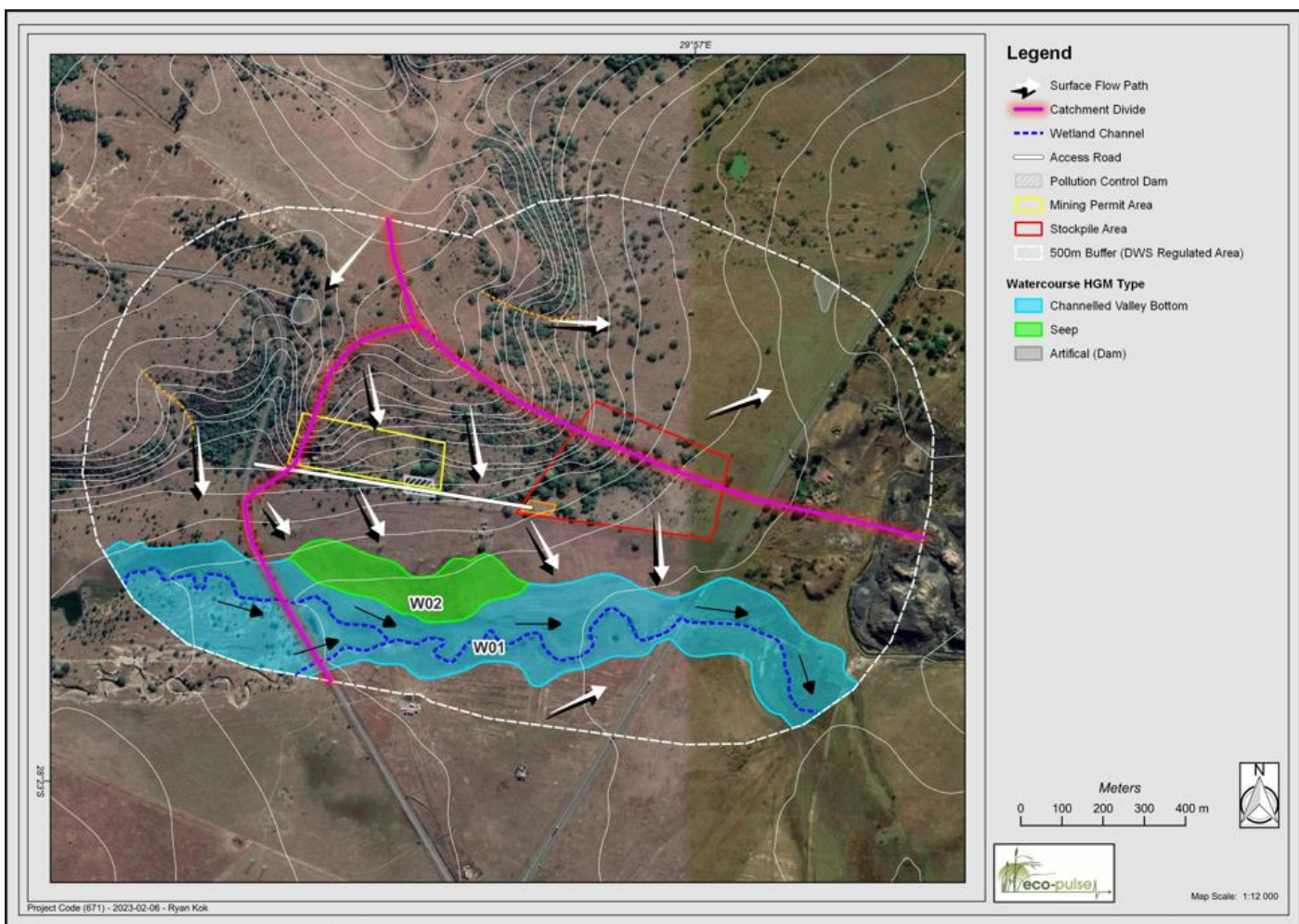


Figure 28: Wetland delineation map (image obtained from the Wetland Assessment, 2023)

Eco-Pulse observed temporary, seasonal, and permanent wetland soil indicators within the valley bottom wetland and wetland seep that were sampled, with seasonally saturated soils more widely prevalent across wetland unit W01 and W02 to the south.

Most of the wetland habitat appeared (2023) to be temporarily to seasonally activated and supporting a vegetation community dominated by a mix of hydric and dryland grass species with scattered sedges, tufted grasses, and forbs.

Wetland W01 was identified by Eco-Pulse (2023) as a channelled valley bottom wetland (being ~33.82 ha in extent) and located south of the mining permit. The wetland drains in an easterly direction that forms part of the broader network eventually feeding into the Sundays River. The wetland is supported by a large (18.2 ha) catchment, most of which is secondary degraded veld with areas of alien plants, an existing quarry within the mining permit area, a tarred road located in the mid reaches of the wetland system and presence of dams and cattle paths along the upper reach of the wetland. The vegetation within the wetland itself was found to comprise mix of hydric and dryland grass species and sedges.

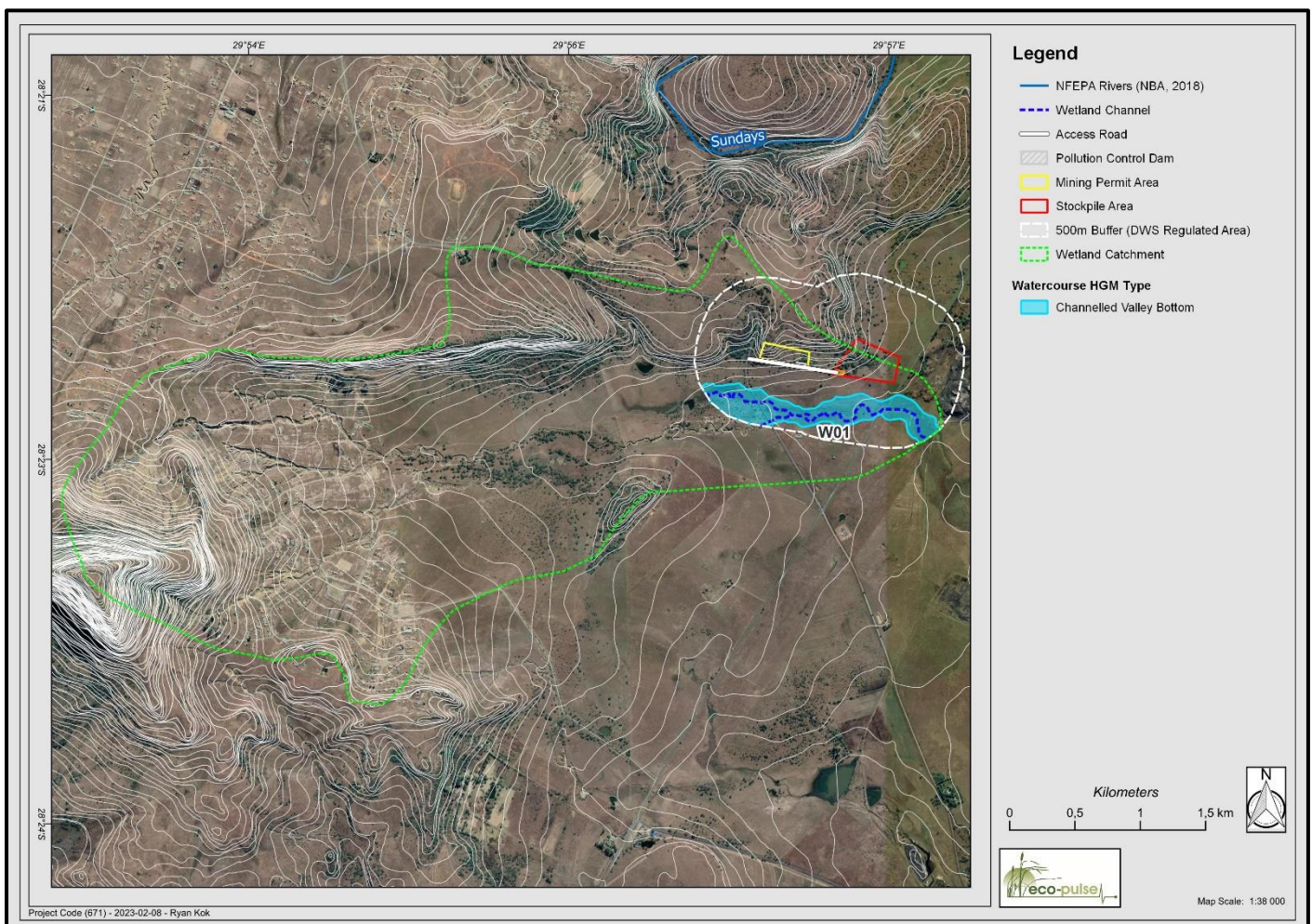


Figure 29: Map showing the delineated channelled valley bottom wetland “W01” and its supporting catchment area (image obtained from the Wetland Assessment, 2023)

Wetland W02 was identified as a hillslope seep wetland (being ~5.77 ha in extent) and located south of the mining permit area. The wetland drains in a south easterly direction feeding into to broader valley bottom wetland that forms part of the broader network eventually feeding into the Sundays River. The wetland is supported by a small (18.2 ha) catchment, most of which is secondary degraded veld and *Acacia* sp. Thornveld with small areas of alien plants and presence of an existing quarry, dirt road & cattle paths along the upper reach of the wetlands catchment. The vegetation within the wetland itself was found to comprise mix of short hydric and dryland grass species. Notably, the drier marginal area had been slightly impacted by grazing activities and historic agriculture activities.

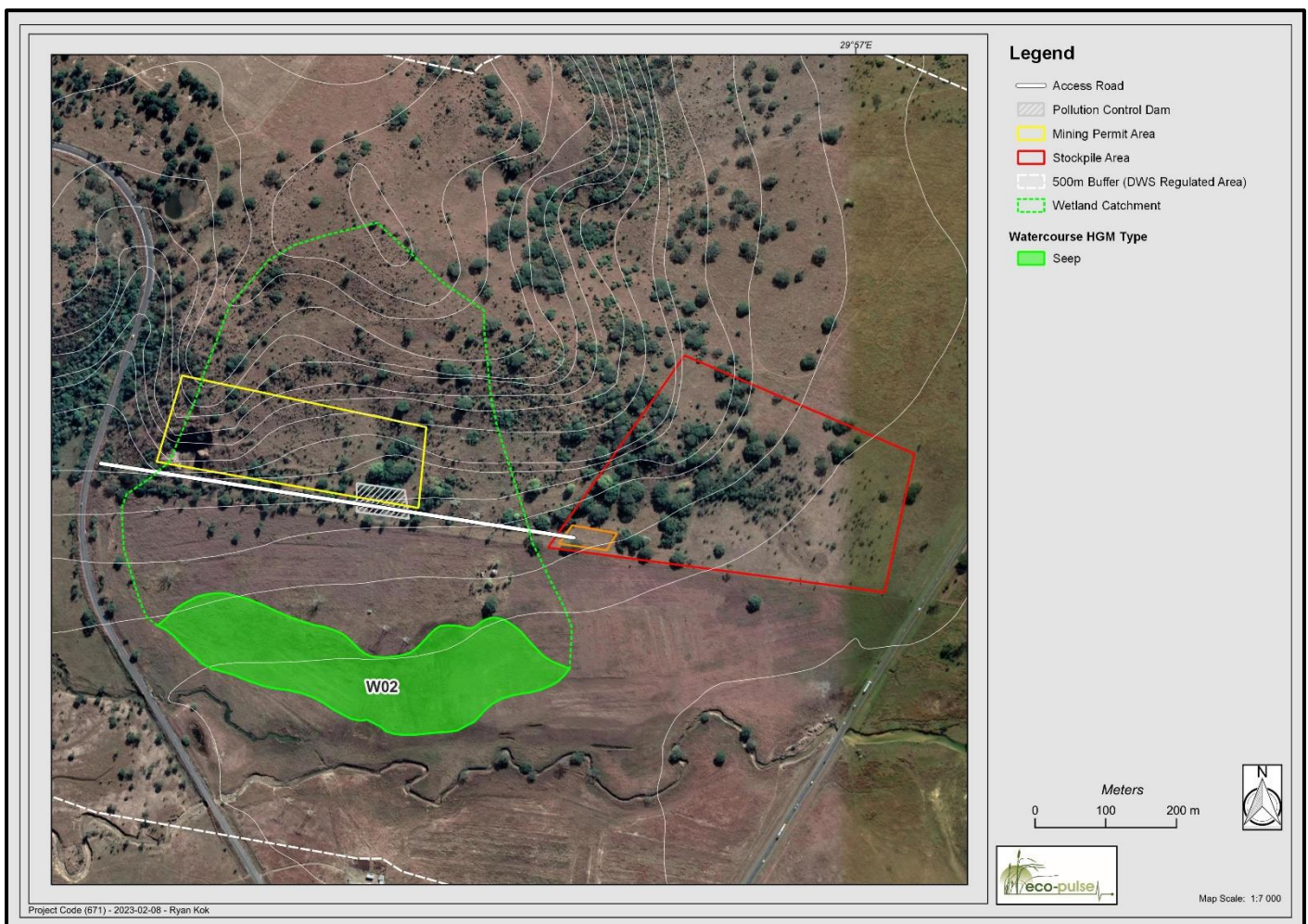






Figure 30: Map showing the delineated seep wetland “W02” and its supporting catchment area (image obtained from the Wetland Assessment, 2023)

Present Ecological State (PES) Assessment:

Eco-Pulse (2023) applied the latest (version 2) WET-Health assessment tool (Macfarlane et al., 2020) to wetlands W01, and W02 at a rapid level 1B assessment level. A summary of the baseline PES assessments for the channelled valley bottom wetland is provided in the following table. The wetland is in a ‘Moderately Modified’ state (‘C’ PES Category) characterised by few existing impacts and is roughly 75%





intact at the time of the field survey based on the WET-Health condition (PES) assessment undertaken.

Table 17: Summary of the baseline wetland PES assessment for wetland “W01” (table obtained from the 2023 Wetland Assessment).

WET-Health PES Summary for Wetland W01			
Category	Impact Score	PES Category	Impact Description
Hydrology 	3.9 / 10 61% intact	'C' PES	Hydrologically, wetland W01 has been affected by slight increase in flood peaks due to reduced basal cover through overgrazing and hardened surfaces in its catchment. The presence of multiple dams in the catchment that altered natural water distribution and retention patterns for the downstream wetland. Overall, the combined effect of catchment and within-wetland impacts has resulted in a moderately modified hydrological condition.
Geomorphology 	2.0 / 10 80% intact	'C' PES	The geomorphological template of the wetland remains predominantly intact, with only minor modifications as a result of increased catchment runoff rates and sedimentation associated with reduced basal vegetation cover in the supporting upstream catchment. Furthermore, localised areas of the wetland have been subjected to trampling by livestock and erosion (with headcuts present). Overall, the combined effect of these various impacts has resulted in a moderate modification to wetland geomorphology.
Water Quality 	1.0 / 10 90% intact	'B' PES	The water quality impact contribution is a combination of the wetland's catchment and within wetland land use. Stormwater runoff from the dirt roads/livestock paths as well as potential nutrient inputs from livestock dung has likely contributed to minor/limited modification of the wetlands water quality. Based on the current land use, water quality is estimated to be largely natural.
Vegetation 	2.5 / 10 75% intact	'C' PES	The vegetation of the wetland has remained fairly intact, with the only impacts being due to erosion, overgrazing and livestock trampling. In its current state the wetland vegetation is considered to be moderately modified.
Overall (combined PES)	2.5 / 10 75% intact	'C' PES	<i>Moderately Modified. A moderate change in ecosystem processes and loss of natural habitats has taken place but the natural habitat remains predominantly intact.</i>

A summary of the baseline PES assessments for the hillslope seep wetland is provided in the following table. The wetland is in a 'Largely Natural' state ('B' PES Category) characterised by few existing impacts and were roughly 84% intact at the time of the field survey based on the WET-Health condition (PES) assessment undertaken.

Table 18: Summary of the baseline wetland PES assessment for wetland “W02” (table obtained from the 2023 Wetland Assessment).

WET-Health PES Summary for Wetland W01			
Category	Impact Score	PES Category	Impact Description
Hydrology 	1.6 / 10 84% intact	'B' PES	Hydrologically, basal cover in some areas of the upstream catchment have been reduced through overgrazing. Wetland W02 has had limited modifications, both within the wetland and catchment, that has resulted in a small change in hydrological processes. Upstream catchment impacts (i.e., overgrazing, presence of dirt roads/cattle paths) have had a limited on the wetland. Overall, the combined effect of catchment and within-wetland impacts has resulted in a largely natural hydrological condition.
WET-Health PES Summary for Wetland W01			
Category	Impact Score	PES Category	Impact Description
Geomorphology 	1.8 / 10 82% intact	'B' PES	The geomorphological template of the wetland remains predominantly intact, with only minor modifications as a result of increased catchment runoff rates and sedimentation associated with reduced basal vegetation cover in the supporting upstream catchment. Furthermore, localised areas of the wetland have been subjected to trampling by cattle. Overall, the combined effect of these various impacts has had little effect on the wetland geomorphology which remains largely natural and intact.
Water Quality 	1.0 / 10 90% intact	'B' PES	The water quality impact contribution is a combination of the wetland's catchment and within wetland land use. The potential nutrient inputs from cattle dung has likely contributed to minor/negligible modification of the wetlands water quality. Based on the current land use, water quality is estimated to remain largely natural.
Vegetation 	2.7 / 10 73% intact	'C' PES	The vegetation of the wetland has remained fairly intact, with the only impacts being overgrazing and livestock trampling. In its current state the wetland vegetation is considered to be moderately modified.
Overall (combined PES)	1.8 / 10 82% intact	'B' PES	Largely natural. Overall, A slight change in ecosystem processes is discernible and a small loss of natural habitats and biota may have taken place.

Wetland Ecosystem Services Assessment:

The most important services provided by the assessed wetland units are sediment trapping, phosphate, and nitrate assimilation in terms of regulating and supporting services. Whilst the demand for these services is relatively high given the landscape context, the overall importance rating for these services is lowered somewhat due to the limited supply potential due to the slightly degraded nature of the watercourse. 'Biodiversity maintenance' is also considered to be of 'moderate' to moderately-low' importance given the conservation/threat status (Critically Endangered), the relatively natural ecological condition and the wetland's location in a largely natural landscape with high levels of ecological connectivity between natural habitats. In terms of direct

benefits, the wetlands are considered 'low' to 'moderately-low' important only for livestock grazing.

Table 19: Summary of the outputs of the WET-EcoServices assessment for the wetland unit W01 & W02 assessed (table obtained from the 2023 Wetland Assessment).

ECOSYSTEM SERVICE		Importance Rating	
		W01: CVB	W02: Seep
REGULATING AND SUPPORTING SERVICES	Flood attenuation	1.2 (Low)	0.0 (Very Low)
	Stream flow regulation	0.5 (Very Low)	0.5 (Very Low)
	Sediment trapping	1.5 (Moderately Low)	1.4 (Moderately Low)
	Erosion control	0.3 (Very Low)	0.0 (Very Low)
	Phosphate assimilation	1.4 (Moderately Low)	1.8 (Moderate)
	Nitrate assimilation	1.3 (Moderately Low)	1.9 (Moderate)
	Toxicant assimilation	0.8 (Low)	1.1 (Low)
	Carbon storage	1.0 (Low)	1.2 (Low)
	Biodiversity maintenance	1.9 (Moderate)	1.6 (Moderately Low)
PROVISIONING SERVICES	Water for human use	0.2 (Very Low)	0.0 (Very Low)
	Harvestable resources	0.0 (Very Low)	0.0 (Very Low)
	Food for livestock	1.4 (Moderately Low)	1.4 (Moderately Low)
	Cultivated foods	0.2 (Very Low)	0.2 (Very Low)
CULTURAL SERVICES	Tourism and Recreation	0.0 (Very Low)	0.0 (Very Low)
	Education and Research	0.0 (Very Low)	0.0 (Very Low)
	Cultural and Spiritual	0.0 (Very Low)	0.0 (Very Low)

Ecological Importance & Sensitivity (EIS) Assessment:

A summary of the EIS assessment is provided in the following table. The wetland unit W01 was assessed as being of 'moderate' EIS and W02 regarded as being of 'Moderately Low' EIS. This rating was driven by the wetlands 'Moderate' to 'Moderately-Low' Biodiversity Importance and Ecological Functional Importance, limited direct use importance and combined with a relatively low ecological sensitivity rating which is linked to an overall diversity of habitats, and limited ecosystem services importance in general.

Table 20: Summary of the wetland EIS scores and ratings for the assessed wetland units (table obtained from the 2023 Wetland Assessment).

	Unit W01	Unit W02
Ecological Importance	1.85 (Moderate)	1.59 (Moderately Low)
Ecological Sensitivity	0.90 (Very Low)	0.7 (Very Low)
Overall EIS Score	1.85	1.59
Overall EIS Rating	Moderate	Moderately Low

Recommended Ecological Category (REC) & Management Objectives (RMOs)

Based on this matrix (following table) and the catchment context, the REC for the wetland HGM units W01 and W02 is a 'C' and 'B' Ecological Condition Category, respectively, with the RMO being to 'maintain' the current PES and functioning of the wetlands.

Table 21: Generic matrix for the determination of REC and RMO for water resources (table obtained from the 2023 Wetland Assessment).

			EIS			
			Very high	High	Moderate	Low
PES	A	Pristine/Natural	A Maintain	A Maintain	A Maintain	A Maintain
	B	Largely Natural	A Improve	A/B Improve	B Maintain	B Maintain
	C	Good - Fair	B Improve	B/C Improve	C Maintain	C Maintain
	D	Poor	C Improve	C/D Improve	D Maintain	D Maintain
	E/F	Very Poor	D Improve	E/F Improve	E/F Maintain	E/F Maintain

Impact Significance Assessment:

Eco-Pulse assessed the potential construction and operation phase risks and impacts associated with the proposed mining, blasting, and excavation, crushing and screening of aggregate and stockpiling of the product. The impact assessment considered the simultaneous operation of both the mining area (4.9 ha) and the additional stockpiling area (10.5 ha). In other words the study considered the cumulative impact of the proposed operations on the receiving environment as presented below.

Table 22: Summary results of the impact significance assessment for construction phase impacts associated with the quarry, additional stockpile area and associated infrastructure (table obtained from the 2023 Wetland Assessment).

Construction Phase Impact Assessment		Impact Significance	
		'poor' mitigation scenario	'good' mitigation scenario
C1	Direct physical loss or modification of wetland habitat	Low	Low
<p>Based on the latest revised draft layout of the quarry & stockpile area received from Greenminded, the quarry and stockpile area is unlikely to directly result in the destruction and/or modification of the watercourses given that the quarry and stockpiling infrastructure and working areas is located >100m downslope. Through impact avoidance (sound environmental planning to avoid wetland areas), impact significance is likely to be 'Low' and environmentally acceptable. Key mitigation measures for avoiding direct impacts are listed below.</p> <p><u>Key mitigation recommendations:</u></p> <ul style="list-style-type: none"> • Strict avoidance of the delineated wetlands is to be made a priority and implement and adhere to the wetland buffer zones, with planned development infrastructure to remain outside of the recommended wetland buffer zone. • Demarcate the edge of wetland buffer on the ground to avoid incursions into these areas. • Restrict access to wetland areas beyond the development footprint. • Should accidental/intentional incursions into or direct disturbance of wetlands occur, rehabilitate wetlands, and buffer zones. • Implement appropriate ecological monitoring during construction and use findings to inform site management. • Construction phase method statement(s) to be developed and finalised prior to construction taking place, taking into consideration the wetland impact mitigation measures and requirements of the EMPr to be developed. 			

C2	Alteration of hydrological and geomorphological processes (erosion and sediment)	Impact Significance	
		'poor' mitigation scenario	'good' mitigation scenario
		Moderate	Moderately Low
<p>Flow modification and related erosion/sedimentation impacts are likely to arise during the construction of access road and other quarry infrastructure (offices, hardened platforms/surfaces, etc.). During construction, altered storm water flows and velocities could be a problem but are likely to be localised, with catchment impacts from clearing and earthworks upslope of watercourses effectively reducing groundcover and infiltration rates and leading to slightly increased peak discharges reaching watercourses. The impact of erosion and sedimentation from vegetation stripping and bare soils is likely to be the most intensive and potentially harmful impact to adjacent and downstream wetlands and rivers. The construction of the road infrastructure and associated drainage infrastructure will likely intercept and concentrate surface flows prior to discharge into the environment, resulting in erosion and potential sedimentation of downstream aquatic ecosystems. Some of the key ecological consequences associated with the sedimentation of freshwater habitat and increased water turbidity include:</p> <ul style="list-style-type: none"> o Reductions in soil saturation rates of areas buried with sediment and/or eroded; and o Colonisation by alien invasive and weedy plant species associated with recent erosional and depositional features. <p>These impacts are likely to be more pronounced during heavy rainfall events. Such impacts could potentially alter the geomorphic structure and hydrological regime of nearby wetlands and could affect freshwater habitat and flora. Should these impacts occur they are however likely to be indirect, temporary and are unlikely to significantly affect long-term ecological processes associated with onsite watercourses.</p> <p>Overall, given the 'moderate' to 'moderately low' EIS of the wetlands (limited ecological importance/sensitivity), impact intensity is likely to be relatively low, however hydrological and geomorphological impacts are therefore also likely to be of 'moderate' ecological significance. Best practical mitigation should be implemented (<i>as listed below and explained in detail in Chapter 7 of this report</i>), this will enable to reduce the impact to 'moderately low' and environmentally acceptable level.</p>			

Key mitigation recommendations:

- Strict avoidance of the delineated wetlands is to be made a priority and implement and adhere to buffer zones for wetlands, with planned development infrastructure to remain outside of the recommended wetland buffer zones.
- To maximise effectiveness, buffer zones will need to be maintained with indigenous vegetation cover (without erosion features/concentrated flow paths) as open space natural grassland areas with appropriate alien plant control and/or slashing to maintain grass cover.
- Limit construction activities to the dry (winter) season where possible, to reduce erosion and sediment risks.
- Address potential construction-phase erosion and sedimentation risks on site through the implementation of Best Management Practices (BMPs) in erosion and sediment control.
- Temporary erosion and sediment control measures are to be implemented, with a greater level of need if construction proceeds into the summer (wet/rainy) period. Temporary erosion/sediment control to remain in place until construction has been completed and operational stormwater management infrastructure is suitably in place and operating correctly.
- Rehabilitate any erosion or vegetation clearing impacts as soon as practically possible.
- Implement appropriate ecological monitoring during construction and use findings to inform site management.
- Construction phase method statement(s) to be developed and finalised prior to construction taking place, taking into consideration the wetland impact mitigation measures and requirements of the EMP to be developed.

C3	Impacts to water quality	'poor' mitigation scenario	'poor' mitigation scenario
		Moderate	Low
<p>Stripping of vegetation, disturbance of soil and stockpiling of excavated soil are likely to be the chief sources of sediment during the construction phase of the quarry & stockpile area. If not managed adequately, overland flows from rainfall events or stormwater outlets are likely to transport sediment to downstream watercourses. High quantities of sediment entering watercourses have the following impacts; (i) increase turbidity of water, leading to increased attenuation and a consequent lowering of primary productivity, (ii) an influx of heavy metals and other pollutants adsorbed onto the sediment particles, and (iii) increase sediment deposition leading to an alteration of the physical structure of the wetland (aggradation), water availability and consequently distribution of aquatic organisms.</p> <p>Water pollution impacts can potentially be experienced during the construction phase of the project, the quantity of pollutants is likely to be limited and thus be of 'moderate' significance for wetlands in the area of study. This is especially relevant given the presence of a 'well-vegetated' buffer zone between the quarry and stockpile area and the nearest watercourses, such that the intensity and probability of such impacts being sustained by the wetland downstream the quarry and stockpile area is likely to be low, with impact significance also likely to be relatively 'Low' during the construction phase where well-managed (as per the impact mitigation recommendations listed below and explained in detail in Chapter 7 of this report).</p> <p><u>Key mitigation recommendations:</u></p> <ul style="list-style-type: none"> • Limit construction activities to the dry (winter) season where possible, to reduce erosion and sediment risks. • Address potential erosion and sedimentation risks on site through the implementation of Best Management Practices (BMPs) in erosion and sediment control. • Sediment controls (e.g., silt fences/berms) should be implemented to reduce sediment inputs to the nearby wetlands. • Address potential spill and pollution risks on site through the implementation of Best Management Practices (BMPs) in spill and pollution control and hazardous substances management. • Rehabilitate any spill related impacts as soon as practically possible. • A suitable spill response and remediation plan is to be developed for the construction phase. • Implement appropriate ecological monitoring during construction and use findings to inform site management. 			
<ul style="list-style-type: none"> • Construction phase method statement(s) to be developed and finalised prior to construction taking place, taking into consideration the wetland impact mitigation measures and requirements of the EMP to be developed. 			

C4	Impacts to ecological connectivity and/or ecological disturbance impacts	Impact Significance	
		'poor' mitigation scenario	'poor' mitigation scenario
		Moderately Low	Low
<p>Since the quarry, stockpile area and associated infrastructure will be positioned outside of the delineated wetland and recommended buffer zone, the probability of incurring direct impacts to the delineated wetland is unlikely, hence impacts to wetland ecological connectivity are expected to be of 'Low' significance overall and wetland habitat fragmentation is highly unlikely to take place. Maintaining the recommended wetland buffer zone will also discourage edge disturbance and related impacts and maintain some form of ecological connectivity between wetland and adjacent terrestrial grassland habitats.</p> <p>The blasting, excavation, presence of workers and machinery during the construction phase may create ecological noise and vibration disturbances have the potential to disturb and is place fauna that may be using the watercourse for movement and refuge. Given the distance from the site activities, faunal impacts are likely to be Low, meaning that disturbance-related impacts during the construction phase could be of 'Moderately Low' significance. Best practical mitigation should be still implemented (as listed below and explained in detail in Chapter 7 of this report) to maintain the impact at a an appreciably low and environmentally acceptable level.</p> <p><u>Key mitigation recommendations:</u></p> <ul style="list-style-type: none"> • Strict avoidance of the delineated wetlands is to be made a priority and implement and adhere to buffer zones for wetlands, with planned development infrastructure to remain outside of the recommended wetland buffer zones. • Demarcate the edge of wetland buffers on the ground to avoid incursions into these areas. • Restrict worker and machinery access to the active construction site and construction site camp areas only. • Prohibit the poaching of animals and/or collection of plants and biota from natural areas, including wetlands. • Temporary erosion/sediment control to be removed only once construction has been completed and operational storm water management infrastructure is suitably in place and operating correctly. • Should accidental/intentional incursions into or direct disturbance of wetlands occur, rehabilitate wetlands, riparian areas and buffer zones. 			

Table 23: Summary results of the impact significance assessment for operational phase impacts associated with the quarry, additional stockpile area and associated infrastructure (table obtained from the 2023 Wetland Assessment).

Operational Phase Impact Assessment		Impact Significance	
		'poor' mitigation scenario	'good' mitigation scenario
O1	Direct physical loss or modification of instream/riparian habitat	Low	Low
<p>This is largely a construction phase risk/impact and given that the quarry, stockpiling area and associated infrastructure will be planned to avoid the delineated wetland and its recommended buffer zones, direct loss or modification impacts are unlikely to occur during the operational phase.</p> <p><u>Key mitigation recommendations:</u></p> <ul style="list-style-type: none"> • Appropriate stormwater management to be implemented with a focus on reducing erosion risk. • No solid waste dumping to take place within wetlands or buffers. • Should accidental/intentional incursions into or direct disturbance of wetlands occur, rehabilitate wetlands and buffer zones. 			

O2	Alteration of hydrological and geomorphological processes (erosion and sediment)	Impact Significance	
		'poor' mitigation scenario	'good' mitigation scenario
		Moderate	Moderately Low
<p>During quarry operations, crushing, sorting and stockpiling of aggregate, it is expected that there will be increased water inputs to the downstream wetlands due to runoff of stormwater being directed to the adjacent/downstream drainage system via some form of operational storm water management system. Greater volumes of water are generated more quickly while smaller and longer-duration flows that would occur under less developed conditions are reduced or perhaps eliminated. The amount of impervious surface within a contributing basin is a key influence on hydrologic patterns, and even small changes in watershed conditions have measurable influences on the flows and volumes of water in the system. Increased imperviousness (more hardened or impermeable surfaces) will experience an increase in the magnitude of runoff volume from a given storm event. Catchment hardening/reduced basal cover can also cause a decrease in interflow (shallow subsurface flow) and base flow from the developed catchment, with changes in the volume of interflow typically influencing the hydroperiod of downstream wetlands fed by shallow subsurface flow. Instead of water infiltrating the ground and recharging groundwater which feeds the wetland throughout the dry season, it will flow straight into the wetland and likely be lost to evapotranspiration (during early vegetation succession especially), surface and sub-surface outflow. Ultimately, the consequences of the interplay between rates, volumes, and durations of flows are complex and research on the impacts of catchment modifications on stormwater and watershed processes indicates that catchment hardening/basal vegetation cover reduction can result in several disturbances that can impact wetlands and rivers, including:</p> <ul style="list-style-type: none"> • Increased erosion; • Sediment movement and deposition; • Burying of vegetation; • Increased depths of inundation; • Water level fluctuations; • Down-cutting or incising of natural channels (which can remove vegetation from the channel valley bottom); • Changes in the seasonal extent and duration of saturation and inundation; and • Unstable substrates. <p>Appropriate stormwater outfall and attenuation design should be implemented, and bearing this in mind, the impact could potentially be reduced to a 'Moderately Low' impact significance with best practical ecological design incorporated to allows flows and sediment fluxes to remain largely unmodified.</p> <p><u>Key mitigation recommendations:</u></p> <ul style="list-style-type: none"> • Appropriate Storm Water Management Plan (SMWP) to be implemented with a focus on reducing downstream erosion risk. • Monitoring plan to be implemented for water quality and erosion/sediment. • Correct and appropriate design and size of the pollution control dam (PCD). • Maintain stormwater infrastructure as necessary through unblocking of drains, desilting where required, etc. • Implement and adhere to the recommended buffer zones for wetlands. • Rehabilitate any erosion or vegetation clearing impacts as soon as practically possible. 			

O3	Impacts to water quality	Impact Significance	
		'poor' mitigation scenario	'good' mitigation scenario
		Moderate	Moderately Low

Potential sources of contaminants during the operational phase are likely to be fewer than for the construction phase but can vary greatly. Of most concern during the operational phase is the poor management of sediment laden stormwater generated by the quarry and stockpiling site. Discharge of sediment laden water into adjoining watercourses can potentially alter the water quality which will have a knock-on effect on aquatic species. The significance of this impact can be 'moderate' under a worst-case scenario. Other pollutants may also enter watercourses via runoff of storm water from the site. Pollutants such as oils, grease, heavy metals will accumulate on the road surface where they will be flushed into adjacent/downstream watercourses after rainfall events albeit to a 'moderately low' level. This is likely to be of greatest concern during the first rains when the concentration of contaminants is likely to be highest on constructed road surfaces and associated infrastructure.

Key mitigation recommendations:

- Measures to capture solid waste and debris entrained in stormwater entering the stormwater management system (inlet protection devices) must be incorporated into the design of the system.
- Stormwater conveyance through bio-retention methods should be used where possible as these are an effective means of removing suspended solids, heavy metals, hydrocarbons, organic compounds, and dissolved nutrients from stormwater.
- Storm water management systems will be designed with longevity in mind and in order to require little maintenance by catering for silting, etc.
- Design and implementation of storm water management plan and associated infrastructure according to best-practice storm water management guidelines. Regular monitoring and maintenance of storm water infrastructure.
- Develop an 'Freshwater Environmental Contingency Plan', as required.
- Address potential spill and pollution risks on site through the implementation of Best Management Practices (BMPs) in spill and pollution control and hazardous substances management.
- Rehabilitate wetland areas and buffer zones, as and where necessary.

O4	Impacts to ecological connectivity and/or ecological disturbance impacts	Impact Significance	
		'poor' mitigation scenario	'good' mitigation scenario
		Low	Low

Operationally, impacts to wetland ecological connectivity are expected to be of 'Low' significance overall and wetland habitat fragmentation is highly unlikely to take place given that the facility will be located well outside of the delineated wetland. Maintaining the recommended wetland buffer zones will also discourage edge disturbance and related impacts and maintain some form of ecological connectivity between wetland and adjacent terrestrial grassland habitats. Best practical mitigation should be still implemented (*as listed below and explained in detail in Chapter 7 of this report*) to maintain the impact at a an appreciably 'low' and environmentally acceptable level.

Key mitigation recommendations:

- Strict avoidance of the delineated wetland is to be made a priority and implement and adhere to buffer zones for the wetland.
- Restrict worker and machinery access to the broader property and planned access roads only.
- Eradicate and/or control Invasive Alien Plant species as necessary.
- Should accidental/intentional incursions into or direct disturbance of wetlands occur, rehabilitate wetland areas and buffer zones.

A summary of the impact significance assessment ratings for the construction and operational phases of the quarry and stockpiling area is contained in the following table.

Table 24: Impact significance assessment summary table for construction and operational phase impacts (table obtained from the 2023 Wetland Assessment).

Impact Type	Impact Significance	
	'poor' mitigation scenario	'good' mitigation scenario
CONSTRUCTION PHASE (C)		
C1 Direct physical loss or modification of freshwater habitat	Low	Low
C2 Alteration of hydrological and geomorphological processes	Moderate	Moderately Low
C3 Impacts to water quality	Moderate	Low
C4 Impacts to ecological connectivity and/or ecological disturbance impacts	Moderately Low	Low
OPERATIONAL PHASE (O)		
O1 Direct physical loss or modification of freshwater habitat	Low	Low
O2 Alteration of hydrological and geomorphological processes	Moderate	Moderately Low
O3 Impacts to water quality	Moderate	Moderately Low
O4 Impacts to ecological connectivity and/or ecological disturbance impacts	Low	Low

Wetland Buffer Zone Recommendations:

In 2017, the specialist (Botha, 2017) recommended a buffer of 70 m around the identified HGM units.

Eco-Pulse (2023) determined that with specific mitigation (focusing on the management of sediment inputs, storm water runoff and erosion control), the model used recommends a 40 m wide buffer zone for both wetland units as presented in the following figure.

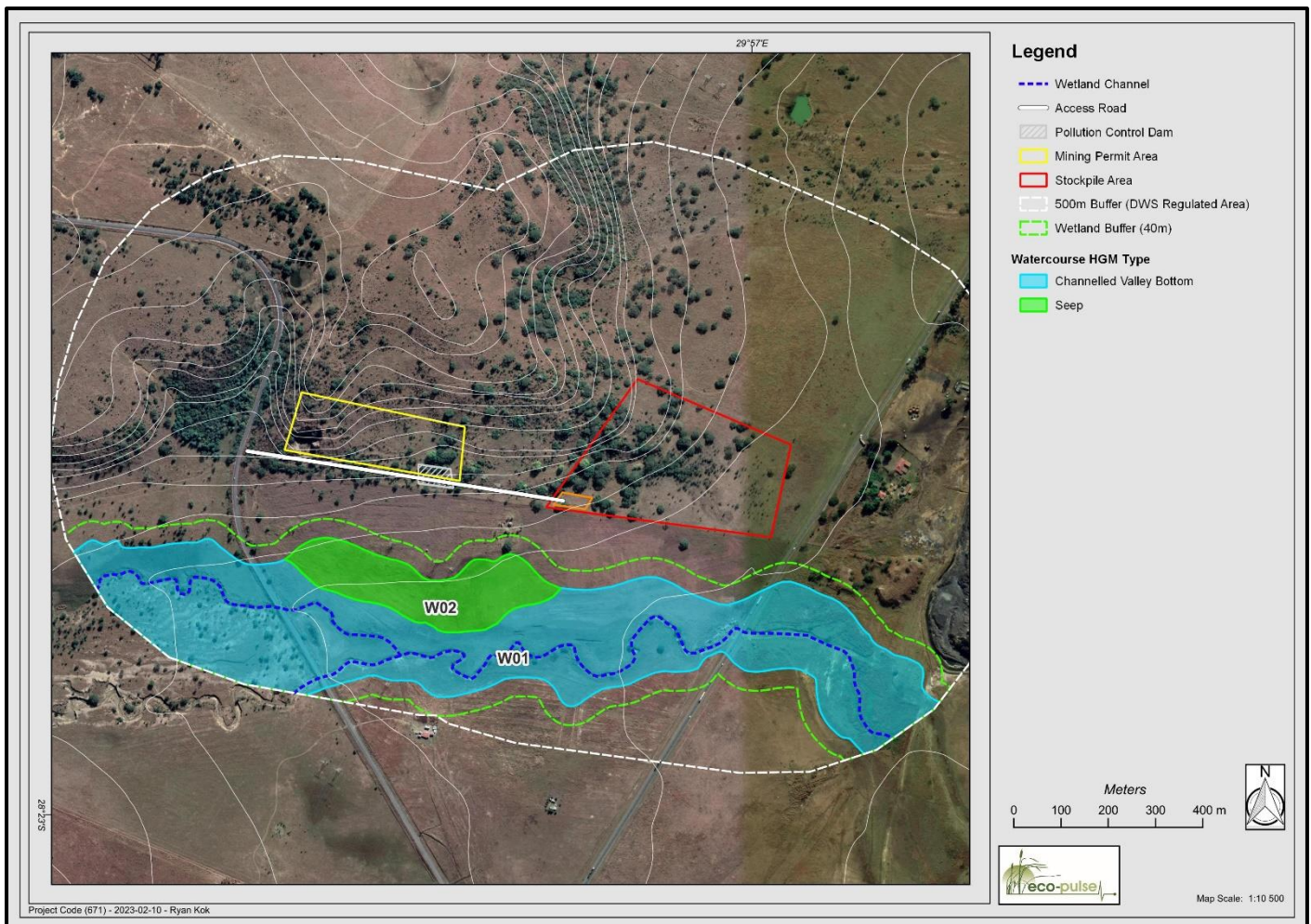


Figure 31: Map showing the recommended 40 m wide buffer for the downstream wetlands (W01 & W02) (image obtained from the 2023 Wetland Assessment).

Planning and Design Recommendations:

Road Guidelines:

- ❖ All roads (including those for temporary access) will need to be located outside of wetlands and buffer zones.
- ❖ It is recommended that a semi-pervious material be used to construct roads that allows for some infiltration rather than using impermeable tarred/asphalted road surfaces wherever practically possible and financially feasible.
- ❖ Roads should follow natural contours where possible in order to maintain gentle gradients so as to minimise the risk of surface water runoff, high flow velocities and soil erosion.
- ❖ Roads should have shallow berms/cut-off drains at regular intervals along steep slopes that direct surface run-off from the road into adjacent grassland or wooded areas to avoid rill erosion and gully formation.
- ❖ If internal roads are to be developed to services the expansion area, stormwater generated by the road should be formally managed using open grassed swales

and discharged into the environment at regular intervals in a controlled manner that does not cause erosion.

Stormwater Management Guidelines:

- ❖ The stormwater management plan (SWMP) must be sustainable over the life cycle of the quarry & stockpiling area and over different hydrological cycles and must incorporate principles of risk management.
- ❖ Dirty water must be collected and contained in a system separate from the clean water system and the risk of spillage or seepage into clean water systems must be minimized.
- ❖ Clean water must be kept clean and be routed to a natural watercourse by a system separate from the dirty water system while preventing or minimizing the risk of spillage of clean water into dirty water systems. Ideally clean water must not be contained but returned to natural watercourses under controlled conditions.
- ❖ Adequate drainage systems should be provided to minimise surfaces water runoff into the quarry workings. This can be achieved through use of a cut-off drain at the top of the quarry face.
- ❖ All stormwater runoff from site must be managed through use of swales, berms or trenches, sediment barriers, and a series of stormwater settling/detention ponds. Runoff must be collected and diverted into a series of detention/settling ponds where sediment-laden water can be detained for a period of time appropriate for sediment to settle prior to water being released back into the environment.
- ❖ Stormwater released back to the environment must be attenuated to pre-development flow conditions, with adequate erosion protection and velocity dissipation prior to water entering downstream watercourses.
- ❖ Multiple smaller stormwater outlets to the environment are preferable to fewer, larger ones.
- ❖ No stormwater must be attenuated outside the fenced-off development site.
- ❖ There must be a sufficient buffer between the quarry operational area and the site boundary to allow for establishment of stormwater infrastructure such as detention ponds, stormwater channels etc. which should not be located within wetlands. This should be clearly reflected in the layout plan and stormwater management plan.
- ❖ Any non-polluted water abstracted from the quarry must be discharged into the stormwater system for treatment (mainly in the form of detention for removal of sediment) or a system for recycling and re-use of this water on-site should be devised and implemented.
- ❖ Quarry design can also promote the conservation and efficient utilisation of water, implement rainwater harvesting measures, the recycling / re-use through grey water systems, etc.

The mitigation measures proposed by the specialist were incorporated into this document under *Part A(1)(h)(viii) The possible mitigation measures that could be applied and the level of risk.*

Freshwater Ecosystem Monitoring:

Eco-Pulse proposed visual monitoring of the watercourse units to ensure that the environment associated with the proposed quarry development and operation are maintained in their current ecological state but incurring no net loss to condition and functionality because of the project. If approved the site will develop a suitable Ecological Monitoring Programme in accordance with the guidelines proposed in the 2023 Wetland Assessment.

Water Use Licence Requirements:

The findings of the 2023 Wetland Assessment indicate that the proposed activity must be licenced according to Chapter 4 and Section 21 of the NWA, 1998. Such an application was pending at the DWS during 2022.

However, upon review of the relevant documentation and at the Department's discretion, the DWS authorised the proposed project under general authorisation in terms of Section 39 of the NWA, 1998 in January 2023.

Conclusion:

The 2017 Wetland Assessment (by Eco-Care) concluded that the impact of the proposed mining activities on the hydrology/geohydrology of the surrounding area and specifically the hillslope seep- and valley bottom wetlands is believed to be of low significance should the proposed mitigation measures be implemented on site.

In November 2022, the EAP reached out to Nkurenkuru Ecology and Biodiversity (previously known as Eco-Care Consultancy (Pty) Ltd) to enquire whether the content of the 2017 Wetland Assessment (referred to in this report) is still applicable and whether the report complies with the requirements of the NEMA specialist protocols that were published (March 2020) since the specialist assessment was done. The specialist concluded (2022) that the results and finding provided within the original Wetland Impact Assessment Report (2017) are still applicable. Subsequently objections or motives for the project not to be allowed, could not be determined, and thus in the specialists opinion the activity may occur within the proposed development boundaries.

The 2023 Wetland Assessment (by Eco-Pulse) concludes that through appropriate design, planning and impact mitigation/management, impacts can be potentially reduced to acceptably 'low' impact significance levels. This should be sufficiently low to protect the freshwater environment from further deterioration and can then be generally acceptable as no loss of critical resources, habitats, services, or threatened/endangered species is likely to be associated with the quarry and/or stockpiling development project. The proposed development is considered acceptable from an ecological perspective (by the specialist) based on the provision that the various mitigation measures proposed in this report are strictly adhered to during the various phases of the quarry and stockpiling development project.

Considering the above, the proposed mining operation in relation to the identified HGM units is supported by two wetland specialists (Eco-Care/Nkurenkuru and Eco-Pulse) and was also authorised by the DWS (in terms of the NWA, 1998). The development of the additional stockpile area was also authorised by the EDTEA.

SITE SPECIFIC TERRESTRIAL BIODIVERSITY (INCLUDING FAUNA AND FLORA)

(Information extracted from the 2022 Terrestrial Biodiversity Impact Assessment, and 2023 Terrestrial Biodiversity Impact Assessment, attached as Appendix H1 and H2 respectively)

Historic Land Use & Disturbance Regime:

Eco-Pulse (2023 TBIA) notes that the site have been impacted by clearing of vegetation for subsistence agriculture and the development of roads since 1944. Additionally, the existing quarry pit is evident in historic imagery which suggests land transformation occurred prior to 1944. Furthermore, the project area appears to have been impacted by grazing, local encroachment, and alien plant infestations (see images 8 – 11 of the 2023 TBIA).

Further to this, upon review of the uThukela District Municipality Draft IDP 2022/2023-2026/2027 Report it was concluded that the project area has not been highlighted for planned developments or as prioritised area for local conservation targets.

Description of the Vegetation Community:

Eco-Pulse surveyed (2023) the vegetation and habitat of both the proposed mining footprint (4.9 ha) as well as the additional stockpile area (10.5 ha), with the addition of a 32 m "buffer" (additional) area around the sites.

One distinct terrestrial vegetation community (Degraded Northern KwaZulu-Natal Moist Grassland) was identified and classified according to topographic location, plant species composition, vegetation structure and level of degradation. The specialist

excluded the transformed areas (i.e. existing developments, roads and infrastructure, bare ground) from the vegetation assessment although it is mapped.

Table 25: Summary of the terrestrial vegetation community and land use type identified and classified for the site (table obtained from the 2023 TBIA).

Vegetation Community Type	Threat Status ¹²	Condition	Protected Plants Present?
Degraded Northern KwaZulu-Natal Moist Grassland	VU	Poor: degraded	Yes
Transformed*	N/A	Lost: irreversibly modified	No

The Degraded Northern KwaZulu-Natal Moist Grassland community was observed occurring within untransformed areas of the study area and was found to be in a relatively ‘poor’ condition that has resulted from an unnatural burning regime, disturbance linked to historic quarry activities, cattle grazing and human movement and encroachment, and road infrastructure construction. The community was dominated by *Eragrostis curvula*, *Themeda triandra* and *Hyparrhenia hirta*, and *Vachellia sieberiana*. No threatened species were found within the project footprint.

The degraded grassland community had a particularly low diversity of indigenous forbs. The provincially protected plant, *Aloe marlothii* (Mountain Aloe) was found scattered within the grassland community and occurring within large colonies. *A. marlothii* is protected by the KwaZulu-Natal Nature Conservation Management but is not considered to be threatened.

In the western region near the existing quarry pit, the area is mapped in the KwaZulu-Natal Terrestrial Systematic Conservation Plan (TSCP) (EKZNW, 2016) areas of CBA: Optimal, but is in fact heavily disturbed and degraded. While the slopes are associated with rocky outcrops, the area was previously mined and is representative of a dense and well-established community of Invasive Alien Plants.

A significant number of Invasive Alien Plant (IAP) species were recorded within the grassland community, dominated by *Lantana camara*, *Melia Azedarach* and *Solanum mauritianum*. Given the extent of densely distributed Invasive Alien Plants scattered amongst the grassland it was not considered as a distinct vegetation type, but rather was noted as a key factor for the overall degree of disturbance and degradation of the vegetation community. Signs of bushland/woody plant encroachment were apparent, with species such as observed such as many pioneer *Vachellia sieberiana*, scattered within the grassland amongst Invasive Alien Plants.

This alien/exotic plant dominated layer was found to comprise a significant portion of the non-transformed area within the study area and has essentially been artificially

created as a result of anthropogenic disturbance including: unnatural burning regime, disturbance linked to cattle grazing and human movement, power line and road infrastructure construction, cultivation and removal of indigenous plants.

As the name suggests, this community was found to be overgrown with Invasive Alien Vegetation, with a mix of woody and herbaceous plants species recorded, including: *Agave americana*, *Ageratum conyzoides*, *Chromolaena odorata*, *Lantana camara*, *Melia azedarach*, *Senna didymobotrya*, and *Solanum mauritianum*.

Although indigenous vegetation was present, it was mainly tolerant and locally common species of least concern recorded including woody tree and shrub species such as *Vachellia karoo* and *Vachellia sieberiana*. The grass/graminoid layer was found to consist mainly of indigenous species of least concern, and mainly disturbance-tolerant and pioneer/increaser grasses such as *Cynodon dactylon*, *Eragrostic curvula* and *Hyparrhenia hirta*.

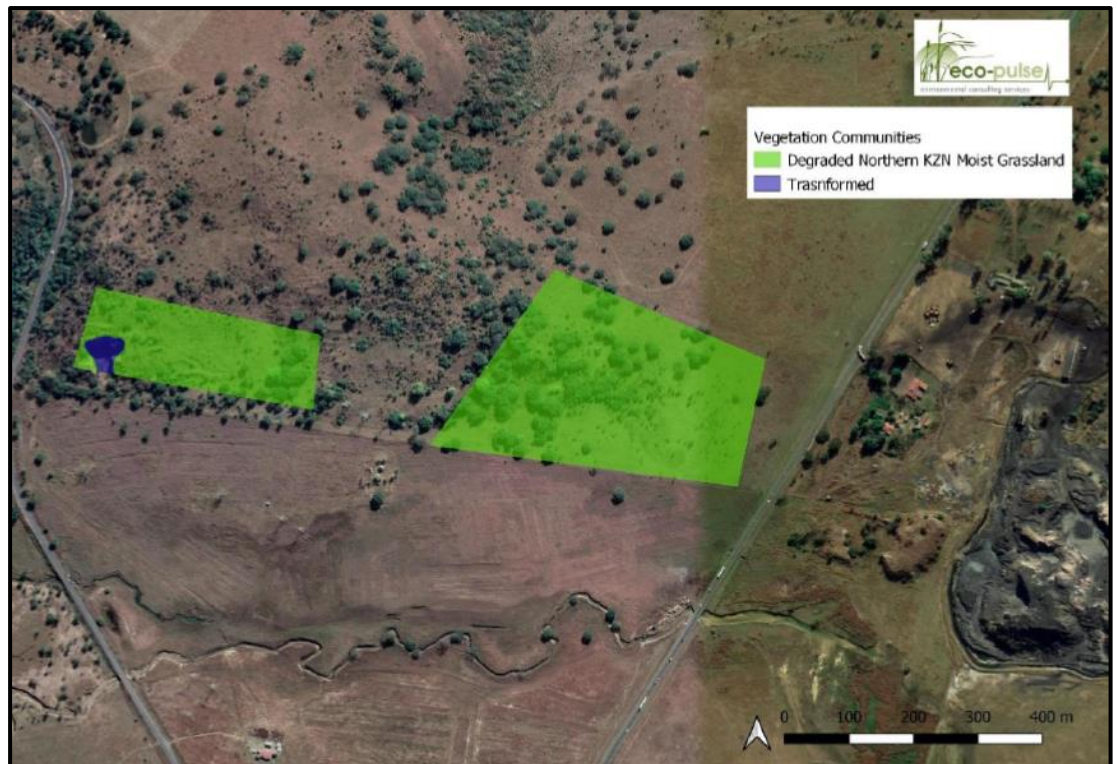


Figure 32: Mapped vegetation communities and habitat types identified and described within 32 m of the study area (image obtained from the 2023 TBIA).

Protected Plant Species:

The only provincially protected plant that was identified (by two ecologists over three separate site visits) in the study area is *Aloe marlothii* (Mountain Aloe). The following map shows the distribution intensity of the aloes on the site.



Figure 33: Map showing the distribution of *Aloe marlothii* confirmed to be on-site (image obtained from the 2023 TBIA).



Figure 34: Photograph showing the transformed habitat classified as a CBA (image obtained from the 2022 TBIA).



Figure 35: Photograph of the untransformed habitat outside the CBA (image obtained from the 2022 TBIA).

Ecological Importance Assessment:

The results of the site ecological importance assessment are shown in the following table and shown graphically on the subsequent map.

Table 26: Summary of terrestrial habitat ecological importance ratings (table obtained from the 2023 TBIA).

	1. Degraded Northern KZN Moist Grassland
CONSERVATION IMPORTANCE	Medium
FUNCTIONAL INTEGRITY	Medium
BIODIVERSITY IMPORTANCE	Medium
RECEPTOR RESILIENCE	Medium
SITE ECOLOGICAL IMPORTANCE RATING	Medium



Figure 36: Map showing site ecological importance ratings for terrestrial vegetation community and habitat (image obtained from the 2023 TBIA).

The ecological importance and sensitivity (EIS) of the only vegetation community and habitat type assessed generally relates back to the ability of the ecosystem to meet conservation targets, maintain important biodiversity features, the ecosystems sensitivity to ecological change and how significant such change would be. The proposed mine and additional stockpiling area covers ±15ha of Medium SEI Vegetation.

Definition of Medium rating for Site Ecological Importance (Table 11 of 2023 TBIA):

Minimization & restoration mitigation - Development activities of medium impact is acceptable followed by appropriate restoration activities.

Remaining natural linkages/corridors:

Anthropogenic development (informal infrastructure as well as substance / commercial agriculture) in the vicinity of the study area has led to the transformation of natural habitat. As such, any remaining intact ecological assets and ecological form important linkages and ‘islands’ for local biodiversity in a proverbial encroachment and agricultural land use. Grassland habitat form important ecological linkages and provide refugia for local species of flora and fauna, as well as forming important seed dispersal sites/nuclei. It is considered critical that remaining intact natural habitat be preserved wherever possible. Vegetation composition and structure and the condition of natural

habitat in these areas should be maintained in as natural a state as possible such that movement of local wildlife is not jeopardized any further.

However, given that the greater surrounding environment is largely untransformed, there are opportunities to allow movements of fauna across the landscape. Given the relatively small size of the project development and the existing land use of the area (disturbed and encroached grasslands used for grazing) impacts to faunal movement is unlikely to be a significant concern.

Steep Slopes and Erodible Soils:

The majority of the site is characterized by gentle slopes where soil erosion and instability are unlikely to be of great concern. The western parts of the study area are characterised by steeper slopes where soil erosion risk is likely to be of concern, however terrestrial habitat degraded in degraded areas because of human settlement and overgrazing.

Ecological Impact Assessment:

The general framework followed by Eco-Pulse for the risk and impact assessment is presented in the following table that presents the expected risks, stressors, and impacts for the construction and operational phase of the project.

Table 27: Terrestrial biodiversity impact assessment framework (table obtained from the 2023 TBIA).

TERRESTRIAL BIODIVERSITY IMPACT ASSESSMENT FRAMEWORK	
DEVELOPMENT TYPE & ACTIVITIES: <i>Mining and Stock Piling</i>	
<u>Construction Phase Activities:</u> Construction activities required to establish the mining and stockpile areas and associated infrastructure (cumulative).	<u>Operational Phase Activities:</u> Operation activities of the mining and stockpile areas and associated infrastructure (cumulative).
ENVIRONMENTAL STRESSORS/RISKS	
Construction Phase Stressors/Risks:	Operational Phase Stressors/Risks:
<ul style="list-style-type: none"> • Direct loss of vegetation & habitat (overall biodiversity) • Reduced ground cover, exposed soils • Soil erosion & resultant sedimentation • Noise / light disturbance • Accidental pollution (spills) 	<ul style="list-style-type: none"> • Altered runoff patterns and processes • Colonisation by alien plants / weeds • Reduced vegetation cover, exposed soils • Accidental vegetation removal • Increased erosion • Windborne dust from exposed stockpile
TERRESTRIAL BIODIVERSITY IMPACTS	
1	Impact on vegetation structure and plant species composition
2	Impact on potential populations of species of special concern
3	Impact on targets for threatened ecosystems or vegetation types
4	Impact on ecological processes and functionality of ecosystems
5	Impact on overall species and ecosystem diversity
6	Impact on ecological connectivity

A summary of the terrestrial ecological impact significance assessment for the construction and operational phases of the quarry and stockpiling area is presented in the following tables.

Table 28: Summary results of the terrestrial ecological impact significance assessment for construction phase impacts associated with the mining permit area and stockpiling area (cumulative) (table obtained from the 2023 TBIA).

Construction Phase Impact Assessment		Impact Significance	
		'poor' mitigation scenario	'good' mitigation scenario
C1	Impact on vegetation structure and plant species composition	Moderate	Moderately Low
<p><i>This impact refers to the direct physical destruction and/or modification of terrestrial habitat and includes habitat loss impacts, habitat and vegetation degradation impacts (e.g., species composition and abundances changes) and invasive alien plant invasion.</i></p> <p>The phase 1 plan will involve the construction of various infrastructure that will run through 'Medium' SEI vegetation communities which would result in a loss of habitat within the development footprint itself, and modification of habitat through anticipated edge effects in areas immediately adjacent to the proposed infrastructure. Direct loss of habitat (15.4 ha of habitat loss in total), based on the footprint provided and included in the Primary Project Area of influence under a poor mitigation scenario (without mitigation) would include:</p> <ol style="list-style-type: none"> 1. Degraded Northern KwaZulu-Natal Moist Grassland ('Medium' SEI) – 15.4 ha. <p><u>Key mitigation recommendations:</u></p> <ul style="list-style-type: none"> • Restrict the development to the 32m development buffer. • Avoid impacts to primary grassland areas outside the development footprint which are to be 'no-go' areas for development and construction crews. • No temporary construction site camps, vehicle parking or material stockpiling / laydown areas to be located outside of the development area. • Impacts to the surrounding natural grassland must be avoided by staying within the development footprint. Alien vegetation must be removed and managed throughout the construction phase. • Ensure all protected and threatened plants are relocated in accordance to the protected plant rescue and translocation plan. 			

C2	Impact on populations of species of special concern (i.e., Protected species)	Impact Significance	
		'poor' mitigation scenario	'good' mitigation scenario
		High	Moderately Low
<p><i>This impact relates to the potential alteration of habitat that supports threatened plant and animal species, including alteration to the ambient environment by nuisance factors such as noise, vibrations, light pollution, etc. produced by people, machinery and vehicles. It also refers to the loss of important habitat that represent sources of food, shelter, etc. for faunal species of conservation concern.</i></p> <p>If construction of infrastructure were to take place in areas of 'Medium' SEI, impacts to populations of protected plant species are likely, which could eliminate or reduce the size of protected plant populations on-site. However, it will be important to develop a plant rescue, relocation and protection plan, which would include a detailed search of the footprint for any threatened and/or protected plant species. Faunal impacts associated with infrastructure construction are likely to be of lower significance, given that large portions of the study area have already been transformed or degraded, with any fauna persisting in the area likely habituated to the existing disturbance regime (subsistence cultivation, livestock grazing, domestic animals and working dirt roads). However, the exception to this would be invertebrate species flagged as potentially occurring as part of the POC and TSCP which may have specific habitat requirements.</p> <p>Fauna of conservation concern highlighted as possibly being present within the more intact habitats are unlikely to be breeding within the degraded habitats, and where foraging at the site, these should be easily flushed-out of their habitats and move to adjacent intact areas during construction, with the arrival of noisy construction machinery and labourers. Impacts to fauna of conservation concern are therefore likely to be unlikely and inconsequential overall.</p> <p>Flora of conservation concern include the provincially protected plant <i>Aloe marlothii</i>, which although not currently threatened at a national level are increasingly threatened at a provincial level due to habitat loss, over-harvesting and human population expansion. The project development threatens to destroy or damage a substantial population of this protected plant species if not avoided. Given the population size of this provincially protected plant, that stand to be impacted, the impact significance where not mitigated is therefore expected to be relatively 'High'. The translocation of protected plants species can help mitigate this impact.</p> <p><u>Key mitigation recommendations:</u></p> <ul style="list-style-type: none"> • Restrict the development to the 32m development buffer. • Avoid impacts to primary grassland areas outside the development footprint which are to be 'no-go' areas for development and construction crews. • No temporary construction site camps, vehicle parking or material stockpiling / laydown areas to be located outside of the development area. • Where protected/threatened plants may be impacted or lost, permits need to be obtained and a protected plant translocation plan must be compiled and implemented to the satisfaction of the provincial conservation authority. 			

C3	Impact on targets for threatened ecosystems	Impact Significance	
		'poor' mitigation scenario	'good' mitigation scenario
		Moderately Low	Moderately Low

This impact refers to the loss of a vegetation unit representative of a rare and/or threatened ecosystem, habitat or vegetation community or a vegetation unit that could be reinstated to such an example with good management and/or rehabilitation.

Where proposed site activities and associated infrastructure traverse Northern KwaZulu-Natal Moist Grassland (Vulnerable), loss of approximately 15.4ha of this vegetation type is unlikely to reduce the capacity to meet provincial and national conservation targets. Further, the proposed development encompasses poor/degraded secondary grassland and alien dominated plant communities.

Where protected species are translocated and rescued successfully and the development footprint is adhered to as much as possible to avoid further permanent loss, impacts should be restricted to take place within degraded 'vulnerable' grassland, this impact can be considered to be of 'Moderately Low' significance.

Key mitigation recommendations:

- Avoid impacts to surrounding primary grassland areas which are to be 'no-go' areas for development and construction crews.
- No temporary construction site camps, vehicle parking or material stockpiling / laydown areas to be located within the mapped primary grassland areas.

C4	Impact on ecological processes and functionality of ecosystems	Impact Significance	
		'poor' mitigation scenario	'good' mitigation scenario
		Moderately Low	Moderately Low

This impact refers to the indirect impacts of adjacent land cover modification and transformation on surface runoff, soil moisture and rates of erosion and sedimentation, and associated ecological impacts like invasion by invasive alien plants and habitat degradation. This impact also includes the alteration or deterioration in the chemical and biological characteristics of soil and water, which inevitably impacts negatively on flora and fauna.

Impacts to the structure and condition of vegetation will likely affect ecological processes and the functioning of surrounding intact ecosystems which are known to provide a variety of valuable ecosystem goods and services. Impacts to degraded vegetation will be less significant. Overall impact significance can be regarded as 'Moderately Low'.

Key mitigation recommendations:

- Avoid impacts to primary grassland areas which are to be 'no-go' areas for development and construction crews.
- No temporary construction site camps, vehicle parking or material stockpiling / laydown areas to be located within the mapped primary grassland areas.
- Rehabilitate any primary grassland that may be accidentally impacted.
- Refer to section 6.4 mitigation measures to be implemented.

C5	Impact on overall species and ecosystem diversity	Impact Significance	
		'poor' mitigation scenario	'good' mitigation scenario
		Moderately Low	Low

This impact refers to the loss of genetic, species, habitat/ecosystem and/or functional diversity.

Overall species and ecosystem diversity at the site can be considered moderately low to low, with key habitat hosting a low diversity of plant species. Overall, where poorly managed, impact significance can be considered 'Moderately Low' should direct impacts to degraded grassland habitat be incurred, however where protected species are translocated and rescued successfully and development footprint is restricted as much as possible, this impact can be considered to be of 'Low' significance.

Key mitigation recommendations:

- Restrict the development to the 32m development buffer.
- Avoid impacts to primary grassland which are to be 'no-go' areas for development and construction crews.
- No temporary construction site camps, vehicle parking or material stockpiling / laydown areas to be located within the primary grassland and thornveld areas.
- Where protected plants may be impacted or lost, permits need to be obtained and a protected plant translocation plan must be compiled and implemented to the satisfaction of the provincial conservation authority.

C6	Impact on ecological connectivity	Impact Significance	
		'poor' mitigation scenario	'good' mitigation scenario
		Moderately Low	Low

This impact refers to the potential reduction in ecological connectivity between the study area being assessed and adjacent habitats/ecosystems and the effects this may have on the movement of faunal species.

Whilst the clearing of vegetation along the project area will likely result in direct impacts to vegetation and habitat, vegetation and habitat can recover with time. Impacts on habitat connectivity will likely be a temporary impact following construction and since no key wildlife corridors will be severed, the significance of the impact is likely to be 'Moderately Low'.

There will still be some habitat connectivity surrounding the project area, albeit reduced. Avoiding habitat outside of the project area will assist with maintaining local level connectivity and reducing impact significance to an overall 'Low' level.

Key mitigation recommendations:

- Avoid impacts to primary grassland areas outside the development footprint which are to be 'no-go' areas for development and construction crews.

Table 29: Summary results of the terrestrial ecological impact significance assessment for construction phase impacts associated with the mining permit area and stockpiling area (cumulative) (table obtained from the 2023 TBIA).

Operation Phase Impact Assessment		Impact Significance	
		'poor' mitigation scenario	'good' mitigation scenario
O1	Impact on vegetation structure and plant species composition	Moderate	Moderately Low
<p><i>This impact refers to the direct physical destruction and/or modification of terrestrial habitat and includes habitat loss impacts, habitat and vegetation degradation impacts (e.g., species composition and abundances changes) and invasive alien plant invasion.</i></p> <p>The stock piling footprint intersects with large portions of 'Medium' SEI vegetation communities, resulting in direct physical habitat loss in these areas or modifications of habitat as the stock piling area is established as mining progresses.</p> <p>During the mine operation phase terrestrial habitat could also be impacted by workers and machinery during repair and maintenance of onsite infrastructure, and through the potential injudicious movement of vehicles and people across the site that may cause unnecessary habitat disturbance. Natural habitat must therefore be appropriately safeguarded as no-go areas.</p>			
O2	Impact on populations of species of special concern (i.e., Protected species)	Impact Significance	
		'poor' mitigation scenario	'good' mitigation scenario
		Moderate-High	Moderate
<p><i>This impact relates to the potential alteration of habitat that supports threatened plant and animal species, including alteration to the ambient environment by nuisance factors such as noise, vibrations, light pollution, etc. produced by people, machinery and vehicles. It also refers to the loss of important habitat that represent sources of food, shelter, etc. for faunal species of conservation concern.</i></p> <p>During the expansion and establishment, areas of 'Medium' SEI vegetation communities will be lost. At the local scale the potential loss of important ecological corridors for faunal species movement as well as the loss of seed sources for certain plant species is an anticipated impact. During the planning and design phase it will be important to consider the maintenance of existing ecological corridors as far as possible for faunal species and to ensure the exchange of genetic material between threatened plant populations is not compromised. During the operational phase, impacts to remaining intact vegetation outside of the project footprint may also occur as a result of increased human activity and disturbance. Potential impacts include increased levels of alien plant infestations, edge effects, and increased grazing pressure on patches of undeveloped land leading to further habitat degradation and biodiversity loss. In addition, blasting during the operational phase may be a temporary nuisance factor for faunal species still within the study area.</p>			
O3	Impact on targets for threatened ecosystems	Impact Significance	
		'poor' mitigation scenario	'good' mitigation scenario
		Moderate	Moderate
<p><i>This impact refers to the loss of a vegetation unit representative of a rare and/or threatened ecosystem, habitat or vegetation community or a vegetation unit that could be reinstated to such an example with good management and/or rehabilitation.</i></p> <p>The development of site activities could result in the loss of Northern KwaZulu-Natal Moist Grassland (Vulnerable) with the same implications and mitigation measures recommended as above. In addition, the direct loss associated with the project footprint, it will be important to combat alien plant invasions associated with the edge effects created by the development through the implementation of a comprehensive alien plant control programme. Ongoing engagement with local stakeholders and the development of a sustainable grassland management programme would also be critical in ensuring surrounding remaining intact primary grassland outside</p>			

the development footprint is not further degraded through increased anthropogenic pressures such as grazing and too frequent burning.			
O4	Impact on ecological processes and functionality of ecosystems	Impact Significance	
		'poor' mitigation scenario	'good' mitigation scenario
		Moderately Low	Low
<p><i>This impact refers to the indirect impacts of adjacent land cover modification and transformation on surface runoff, soil moisture and rates of erosion and sedimentation, and associated ecological impacts such as invasion by invasive alien plants and habitat degradation. This impact also includes the alteration or deterioration in the chemical and biological characteristics of soil and water, which inevitably impacts negatively on flora and fauna.</i></p> <p>Impacts to vegetation of Medium SEI adjacent to and outside of the development footprint during the operational phase may occur as a result of increased human activity and associated disturbance (e.g., increased alien plant invasion and grazing pressure, as well as light and noise pollution – with respect to faunal species). This is likely to continue to impact on terrestrial ecosystem processes and functioning, reducing overall biodiversity and ecosystem functional services/values</p>			
O5	Impact on overall species and ecosystem diversity	Impact Significance	
		'poor' mitigation scenario	'good' mitigation scenario
		Moderately Low	Low
<p><i>This impact refers to the loss of genetic, species, habitat/ecosystem and/or functional diversity.</i></p> <p>Impacts to remaining primary vegetation outside of the project footprint during the operational phase may occur as a result of increased human activity and associated disturbance, as well as indirect impacts to ecosystems. This is likely to continue to impact on ecosystem processes and functioning, reducing overall biodiversity should the remaining primary vegetation communities continue to be mismanaged. Therefore, an invasive alien plant control programme and a grassland rehabilitation plan for the site would be important mitigation measures</p>			
O6	Impact on ecological connectivity	Impact Significance	
		'poor' mitigation scenario	'poor' mitigation scenario
		Moderately Low	Low
<p><i>This impact refers to the potential reduction in ecological connectivity between the study area being assessed and adjacent habitats/ecosystems and the effects this may have on the movement of faunal species.</i></p> <p>Vegetation on site still is largely degraded and in poor condition.</p>			
Overall Comment for The Above Cumulative Impacts O1 – O6: Impact Significance 'Poor' And 'Good' Mitigation Scenario			
<p>Most operational phase impacts will be linked to post-construction disturbance that could open up key natural areas to further impact by Invasive Alien Plants (IAPs) and weeds, leading to further loss of biodiversity and leading to reduced ecosystem condition and functioning. Under a poor mitigation scenario (no follow-up clearing of IAPs post-construction), impacts are generally expected to be of 'Moderate' significance where poorly mitigated/managed.</p> <p>Through onsite IAP control, eradication and basic rehabilitation of disturbed habitat post-construction, operational impacts of alien plants on terrestrial biodiversity can be potentially mitigated and reduced from 'Moderate' to 'Moderately Low' to 'Low' significance levels. Given the fact that habitats are somewhat already infested by IAPs, the potential success of clearing operations will require a more comprehensive and holistic programme to manage IAPs within the target grassland and thornveld vegetation community.</p>			

Protected Plant Rescue and Translocation:

As mentioned earlier, Mora Ecological Services (2022) and Eco-Pulse (2023) identified only one conservation important plant species within the project site, namely *Aloe marlothii*, which is provincially protected in accordance with the Nature Conservation Management Amendment Act, 1999 (No. 5 of 1999). An appropriate protected plant rescue and translocation plan will need to be developed with a focus on rescuing and transplanting >150 protected plants if the development project is authorised.

Biodiversity Offsets:

Biodiversity offsets are typically required in certain situations to compensate for residual impacts to ecosystems and biodiversity once all other forms of mitigation have been considered. Should it be possible to avoid protected plants, direct impacts of 'High' significance will be avoided, such that the only impacts will be incurred by degraded grassland which is 'vulnerable'. Given that impacts to grassland is unlikely to negate meeting conservation targets set for this type at this stage, biodiversity offsets are not considered relevant to this project.

The need for biodiversity offsets can therefore be avoided appropriately through acquiring plant rescue and translocation permits from the competent authority.

Conclusion:

Eco-Pulse concludes that following the initial site inspection one provincially protected plant under the Natal Conservation Ordinance, *Aloe marlothii*, was recorded to occur prolifically within the north-western area of the project site. Necessary plant permits, including rescue and relocation plans from the relevant authorities are required.

Concerning faunal species identified as SCC and the mollusc: *C. simplex*, a desktop assessment and field verification exercise was undertaken, however no evidence was found confirming probable occurrence. The vegetation community is no longer representative of good condition Northern KwaZulu-Natal Moist Grassland and is highly degraded due to disturbance (grazing) and a dense Invasive Alien Plant Community. There is no evidence supporting concern for probable occurrence of SCC, except the confirmed observation of *A. martholii*.

Recommendations have been provided to avoid and minimise potential impacts in accordance with the first two steps of the mitigation hierarchy. A key recommendation is to avoid protected plants through appropriate plant rescue and translocation efforts. Biodiversity offsets can be avoided where impacts to protected plants and representative grassland patches are avoided to avoid ecological sensitivities.

Under a best practical mitigation scenario, the project is environmentally acceptable from a terrestrial biodiversity perspective, provided that the mitigation and management recommendations are strictly adhered to.

Considering the above, the proposed mining operation in relation to the biodiversity of the site is supported by two ecologists (Mora Ecological Services & Eco-Pulse), and the development of the proposed additional stockpile area was also authorised by the EDTEA.

SITE SPECIFIC FAUNA

(Information extracted from the 2022 Terrestrial Biodiversity Impact Assessment, and 2023 Terrestrial Biodiversity Impact Assessment attached as Appendix H1 and H2 respectively)

Sensitivity Assessment:

As mentioned earlier, the DFFE screening tool shows the animal theme as being of high sensitivity, and the terrestrial biodiversity of very high sensitivity. However, ground truthing revealed that the high animal sensitivity was inaccurate due to the extent of habitat disturbance and fragmentation by Collings Pass Road that acts as a barrier for migration by faunal species. Although the site was visited in August and November 2022 (Mora Ecological Services) as well as January 2023 (Eco-Pulse), the only wild land mammal that was observed during the surveys was Rock Hyrax.

Birds are regarded as one of the most useful bioindicators, and they have been used extensively as models to determine ecosystem function (see review Koskimies 1989; Potts et al. 2014; Bregman et al. 2016). High levels of human disturbance as well as habitat transformation and degradation on adjacent areas would result in the disappearance of the more elusive bird species. Observations were made of nine bird species (following table) which are all generalists.

Table 30: List of birds recorded during the site inspection (table obtained from the 2022 TBIA).

Species	Common Name	IUCN Conservation Status
<i>Bostrychia hagedash</i>	Hadada Ibis	LC
<i>Corvus albus</i>	Pied Crow	LC
<i>Dicrurus adsimilis</i>	Fork-tailed Drongo	LC
<i>Myrmecocichla formicivora</i>	Ant-eating Chat	LC
<i>Oenanthe familiaris</i>	Familiar Chat	LC
<i>Euplectes orix</i>	Southern Red Bishop	LC
<i>Crithagra mozambica</i>	Yellow-fronted Canary	LC
<i>Corvus albus</i>	Pied Crow	LC
<i>Streptopelia capicola</i>	Cape Turtle Dove	LC

None of the sensitive avifauna or faunal species obtained from SANBI were observed on site. Mora Ecological Services determined (2022) that the overall post-mitigation impact of the proposed activity on the current faunal structure of the application area will be of low significance. While Eco-Pulse rates the overall post-mitigation impact

of the proposed activity on the current vegetation- and faunal structure of the application area will be of moderately low - low significance during construction, and moderate – low significance during operation.

Eco-Pulse further noted that visual observations during the site inspection identified no faunal SCC, and no evidence was found indicating their probable occurrence within the project area. It is therefore unlikely, given the present habitat conditions and degree of disturbance that faunal species of conservation concern (SCC) occur within the proposed project area. Impacts to fauna of conservation concern are therefore unlikely and inconsequential overall.

Therefore, there is no evident fatal flaw regarding fauna that would prevent this development from being authorised if the mitigation and monitoring measures proposed by the specialist are implemented by the Applicant.

SITE SPECIFIC CULTURAL AND HERITAGE ENVIRONMENT

(Information extracted from the Heritage Impact Assessment for the Proposed Elands Spruit Quarry, Ladysmith, Kwa Zulu Natal Province, 2017 and the Palaeontological Desktop Study of a proposed new quarry extension on the Remaining extent of the farm Elands Spruit 5523 near Ladysmith, KZN Province, 2017)

As mentioned earlier, the proposed area extends over the RBX-KZN mining permit area. During the EIA for the said permit, HCAC – Heritage Contracts and Archaeological Consulting was appointed to do a Heritage Impact Assessment of the study area. The HCAC report (2017) concluded that:

- ❖ No standing structures older than 60 years occur in the study area;
- ❖ No archaeological sites or material was recorded during the survey. No Stone walls attributed to the Iron Age were noted and no Stone Age artefacts of significance were noted;
- ❖ An independent paleontological study was conducted by Rossouw (2017) who found that *“The proposed development footprint is located within the outcrop area of palaeontologically significant Ecca Group sediments, and on palaeontologically insignificant dolerite intrusions in close proximity to a contact metamorphic zone with very low probability of fossil preservation. Given the position of the study area, the likelihood of impact on potential Quaternary fossil exposures is considered unlikely. The overall significance rating of the superficial component (Quaternary overburden) is regarded as low”*.
- ❖ In terms of Section 36 of the Act no burial sites were recorded;
- ❖ Long term impact on the cultural landscape is negligible as study area has previously been subjected to mining and earth moving activities. Visual impacts to scenic routes and sense of place are also considered to be low due to the existing developments in the area;

- ❖ There are no battlefields or concentration camp sites in the development footprint. Known battlefield sites occur in the greater area but will not be impacted on by this development.

A Needs and Desirability Application Form was submitted to AMAFA in August 2022 to inform them of the proposed project and obtain their comments. The project was presented at the AMAFA HOC meeting on 17 August 2022. Following this meeting, AMAFA approved the proposed development and closed the case on SAHRIS without any further specialist or study requirements.

SITE SPECIFIC INFRASTRUCTURE

No infrastructure exists in the proposed 4.9 ha footprint. Infrastructure in proximity to the proposed footprint include Collings Pass Road, the existing access (farm) road to be used by the mining contractor, the Eskom power lines, and the farm fences. A (empty) hut is within 140 m to the earmarked footprint on the bordering property. Should the mitigation measures proposed in this document be implemented the existing infrastructure on the farm will be safeguarded against mining related impacts.

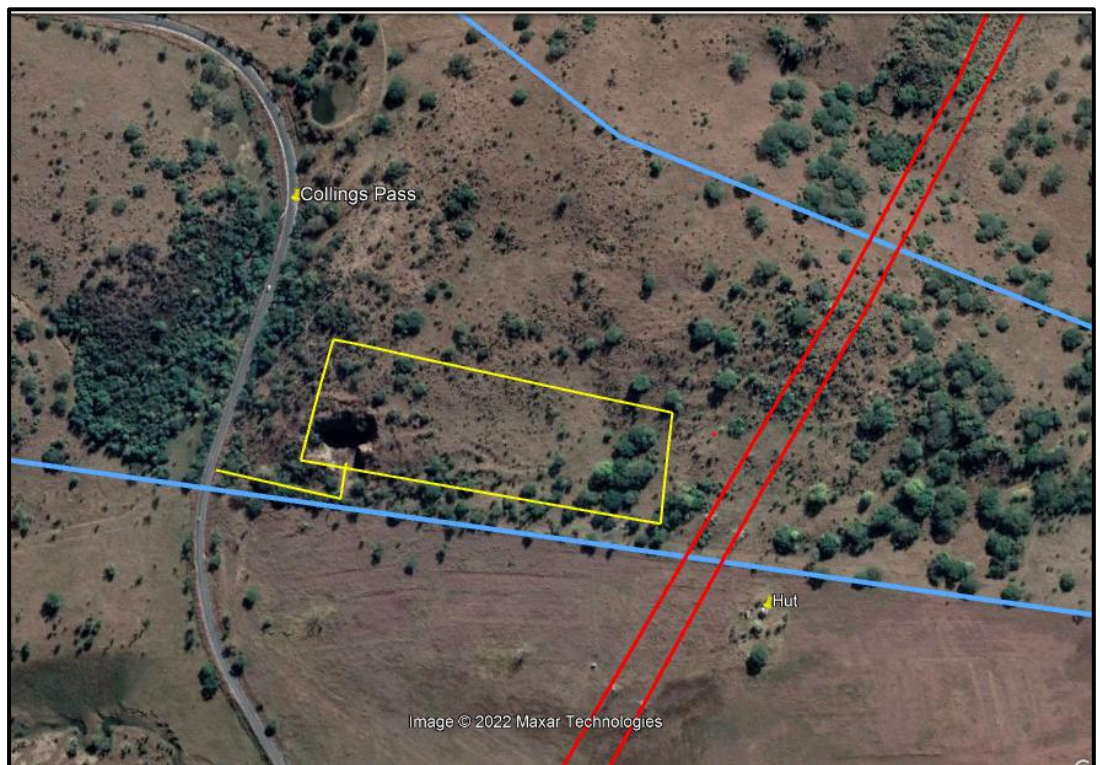


Figure 37: Satellite view showing the structures near the mining area (yellow polygon) red lines show the Eskom power lines, and the hut is indicated by the yellow marker south of the farm boundary (blue line) (image obtained from Google Earth).

(d) Environmental and current land use map.

(Show all environmental and current land use features)

The environmental and current land use map is attached as Appendix D.

v) Impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts

(Provide a list of the potential impacts identified of the activities described in the initial site layout that will be undertaken, as informed by both the typical known impacts of such activities, and as informed by the consultations with affected parties together with the significance, probability, and duration of the impacts. Please indicate the extent to which they can be reversed, the extent to which they may cause irreplaceable loss of resources, and can be avoided, managed or mitigated.)

The following potential impacts were identified of each main activity in each phase of the proposed project. The significance rating was determined using the methodology as explained under *vi) Methodology Used in Determining and Ranking the Significance*. The impact rating listed below was determined for each impact **prior** to bringing the proposed mitigation measures into consideration. The degree of mitigation indicates the possibility of partial, full or no mitigation of the identified impact.

SITE ESTABLISHMENT & INFRASTRUCTURE DEVELOPMENT:

Loss of agricultural land for duration of mining

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium						Degree of Mitigation: None	
3	4	1	2.6	5	5	5	13

Alteration of natural environment and habitat loss

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium						Degree of Mitigation: Partial	
3	4	1	2.6	4	5	4.5	11.7

Visual intrusion because of site establishment

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium-High						Degree of Mitigation: Partial	
3	4	2	3	5	5	5	15

Impact on vegetation structure and plant species composition

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium						Degree of Mitigation: Full	
4	4	4	4	4	2	3	12

Impact on populations of species of special concern

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: High						Degree of Mitigation: Full	
4	4	4	4	5	5	5	20

Impact on targets for threatened ecosystems

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low-Medium						Degree of Mitigation: Full	
4	4	1	3	3	3	3	9

Impact on ecological processes and functionality of ecosystems

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low-Medium						Degree of Mitigation: Full	
4	4	1	3	3	3	3	9

Impact on overall species and ecosystem diversity

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low-Medium						Degree of Mitigation: Full	
4	4	1	3	3	3	3	9

Impact on ecological connectivity

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low-Medium						Degree of Mitigation: Full	
4	4	1	3	3	3	3	9

Potential change of natural runoff and drainage patterns

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low						Degree of Mitigation: Full	
3	4	2	3	2	1	1.5	4.5

Removal of mean annual precipitation from the catchment due to control of runoff water

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium						Degree of Mitigation: Full	
3	4	4	3.6	3	5	4	14.4

Alteration of hydrological and geomorphological processes

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium						Degree of Mitigation: Full	
3	4	4	3.6	3	5	4	14.4

Impacts to ecological connectivity and/or ecological disturbance impacts (aquatic)

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low-Medium						Degree of Mitigation: Full	
4	3	2	3	2	3	2.5	7.5

New job opportunities because of the mining operation (Positive Impact)

Severity (+)	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance (+)
Rating: High (+)						Degree of Mitigation: N/A	
4	4	5	4.6	5	5	5	23

STRIPPING AND STOCKPILING OF TOPSOIL AND/OR OVERBURDEN:

Visual intrusion caused by mining activities

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Medium-High						Degree of Mitigation: Partial	
3	4	2	3	5	5	5	15

Loss of stockpiled topsoil during mining and stockpiling

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Low-Medium						Degree of Mitigation: Full	
3	4	1	2.6	4	2	3	7.8

Dust nuisance because of the disturbance of soil

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Low-Medium						Degree of Mitigation: Full	
2	1	2	1.6	5	5	5	8

Noise nuisance generated by earthmoving machinery

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Low-Medium						Degree of Mitigation: Partial	
2	1	1	1.3	4	5	4.5	5.9

Infestation of the topsoil heaps and mining area with weeds or invader plant species

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Medium			Site Alternative 1			Degree of Mitigation: Full	
3	4	2	3	5	2	3.5	10.5

Potential increase in runoff from bare areas and associated accelerated erosion

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Low-Medium						Degree of Mitigation: Full	
3	4	1	2.6	5	2	3.5	9.1

Potential contamination of footprint area and surface runoff because of hydrocarbon spillages

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium						Degree of Mitigation: Full	
4	4	2	3.3	4	4	4	13.2

Direct physical loss or modification of freshwater habitat

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low						Degree of Mitigation: Full	
3	5	2	3.3	2	1	1.5	4.9

Impacts to water quality

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium						Degree of Mitigation: Full	
4	4	3	3.6	3	4	3.5	12.6

DRILLING AND BLASTING:

Health and safety risk posed by blasting activities

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium						Degree of Mitigation: Full	
4	4	1	3	4	3	3.5	10.5

Potential damage to Eskom power lines

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low-Medium						Degree of Mitigation: Full	
4	4	4	4	3	1	2	8

Potential structural damage to adjacent residence

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low-Medium						Degree of Mitigation: Full	
4	4	2	3.3	2	3	2.5	8.3

Dust nuisance caused by blasting activities

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low-Medium						Degree of Mitigation: None	
3	1	2	2	5	3	4	8

Noise nuisance because of blasting

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium						Degree of Mitigation: Partial	
3	4	2	3	4	3	3.5	10.5

EXCAVATION, LOADING AND HAULING TO THE PROCESSING PLANT

Visual intrusion associated with the excavation activities

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: High						Degree of Mitigation: Partial	
3	5	4	4	5	5	5	20

Dust nuisance due to excavation and from loading and vehicles transporting the material

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium						Degree of Mitigation: Full	
2	4	2	2.6	5	5	5	13

Noise nuisance because of the mining activities

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium						Degree of Mitigation: Partial	
2	4	2	2.6	4	5	4.5	11.7

Unsafe working environment for employees

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium						Degree of Mitigation: Full	
4	4	1	3	4	5	4.5	13.5

Soil contamination from hydrocarbon spills and/or littering

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium						Degree of Mitigation: Full	
3	4	1	2.6	4	5	4.5	11.7

Facilitation of erosion due to mining activities

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low-Medium						Degree of Mitigation: Full	
3	4	1	2.6	4	3	3.5	9.1

PROCESSING, STOCKPILING AND TRANSPORTING OF MATERIAL:

Dust nuisance generated at the processing plant

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium-High						Degree of Mitigation: Full	
3	4	2	3	5	5	5	15

Noise nuisance stemming from operation of the processing plant

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium						Degree of Mitigation: Partial	
2	4	2	2.7	4	5	4.5	12.2

Potential contamination of environment due to improper waste management

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium						Degree of Mitigation: Full	
3	4	1	2.6	4	4	4	10.4

Infestation of the area with invader plant species

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium-High						Degree of Mitigation: Full	
3	4	5	4	4	5	4.5	18

Potential increase in runoff from bare areas and associated accelerated erosion

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low-Medium						Degree of Mitigation: Full	
3	4	1	2.6	5	2	3.5	9.1

Potential change of natural runoff and drainage patterns

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low						Degree of Mitigation: Full	
3	4	2	3	2	1	1.5	4.5

Overloading of trucks impacting road infrastructure

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium-High						Degree of Mitigation: Full	
3	4	5	4	4	5	4.5	18

Degradation of the access road

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium						Degree of Mitigation: Full	
3	4	2	3	4	5	4.5	13.5

CUMULATIVE IMPACTS:

Direct physical loss or modification of freshwater habitat

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low						Degree of Mitigation: Full	
3	5	2	3.3	2	1	1.5	4.9

Alteration of hydrological and geomorphological processes

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium						Degree of Mitigation: Full	
3	4	4	3.6	3	5	4	14.4

Impacts to water quality

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium						Degree of Mitigation: Full	
4	4	3	3.6	3	4	3.5	12.6

Impacts to ecological connectivity and/or ecological disturbance impacts (aquatic aspects)

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low						Degree of Mitigation: Full	
3	5	2	3.3	2	1	1.5	4.9

Cumulative dust nuisance when quarry and stockpile area operate

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium-High						Degree of Mitigation: Full	
4	4	2	3.3	5	5	5	16.5

Cumulative noise nuisance when quarry and stockpile area operate

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium-High						Degree of Mitigation: Partial	
3	4	3	3.3	5	5	5	16.5

Cumulative visual impact when quarry and stockpile area are developed

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium-High						Degree of Mitigation: Partial	
4	4	2	3.3	5	5	5	16.5

Impact on vegetation structure and plant species composition

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium						Degree of Mitigation: Partial	
4	4	4	4	5	2	3.5	14

Impact on populations of species of special concern

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium-High						Degree of Mitigation: Full	
4	4	5	4.3	5	4	4.5	19.3

Impact on targets for threatened ecosystems

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium						Degree of Mitigation: Partial	
4	4	4	4	5	2	3.5	14

Impact on ecological process and functionality of ecosystems (terrestrial)

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low-Medium						Degree of Mitigation: Full	
4	4	1	3	3	3	3	9

Impact on overall species and ecosystem diversity

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low-Medium						Degree of Mitigation: Full	
4	4	1	3	3	3	3	9

Impact on ecological connectivity (terrestrial)

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low-Medium						Degree of Mitigation: Full	
4	4	1	3	3	3	3	9

Cumulative impact of invader plants in both the quarry and stockpile footprints

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: High						Degree of Mitigation: Full	
4	4	4	4	5	5	5	20

Cumulative impact on job opportunities when quarry and stockpile area operate

Severity (+)	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance (+)
Rating: High (+)						Degree of Mitigation: N/A	
5	4	5	4.6	5	5	5	23

SLOPING AND LANDSCAPING DURING REHABILITATION:

Safety risk posed by un-sloped areas

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Medium-High						Degree of Mitigation: Full	
4	5	1	3.3	5	5	5	16.5

Erosion of returned topsoil after rehabilitation

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Medium						Degree of Mitigation: Full	
4	4	1	3	4	5	4.5	13.5

Infestation of the reinstated areas by weeds and invader plant species

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Medium-High						Degree of Mitigation: Full	
3	5	3	3.6	5	5	5	18

Exposed disturbed area with no indigenous vegetation upon closure

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Medium						Degree of Mitigation: Full	
3	4	1	2.6	4	5	4.5	11.7

Potential impact associated with litter/waste left at the mining area

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Medium						Degree of Mitigation: Full	
3	5	1	3	4	5	4.5	10.5

Return of the mining area to agricultural use upon closure (Positive Impact)

Severity (+)	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance (+)
Rating: Medium-High						Degree of Mitigation: N/A	
3	5	1	3	5	5	5	15

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

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

Methodology for the assessment of the potential environmental, social and cultural impacts

DEFINITIONS AND CONCEPTS:

Environmental significance:

The concept of significance is at the core of impact identification, evaluation and decision-making. The concept remains largely undefined and there is no international consensus on a single definition. The following common elements are recognised from the various interpretations:

- ❖ Environmental significance is a value judgement
- ❖ The degree of environmental significance depends on the nature of the impact
- ❖ The importance is rated in terms of both biophysical and socio-economic values
- ❖ Determining significance involves the amount of change to the environment perceived to be acceptable to affected communities.

Significance can be differentiated into impact magnitude and impact significance. Impact magnitude is the measurable change (i.e. intensity, duration and likelihood). Impact significance is the value placed on the change by different affected parties (i.e. level of acceptability) (DEAT (2002) Impact Significance, Integrated Environmental Management, Information Series 5).

The concept of risk has two dimensions, namely the consequence of an event or set of circumstances, and the likelihood of particular consequences being realised (Environment Australia (1999) Environmental Risk Management).

Impact

The positive or negative effects on human well-being and / or the environment.

Consequence

The intermediate or final outcome of an event or situation OR it is the result, on the environment, of an event.

Likelihood

A qualitative term covering both probability and frequency.

Frequency

The number of occurrences of a defined event in a given time or rate.

Probability

The likelihood of a specific outcome measured by the ratio of a specific outcome to the total number of possible outcomes.

Environment

Surroundings in which an organisation operates, including air, water, land, natural resources, flora, fauna, humans and their interrelation (ISO 14004, 1996).

Methodology that will be used

The environmental significance assessment methodology is based on the following determination:

$$\text{Environmental Significance} = \text{Overall Consequence} \times \text{Overall Likelihood}$$

Determination of Overall Consequence

Consequence analysis is a mixture of quantitative and qualitative information and the outcome can be positive or negative. Several factors can be used to determine consequence. For the purpose of determining the environmental significance in terms of consequence, the following factors were chosen: **Severity/Intensity, Duration and Extent/Spatial Scale**. Each factor is assigned a rating of 1 to 5, as described in the tables below.

Determination of Severity / Intensity

Severity relates to the nature of the event, aspect or impact to the environment and describes how severe the aspects impact on the biophysical and socio-economic environment.

The table below will be used to obtain an overall rating for severity, taking into consideration the various criteria.

Table 31: Table to be used to obtain an overall rating of severity, taking into consideration the various criteria.

Type of criteria	Rating				
	1	2	3	4	5
Quantitative	0-20%	21-40%	41-60%	61-80%	81-100%
Qualitative	Insignificant / Non-harmful	Small / Potentially harmful	Significant/ Harmful	Great/ Very harmful	Disastrous Extremely harmful
Social/ Community response	Acceptable / I&AP satisfied	Slightly tolerable / Possible objections	Intolerable/ Sporadic complaints	Unacceptable / Widespread complaints	Totally unacceptable / Possible legal action

Type of criteria	Rating				
	1	2	3	4	5
Irreversibility	Very low cost to mitigate/ High potential to mitigate impacts to level of insignificance/ Easily reversible	Low cost to mitigate	Substantial cost to mitigate/ Potential to mitigate impacts/ Potential to reverse impact	High cost to mitigate	Prohibitive cost to mitigate/ Little or no mechanism to mitigate impact Irreversible
Biophysical (Air quality, water quantity and quality, waste production, fauna and flora)	Insignificant change / deterioration or disturbance	Moderate change / deterioration or disturbance	Significant change / deterioration or disturbance	Very significant change / deterioration or disturbance	Disastrous change / deterioration or disturbance

Determination of Duration

Duration refers to the amount of time that the environment will be affected by the event, risk or impact, if no intervention e.g. remedial action takes place.

Table 32: Criteria for the rating of duration

Rating	Description
1	Up to ONE MONTH
2	ONE MONTH to THREE MONTHS (QUARTER)
3	THREE MONTHS to ONE YEAR
4	ONE to TEN YEARS
5	Beyond TEN YEARS

Determination of Extent/Spatial Scale

Extent or spatial scale is the area affected by the event, aspect or impact.

Table 33: Criteria for the rating of extent / spatial scale.

Rating	Description
1	Immediate, fully contained area
2	Surrounding area
3	Within Business Unit area of responsibility
4	Within the farm/neighbouring farm area
5	Regional, National, International

Determination of Overall Consequence

Overall consequence is determined by adding the factors determined above and summarized below, and then dividing the sum by 3.

Table 34: Example of calculating overall consequence.

Consequence	Rating
Severity	Example 4
Duration	Example 2
Extent	Example 4
SUBTOTAL	10

Consequence	Rating
TOTAL CONSEQUENCE: (Subtotal divided by 3)	3.3

Determination of Likelihood:

The determination of likelihood is a combination of Frequency and Probability. Each factor is assigned a rating of 1 to 5, as described in the tables below.

Determination of Frequency

Frequency refers to how often the specific activity, related to the event, aspect, or impact, is undertaken.

Table 35: Criteria for the rating of frequency.

Rating	Description
1	Once a year or once/more during operation
2	Once/more in 6 Months
3	Once/more a Month
4	Once/more a Week
5	Daily

Determination of Probability

Probability refers to how often the activity or aspect has an impact on the environment.

Table 36: Criteria for the rating of probability.

Rating	Description
1	Almost never / almost impossible
2	Very seldom / highly unlikely
3	Infrequent / unlikely / seldom
4	Often / regularly / likely / possible
5	Daily / highly likely / definitely

Overall Likelihood

Overall likelihood is calculated by adding the factors determined above and summarised below, and then dividing the sum by 2.

Table 37: Example of calculating overall likelihood.

Consequence	Rating
Frequency	Example 4
Probability	Example 2
SUBTOTAL	6
TOTAL LIKELIHOOD (Subtotal divided by 2)	3

Determination of Overall Environmental Significance:

The multiplication of overall consequence with overall likelihood will provide the environmental significance, which is a number that will then fall into a range of **LOW, LOW-MEDIUM, MEDIUM, MEDIUM-HIGH** or **HIGH**, as shown in the table below.

Table 38: Determination of overall environmental significance.

Significance or Risk	Low	Low-Medium	Medium	Medium-High	High
Overall Consequence X Overall Likelihood	1 – 4.9	5 – 9.9	10 – 14.9	15 – 19.9	20 – 25

Qualitative description or magnitude of Environmental Significance

This description is qualitative and is an indication of the nature or magnitude of the Environmental Significance. It also guides the prioritisations and decision making process associated with this event, aspect or impact.

Table 39: Description of environmental significance and related action required.

Significance	Low	Low-Medium	Medium	Medium-High	High
Impact Magnitude	Impact is of very low order and therefore likely to have very little real effect. Acceptable.	Impact is of low order and therefore likely to have little real effect. Acceptable.	Impact is real, and potentially substantial in relation to other impacts. Can pose a risk to company	Impact is real and substantial in relation to other impacts. Pose a risk to the company. Unacceptable	Impact is of the highest order possible. Unacceptable. Fatal flaw.
Action Required	Maintain current management measures. Where possible improve.	Maintain current management measures. Implement monitoring and evaluate to determine potential increase in risk. Where possible improve	Implement monitoring. Investigate mitigation measures and improve management measures to reduce risk, where possible.	Improve management measures to reduce risk.	Implement significant mitigation measures or implement alternatives.

Based on the above, the significance rating scale has been determined as follows:

- High Of the highest order possible within the bounds of impacts which could occur. In the case of negative impacts, there would be no possible mitigation and / or remedial activity to offset the impact at the spatial or time scale for which it was predicted. In the case of positive impacts, there is no real alternative to achieving the benefit.
- Medium-High Impacts of a substantial order. In the case of negative impacts, mitigation and / or remedial activity would be feasible but difficult, expensive, time-

	consuming or some combination of these. In the case of positive impacts, other means of achieving this benefit would be feasible, but these would be more difficult, expensive, time-consuming or some combination of these.
Medium	Impact would be real but not substantial within the bounds of those, which could occur. In the case of negative impacts, mitigation and / or remedial activity would be both feasible and fairly easily possible, In case of positive impacts; other means of achieving these benefits would be about equal in time, cost and effort.
Low-Medium	Impact would be of a low order and with little real effect. In the case of negative impacts, mitigation and / or remedial activity would be either easily achieved or little would be required, or both. In case of positive impacts alternative means for achieving this benefit would likely be easier, cheaper, more effective, less time-consuming, or some combination of these.
Low	Impact would be negligible. In the case of negative impacts, almost no mitigation and or remedial activity would be needed, and any minor steps, which might be needed, would be easy, cheap and simple. In the case of positive impacts, alternative means would almost all likely be better, in one or a number of ways, than this means of achieving the benefit
Insignificant	There would be a no impact at all – not even a very low impact on the system or any of its parts.

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

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

The preferred site alternative identified by the Applicant and project team entails the use of an area that extends over an existing quarry pit that was previously approved for mining. The earmarked area was identified as the only viable alternative as siting the proposed mining area in a greenfield site, while the existing quarry pit is not fully mined or rehabilitated is not deemed to be the best sustainable development option. Should the Applicant be allowed to mine the proposed area, the quarry will be rehabilitated as part of the closure conditions of this mining permit.

POSITIVE IMPACTS ASSOCIATED WITH THE PROJECT:

- ❖ The permit holder will be able to exploit the resource on the property and provide fill material for the intended N11 road upgrade at competitive prices;
- ❖ The landowner will be able to further diversify the income generation of the property;
- ❖ At least eight new job opportunities will be created by the proposed activity;

- ❖ The presence of the proposed operation will contribute (directly & indirectly) to the local economy with preference give to HDSA & women owned local suppliers;
- ❖ The quarry on the property will be rehabilitated as part of the closure conditions of this mining permit;
- ❖ Upon closure of the mine, the area can be returned to agricultural use.

POTENTIAL NEGATIVE IMPACTS ASSOCIATED WITH THE PROJECT:

The following table shows the potential negative impacts associated with the preferred project proposal that were identified during the EIA:

Table 40: List of potential negative impacts associated with the preferred project proposal.

ACTIVITY	POTENTIAL IMPACT	SIGNIFICANCE (BEFORE MITIGATION)	SIGNIFICANCE (AFTER MITIGATION)
❖ Site establishment and infrastructure development.	❖ Loss of agricultural land for duration of the project.	❖ Medium	❖ Medium
<ul style="list-style-type: none"> ❖ Site establishment and infrastructure development. ❖ Stripping and stockpiling of topsoil and/or overburden. ❖ Excavation, loading and hauling to the processing plant. ❖ Cumulative impact. 	<ul style="list-style-type: none"> ❖ Visual intrusion because of site establishment. ❖ Visual intrusion caused by mining activities. ❖ Visual intrusion associated with the excavation activities. ❖ Cumulative visual impact when quarry and stockpile area are developed. 	<ul style="list-style-type: none"> ❖ Medium-High ❖ Medium-High ❖ High ❖ Medium-High 	<ul style="list-style-type: none"> ❖ Low-Medium ❖ Low-Medium ❖ Medium-High ❖ Medium
<ul style="list-style-type: none"> ❖ Site establishment and infrastructure development. ❖ Cumulative impacts. 	<p><u>Site Establishment Phase:</u></p> <ul style="list-style-type: none"> ❖ Alteration of natural environment and habitat loss. ❖ Impact on vegetation structure and plant species composition ❖ Impact on populations of species of special concern ❖ Impact on targets for threatened ecosystems ❖ Impact on ecological processes and functionality of ecosystems (terrestrial) ❖ Impact on overall species and ecosystem diversity (terrestrial) ❖ Impact on ecological connectivity 	<ul style="list-style-type: none"> ❖ Medium ❖ Medium ❖ High ❖ Low-Medium ❖ Low-Medium ❖ Low-Medium ❖ Low-Medium 	<ul style="list-style-type: none"> ❖ Low ❖ Low-Medium ❖ Low-Medium ❖ Low-Medium ❖ Low ❖ Low

ACTIVITY	POTENTIAL IMPACT	SIGNIFICANCE (BEFORE MITIGATION)	SIGNIFICANCE (AFTER MITIGATION)
	<p><u>Cumulative Impacts:</u></p> <ul style="list-style-type: none"> ❖ Impact on vegetation structure and plant species composition ❖ Impact on populations of species of special concern ❖ Impact on targets for threatened ecosystems ❖ Impact on ecological processes and functionality of ecosystems ❖ Impact on overall species and ecosystem diversity ❖ Impact on ecological connectivity (terrestrial) 	<ul style="list-style-type: none"> ❖ Medium ❖ Medium-High ❖ Medium ❖ Low-Medium ❖ Low-Medium ❖ Low-Medium 	<ul style="list-style-type: none"> ❖ Low-Medium ❖ Medium ❖ Medium ❖ Low ❖ Low ❖ Low
<ul style="list-style-type: none"> ❖ Stripping and stockpiling of topsoil and overburden. ❖ Excavation, loading and hauling to the processing plant. ❖ Processing, stockpiling and transporting of material. ❖ Sloping and landscaping during rehabilitation. 	<ul style="list-style-type: none"> ❖ Loss of stockpiled topsoil during mining and stockpiling. ❖ Potential increase in runoff from bare areas and associated accelerated erosion. ❖ Facilitation of erosion due to mining activities. ❖ Potential increase in runoff from bare areas and associated accelerated erosion. ❖ Erosion of returned topsoil after rehabilitation. ❖ Exposed disturbed area with no indigenous vegetation upon closure. 	<ul style="list-style-type: none"> ❖ Low-Medium ❖ Low-Medium ❖ Low-Medium ❖ Low-Medium ❖ Medium ❖ Medium 	<ul style="list-style-type: none"> ❖ Low ❖ Low ❖ Low ❖ Low ❖ Low ❖ Low
<ul style="list-style-type: none"> ❖ Stripping and stockpiling of topsoil and/or overburden. ❖ Drilling and blasting. ❖ Excavation, loading and hauling to the processing plant. ❖ Processing, stockpiling, and transporting of material. ❖ Cumulative impacts. 	<ul style="list-style-type: none"> ❖ Dust nuisance because of the disturbance of soil. ❖ Dust nuisance caused by blasting activities. ❖ Dust nuisance due to excavation and from loading and vehicles transporting the material. ❖ Dust nuisance generated at the processing plant. ❖ Cumulative dust nuisance when quarry and stockpile area operate. 	<ul style="list-style-type: none"> ❖ Low-Medium ❖ Low-Medium ❖ Medium ❖ Medium-High ❖ Medium-High 	<ul style="list-style-type: none"> ❖ Low ❖ Low-Medium ❖ Low-Medium ❖ Low-Medium ❖ Low-Medium
<ul style="list-style-type: none"> ❖ Stripping and stockpiling of topsoil and/or overburden. ❖ Drilling and blasting. ❖ Excavation, loading and hauling to the processing plant. 	<ul style="list-style-type: none"> ❖ Noise nuisance generated by earthmoving machinery. ❖ Noise nuisance because of blasting. ❖ Noise nuisance because of the mining activities. ❖ Noise nuisance stemming from operation of the processing plant. 	<ul style="list-style-type: none"> ❖ Low-Medium ❖ Medium ❖ Medium ❖ Medium ❖ Medium-High 	<ul style="list-style-type: none"> ❖ Low ❖ Low-Medium ❖ Low-Medium ❖ Low-Medium ❖ Medium

ACTIVITY	POTENTIAL IMPACT	SIGNIFICANCE (BEFORE MITIGATION)	SIGNIFICANCE (AFTER MITIGATION)
<ul style="list-style-type: none"> ❖ Processing, stockpiling, and transporting of material. ❖ Cumulative impacts 	<ul style="list-style-type: none"> ❖ Cumulative noise nuisance when quarry and stockpile area operate. 		
<ul style="list-style-type: none"> ❖ Stripping and stockpiling of topsoil and/or overburden. ❖ Processing, stockpiling, and transporting of material. ❖ Cumulative impacts. ❖ Sloping and landscaping during rehabilitation phase. 	<ul style="list-style-type: none"> ❖ Infestation of the topsoil heaps and stockpile area with weeds or invader plant species. ❖ Infestation of the area with invader plant species. ❖ Cumulative impact of invader plants in both the quarry and stockpile footprints. ❖ Infestation of the reinstated areas by weeds and invader plant species. 	<ul style="list-style-type: none"> ❖ Medium ❖ Medium-High ❖ High ❖ Medium-High 	<ul style="list-style-type: none"> ❖ Low ❖ Low ❖ Low-Medium ❖ Low
<ul style="list-style-type: none"> ❖ Stripping and stockpiling of topsoil and/or overburden. ❖ Excavation, loading and hauling to the processing plant. ❖ Processing, stockpiling, and transporting of material. ❖ Sloping and landscaping during rehabilitation phase. 	<ul style="list-style-type: none"> ❖ Potential contamination of footprint area and surface runoff because of hydrocarbon spillages. ❖ Soil contamination from hydrocarbon spills and/or littering. ❖ Potential contamination of environment due to improper waste management. ❖ Potential impact associated with litter/waste left at the area. 	<ul style="list-style-type: none"> ❖ Medium ❖ Medium ❖ Medium ❖ Medium 	<ul style="list-style-type: none"> ❖ Low ❖ Low ❖ Low ❖ Low
<ul style="list-style-type: none"> ❖ Site establishment & infrastructure development. ❖ Cumulative Impacts 	<p><u>Site Establishment Phase:</u></p> <ul style="list-style-type: none"> ❖ Potential change of natural runoff and drainage patterns. ❖ Removal of mean annual precipitation from the catchment due to control of runoff water. ❖ Alteration of hydrological and geomorphological process. ❖ Impacts to ecological connectivity and/or ecological disturbance impacts (aquatic). ❖ Direct Physical loss or modification of freshwater habitat ❖ Impacts to water quality ❖ Potential change of natural runoff and drainage patterns. <p><u>Cumulative Impacts:</u></p> <ul style="list-style-type: none"> ❖ Direct physical loss or modification of freshwater habitat ❖ Alteration of hydrological and geomorphological processes 	<ul style="list-style-type: none"> ❖ Low ❖ Medium ❖ Medium ❖ Low-Medium ❖ Low ❖ Medium ❖ Low ❖ Low ❖ Low ❖ Low ❖ Medium ❖ Medium ❖ Low 	<ul style="list-style-type: none"> ❖ Low ❖ Low ❖ Low-Medium ❖ Low ❖ Low ❖ Low ❖ Low ❖ Low ❖ Low ❖ Low ❖ Low-Medium ❖ Low-Medium ❖ Low

ACTIVITY	POTENTIAL IMPACT	SIGNIFICANCE (BEFORE MITIGATION)	SIGNIFICANCE (AFTER MITIGATION)
	<ul style="list-style-type: none"> ❖ Impacts to water quality ❖ Impacts to ecological connectivity and/or ecological disturbance impacts (aquatic aspects) 		
<ul style="list-style-type: none"> ❖ Drilling and blasting. ❖ Excavation, loading and hauling to the processing plant. ❖ Sloping and landscaping during rehabilitation phase. 	<ul style="list-style-type: none"> ❖ Health and safety risk posed by blasting activities. ❖ Unsafe working environment for employees. ❖ Safety risk posed by un-sloped areas. 	<ul style="list-style-type: none"> ❖ Medium ❖ Medium ❖ Medium-High 	<ul style="list-style-type: none"> ❖ Low ❖ Low ❖ Low
<ul style="list-style-type: none"> ❖ Drilling and blasting. 	<ul style="list-style-type: none"> ❖ Potential damage to Eskom power lines. 	<ul style="list-style-type: none"> ❖ Low-Medium 	<ul style="list-style-type: none"> ❖ Low
<ul style="list-style-type: none"> ❖ Drilling and blasting. 	<ul style="list-style-type: none"> ❖ Potential structural damage to adjacent residence. 	<ul style="list-style-type: none"> ❖ Low-Medium 	<ul style="list-style-type: none"> ❖ Low
<ul style="list-style-type: none"> ❖ Processing, stockpiling and transporting of material. 	<ul style="list-style-type: none"> ❖ Overloading of trucks impacting road infrastructure. ❖ Degradation of the access road. 	<ul style="list-style-type: none"> ❖ Medium-High ❖ Medium 	<ul style="list-style-type: none"> ❖ Low ❖ Low

viii)The possible mitigation measures that could be applied and the level of risk

(With regard to the issues and concerns raised by affected parties provide a list of the issues raised and an assessment/discussion of the mitigation or site layout alternatives available to accommodate or address their concerns, together with an assessment of the impacts or risks associated with the mitigation or alternatives considered)

The following mitigation measures are proposed to address/minimize the impact of the proposed activity on the surrounding environment:

TOPOGRAPHY

Rehabilitating/Landscaping of Mining Area:

- ❖ The excavated area must serve as a final depositing area for the placement of overburden.
- ❖ Rocks and coarse material removed from the excavation must be dumped into the excavation.
- ❖ Coarse natural material used for the construction of ramps must be removed and dumped into the excavations.
- ❖ Stockpiles must be removed during the decommissioning phase, the area ripped, and the topsoil returned to its original depth to provide a growth medium.
- ❖ No waste may be permitted to be deposited in the excavations.

- ❖ Once overburden, rocks and coarse natural materials have been added to the excavation and it was profiled with acceptable contours and erosion control measures, the topsoil previously stored must be returned to its original depth over the area.
- ❖ The area must be fertilized if necessary to allow vegetation to establish rapidly. The site shall be seeded with a local or adapted indigenous seed mix in order to propagate the locally or regionally occurring flora, should natural vegetation not re-establish within six months from closure of the site.
- ❖ If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining operation be corrected and the area be seeded with a vegetation seed mix to his or her specification.
- ❖ On completion of operations, all structures or objects shall be dealt with in accordance with section 44 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002).
- ❖ On completion of mining operations, the surface of all plant-, stockpiling-, and/or office areas, if compacted due to hauling and dumping operations, shall be scarified to a depth of at least 200 mm and graded to an even surface condition. Where applicable/possible topsoil needs to be returned to its original depth over the area.
- ❖ Rehabilitation must be aligned with the guidelines proposed in the 2023 Terrestrial Biodiversity Impact Assessment.

VISUAL CHARACTERISTICS

Visual Mitigation:

- ❖ The site must have a neat appearance and at all times kept in good condition.
- ❖ Mining equipment must be stored neatly in dedicated areas when not in use.
- ❖ The permit holder must limit vegetation removal, and stripping of topsoil may only be done immediately prior to the mining/use of a specific area.
- ❖ The excavation must be contained within the approved footprint of the permitted area.
- ❖ Upon closure the site must be rehabilitated to ensure that the visual impact on the aesthetic value of the area is reduced to the minimum.

AIR AND NOISE QUALITY

Fugitive Dust Emission Mitigation Measures:

- ❖ The liberation of dust into the surrounding environment must be effectively controlled using, inter alia, straw, water spraying and/or environmentally friendly dust-allaying agents that contains no PCB's (e.g. DAS products).
- ❖ The site manager must daily assess the efficiency of all dust suppression equipment.

- ❖ Speed on the haul roads must be limited to 20 km/h and 40 km/h on the access road to prevent the generation of excess dust.
- ❖ Areas devoid of vegetation, which could act as a dust source, must be minimized and vegetation removal may only be done immediately prior to mining.
- ❖ The crusher plant must have operational water sprayers to alleviate dust generation from the conveyor belts.
- ❖ Fines, blowing from the drop end of the crusher plant, can be minimized by attaching strips of used conveyor belts to the conveyor's end.
- ❖ Compacted dust must weekly be removed from the crusher plant to eliminate the dust source.
- ❖ Loads must be flattened to prevent spillage during transportation on public roads.
- ❖ Weather conditions must be taken into consideration upon commencement of daily operations. Limiting operations during very windy periods would reduce airborne dust and resulting impacts.
- ❖ All dust generating activities shall comply with the National Dust Control Regulations, GN No R827 promulgated in terms of NEM:AQA (Act 39 of 2004) and ASTM D1739 (SANS 1137:2012).
- ❖ Best practice measures shall be implemented during the stripping of topsoil, excavation, and transporting of material from site to minimize potential dust impacts.
- ❖ Monthly fallout-dust monitoring must be implemented at the site for the duration of the activities and the results must be compliant with the standards of the National Dust Control Regulations, 2013.

Noise Handling:

- ❖ The permit holder must ensure that employees and staff conduct themselves in an acceptable manner while on site.
- ❖ No loud music may be permitted at the mining area.
- ❖ All mining vehicles must be equipped with silencers and maintained in a road worthy condition in terms of the National Road Traffic Act, 1996 (Act No 93 of 1996).
- ❖ The type, duration and timing of the blasting procedures must be planned with due cognizance of other land users and structures in the vicinity. Surrounding landowners must be notified in writing prior to each blasting occasion.
- ❖ A qualified occupational hygienist must be contracted to quarterly monitor and report on the personal noise exposure of the employees working at the mine. The monitoring must be done in accordance with the SANS 10083:2004 (Edition 5) sampling method as well as NEM:AQA, 2004, SANS 10103:2008.
- ❖ Site management must strive to minimise the noise caused by generators. All generators must be maintained and equipped with sound mufflers. If possible, the

generators must be pointed away from the neighbouring land users. Further to this, all generators must be placed on a level area/footing to minimise vibration noise.

- ❖ Best practice measures shall be implemented to minimize potential noise impacts.
- ❖ Work hours must be from 07:00 to 18:00 Monday to Saturday. No work may be allowed after hours or on Sundays.

GEOLOGY AND SOIL

Topsoil Management:

- ❖ The upper 300 mm of the soil must be stripped and stockpiled before mining.
- ❖ Topsoil is a valuable and essential resource for rehabilitation, and it must therefore be managed carefully to conserve and maintain it throughout the stockpiling and rehabilitation processes.
- ❖ Topsoil stripping, stockpiling, and re-spreading must be done in a systematic way. The mining plan must be such that topsoil is stockpiled for the minimum possible time.
- ❖ The topsoil must be placed on a levelled area, within the mining footprint. No topsoil may be stockpiled in undisturbed areas.
- ❖ Topsoil stockpiles must be protected against losses by water- and wind erosion. Stockpiles must be positioned so as not to be vulnerable to erosion by wind and water. The establishment of plants (indigenous grass) on the stockpiles will help to prevent erosion.
- ❖ Topsoil heaps may not exceed 1.5 m in height and are not to be sloped more than 1:2 to avoid collapse.
- ❖ The temporary topsoil stockpiles must be kept free of invasive plant species.
- ❖ Topsoil heaps to be stored longer than a period of 3 months needs to be vegetated with an indigenous grass seed mix if vegetation does not naturally germinate within the first growth season.
- ❖ Storm- and runoff water must be diverted around the on-site stockpile area to prevent erosion.
- ❖ The stockpiled topsoil must be evenly spread, to a depth of 300 mm, over the rehabilitated area upon closure of the site.
- ❖ The permit holder must strive to re-instate topsoil at a time of year when vegetation cover can be established as quickly as possible afterwards, so that erosion of returned topsoil by both rain and wind, before vegetation is established, is minimized. The best time of year is at the end of the rainy season, when there is moisture in the soil for vegetation establishment and the risk of heavy rainfall events is minimal.
- ❖ An indigenous grass layer must be planted and established immediately after spreading of topsoil, to stabilize the soil and protect it from erosion. The grass layer must be fertilized for optimum biomass production. It is important that rehabilitation be taken up

to the point of stabilization. Rehabilitation cannot be considered complete until the first grass layer is well established.

- ❖ Run-off water must be controlled via temporary berms, where necessary, on the slopes to ensure that accumulation of run-off does not cause down-slope erosion.
- ❖ The rehabilitated area must be monitored for erosion, and appropriately stabilized if any erosion occurs for at least 12 months after reinstatement.

HYDROLOGY

Erosion Control and Storm Water Management:

- ❖ A storm water management plan must be implemented for the duration of the mining activities (see Appendix M).
- ❖ It is recommended that construction be undertaken during the dry season to reduce erosion and sedimentation risks associated with summer rainfall in this region if possible.
- ❖ Clearing of vegetation must be limited to the proposed mining footprint and associated infrastructure. No clearing outside of the minimum required footprint to take place.
- ❖ Vegetation clearing activities must be put on hold when heavy rains are expected.
- ❖ Stormwater must be diverted around the topsoil heaps and mining areas to prevent erosion.
- ❖ Stockpiles must be protected from erosion, stored on flat areas where possible, and be surrounded by appropriate berms.
- ❖ When mining within steep slopes, it must be ensured that adequate slope protection is provided.
- ❖ During mining, the outflow of run-off water from the mining excavation must be controlled to prevent down-slope erosion. This must be done by way of the construction of temporary banks and ditches that will direct run-off water (if needed). These must be in place at any points where overflow out of the excavation might occur.
- ❖ A silt fence must be installed at the bottom of the perimeter fence to catch sediment carried by surface runoff from bare surfaces at the site. All demarcation must be signed off by the ECO before any work commences.
- ❖ No dirty water emanating from the quarry shall be discharged into the natural environment or any watercourse. All runoff must be channelled into the stormwater system.
- ❖ Roads and other disturbed areas within the project area must be regularly monitored for erosion and problem areas must receive follow-up monitoring to assess the success of the remediation.
- ❖ Any erosion problems within the mining area because of the mining activities observed must be rectified immediately (within 48 hours) and monitored thereafter to ensure that it does not re-occur.

- ❖ Silt/sediment traps/barriers must be used where there is a danger of topsoil or material stockpiles eroding and entering downstream drainage lines and other sensitive areas. These sediment/silt barriers must regularly be maintained and cleared to ensure effective drainage of the areas.
- ❖ Mining must be conducted only in accordance with the Best Practice Guideline for small scale mining that relates to storm water management, erosion and sediment control and waste management, developed by the Department of Water and Sanitation (DWS), and any other conditions which that Department may impose:
 - Clean water (e.g. rainwater) must be kept clean and be routed to a natural watercourse by a system separate from the dirty water system. You must prevent clean water from running or spilling into dirty water systems.
 - Dirty water must be collected and contained in a system separate from the clean water system.
 - Dirty water must be prevented from spilling or seeping into clean water systems.
 - A storm water management plan must apply for the entire life cycle of the mining activity and over different hydrological cycles (rainfall patterns).
 - The statutory requirements of various regulatory agencies and the interests of stakeholders must be considered and incorporated into a storm water management plan.
- ❖ All fuels and chemicals stored or used on site must be contained within fit for purpose containers and stored within designated storage areas. To prevent pollution of the surrounding environment during an accidental spillage, the designated storage areas must be situated on an impermeable surface and must feature a perimeter bund and a drainage sump. The volume of the bund and sump must be sized to contain at least 110% of the total volume of the fuel and chemicals being stored within the designated storage area. The storage areas must feature a roof to prevent inflow of rainwater, which would require the sump to be emptied more frequently.
- ❖ Once shaped, all exposed/bare surfaces and embankments must be re-vegetated immediately. If revegetation of exposed surfaces cannot take place immediately, temporary erosion, and sediment control measures must be installed and maintained until such time that revegetation can commence.
- ❖ All erosion and sediment control measures must be monitored (weekly) for the life of the operation and repaired immediately when damaged. The erosion and sediment control structures may only be removed once vegetation cover has successfully recolonised the affected areas.
- ❖ After heavy rainfall events, the contractor must check the site for erosion damage and rehabilitate this damage immediately. Erosion rills and gullies must be filled-in with appropriate material and/or silt fences until vegetation has recolonised the rehabilitated area.

- ❖ Settlement ponds must be checked every month to assess the amount of sediment collected. Sediment must be removed at a predetermined depth of sediment and stockpiled separately.

Mitigating the potential impact on the wetland system:

- ❖ It is recommended that construction be undertaken during the dry season to reduce erosion and sedimentation risks associated with summer rainfall in this region if possible.
- ❖ A 40 m buffer must be maintained around the seep- and valley bottom wetland areas throughout the lifespan of the mining activities and must be regarded as a no-go area.
- ❖ Prior to the commencement of the site the outer edge of the delineated watercourse (wetlands) and associated buffer zone must be staked out by a surveyor to be signed off by the ECO before work commences (if allowed by the landowner). The demarcations are to remain for the duration of the site.
- ❖ No equipment laydown or storage areas may be located within 40 m of any watercourse and/or within the 1:100 year flood line, whichever is greater in width.
- ❖ The clearing of natural and semi-natural grasslands must be kept to a minimum and restricted to the approved footprint.
- ❖ Where it is necessary to remove surface water from the quarry site; water must be pumped to a site where it will not negatively influence the natural environment through erosion of permanent flooding, possibly the non-perennial stream.
- ❖ To prevent a decrease in groundwater infiltration storm water (and road-surface run-off) should be redirected towards remaining wetland features to increase groundwater infiltration, thereby providing sufficient soil moisture to support wetland species (ensure that this water is slowed down, not channelized and spread out across the surface in order to prevent this water flow from causing erosion – where erosion signs are present prompt actions and measures should be taken to rehabilitate these areas and prevent erosion from occurring in these areas in the future),
- ❖ To prevent an increase in surface water flow velocity:
 - Ensure that an approved storm water plan (Appendix M) is compiled and implemented;
 - The diameters of storm water pipes should be sufficiently large to not result in overly high flow velocities during rainfall events.
 - The flow of storm water onto the buffer and wetland features must be moderated.
- ❖ To prevent the contamination of the aquatic environment:
 - The contractor must notify the CM and ECO immediately of any pollution incidents on site.
 - The contractor must prevent discharge of any pollutants, such as cement, concrete, lime chemicals and fuels into any water source.

- ❖ Ensure that structures like berms are built to prevent soil from entering wetlands as this can result in sedimentation.
- ❖ No lights must be established within the construction area near the buffer zones.

TERRESTRIAL BIODIVERSITY, CONSERVATION AREAS AND GROUNDCOVER

Management of Vegetation Removal:

- ❖ The mining boundaries must be clearly demarcated, and all operations must be contained to the approved mining area. The area outside the mining boundaries must be declared a no-go area, and all staff must be educated accordingly.
- ❖ The Applicant must be committed to a conservation approach and the actual footprint of disturbance must be kept to a minimum.
- ❖ A pre-commencement environmental induction for all site staff must be provided to ensure that basic environmental principles are adhered to. This includes awareness of no littering, appropriate handling of pollution and chemical spills, avoiding fire hazards, minimising wildlife interactions, remaining within demarcated construction areas, etc.
- ❖ A pre-commencement walkthrough must be done by an ecologist to identify and demarcate important species to be relocated and sub habitats not to be disturbed.
- ❖ Permits for the removal of protected plant species (especially *Aloe marlothii*) must be obtained and kept on-site in the possession of the flora search and rescue team.
- ❖ Bush-clearance may only commence once the plant permits were received, and the important plants were relocated by a suitably qualified person.
- ❖ Grubbing is not permitted as a method of clearing vegetation. Any trees needing clearing must be cut down using chain saws and hauled from the site using appropriate machinery where practically possible.
- ❖ Cleared vegetation to be retained at any time may not be burned but can be mulched and stockpiled. Ideally the heaps can be covered with stockpiled topsoil and the material be retained for future site rehabilitation purposes.
- ❖ The ECO must provide supervision and oversight of vegetation clearing activities and other activities which may cause damage to the environment, especially during the site establishment phase, when most of the vegetation clearing is taking place.
- ❖ All vehicles must remain on demarcated roads and no unnecessary driving in the veld outside these areas may be allowed.
- ❖ No plants may be translocated or otherwise uprooted or disturbed for rehabilitation or other purposes without express permission from the ECO and without the relevant permits.
- ❖ No fires must be allowed on-site.
- ❖ Spoil heaps and topsoil stockpiles must be provided with a vegetation cover of indigenous grasses.

- ❖ A biodiversity protocol and rehabilitation plan must be in place that can be implemented upon closure.

Management of Invasive Plant Species:

- ❖ An invasive plant species management plan (Appendix L) must be implemented at the site to ensure the management and control of all species regarded as Category 1a and 1b invasive species in terms of NEM:BA (National Environmental Management: Biodiversity Act 10 of 2004 and regulations applicable thereto). Weed/alien clearing must be done on an ongoing basis throughout the life of the mining activities.
- ❖ No planting or importing of any alien species to the site for landscaping, rehabilitation or any other purpose may be allowed.
- ❖ All stockpiles (topsoil & overburden) must be kept free of invasive plant species.
- ❖ Management must take responsibility to control declared invader or exotic species on the rehabilitated areas. The following control methods can be used:
 - The plants can be uprooted, felled, or cut off and can be destroyed completely.
 - The plants can be treated chemically by a registered pest control officer (PCO) using an herbicide recommended for use by the PCO in accordance with the directions for the use of such an herbicide. Only herbicides which have been certified safe for use in aquatic environments by independent testing authority are to be used.

Fire Management:

- ❖ No open fires to be permitted on site. Fires may only be made within the areas and for purposes approved by the ECO.
- ❖ Fire prevention facilities must be present at all hazardous storage facilities.
- ❖ Ensure adequate fire-fighting equipment is available and train workers on how to use it.
- ❖ Ensure that all workers on site know the proper procedure in case of a fire occurring on site.
- ❖ Smoking must not be permitted in areas considered to be a fire hazard.

FAUNA

Protection of Fauna:

- ❖ The site manager must ensure no fauna is caught, killed, harmed, sold, or played with.
- ❖ Any fauna directly threatened by the operational activities must be removed to a safe location by the ECO or other suitably qualified person.
- ❖ The handling and relocation of any animal perceived to be dangerous/venomous/poisonous must be undertaken by a suitably trained individual.
- ❖ All personnel must undergo environmental induction regarding fauna management and in particular awareness about not harming or collecting species such as snakes,

tortoises and owls which are often persecuted out of superstition. Workers must be instructed to report any animals that may be trapped in the working area.

- ❖ No snares may be set, or nests raided for eggs or young.
- ❖ All vehicles must adhere to a low speed limit (20 km/h is recommended) to avoid collisions with susceptible species such as snakes and tortoises.
- ❖ No litter, food or other foreign material may be thrown or left around the site. Such items must be kept in the site vehicles and daily removed to the site camp.
- ❖ Indigenous vegetation must be reserved wherever possible, and vegetation clearing during the breeding season must be avoided.

CULTURAL AND HERITAGE ENVIRONMENT

Archaeological, Heritage and Palaeontological Aspects:

- ❖ All mining must be confined to the development footprint area.
- ❖ If during the pre-construction phase, construction, operations or closure phases of this project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance or heritage site, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager.
- ❖ It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find and confirm the extent of the work stoppage in that area.
- ❖ The senior on-site Manager must inform the ECO of the chance find and its immediate impact on operations. The ECO must then contact a professional archaeologist for an assessment of the finds who must notify AMAFA.
- ❖ Work may only continue once the go-ahead was issued by AMAFA.

LAND USE

Loss of agricultural land for duration of mining:

- ❖ The Applicant signed a lease agreement with the landowner to compensate for the loss of agricultural land for the duration of the mining period. If needed, mined out/rehabilitated areas could revert to grazing once the grass layer stabilised.

EXISTING INFRASTRUCTURE

Managing the Power Lines:

Building Restrictions for the 11kV Overhead Power Line:

- ❖ No building or structures may be erected or installed above or below the surface of the ground, neither may any material which might endanger the safety of this power line be

placed within 12 (twelve) metres from the centre line of this power line, or either side (overall servitude width 24 metres).

- ❖ The applicant will adhere to all relevant environmental legislation. Dimensions and specifics will be in accordance with Eskom standards so as to not obstruct Eskom's existing infrastructure in any way.
- ❖ No mechanical equipment, including mechanical excavators or high lifting machinery, shall be used in the vicinity of Eskom's apparatus and/or services, without prior written permission having been granted by Eskom. If such permission is granted the applicant must give at least seven working days prior notice of the commencement of work.
- ❖ The clearances between Eskom's live electrical equipment and the proposed construction work shall be observed as stipulated by Regulation 15 of the Electrical Machinery Regulations of the Occupational Health and Safety Act 85 of 1993. Equipment shall be regarded electrically live and therefore dangerous at all times.
- ❖ Mining and the use of explosives of any type within 500 metres of Eskom's services shall only occur with Eskom's prior written permission. If such permission is granted the applicant must give at least fourteen working days prior notice of the commencement of blasting.
- ❖ Any third party servitudes encroaching on Eskom land shall be registered against Eskom's Notaries deed at the applicant's own cost.
- ❖ Prior any construction activities, the applicant is required to contact Eskom and detailed Surveyed Plans are to be submitted to this office.

Terms and conditions pertaining to the 275kV Overhead Power Lines (Eskom Tx):

- ❖ Eskom Tx's rights and services must be acknowledged and always respected, and Eskom must retain unobstructed access to and egress from its servitudes.
- ❖ All work within Eskom's servitude areas shall comply with the relevant Eskom earthing standards in force at the time.
- ❖ No construction or excavation work shall be executed within 23.5 metres from any Eskom powerline structure, and/or within 23.5 metres from any stay wire.
- ❖ Detailed designs of the proposed mining operations must be referred to Eskom Tx. In these designs Raubex Construction must cater for design specific issues such as acute angle crossings, separation distances and clearances between Eskom Tx's 275kV power lines and the proposed mining area.
- ❖ The use of explosives of any type within 500 metres of Eskom Tx's services, shall only occur with Eskom Tx's previous written permission. If such permission is granted the applicant must give at least fourteen working days prior notice of the commencement of blasting.
- ❖ Changes in ground level may not infringe statutory ground to conductor clearances or statutory visibility clearances. After any changes in ground level, the surface shall be

rehabilitated and stabilised so as to prevent erosion. The measures taken shall be to Eskom Tx's requirements.

- ❖ No mechanical equipment, including mechanical excavators or high lifting machinery, shall be used in the vicinity of Eskom Tx's apparatus and/or services, without prior written permission having been granted by Eskom Tx. If such permission is granted the applicant must give at least seven working days' notice prior to the commencement of work.
- ❖ Eskom Tx's rights and duties in the servitude shall be accepted as having prior right at all times and shall not be obstructed or interfered with.
- ❖ Under no circumstances shall rubble, earth or other material be dumped within the servitude restriction area. The applicant shall maintain the area concerned to Eskom Tx's satisfaction. The applicant shall be liable to Eskom Tx for the cost of any remedial action which has to be carried out by Eskom Tx.
- ❖ The clearances between Eskom Tx's live electrical equipment and the proposed construction work shall be observed as stipulated by the Regulation 19 of Electrical Machinery Regulations 2011 (with reference to SANS10280-1) of the Occupational Health and Safety Act, 1993 (Act 85 of 1993).
- ❖ Equipment shall be regarded electrically live and therefore dangerous at all times.
- ❖ It is required of the applicant to familiarise himself with all safety hazards related to Electrical plant.
- ❖ The final design (blasting and stockpiles) of your proposed mining area should be referred to this office for final approval.
- ❖ No stockpiles may be placed nearer than 200 m from any of the power lines.

Mitigating potential structural damage to adjacent residence:

- ❖ An assessment of the structural integrity of Me. Khumalo's residence must be conducted prior to the first blast.
- ❖ The neighbouring residents must be notified in writing before each blast.
- ❖ Vibration monitoring must be done with each blast. A seismograph must be placed at the Khumalo residence, for at least the first blast, to establish the ground vibrations associated with blasting at the quarry.
- ❖ Should the results indicate that the blasting has a real impact on the residence, monitoring must be continued with each blast.
- ❖ Any damage to the residence, as a direct result of the mining activities, must be refurbished by the permit holder at his own cost.

Management of the Access Road:

- ❖ Access to and from the mining area shall not be permitted from the N11, unless authorised by SANRAL.

- ❖ Storm water must be diverted around the access road to prevent erosion.
- ❖ Vehicular movement must be restricted to the existing access road and crisscrossing of tracks through undisturbed areas must be prohibited.
- ❖ Rutting and erosion of the access road caused as a direct result of the mining activities must be repaired by the permit holder.
- ❖ Overloading of the trucks must be prevented, and proof of load weights must be filed and be available for auditing by relevant officials.
- ❖ The speed of all mining equipment/vehicles must be restricted to 40 km/h on the access roads.
- ❖ Prior to commencement of the activities, the Applicant must discuss the maintenance requirements of Collings Pass Road with the Department of Transport (DoT). The proposed activity may not result in the degradation of Collings Pass Road.
- ❖ The intersection of the Collings Pass Road and the N11 shall be kept clear of any loose quarry material emanating from the source.

GENERAL

Waste Management:

- ❖ Regular vehicle maintenance, repairs and services may only take place at an off-site workshop and service area. If emergency repairs are needed on equipment not able to move to the workshop, drip trays must be present. All waste products must be disposed of in a closed container/bin to be removed from the emergency service area (same day) to the workshop to ensure proper disposal. This waste must be treated as hazardous waste and must be disposed of at a registered hazardous waste handling facility, alternatively collected by a registered hazardous waste handling contractor. The safe disposal certificates must be filed for auditing purposes.
- ❖ If a diesel bowser is used on site, it must always be equipped with a drip tray. Drip trays must be used during each refuelling event. The nozzle of the bowser needs to rest in a sleeve to prevent dripping after refuelling.
- ❖ Mixing and/or decanting of all chemicals and hazardous substances must take place on an impermeable surface and must be protected from the ingress and egress of stormwater.
- ❖ Site management must ensure drip trays are cleaned after each use. No dirty drip trays may be used on site. The dirty rags used to clean the drip trays must be disposed as hazardous waste into a designated bin at the workshop, where it is incorporated into the hazardous waste removal system.
- ❖ Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale or for appropriate

disposal at a registered facility. Proof of safe disposal must be filed for auditing purposes.

- ❖ An oil spill kit must be obtained, and the employees must be trained in the emergency procedures to follow when a spill occurs as well as the application of the spill kit.
- ❖ Spills must be cleaned up immediately, within two hours of occurrence, to the satisfaction of the Regional Manager (DMRE) by removing the spillage together with the polluted soil and containing it in a designated hazardous waste bin until it is disposed of at a registered facility. Proof must be filed.
- ❖ Suitable covered receptacles must be always available and conveniently placed for the disposal of general waste.
- ❖ Non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc., must be stored in a container with a closable lid at a collecting point to be collected at least once a month and disposed of at a recognized landfill site. Specific precautions must be taken to prevent refuse from being dumped on or in the vicinity of the mine area. Proof of disposal must be available for auditing purposes.
- ❖ Biodegradable refuse must be handled as indicated above.
- ❖ Re-use or recycling of waste products must be encouraged on site.
- ❖ No waste may be buried or burned on the site.
- ❖ Ablution facilities must be provided in the form of a chemical toilet/s. The chemical toilet must be anchored (to prevent blowing/falling over) and shall be serviced at least once a week for the duration of the mining activities by a registered liquid waste handling contractor. The safe disposal certificates must be filed for auditing purposes.
- ❖ The use of any temporary, chemical toilet facilities must not cause any pollution to water sources or pose a health hazard. In addition, no form of secondary pollution should arise from the disposal of refuse or sewage from the temporary, chemical toilets. Any pollution problems arising from the above are to be addressed immediately by the permit holder.
- ❖ When small volumes of wastewater are generated during the life of the mine the following is applicable:
 - Water containing waste must not be discharged into the natural environment.
 - Measures to contain the wastewater and safely dispose thereof must be implemented.
- ❖ It is important that any significant spillage of chemicals, fuels etc. during the lifespan of the mining activities is reported to the Department of Water and Sanitation and other relevant authorities.
- ❖ Site management must implement the use of waste registers to keep record of the waste generated and removed from the mining area.

Management of health and safety risks:

- ❖ It must be ensured that the mining area is properly fenced off to prevent incursion by livestock and humans.
- ❖ Workers must have access to the correct personal protection equipment (PPE) as required by law.
- ❖ Sanitary facilities must be located within 100 m from any point of work.
- ❖ All operations must comply with the Mine Health and Safety Act, 1996 (Act No 29 of 1996).
- ❖ The type, duration and timing of the blasting procedures must be planned with due cognizance of other land users and structures in the vicinity.
- ❖ The surrounding landowners must be informed in writing ahead of each blasting event.
- ❖ The compliance of ground vibration and airblast levels must be monitored to USBM standards with each blasting event.
- ❖ A vibro recorder must be used to record all blasts.
- ❖ Audible warning of a pending blast must be given at least 3 minutes in advance of the blast.
- ❖ Measures to limit flyrock must be taken. All flyrock (of diameter 150 mm and larger) which falls beyond the working area, together with the rock spill must be collected and removed.

ix) Motivation where no alternative sites were considered.

As mentioned previously Site Alternative 1 is deemed the preferred and only viable site as it entails the extension of an existing quarry pit that remains unrehabilitated. Should the Applicant be allowed to mine this area the rehabilitation of the existing quarry will form part of the closure conditions for the mining area. The siting of the proposed mining area over the existing quarry pit will concentrate all mining related activities to one section of the landowner's property. Access to the mining area will be possible from the existing farm road, and though the road will need some upgrading, no new access roads need to be constructed.

Moving the proposed mining area further to the east, will not only exclude the existing quarry pit from the mining area, but also move the mine to close to the power lines that passes the site ± 50 m to the east. Moving the mining area to the west is not possible as the Collings Pass Road borders the site. The mining area cannot be moved to the south as the resource which the Applicant intends to mine is concentrated on the hill and not found further to the south.

x) Statement motivating the alternative development location within the overall site.

(Provide a statement motivating the final site layout that is proposed)

As mentioned previously the proposed site earmarked for mining will entail the extension of an existing quarry pit within the boundaries of the proposed GPS coordinates (Table 6). As

no permanent infrastructure will be established, the production rate and subsequent stockpiling of the material will dictate the layout of the proposed footprint area. The proposed site was identified as the preferred site and only viable alternative based on the following:

- ❖ The existing quarry pit on the property remains unrehabilitated. Siting the proposed mining area in a greenfield site (higher up the koppie), while the existing quarry pit is not completely mined or rehabilitated is not deemed the best sustainable development option. Considering the above, the impacts associated with establishing a quarry pit in a greenfield site are believed to have a higher significance without the need or motivation to justify it.
- ❖ Should the Applicant be allowed to mine the area, the existing quarry will be rehabilitated as part of the closure conditions of this mining permit.
- ❖ The landowner uses the camp in which the proposed quarry will be established as a conditioning camp for his cattle. Fencing of the mining area from the rest of the agricultural activities on the farm will be relatively easy when the impact is contained in the lower corner of the camp.
- ❖ Containing the mining related activities to the already disturbed area on the farm, will reduce the visual impact on the surrounding environment.
- ❖ The existing farm road can be used to access the proposed mining area with minor upgrading needed.
- ❖ Moving the proposed mining area further to the east, will not only exclude the existing quarry pit from the mining area, but also move the mine too close to the power lines that passes the site ± 50 m to the east.
- ❖ Moving the mining area to the west is not possible as the Collings Pass Road borders the site.
- ❖ The mining area cannot be moved to the south as the resource which the Applicant intends to mine is concentrated on the hill and not found further to the south.
- ❖ The 2023 TBIA notes that the project is environmentally acceptable from a terrestrial biodiversity perspective, provided that the mitigation and management recommendations are strictly adhered to. The ecologist determined that the overall post-mitigation impact of the proposed activity on the current vegetation- and faunal structure of the application area will be of moderately low - low significance during construction, and moderate – low significance during operation.
- ❖ The 2023 Wetland Assessment confirmed that there are no wetlands/watercourses within the proposed footprint, and that the proposed site will not impact the adjacent wetland provided that the proposed mitigation measures are implemented.

Considering the above mentioned, the proposed site is believed to be the most practical alternative as the area was previously approved for mining, there is an existing quarry, the topsoil and/or overburden layer of the footprint is relatively shallow, the resource is of good

grade, access and rehabilitation is simplified, and the environmental related impacts are acceptable.

i) Full description of the process undertaken to identify, assess and rank the impacts and risks the activity will impose on the preferred site (In respect of the final site layout plan) through the life of the activity.

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

During the impact assessment process the following potential impacts were identified of each main activity in each phase. An initial significance rating (listed under *v) Impacts and Risks Identified*) was determined for each potential impact should the mitigation measures proposed in this document not be implemented on-site. The impact assessment process then continued in identifying mitigation measures to address the impact that the proposed mining activity may have on the surrounding environment.

The significance rating was again determined for each impact using the methodology as explained under *vi) Methodology Used in Determining and Ranking the Significance*. The impact ratings listed below was determined for each impact **after** bringing the proposed mitigation measures into consideration and therefore represents the final layout/activity proposal.

SITE ESTABLISHMENT & INFRASTRUCTURE DEVELOPMENT:

Loss of agricultural land for duration of mining

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Medium						Degree of Mitigation: None	
3	4	1	2.6	5	5	5	13

Alteration of natural environment and habitat loss

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Low						Degree of Mitigation: Partial	
2	2	1	1.6	1	5	3	4.8

Visual intrusion because of site establishment

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Low-Medium						Degree of Mitigation: Partial	
2	4	2	2.7	2	5	3.5	9.5

Impact on vegetation structure and plant species composition

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low-Medium						Degree of Mitigation: Full	
4	4	1	3	2	2	2	6

Impact on populations of species of special concern

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low-Medium						Degree of Mitigation: Full	
4	4	1	3	2	2	2	6

Impact on targets for threatened ecosystems

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low-Medium						Degree of Mitigation: Full	
4	4	1	3	2	2	2	6

Impact on ecological processes and functionality of ecosystems

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low-Medium						Degree of Mitigation: Full	
4	4	1	3	2	2	2	6

Impact on overall species and ecosystem diversity

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low						Degree of Mitigation: Full	
4	1	1	2	2	2	2	2.6

Impact on ecological connectivity

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low						Degree of Mitigation: Full	
4	1	1	2	2	2	2	2.6

Potential change of natural runoff and drainage patterns

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low						Degree of Mitigation: Full	
2	1	1	1.3	2	2	2	2.6

Removal of mean annual precipitation from the catchment due to control of runoff water

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low						Degree of Mitigation: Full	
2	4	1	2.3	2	2	2	4.6

Alteration of hydrological and geomorphological processes

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low-Medium						Degree of Mitigation: Full	
3	3	2	2.6	2	2	2	5.2

Impacts to ecological connectivity and/or ecological disturbance impacts

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low						Degree of Mitigation: Full	
3	3	1	2.3	2	1	1.5	3.4

New job opportunities because of the mining operation (Positive Impact)

			Consequence			Likelihood	Significance (+)
Severity (+)	Duration	Extent		Probability	Frequency		
Rating: High (+)						Degree of Mitigation: N/A	
4	4	5	4.6	5	5	5	23

STRIPPING AND STOCKPILING OF TOPSOIL AND/OR OVERBURDEN:

Visual intrusion caused by mining activities

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low-Medium						Degree of Mitigation: Partial	
2	4	2	2.7	2	5	3.5	9.5

Loss of stockpiled topsoil during mining and stockpiling

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low						Degree of Mitigation: Full	
2	4	1	2.3	2	2	2	4.6

Dust nuisance because of the disturbance of soil

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low						Degree of Mitigation: Full	
2	1	2	1.6	3	2	2.5	4

Noise nuisance generated by earthmoving machinery

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low						Degree of Mitigation: Partial	
2	1	1	1.3	3	2	2.5	3.3

Infestation of the topsoil heaps and mining area with weeds or invader plant species

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low						Degree of Mitigation: Full	
2	4	1	2.3	2	2	2	4.6

Potential increase in runoff from bare areas and associated accelerated erosion

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low						Degree of Mitigation: Full	
2	3	1	2	2	2	2	4

Potential contamination of footprint area and surface runoff because of hydrocarbon spillages

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low						Degree of Mitigation: Full	
2	3	1	2	2	2	2	4

Direct physical loss or modification of freshwater habitat

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low						Degree of Mitigation: Full	
3	3	2	2.6	1	1	1	2.6

Impacts to water quality

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low						Degree of Mitigation: Full	
3	3	2	2.6	1	1	1	2.6

DRILLING AND BLASTING:

Health and safety risk posed by blasting activities

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low						Degree of Mitigation: Full	
4	4	1	3	2	1	1.5	4.5

Potential damage to Eskom power lines

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low						Degree of Mitigation: Full	
4	4	4	4	1	1	1	4

Potential structural damage to adjacent residence

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low						Degree of Mitigation: Full	
4	4	1	3	2	1	1.5	4.5

Dust nuisance caused by blasting activities

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low-Medium						Degree of Mitigation: None	
3	1	2	2	5	3	4	8

Noise nuisance because of blasting

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low-Medium						Degree of Mitigation: Partial	
2	4	2	2.6	3	3	3	7.8

EXCAVATION, LOADING AND HAULING TO THE PROCESSING PLANT

Visual intrusion associated with the excavation activities

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium-High						Degree of Mitigation: Partial	
2	5	4	3.7	4	5	4.5	16.7

Dust nuisance due to excavation and from loading and vehicles transporting the material

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low-Medium						Degree of Mitigation: Full	
2	4	1	2.3	3	3	3	6.9

Noise nuisance because of the mining activities

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low-Medium						Degree of Mitigation: Partial	
1	4	2	2.3	3	5	4	9.2

Unsafe working environment for employees

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low						Degree of Mitigation: Full	
2	4	1	2.3	2	1	1.5	3.5

Soil contamination from hydrocarbon spills and/or littering

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low						Degree of Mitigation: Full	
2	4	1	2.3	2	2	2	4.6

Facilitation of erosion due to mining activities

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low						Degree of Mitigation: Full	
2	4	1	2.3	2	2	2	4.6

PROCESSING, STOCKPILING AND TRANSPORTING OF MATERIAL:

Dust nuisance generated at the processing plant

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low-Medium						Degree of Mitigation: Full	
2	4	1	2.3	3	3	3	6.9

Noise nuisance stemming from operation of the processing plant

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low-Medium						Degree of Mitigation: Partial	
2	4	2	2.6	3	4	3.5	9.1

Potential contamination of environment due to improper waste management

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low						Degree of Mitigation: Full	
2	4	1	2.3	2	2	2	4.6

Infestation of the area with invader plant species

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low						Degree of Mitigation: Full	
2	3	5	3.3	2	1	1.5	4.9

Potential increase in runoff from bare areas and associated accelerated erosion

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low						Degree of Mitigation: Full	
2	3	1	2	2	2	2	4

Potential change of natural runoff and drainage patterns

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low						Degree of Mitigation: Full	
2	1	1	1.3	2	2	2	2.6

Overloading of trucks impacting road infrastructure

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low						Degree of Mitigation: Full	
2	3	5	3.3	2	1	1.5	4.9

Degradation of the access road

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low						Degree of Mitigation: Full	
2	4	2	2.6	2	2	2	4.6

CUMULATIVE IMPACTS:

Direct physical loss or modification of freshwater habitat

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low						Degree of Mitigation: Full	
2	4	1	2.3	2	1	1.5	3.4

Alteration of hydrological and geomorphological processes

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low-Medium						Degree of Mitigation: Full	
3	3	2	2.6	2	2	2	5.2

Impacts to water quality

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low-Medium						Degree of Mitigation: Full	
3	3	2	2.6	2	2	2	5.2

Impacts to ecological connectivity and/or ecological disturbance impacts (aquatic aspects)

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low						Degree of Mitigation: Full	
3	4	2	3	2	1	1.5	4.5

Cumulative dust nuisance when quarry and stockpile area operate

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low-Medium						Degree of Mitigation: Full	
3	4	2	3	3	3	3	9

Cumulative noise nuisance when quarry and stockpile area operate

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium						Degree of Mitigation: Partial	
3	4	3	3.3	4	5	4.5	14.8

Cumulative visual impact when quarry and stockpile area are developed

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium						Degree of Mitigation: Partial	
3	4	2	3	4	5	4.5	13.5

Impact on vegetation structure and plant species composition

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low-Medium						Degree of Mitigation: Partial	
3	4	1	2.6	4	2	3	7.8

Impact on populations of species of special concern

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium						Degree of Mitigation: Full	
4	4	5	4.3	3	2	2.5	10.7

Impact on targets for threatened ecosystems

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium						Degree of Mitigation: Partial	
4	4	4	4	3	2	2.5	10

Impact on ecological process and functionality of ecosystems (terrestrial)

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low						Degree of Mitigation: Full	
4	4	1	3	2	1	1.5	4.5

Impact on overall species and ecosystem diversity

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low						Degree of Mitigation: Full	
4	4	1	3	2	1	1.5	4.5

Impact on ecological connectivity (terrestrial)

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low						Degree of Mitigation: Full	
4	4	1	3	2	1	1.5	4.5

Cumulative impact of invader plants in both the quarry and stockpile footprints.

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low-Medium						Degree of Mitigation: Full	
2	3	5	3.3	2	2	2	6.6

Cumulative impact on job opportunities when quarry and stockpile area operate

			Consequence			Likelihood	Significance (+)
Severity (+)	Duration	Extent		Probability	Frequency		
Rating: High (+)						Degree of Mitigation: N/A	
5	4	5	4.6	5	5	5	23

SLOPING AND LANDSCAPING DURING REHABILITATION:

Safety risk posed by un-sloped areas

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low						Degree of Mitigation: Full	
2	5	1	2.6	2	1	1.5	3.9

Erosion of returned topsoil after rehabilitation

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low						Degree of Mitigation: Full	
2	5	1	2.6	2	1	1.5	3.9

Infestation of the reinstated areas by weeds and invader plant species

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low			Site Alternative 1			Degree of Mitigation: Full	
2	5	1	2.6	2	1	1.5	3.9

Exposed disturbed area with no indigenous vegetation upon closure

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low						Degree of Mitigation: Full	
2	2	1	1.6	2	1	1.5	2.4

Potential impact associated with litter/waste left at the mining area

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low						Degree of Mitigation: Full	
2	5	1	2.6	2	1	1.5	3.9

Return of the mining area to agricultural use upon closure (+)

			Consequence			Likelihood	Significance (+)
Severity (+)	Duration	Extent		Probability	Frequency		
Rating: Medium-High (+)						Degree of Mitigation: N/A	
3	5	1	3	5	5	5	15

j) Assessment of each identified potentially significant impact and risk

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

Table 41: Assessment of each identified potentially significant impact and risk

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
Whether listed or not listed. (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	(E.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, air pollution, etc...etc...etc.)		In which impact is anticipated. (E.g. Construction, commissioning, operational Decommissioning closure, post closure.)	If not mitigated.	(modify, remedy, control, or stop) through (e.g. noise control measures, storm water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc etc) E.g. Modify through alternative method Control through noise control Control through management and monitoring through rehabilitation.	If not mitigated.
❖ Demarcation of site with visible beacons.	❖ No impact could be identified other than the beacons being outside the boundaries of the approved mining area.	N/A	Site Establishment phase	N/A	Control through management and monitoring.	N/A
❖ Site establishment and infrastructure development.	❖ Loss of agricultural land for duration of mining.	The impact may affect the agricultural	Site Establishment &	❖ Medium	Should the proposed project be approved, the operation will temporarily	❖ Medium

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
		opportunities of the property.	Operational Phase		interrupt the agricultural activities of the footprint area, only to be reversed upon the closure of the mine. The impact could be controlled through progressive rehabilitation.	
<ul style="list-style-type: none"> ❖ Site establishment and infrastructure development. ❖ Stripping and stockpiling of topsoil and overburden. ❖ Excavation, loading and hauling to the processing plant. ❖ Cumulative impact 	<ul style="list-style-type: none"> ❖ Visual intrusion as a result of site establishment. ❖ Visual intrusion caused by mining activities. ❖ Visual intrusion associated with the excavation activities. ❖ Cumulative visual impact when quarry and stockpile area are developed. 	The visual impact may affect the aesthetics of the landscape.	Site Establishment & Operational Phase	<ul style="list-style-type: none"> ❖ Medium-High ❖ Medium-High ❖ High ❖ Medium-High 	<u>Control:</u> Implementing proper housekeeping.	<ul style="list-style-type: none"> ❖ Low-Medium ❖ Low-Medium ❖ Medium-High ❖ Medium
<ul style="list-style-type: none"> ❖ Site establishment and infrastructure development. ❖ Cumulative Impacts 	<u>Site Establishment Phase:</u> <ul style="list-style-type: none"> ❖ Alteration of natural environment and habitat loss. ❖ Impact on vegetation structure and plant species composition ❖ Impact on populations of species of special concern 	This will impact on the biodiversity of the receiving environment.	Site Establishment & Operational Phase	<u>Site Establishment Phase:</u> <ul style="list-style-type: none"> ❖ Medium ❖ Medium ❖ High ❖ Low-Medium ❖ Low-Medium ❖ Low-Medium ❖ Low-Medium 	<u>Control:</u> Implementing proper housekeeping and the mitigation measures proposed by the specialist.	<u>Site Establishment Phase:</u> <ul style="list-style-type: none"> ❖ Low ❖ Low-Medium ❖ Low-Medium ❖ Low-Medium ❖ Low-Medium ❖ Low ❖ Low

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
	<ul style="list-style-type: none"> ❖ Impact on targets for threatened ecosystems ❖ Impact on ecological processes and functionality of ecosystems ❖ Impact on overall species and ecosystem diversity ❖ Impact on ecological connectivity <p><u>Cumulative Impacts:</u></p> <ul style="list-style-type: none"> ❖ Impact on vegetation structure and plant species composition ❖ Impact on populations of species of special concern ❖ Impact on targets for threatened ecosystems ❖ Impact on ecological processes and functionality of ecosystems ❖ Impact on overall species and ecosystem diversity ❖ Impact on ecological connectivity (terrestrial) 			<p><u>Cumulative Impacts:</u></p> <ul style="list-style-type: none"> ❖ Medium ❖ Medium-High ❖ Medium ❖ Low-Medium ❖ Low-Medium ❖ Low-Medium 		<p><u>Cumulative Impacts:</u></p> <ul style="list-style-type: none"> ❖ Low-Medium ❖ Medium ❖ Medium ❖ Low ❖ Low ❖ Low
<ul style="list-style-type: none"> ❖ Site establishment and infrastructure development. ❖ Cumulative impact 	<ul style="list-style-type: none"> ❖ New job opportunities because of the mining operation (+) 	Contribution to the socio-economic status of the area.	Site Establishment, & Operational Phase.	<ul style="list-style-type: none"> ❖ High+ ❖ High+ 	N/A	<ul style="list-style-type: none"> ❖ High+ ❖ High+

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
	❖ Cumulative impact on job opportunities when quarry and stockpile area operate (+).					
<ul style="list-style-type: none"> ❖ Stripping and stockpiling of topsoil and overburden. ❖ Excavation, loading and hauling to the processing plant. ❖ Processing, stockpiling and transporting of material. ❖ Sloping and landscaping during rehabilitation. 	<ul style="list-style-type: none"> ❖ Loss of stockpiled topsoil during mining and stockpiling. ❖ Potential increase in runoff from bare areas and associated accelerated erosion. ❖ Facilitation of erosion due to mining activities. ❖ Potential increase in runoff from bare areas and associated accelerated erosion. ❖ Erosion of returned topsoil after rehabilitation. ❖ Exposed disturbed area with no indigenous vegetation upon closure. 	The loss/contamination of topsoil and erosion of the footprint will affect the rehabilitation of the excavation upon closure of the site.	Site Establishment-, Operational and Decommissioning Phase	<ul style="list-style-type: none"> ❖ Low-Medium ❖ Low-Medium ❖ Low-Medium ❖ Low-Medium ❖ Medium ❖ Medium 	<u>Control & Remedy:</u> Proper housekeeping and storm water management.	<ul style="list-style-type: none"> ❖ Low ❖ Low ❖ Low ❖ Low ❖ Low ❖ Low
<ul style="list-style-type: none"> ❖ Stripping and stockpiling of topsoil and/or overburden. ❖ Drilling and blasting. ❖ Excavation, loading and hauling to the processing plant. 	<ul style="list-style-type: none"> ❖ Dust nuisance because of the disturbance of soil. ❖ Dust nuisance caused by blasting activities. ❖ Dust nuisance due to excavation and from loading and vehicles transporting the material. ❖ Dust nuisance generated at the processing plant. 	Increased dust generation will impact on the air quality of the receiving environment.	Site Establishment-, Operational-, and Decommissioning Phase	<ul style="list-style-type: none"> ❖ Low-Medium ❖ Low-Medium ❖ Medium ❖ Medium-High ❖ Medium-High 	<u>Control:</u> Dust suppression methods and proper housekeeping.	<ul style="list-style-type: none"> ❖ Low ❖ Low-Medium ❖ Low-Medium ❖ Low-Medium ❖ Low-Medium

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
<ul style="list-style-type: none"> ❖ Processing, stockpiling, and transporting of material. ❖ Cumulative impact 	<ul style="list-style-type: none"> ❖ Cumulative dust nuisance when quarry and stockpile area operate. 					
<ul style="list-style-type: none"> ❖ Stripping and stockpiling of topsoil and/or overburden. ❖ Drilling and blasting. ❖ Excavation, loading and hauling to the processing plant. ❖ Processing, stockpiling, and transporting of material. ❖ Cumulative impact 	<ul style="list-style-type: none"> ❖ Noise nuisance generated by earthmoving machinery. ❖ Noise nuisance because of blasting. ❖ Noise nuisance because of the mining activities. ❖ Noise nuisance stemming from operation of the processing plant. ❖ Cumulative noise nuisance when quarry and stockpile area operate. 	Should noise levels become excessive it may have an impact on the noise ambiance of the receiving environment.	Site Establishment-, Operational-, and Decommissioning Phase	<ul style="list-style-type: none"> ❖ Low-Medium ❖ Medium ❖ Medium ❖ Medium ❖ Medium-High 	<u>Control:</u> Noise suppression methods and proper housekeeping.	<ul style="list-style-type: none"> ❖ Low ❖ Low-Medium ❖ Low-Medium ❖ Low-Medium ❖ Medium
<ul style="list-style-type: none"> ❖ Stripping and stockpiling of topsoil and/or overburden. ❖ Processing, stockpiling, and transporting of material. ❖ Cumulative impact ❖ Sloping and landscaping during 	<ul style="list-style-type: none"> ❖ Infestation of the topsoil heaps and mining area with weeds or invader plant species. ❖ Infestation of the area with invader plant species. ❖ Cumulative impact of invader plants in both the quarry and stockpile footprints. 	Infestation of the footprint by invader plant species may affect the biodiversity of the receiving environment.	Site Establishment-, Operational, and Decommissioning Phase	<ul style="list-style-type: none"> ❖ Medium ❖ Medium-High ❖ High ❖ Medium-High 	<u>Control & Remedy:</u> Implementation of an invasive plant species management plan.	<ul style="list-style-type: none"> ❖ Low ❖ Low ❖ Low-Medium ❖ Low

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
rehabilitation phase.	❖ Infestation of the reinstated areas by weeds and invader plant species.					
<ul style="list-style-type: none"> ❖ Stripping and stockpiling of topsoil and/or overburden. ❖ Excavation, loading and hauling to the processing plant. ❖ Processing, stockpiling and transporting of material. ❖ Sloping and landscaping during rehabilitation phase. 	<ul style="list-style-type: none"> ❖ Potential contamination of footprint area and surface runoff because of hydrocarbon spillages. ❖ Soil contamination from hydrocarbon spills and/or littering. ❖ Potential contamination of environment due to improper waste management. ❖ Potential impact associated with litter/waste left at the mining area. 	Contamination of the footprint area will negatively impact the soil, surface runoff and potentially the groundwater. It will also incur additional costs to the permit holder.	Site Establishment-, Operational-, and Decommissioning Phase	<ul style="list-style-type: none"> ❖ Medium ❖ Medium ❖ Medium ❖ Medium 	<u>Control & Remedy:</u> Proper housekeeping and implementation of an emergency response plan and waste management plan.	<ul style="list-style-type: none"> ❖ Low ❖ Low ❖ Low ❖ Low
<ul style="list-style-type: none"> ❖ Site establishment & infrastructure development. ❖ Cumulative Impacts. 	<u>Site Establishment Phase:</u> <ul style="list-style-type: none"> ❖ Potential change of natural runoff and drainage patterns. ❖ Removal of mean annual precipitation from the catchment due to control of runoff water. ❖ Alteration of hydrological and geomorphological process. 	This could impact the hydrology of the receiving environment.	Site Establishment, & Operational Phase.	<u>Site Establishment Phase:</u> <ul style="list-style-type: none"> ❖ Low ❖ Medium ❖ Medium ❖ Low-Medium ❖ Low ❖ Medium ❖ Low 	<u>Control:</u> Implementing the SWMP.	<u>Site Establishment Phase:</u> <ul style="list-style-type: none"> ❖ Low ❖ Low ❖ Low-Medium ❖ Low ❖ Low ❖ Low ❖ Low

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
	<ul style="list-style-type: none"> ❖ Impacts to ecological connectivity and/or ecological disturbance impacts (aquatic). ❖ Direct Physical loss or medication of freshwater habitat ❖ Impacts to water quality ❖ Potential change of natural runoff and drainage patterns. <p><u>Cumulative Impacts:</u></p> <ul style="list-style-type: none"> ❖ Direct physical loss or modification of freshwater habitat ❖ Alteration of hydrological and geomorphological processes ❖ Impacts to water quality ❖ Impacts to ecological connectivity and/or ecological disturbance impacts (aquatic aspects) 			<p><u>Cumulative Impacts:</u></p> <ul style="list-style-type: none"> ❖ Low ❖ Medium ❖ Medium ❖ Low 		<p><u>Cumulative Impacts:</u></p> <ul style="list-style-type: none"> ❖ Low ❖ Low-Medium ❖ Low-Medium ❖ Low
<ul style="list-style-type: none"> ❖ Drilling and blasting. ❖ Excavation, loading and hauling to the processing plant. ❖ Sloping and landscaping during 	<ul style="list-style-type: none"> ❖ Health and safety risk posed by blasting activities. ❖ Unsafe working environment for employees. ❖ Safety risk posed by un-sloped areas. 	An unsafe working environment affects the labour force, as well as pose a threat to animals and humans that	Operational-, and Decommissioning Phase	<ul style="list-style-type: none"> ❖ Medium ❖ Medium ❖ Medium-High 	<p><u>Stop & Control:</u></p> <p>Adherence to the blasting rules and regulations, demarcation of the mining area and proper housekeeping.</p>	<ul style="list-style-type: none"> ❖ Low ❖ Low ❖ Low

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
rehabilitation phase.		may enter the mining footprint.				
❖ Drilling and blasting.	❖ Potential damage to Eskom power lines.	Damage to the power lines will have a detrimental effect on the electricity supply of the community.	Operational Phase	❖ Low-Medium	<u>Stop & Control:</u> Adherence to the blasting rules and regulations, and Eskom specifications.	❖ Low
❖ Drilling and blasting.	❖ Potential structural damage to adjacent residence.	Damage to the adjacent residence will affect the homeowner.	Operational Phase	❖ Low-Medium	<u>Stop & Control:</u> Adherence to the blasting rules and regulations, demarcation of the mining area and proper housekeeping.	❖ Low
❖ Processing, stockpiling, and transporting of material.	❖ Overloading of trucks impacting road infrastructure. ❖ Degradation of the access road.	Collapse of the internal road infrastructure will affect the landowner negatively. If the mine negatively affects public traffic, it may incur additional costs and complaints from the public.	Operational phase	❖ Medium-High ❖ Medium	<u>Control & Remedy:</u> Maintaining the access road for the duration of the operational phase, as well as leaving it in a representative or better condition than prior to mining.	❖ Low ❖ Low
❖ Sloping and landscaping during rehabilitation	❖ Return of the mining area to agricultural use upon closure (+)	The area will be returned to the	Decommissioning Phase	❖ Medium-High+	N/A	❖ Medium-High+

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
		landowner for future use.				

The supporting impact assessment conducted by the EAP must be attached as an appendix, marked Appendix I

k) Summary of specialist reports.

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

Table 42: Summary of specialist reports.

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
<p><u>Terrestrial Biodiversity Impact Assessment</u></p> <p>For the mining permit application on portion of the farm Elands Spruit No 5523 within uThukela District Municipality in the KwaZulu-Natal Province.</p> <p>November 2022</p> <p>(See Appendix H1 for a full copy of the report)</p>	<p><u>Important recommendations for the conservation of the current vegetation structure</u></p> <ul style="list-style-type: none"> ❖ The proponent must be committed to a conservation approach of practice and the actual footprint of disturbance must be kept to a minimum. ❖ Relocation of important species, identification and demarcation of specimens and sub habitats not to be disturbed will have to be done beforehand by a specialist. ❖ Important species (flora) that will be threatened by the development must be relocated to safer habitats by suitable specialists. ❖ Preventative erosion control measures to be put in place. ❖ Conduct alien invasive species monitoring on an annual basis. ❖ Botanical walkthrough should be conducted prior to site establishment, in order to confirm the presence or absence of any Red Data species that may have been missed during this current study. 	<p>All the recommendations proposed by the specialist were incorporated into this report.</p>	<p>Part A(1)(h)(iv) The environmental attributes associated with the alternatives.</p> <p>Part A(1)(h)(viii) The possible mitigation measures that could be applied and the level of risk.</p> <p>Part A(1)(k) Proposed impact management objectives and the impact management outcomes for inclusion in the EMPR.</p>

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
	<p><u>Important recommendations for the invasive alien plants</u></p> <ul style="list-style-type: none"> ❖ The identified alien plants should be eradicated during operational phase. An alien management plan should be compiled for the site. The applicant can implement the alien management plan with the guide of an Ecologist. <p><u>Specific conditions recommended for the EA from a flora and fauna perspective.</u></p> <ol style="list-style-type: none"> 1. Implement mitigation controls during the site establishment phase as specified in the mitigation requirements. Monitor and report on their effectiveness. 2. Implement mitigation controls during the operational phase as specified in the mitigation. Monitor and report on their effectiveness. 3. Monitoring of implementation of mitigation controls, especially of invasive alien plants. 4. Effective restoration of the natural habitats that were intact before the mining activities should be implemented and reported on after decommissioning. 		<p>Part B(1)(d)(iv) Impacts to be mitigated in their respective phases.</p> <p>Part B(1)(g)-(k) Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon....</p>
<p><u>Terrestrial Biodiversity Impact Assessment Report</u></p> <p>Proposed mining permit application and stockpile area on the Remaining Extent of Elands Spruit No 5523, Alfred Duma Municipality, KwaZulu-Natal Province.</p>	<p>The report concludes that Biodiversity offsets can be avoided where impacts to protected plants and grassland patches are avoided through protected plant relocation. Under a best practical mitigation scenario, the project is environmentally acceptable from a terrestrial biodiversity perspective, provided that the mitigation and management recommendations in Chapter 6 of the report are strictly adhered to.</p>	<p>All the recommendations proposed by the specialist were adapted in this amended DBAR.</p>	<p>Part A(1)(h)(iv) The environmental attributes associated with the alternatives.</p> <p>Part A(1)(h)(viii) The possible mitigation</p>

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
<p>February 2023</p> <p><i>(See Appendix H2 for a full copy of the report)</i></p>	<p><u>Mitigation Measures:</u></p> <p>Please refer to Chapter 6 of the report (Appendix H2) for a list of the mitigation measures recommended by the by the specialist.</p>		<p>measures that could be applied and the level of risk.</p> <p>Part A(1)(k) Proposed impact management objectives and the impact management outcomes for inclusion in the EMPR.</p> <p>Part B(1)(d)(iv) Impacts to be mitigated in their respective phases.</p> <p>Part B(1)(g)-(k) Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon....</p>
<p><u>Wetland Assessment Report</u></p> <p>Proposed expansion of the Elandspruit quarry near Ladysmith, KwaZulu-Natal Province.</p>	<p><u>Recommendations & Mitigation Measures:</u></p> <ul style="list-style-type: none"> ❖ The specialist recommended that a buffer of 70 m be maintained around the identified wetland systems. ❖ Keep the clearing of natural and semi-natural grasslands to a minimum. 	<p>The mitigation measures proposed by the specialist were updated where needed by those proposed in the 2023 Wetland Assessment compiled by Eco-Pulse (listed below)</p>	<p>Part A (1) (h)(iv)(c) Description of specific environmental features and infrastructure on the site – Site Specific Hydrology.</p>

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
<p>February 2017</p> <p><i>(See Appendix G1 for a full copy of the report)</i></p>	<ul style="list-style-type: none"> ❖ When topsoil is being stored, the topsoil heaps need to be continuously protected against loss of soil due to wind and water erosion, ❖ Topsoil heaps to be stored longer than a period of 6 months needs to be vegetated with and indigenous grass seed mix. ❖ Reinforce portions of existing access routes that are prone to erosion, create structures or low banks to drain the access road rapidly during rainfall events, yet preventing erosion of the track and surrounding areas ❖ Ensure that runoff from compacted or sealed surfaces is slowed down and dispersed sufficiently to prevent accelerated erosion from being initiated ❖ Ensure adequate drainage ❖ Where it is necessary to remove surface water from the quarry site; water must be pumped to a site where it will not negatively influence the natural environment through erosion of permanent flooding, possibly the non-perennial stream. ❖ To prevent a decrease in groundwater infiltration storm water (an road-surface run-off) should be redirected towards remaining wetland features to increase groundwater infiltration, thereby providing sufficient soil moisture to support wetland species (ensure that this water is slowed down, not channelized and spread out across the surface in order to prevent this water flow from causing erosion – where erosion signs are present prompt actions and measures should be taken to rehabilitate these areas and prevent erosion from occurring in these areas in the future), ❖ To prevent an increase in surface water flow velocity, <ul style="list-style-type: none"> ▪ Ensure that an approved storm water plant is compiled and implemented; 		<p>Part A(1)(h)(viii) The possible mitigation measures that could be applied and the level of risk.</p>

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
	<ul style="list-style-type: none"> ▪ The diameters of storm water pipes should be sufficiently large to not result in overly high flow velocities during rainfall events ▪ The flow of storm water onto the buffer and wetland features should be moderated. ❖ Ensure that the vegetation cover (roughage) located outside of the mining area (down-slope) is maintained in a good condition, especially within the allocated wetland buffers. ❖ To prevent the contamination of the aquatic environment <ul style="list-style-type: none"> ▪ The contractor must notify the CM and ECO immediately of any pollution incidents on site ▪ Wash areas must be placed and constructed in such a manner to ensure that the surrounding areas, which include groundwater are not polluted ▪ A Method of Statement is required for all wash areas where hydrocarbon, hazardous materials and pollutants are expected to be used. This includes, but is not limited to, vehicle washing, workshop wash bays, paint wash and cleaning ▪ The contractor must prevent discharge of any pollutants, such as cement, concrete, lime chemicals and fuels into any water source ▪ Runoff from fuel depots/workshops/truck washing areas and concrete swills must be directed into a conservancy tank and disposed of at a site approved by the CM. ▪ The contaminated water, contaminated runoff, or effluent may also require analysis prior to disposal. ❖ To prevent an increase in solid waste: <ul style="list-style-type: none"> ▪ All solid waste must be adequately stored and disposed of ▪ Ensure that structures like berms are built to prevent soil from entering wetlands as this can result in sedimentation. 		

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
<p><u>2022 Wetland Opinion</u></p> <p>Wetland/aquatic comments: The addressing of aspects that was not included within the original Ladysmith Quarry Wetland Specialist Report (2017), but are now required in order to meet the responsibilities in terms of:</p> <ul style="list-style-type: none"> ❖ the “newly” gazetted protocols 3(b), in terms of section 24(5)(a) and 24(5)(h) of NEMA (published on the 20th of March 2020); ❖ the aquatic biodiversity protocol published in GN No. 1105 of 30 October 2020. <p>November 2022</p> <p><i>(See Appendix G2 for a full copy of the document)</i></p>	<p>The 2022 Wetland Opinion did not propose any additional recommendations regarding the proposed project.</p>	<p>N/A</p>	<p>N/A</p>
<p><u>Wetland Assessment Report</u></p> <p>Proposed mining permit application and stockpile area on the Remaining</p>	<p><u>Wetland Buffer Zone Recommendations:</u></p> <p>The specialist proposed that a 40 m buffer be installed for both wetland units.</p>	<p>All the recommendations proposed by the specialist were adapted in this amended DBAR.</p>	<p>Part A (1) (h)(iv)(c) Description of specific environmental features and</p>

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
<p>Extent of Elands Spruit No 5523, Alfred Duma Municipality, KwaZulu-Natal.</p> <p>February 2023</p> <p><i>(See Appendix G3 for a full copy of the report)</i></p>	<p><u>Planning and Design Recommendations:</u></p> <p>Please refer to page 57 – 58 of the 2023 Wetland Assessment Report (Appendix G3) for a list of the Planning and Design Recommendations proposed by the specialist.</p>		<p>infrastructure on the site – Site Specific Hydrology.</p> <p>Part A(1)(h)(viii) The possible mitigation measures that could be applied and the level of risk.</p>

l) Environmental impact statement

i) Summary of the key findings of the environmental impact assessment;

The key findings of the environmental impact assessment entail the following:

Project proposal:

- ❖ The project entails the extension of the existing quarry on a portion of the Remaining Extent of the farm Elands Spruit 5523 GS, Ladysmith District, KwaZulu-Natal Province. The mining area will be 4.9 ha and the product to be material will be used, by the Applicant, as fill material for the intended road works tender to upgrade the N11 in the vicinity of Ladysmith. The rehabilitation of the mining area upon closure of the site will incorporate the rehabilitation of the quarry on the property.

Topography:

- ❖ Due to the impracticality of importing large volumes of fill material to restore the quarry to its original topography, the rehabilitation option (upon closure) is to render the quarry safe and leave it as a minor landscape feature.

Visual Characteristics:

- ❖ The viewshed analyses shows that the proposed visual impact will be of medium concern as the mining area will mainly be visible from the south due to the position of the earmarked area against the side of the hill.
- ❖ Should both the mining permit area and the additional stockpiling area (separately authorised) be established on site, the cumulative visual impact on the receiving environment is deemed to be of medium significance.

Air and Noise Quality:

- ❖ The proposed activity does not require an air emissions licence.
- ❖ Should the Applicant implement the proposed mitigation measures the impact on the air quality of the surrounding environment is deemed to be of low-medium significance.
- ❖ Although the proposed activity will have a cumulative impact on the ambient noise levels, the development will not take place in a pristine environment, and the

impact is therefore deemed compatible with the current operations and of low-medium significance.

- ❖ Should both the mining permit area and the additional stockpiling area (separately authorised) be established on site, the cumulative dust nuisance on the receiving environment (after mitigation) is deemed to be of low-medium significance, while the cumulative noise nuisance (after mitigation) will be of medium significance.

Hydrology:

- ❖ Two wetland units a channelled valley bottom and a seep was identified within 500 m (± 166 m away) of the proposed development footprint.
- ❖ No wetlands or watercourse were identified within the application footprint.
- ❖ A buffer of 40 m was proposed as no-go area around the identified wetland units. The proposed mining area does not extend into or near to (>100 m away) the proposed buffer area.
- ❖ The 2023 wetland study concluded that impacts can be potentially reduced to acceptably 'low' impact significance levels.
- ❖ The specialist notes (2023) that the proposed development can be considered acceptable from an ecological perspective based on the provision that the various mitigation measures are strictly adhered to during the various phases of the quarry.
- ❖ DWS approved a General Authorisation for the project regarding mining within 500 m of a wetland.

Terrestrial Biodiversity (including fauna and flora):

- ❖ The site has been impacted by clearing of vegetation for subsistence agriculture and the development of roads since 1944.
- ❖ One distinct terrestrial vegetation community (Degraded Northern KwaZulu-Natal Moist Grassland) was observed that is in a relatively 'poor' condition.
- ❖ The provincially protected plant, *Aloe marlothii* (Mountain Aloe) is present on site within large colonies (to be relocated). No other SCC's were identified on site.
- ❖ The western region near the existing quarry pit is mapped as CBA: Optimal but is in fact heavily disturbed and degraded. While the slopes are associated with rocky outcrops, the area was previously mined and is representative of a dense and well-established community of Invasive Alien Plants.
- ❖ The proposed mining area covers ± 5 ha of Medium SEI Vegetation.

- ❖ Given the relatively small size of the project development and the existing land use of the area (disturbed and encroached grasslands used for grazing) impacts to faunal movement is unlikely to be a significant concern.
- ❖ Given that impacts to grassland is unlikely to negate meeting conservation targets set for this type at this stage, biodiversity offsets are not considered relevant to this project.
- ❖ Eco-Pulse rates the overall post-mitigation impact of the proposed activity on the current vegetation- and faunal structure of the application area to be of moderately low - low significance during construction, and moderate – low significance during operation.
- ❖ Under a best practical mitigation scenario, the project is environmentally acceptable from a terrestrial biodiversity perspective, provided that the mitigation and management recommendations are strictly adhered to.
- ❖ EDTEA approved the development of the additional stockpile area in January 2023.

Fauna:

- ❖ Ground truthing revealed that the high animal sensitivity (DFFE screening tool) was inaccurate due to the extent of habitat disturbance and fragmentation by Collings Pass Road that acts as a barrier for migration by faunal species.
- ❖ None of the sensitive avifauna or faunal species obtained from SANBI were observed on site.
- ❖ Eco-Pulse further noted that visual observations during the site inspection identified no faunal SCC, and no evidence was found indicating their probable occurrence within the project area. It is therefore unlikely, given the present habitat conditions and degree of disturbance that faunal species of conservation concern occur within the proposed project area. Impacts to fauna of conservation concern are therefore unlikely and inconsequential overall.
- ❖ There is no evident fatal flaw regarding fauna that would prevent this development from being authorised if the mitigation and monitoring measures proposed by the specialist are implemented by the Applicant.
- ❖ EDTEA approved the development of the additional stockpile area in January 2023.

Cultural and Heritage Environment:

- ❖ No sites of archaeological, palaeontological, or cultural importance exist at the study area, and AMAFA approved the project in August 2022.

Existing Infrastructure:

- ❖ No infrastructure exists in the 4.9 ha footprint.
- ❖ No stockpiles may be placed within 200 m of the adjacent power lines.
- ❖ Should the mitigation measures proposed in this document be implemented the existing infrastructure on the farm/neighbouring properties will not be impaired.

ii) Final Site Map

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

See the map indicating site activities attached as Appendix C.

iii) Summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;

The positive impacts associated with the project include:

- ❖ The permit holder will be able to exploit the resource on the property and provide fill material for the intended N11 road upgrade at competitive prices;
- ❖ The landowner will be able to further diversify the income generation of the property;
- ❖ At least eight new job opportunities will be created by the proposed activity;
- ❖ The presence of the proposed operation will contribute (directly & indirectly) to the local economy with preference give to HDSA & women owned local suppliers;
- ❖ The quarry on the property will be rehabilitated as part of the closure conditions of this mining permit;
- ❖ Upon closure of the mine, the area can be returned to agricultural use.

The following table shows the potential negative impacts associated with the proposed activity that were deemed to have a Low-Medium or higher significance/risk:

Table 43: Potential negative impacts associated with the proposed activity with a Low-Medium or higher significance/risk.

ACTIVITY	POTENTIAL IMPACT	SIGNIFICANCE (BEFORE MITIGATION)	SIGNIFICANCE (AFTER MITIGATION)
❖ Site establishment and infrastructure development.	❖ Loss of agricultural land for duration of mining.	❖ Medium	❖ Medium
❖ Site establishment and infrastructure development. ❖ Stripping and stockpiling of topsoil and overburden. ❖ Excavation, loading and hauling to the processing plant.	❖ Visual intrusion because of site establishment. ❖ Visual intrusion caused by mining activities. ❖ Visual intrusion associated with the excavation activities. ❖ Cumulative visual impact when quarry and stockpile area are developed.	❖ Medium-High ❖ Medium-High ❖ High ❖ Medium-High	❖ Low-Medium ❖ Low-Medium ❖ Medium-High ❖ Medium
❖ Site establishment and infrastructure development. ❖ Cumulative impacts.	<u>Site Establishment Phase:</u> ❖ Impact on vegetation structure and plant species composition ❖ Impact on populations of species of special concern ❖ Impact on targets for threatened ecosystems ❖ Impact on ecological processes and functionality of ecosystems <u>Cumulative Impacts:</u> ❖ Impact on vegetation structure and plant species composition ❖ Impact on populations of species of special concern ❖ Impact on targets for threatened ecosystems	❖ Medium ❖ High ❖ Low-Medium ❖ Low-Medium ❖ Medium ❖ Medium-High ❖ Medium	❖ Low-Medium ❖ Low-Medium ❖ Low-Medium ❖ Low-Medium ❖ Low-Medium ❖ Medium ❖ Medium
❖ Drilling and blasting. ❖ Excavation, loading and hauling to the processing plant. ❖ Processing, stockpiling, and transporting of material.	❖ Dust nuisance caused by blasting activities. ❖ Dust nuisance due to excavation and from loading and vehicles transporting the material. ❖ Dust nuisance generated at the processing plant. ❖ Cumulative dust nuisance when quarry and stockpile area operate.	❖ Low-Medium ❖ Medium ❖ Medium-High ❖ Medium-High	❖ Low-Medium ❖ Low-Medium ❖ Low-Medium ❖ Low-Medium

ACTIVITY	POTENTIAL IMPACT	SIGNIFICANCE (BEFORE MITIGATION)	SIGNIFICANCE (AFTER MITIGATION)
<ul style="list-style-type: none"> ❖ Drilling and blasting. ❖ Excavation, loading and hauling to the processing plant. ❖ Processing, stockpiling, and transporting material. 	<ul style="list-style-type: none"> ❖ Noise nuisance because of blasting. ❖ Noise nuisance because of the mining activities. ❖ Noise nuisance stemming from operation of the processing plant. ❖ Cumulative noise nuisance when quarry and stockpile area operate. 	<ul style="list-style-type: none"> ❖ Medium ❖ Medium ❖ Medium ❖ Medium-High 	<ul style="list-style-type: none"> ❖ Low-Medium ❖ Low-Medium ❖ Low-Medium ❖ Medium
<ul style="list-style-type: none"> ❖ Cumulative impacts. 	<ul style="list-style-type: none"> ❖ Cumulative impact of invader plants in both the quarry and stockpile footprints. 	<ul style="list-style-type: none"> ❖ High 	<ul style="list-style-type: none"> ❖ Low-Medium
<ul style="list-style-type: none"> ❖ Site establishment & infrastructure development. ❖ Cumulative Impacts 	<p><u>Site Establishment Phase:</u></p> <ul style="list-style-type: none"> ❖ Alteration of hydrological and geomorphological process. <p><u>Cumulative Impacts:</u></p> <ul style="list-style-type: none"> ❖ Alteration of hydrological and geomorphological processes ❖ Impacts to water quality 	<ul style="list-style-type: none"> ❖ Medium ❖ Medium ❖ Medium 	<ul style="list-style-type: none"> ❖ Low-Medium ❖ Low-Medium ❖ Low-Medium

m) Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr;

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

Table 44: Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
<p>TOPOGRAPHY</p> <p>Landscaping of Mining Area</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPr.</p> <p>Compliance to be monitored by the Environmental Control Officer.</p>	<ul style="list-style-type: none"> ❖ Use the excavated area for the final depositing of overburden. ❖ Dump rocks and coarse material removed from the excavation into the excavation. ❖ Remove coarse natural material used for the construction of ramps and dump it into the excavations. ❖ Remove stockpiles during the decommissioning phase, rip the area and return the topsoil to its original depth to provide a growth medium. ❖ Do not permit any waste to be deposited into the excavations. ❖ Return the previously stored topsoil to its original depth, once overburden, rocks and coarse natural materials have been added to the excavation and it was profiled with acceptable contours and erosion control measures. ❖ If necessary, fertilize the area to allow vegetation to establish rapidly. Seed the site with a local or adapted indigenous seed mix to propagate the locally or regionally occurring flora, should natural vegetation not re-establish within six months from closure of the site. ❖ If required by the Regional Manager (DMRE) the soil must be analysed and any deleterious effects on the soil arising from the mining operation must be corrected and the area be seeded with a vegetation seed mix to his/her specification. ❖ On completion of operations, deal with all structures or objects in accordance with section 44 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002). ❖ On completion of mining operations, scarify the surface of all plant-, stockpiling-, and/or office areas, if compacted due to hauling and 	<ul style="list-style-type: none"> ❖ Effectively restoring the mined area to allow the return of land use to agricultural purposes.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
		<p>dumping operations, to a depth of at least 200mm and graded it to an even surface condition. Where applicable/possible return topsoil to its original depth over the area.</p> <ul style="list-style-type: none"> ❖ Align the rehabilitation with the guidelines proposed in the 2023 TBIA. 	
<p>VISUAL CHARACTERISTICS</p> <p>Visual mitigation</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.</p> <p>Compliance to be monitored by the Environmental Control Officer.</p>	<ul style="list-style-type: none"> ❖ Ensure that the site have a neat appearance and is always kept in good condition. ❖ Store mining equipment in a dedicated area when not in use. ❖ Limit vegetation removal, and only strip topsoil immediately prior to the mining/use of a specific area. ❖ Contain excavations to the approved footprint of the permitted area. ❖ Upon closure, rehabilitate the site to ensure that the visual impact on the aesthetic value of the area is reduced to the minimum. 	<ul style="list-style-type: none"> ❖ Minimise the impact of the mining operations on the visual characteristics of the receiving environment during the operational phase and minimise the residual impact after closure.
<p>AIR AND NOISE QUALITY</p> <p>Dust Mitigation</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.</p> <p>Compliance to be monitored by the Environmental Control Officer.</p>	<ul style="list-style-type: none"> ❖ Control the liberation of dust into the surrounding environment using; inter alia, water spraying and/or other dust-allaying agents. ❖ Daily assess the efficiency of all dust suppression equipment. ❖ Limit speed on the haul roads to 20 km/h and 40 km/h on the access road to prevent the generation of excess dust. ❖ Minimise areas devoid of vegetation, and only remove vegetation immediately prior to mining. ❖ Install water sprayers at the crusher plant to alleviate dust generation from the conveyor belts. ❖ Minimise fines, blowing from the drop end of the crusher plant by attaching strips of used conveyor belts to the conveyor's end. ❖ Weekly remove compacted dust from the crusher plant to eliminate the dust source. ❖ Flatten loads to prevent spillage during transportation on public roads. ❖ Consider weather conditions upon commencement of daily operations. Limit operations during very windy periods to reduce airborne dust and resulting impacts. 	<ul style="list-style-type: none"> ❖ Dust prevention measures are applied to minimise the impact.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
		<ul style="list-style-type: none"> ❖ Ensure dust generating activities comply with the National Dust Control Regulations, GN No R827 promulgated in terms of NEM:AQA, 2004 and ASTM D1739 (SANS 1137:2012). ❖ Implement best practice measures during the stripping of topsoil, excavation, and transporting of material from site to minimize potential dust impacts. ❖ Implement monthly fallout-dust monitoring at the site for the duration of the activities and ensure that the results comply with the standards of the National Dust Control Regulations, 2013. 	
<p>AIR AND NOISE QUALITY</p> <p>Noise Mitigation</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.</p> <p>Compliance to be monitored by the Environmental Control Officer.</p>	<ul style="list-style-type: none"> ❖ Ensure that employees and staff conduct themselves in an acceptable manner while on site. ❖ No loud music may be permitted at the mining area. ❖ Ensure that all project related vehicles are equipped with silencers and maintained in a road worthy condition in terms of the National Road Traffic Act, 1996. ❖ Plan the type, duration, and timing of the blasting procedures with due cognizance of other land users and structures in the vicinity. Notify the surrounding landowners in writing prior to each blasting occasion. ❖ Contract a qualified occupational hygienist to quarterly monitor and report on the personal noise exposure of the employees working at the mine. Monitoring must be in accordance with SANS 10083:2004 (Edition 5) sampling method as well as NEM:AQA 2004, SANS 10103:2008. ❖ Minimise the noise caused by generators. Maintain and equip all generators with sound mufflers, and if possible, point the generators away from the neighbouring land users. Place all generators on a level area/footing to minimise vibration noise. ❖ Implement best practice measures to minimise potential noise impacts. ❖ Restrict work hours from 07:00 to 18:00 Monday to Saturday. Do not allow work on Sundays or afterhours. 	<ul style="list-style-type: none"> ❖ Prevent unnecessary noise to the environment by ensuring that noise from development activity is mitigated.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
<p>GEOLOGY AND SOIL</p> <p>Topsoil Handling</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.</p> <p>Compliance to be monitored by the Environmental Control Officer.</p>	<ul style="list-style-type: none"> ❖ Strip and stockpile the upper 300 mm of the soil before mining. ❖ Carefully manage and conserve the topsoil throughout the stockpiling and rehabilitation process. ❖ Ensure topsoil stripping, stockpiling, and re-spreading is done in a systematic way. Plan mining in such a way that topsoil is stockpiled for the minimum possible time. ❖ Place the topsoil on a levelled area, within the mining footprint. Do not stockpile topsoil in undisturbed areas. ❖ Protect topsoil stockpiles against losses by water- and wind erosion. Position stockpiles so it is not vulnerable to erosion by wind and water. The establishment of plants (grass) on the stockpiles will help to prevent erosion. ❖ Ensure that topsoil heaps do not exceed 1.5 m and not sloped more than 1:2 to avoid collapse. ❖ Keep temporary topsoil stockpiles free of invasive plant species. ❖ Vegetate the topsoil heaps to be stored longer than 3 months with an indigenous grass seed mix if vegetation does not naturally germinate within the first growth season. ❖ Divert storm- and runoff water around the on-site stockpile area to prevent erosion. ❖ Spread the topsoil evenly, to a depth of 300 mm, over the rehabilitated area upon closure of the site. ❖ Strive to re-instate topsoil at a time of the year when vegetation cover can be established as quickly as possible afterwards, to that erosion of returned topsoil is minimized. The best time of year is at the end of the rainy season. ❖ Plant an indigenous grass layer immediately after spreading topsoil to stabilise the soil and protect it from erosion. Fertilise the grass layer for optimum production. Rehabilitation extends until the first grass layer is well established. 	<ul style="list-style-type: none"> ❖ Adequate fertile topsoil is available to rehabilitate the mined area.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
		<ul style="list-style-type: none"> ❖ Control run-off water with temporary banks, where necessary, to prevent accumulation of run-off causing down-slope erosion. ❖ Monitor the rehabilitated area for erosion, and appropriately stabilize if erosion do occur, for at least 12 months after reinstatement. 	
<p>HYDROLOGY</p> <p>Erosion Control and Storm Water Management</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.</p> <p>Compliance to be monitored by the Environmental Control Officer.</p>	<ul style="list-style-type: none"> ❖ Implement a storm water management plan for the duration of the mining activities. ❖ Undertake construction during the dry season to reduce erosion and sedimentation risks associated with summer rainfall in this region if possible. ❖ Limit clearing of vegetation to the proposed mining footprint and associated infrastructure. Ensure no clearing takes place outside the minimum required footprint. ❖ Place vegetation clearing on hold when heavy rains are expected. ❖ Divert stormwater around the topsoil heaps and mining areas to prevent erosion. ❖ Protect stockpiles from erosion and store it on flat areas surrounded by appropriate berms where possible. ❖ Ensure that adequate slope protection is provided when mining within steep slopes. ❖ Control the outflow of run-off water from the mining excavation to prevent down-slope erosion, by constructing temporary banks and ditches that will direct run-off water (if needed). These must be in place at any points where overflow out of the excavation might occur. ❖ Install a silt fence at the bottom of the perimeter fence to catch sediment carried by surface runoff from bare surfaces at the site. All demarcation must be signed off by the ECO before any work commences. ❖ Do not discharge dirty water emanating from the quarry into the natural environment or any watercourse. Channel all runoff into the stormwater system. 	<ul style="list-style-type: none"> ❖ Impact on the environment caused by stormwater discharge is avoided and erosion is managed.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
		<ul style="list-style-type: none"> ❖ Regularly monitor roads and other disturbed areas within the project for erosion and ensure problem areas receive follow-up monitoring to assess the success of the remediation. ❖ Rectify erosion problems within the mining area because of the mining activities immediately (within 48 hours) and monitored thereafter to ensure that it does not re-occur. ❖ Use silt/sediment traps/barriers where there is a danger of topsoil or material stockpiles eroding and entering downstream drainage lines and other sensitive areas. Regularly maintain and clear the sediment/silt barriers to ensure effective drainage of the areas. ❖ Conduct activity in terms of the Best Practice Guidelines for small-scale mining as developed by DWS. ❖ Contain all fuels and chemicals stored or used on site in fit for purpose containers and store within designated storage areas. Ensure the designated storage areas are situated on an impermeable surface with a perimeter bund and a drainage sump. Size the volume of the bund and sump to contain at least 110% of the total volume of the fuel and chemicals being stored within the designated storage area. Ensure that the storage areas have a roof to prevent inflow of rainwater, which would require the sump to be emptied more frequently. ❖ Re-vegetate all exposed/bare surfaces and embankments once shaped. If revegetation of exposed surfaces cannot take place immediately, temporary erosion, and sediment control measures must be installed and maintained until such time that revegetation can commence. ❖ Monitor all erosion and sediment control measures weekly for the life of the operation and repaired immediately when damaged. Only remove the erosion and sediment control structures once vegetation cover has successfully recolonised the affected areas. ❖ After heavy rainfall events, check the site for erosion damage and rehabilitate this damage immediately. Fill in erosion rills and gullies 	

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
		<p>with appropriate material and/or silt fences until vegetation has recolonised the rehabilitated area.</p> <ul style="list-style-type: none"> ❖ Check settlement ponds every month to assess the amount of sediment collected. Remove sediment at a predetermined depth of sediment and stockpiled separately. 	
<p>HYDROLOGY</p> <p>Mitigating the potential impact on the wetland system.</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.</p> <p>Compliance to be monitored by the Environmental Control Officer.</p>	<ul style="list-style-type: none"> ❖ Undertake construction during the dry season to reduce erosion and sedimentation risks associated with summer rainfall in this region if possible. ❖ Maintain a 40 m buffer around the seep- and valley bottom wetland areas throughout the lifespan of the mining activities and manage it as a no-go area. ❖ Prior to the commencement of the site stake the outer edge of the delineated watercourse (wetlands) and associated buffer zone (by surveyor; to be signed off by the ECO) before work commences (if allowed by the landowner). Maintain the demarcations for the duration of the site. ❖ Do not locate any equipment laydown or storage areas within 40 m of any watercourse and/or within the 1:100 year flood line, whichever is greater in width. ❖ Keep the clearing of natural and semi-natural grasslands to the approved area and to a minimum. ❖ Where it is necessary to remove surface water from the quarry site; pump the water to a site where it will not negatively influence the natural environment through erosion of permanent flooding, possibly the non-perennial stream. ❖ Redirect stormwater (and road-surface run-off) towards remaining wetland features to increase groundwater infiltration, thereby providing sufficient soil moisture to support wetland species (ensure that this water is slowed down, not channelized and spread out across the surface in order to prevent this water flow from causing erosion – where erosion signs are present prompt actions and measures should be 	<ul style="list-style-type: none"> ❖ The mining activities have no impact on the nearby wetland system.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
		<p>taken to rehabilitate these areas and prevent erosion from occurring in these areas in the future),</p> <ul style="list-style-type: none"> ❖ To prevent an increase in surface water flow velocity: <ul style="list-style-type: none"> ▪ Ensure that an approved storm water plan is implemented; ▪ Ensure that the diameters of storm water pipes are sufficient to not result in overly high flow velocities during rainfall events. ▪ Moderate the flow of storm water onto the buffer and wetland features. ❖ To prevent the contamination of the aquatic environment: <ul style="list-style-type: none"> ▪ Notify the CM and ECO immediately of any pollution incidents on site. ▪ Prevent discharge of any pollutants, such as cement, concrete, lime chemicals and fuels into any water source. ❖ Ensure that structures like berms are built to prevent soil from entering wetlands as this can result in sedimentation. ❖ Do not establish any lights within the construction area near the buffer zone. 	
<p>TERRESTRIAL BIODIVERSITY, CONSERVATION AREAS AND GROUNDCOVER</p> <p>Management of vegetation removal.</p>	<p>Permit holder to apply for a removal plant permit from Ezemvelo</p> <p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.</p> <p>Compliance to be monitored by the Environmental Control Officer.</p>	<ul style="list-style-type: none"> ❖ Clearly demarcate the mining boundaries and contain all operations to the approved mining area. Declare the area outside the mining boundaries a no-go area and educate all staff accordingly. ❖ Commit to a conservation approach and keep the actual footprint of disturbance to a minimum. ❖ Arrange a pre-commencement environmental induction for all staff on site to ensure that basic environmental principles are adhered to. This must include awareness of no littering, appropriate handling of pollution and chemical spills, avoiding fire hazards, minimising wildlife interactions, remaining within demarcated construction areas, etc. ❖ Arrange a pre-commencement walkthrough by an ecologist to identify and demarcate important species to be relocated and sub habitats that may not be disturbed. 	<ul style="list-style-type: none"> ❖ Vegetation clearing is restricted to the authorised development footprint of the mine.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
		<ul style="list-style-type: none"> ❖ Obtain permits for the removal of protected plant species (especially <i>Aloe marlothii</i>) and kept it on-site in the possession of the flora search and rescue team. ❖ Only commence with bush-clearance once the plant permits were received, and the important plants were relocated by a suitably qualified person. ❖ Do not allow grubbing as a method of clearing vegetation. Cut any trees that need to be cleared using chain saws and hauled it from the site using appropriate machinery where practically possible. ❖ Do not burn cleared vegetation to be retained at any time, but rather mulch and stockpiled it. Ideally cover the heaps with stockpiled topsoil and retain the material for future site rehabilitation. ❖ Arrange that the ECO provide supervision and oversight of vegetation clearing activities and other activities which may cause damage to the environment, especially during the site establishment phase, when most of the vegetation clearing is taking place. ❖ Ensure all vehicles remain on demarcated roads and prevent unnecessary driving in the veld outside these areas. ❖ Do not translocated, uprooted, or disturbed plants for rehabilitation or other purposes without express permission from the ECO and without the relevant permits. ❖ Do not allow fires on-site. ❖ Provide spoil heaps and topsoil stockpiles with a vegetation cover of indigenous grasses. ❖ Generate a biodiversity protocol and rehabilitation plan that can be implemented upon closure. 	
TERRESTRIAL BIODIVERSITY, CONSERVATION AREAS AND GROUNDCOVER	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.	<ul style="list-style-type: none"> ❖ Implement an invasive plant species management plan to control all invasive plant species on site in terms of NEM:BA, 2004 and CARA, 1983. Do weed/alien ongoing clearing on throughout the life of the mining activities. 	<ul style="list-style-type: none"> ❖ Mining area is kept free of invasive plant species.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
Management of invasive plant species.	Compliance to be monitored by the Environmental Control Officer.	<ul style="list-style-type: none"> ❖ Do not allow planting or importing of any alien species to the site for landscaping, rehabilitation, or any other purpose. ❖ Keep all stockpiles (topsoil & overburden) free of invasive plant species. ❖ Control declared invader or exotic species on the rehabilitated areas. Only use herbicides that are certified safe for use in aquatic environments by an independent testing authority. 	
TERRESTRIAL BIODIVERSITY, CONSERVATION AREAS AND GROUNDCOVER Fire Management	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	<ul style="list-style-type: none"> ❖ Do not permit open fires on site. Only make fires within the areas and for purposes approved by the ECO. ❖ Ensure fire prevention facilities are present at all hazardous storage facilities. ❖ Ensure adequate fire-fighting equipment is available and train workers on how to use it. ❖ Ensure that all workers on site know the proper procedure in case of a fire occurring on site. ❖ Do not permit smoking in areas considered to be a fire hazard. 	<ul style="list-style-type: none"> ❖ No fire outbreaks as a result of the mining activities.
FAUNA Protection of fauna	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	<ul style="list-style-type: none"> ❖ Ensure no fauna is caught, killed, harmed, sold, or played with. ❖ The ECO or other suitably qualified person must remove any fauna directly threatened by the operational activities to a safe location. ❖ Arrange a suitably trained individual to undertake the handling and relocation of any animal perceived to be dangerous/venomous/poisonous. ❖ Arrange that all personnel undergo environmental induction regarding fauna management and in particular awareness about not harming or collecting species such as snakes, tortoises and owls which are often persecuted out of superstition. Instruct workers to report any animals that may be trapped in the working area. ❖ Ensure no snares are set or nests raided for eggs or young. 	<ul style="list-style-type: none"> ❖ Disturbance to fauna is minimised.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
		<ul style="list-style-type: none"> ❖ Ensure all vehicles adhere to a low speed limit (20 km/h is recommended) to avoid collisions with susceptible species such as snakes and tortoises. ❖ Prevent litter, food or other foreign material thrown or left around the site. Keep such items in the site vehicles and daily removed it to the site camp. ❖ Reserve indigenous vegetation wherever possible and avoid vegetation clearing during the breeding season. 	
<p>CULTURAL AND HERITAGE ENVIRONMENT</p> <p>Archaeological, heritage and palaeontological aspects.</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.</p> <p>Compliance to be monitored by the Environmental Control Officer.</p>	<ul style="list-style-type: none"> ❖ Confine all mining to the development footprint area. ❖ Implement the following change find procedure when discoveries are made on site: <ul style="list-style-type: none"> ▪ If during the pre-construction phase, construction, operations or closure phases of this project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance or heritage site, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager. ▪ It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find and confirm the extent of the work stoppage in that area. ▪ The senior on-site Manager will inform the ECO of the chance find and its immediate impact on operations. The ECO will then contact a professional archaeologist for an assessment of the finds who will notify AMAFA. ▪ Work may only continue once the go-ahead was issued by AMAFA. 	<ul style="list-style-type: none"> ❖ Impact to cultural/heritage resources is avoided or at least minimised.
<p>LAND USE</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.</p>	<ul style="list-style-type: none"> ❖ If needed, sign mined/rehabilitated areas back to grazing once the grass layer stabilised. 	<ul style="list-style-type: none"> ❖ Mining has the least possible impact on the operation of the property.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
Loss of agricultural land for duration of mining.	Compliance to be monitored by the Environmental Control Officer.		
<p>EXISTING INFRASTRUCTURE</p> <p>Managing the Power Lines</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.</p> <p>Compliance to be monitored by the Environmental Control Officer.</p>	<ul style="list-style-type: none"> ❖ Implement or comply with the following requirements of Eskom: <p>Building Restrictions for the 11kV Overhead Power Line:</p> <ul style="list-style-type: none"> ❖ No building or structures may be erected or installed above or below the surface of the ground, neither may any material which might endanger the safety of this power line be placed within 12 (twelve) metres from the centre line of this power line, or either side (overall servitude width 24 metres). ❖ The applicant will adhere to all relevant environmental legislation. Dimensions and specifics will be in accordance with ESKOM standards so as to not obstruct Eskom's existing infrastructure in any way. ❖ No mechanical equipment, including mechanical excavators or high lifting machinery, shall be used in the vicinity of Eskom's apparatus and/or services, without prior written permission having been granted by Eskom. If such permission is granted the applicant must give at least seven working days prior notice of the commencement of work. ❖ The clearances between Eskom's live electrical equipment and the proposed construction work shall be observed as stipulated by Regulation 15 of the Electrical Machinery Regulations of the Occupational Health and Safety Act 85 of 1993. Equipment shall be regarded electrically live and therefore dangerous at all times. ❖ Mining and the use of explosives of any type within 500 metres of Eskom's services shall only occur with Eskom's prior written permission. If such permission is granted the applicant must give at least fourteen working days prior notice of the commencement of blasting. 	<ul style="list-style-type: none"> ❖ Mining has no impact on the power lines.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
		<ul style="list-style-type: none"> ❖ Any third party servitudes encroaching on Eskom land shall be registered against Eskom's Notaries deed at the applicant's own cost. ❖ Prior any construction activities, the applicant is required to contact Eskom and detailed Surveyed Plans are to be submitted to this office. <p>Terms and conditions pertaining to the 275kV Overhead Power Lines (Eskom Tx):</p> <ul style="list-style-type: none"> ❖ Eskom Tx's rights and services must be acknowledged and always respected, and Eskom must retain unobstructed access to and egress from its servitudes. ❖ All work within Eskom's servitude areas shall comply with the relevant Eskom earthing standards in force at the time. ❖ No construction or excavation work shall be executed within 23.5 metres from any Eskom powerline structure, and/or within 23.5 metres from any stay wire. ❖ Detailed designs of the proposed mining operations must be referred to Eskom Tx. In these designs Raubex Construction must cater for design specific issues such as acute angle crossings, separation distances and clearances between Eskom Tx's 275kV power lines and the proposed mining area. ❖ The use of explosives of any type within 500 metres of Eskom Tx's services, shall only occur with Eskom Tx's previous written permission. If such permission is granted the applicant must give at least fourteen working days prior notice of the commencement of blasting. ❖ Changes in ground level may not infringe statutory ground to conductor clearances or statutory visibility clearances. After any changes in ground level, the surface shall be rehabilitated and stabilised so as to prevent erosion. The measures taken shall be to Eskom Tx's requirements. ❖ No mechanical equipment, including mechanical excavators or high lifting machinery, shall be used in the vicinity of Eskom Tx's apparatus and/or services, without prior written permission having been granted 	

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
		<p>by Eskom Tx. If such permission is granted the applicant must give at least seven working days' notice prior to the commencement of work.</p> <ul style="list-style-type: none"> ❖ Eskom Tx's rights and duties in the servitude shall be accepted as having prior right at all times and shall not be obstructed or interfered with. ❖ Under no circumstances shall rubble, earth or other material be dumped within the servitude restriction area. The applicant shall maintain the area concerned to Eskom Tx's satisfaction. The applicant shall be liable to Eskom Tx for the cost of any remedial action which has to be carried out by Eskom Tx. ❖ The clearances between Eskom Tx's live electrical equipment and the proposed construction work shall be observed as stipulated by the Regulation 19 of Electrical Machinery Regulations 2011 (with reference to SANS10280-1) of the Occupational Health and Safety Act, 1993 (Act 85 of 1993). ❖ Equipment shall be regarded electrically live and therefore dangerous at all times. ❖ It is required of the applicant to familiarise himself with all safety hazards related to Electrical plant. ❖ The final design (blasting and stockpiles) of your proposed mining area should be referred to this office for final approval. ❖ No stockpiles may be placed nearer than 200 m from any of the power lines. 	
<p>EXISTING INFRASTRUCTURE</p> <p>Potential structural damage to adjacent residence.</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.</p> <p>Compliance to be monitored by the Environmental Control Officer.</p>	<ul style="list-style-type: none"> ❖ Assess the structural integrity of Me Khumalo's home prior to the first blast. ❖ Notify the neighbouring residents in writing before each blast. ❖ Monitor the vibrations of each blast. Place a seismograph at the Khumalo residence, for at least the first blast, to establish the ground vibrations associated with blasting at the quarry. ❖ Continue monitoring with each blast, should the results indicate that the blasting has a real impact on the residence. 	<ul style="list-style-type: none"> ❖ Mining has no direct impact on the nearby residences.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
		<ul style="list-style-type: none"> ❖ Refurbish any damage to the residence, directly caused by the mining activities. 	
<p>EXISTING INFRASTRUCTURE</p> <p>Management of the access road.</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.</p> <p>Compliance to be monitored by the Environmental Control Officer.</p>	<ul style="list-style-type: none"> ❖ Prevent access to and from the mining area from the N11, unless authorised by SANRAL. ❖ Divert storm water around the access road to prevent erosion. ❖ Restrict vehicular movement to the existing access road to prevent crisscrossing of tracks through undisturbed areas. ❖ Repair rutting and erosion of the access road caused as a direct result of the mining activities. ❖ Prevent the overloading of the trucks and file proof of load weights for auditing by relevant officials. ❖ Restrict the speed of all mining equipment/vehicles to 40 km/h on the access roads. ❖ Discuss the maintenance requirements of Collings Pass Road with the Department of Transport (DoT) prior to commencement. Do not allow the proposed activity to result in the degradation of Collings Pass Road. ❖ Keep the intersection of the Collings Pass Road and the N11 clear of any loose quarry material emanating from the source. 	<ul style="list-style-type: none"> ❖ The access road remains accessible to the landowner and lawful occupiers during the operational phase, and upon closure, the road is returned in a better, or at least the same state as received by the permit holder.
<p>GENERAL</p> <p>Waste management</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.</p> <p>Compliance to be monitored by the Environmental Control Officer.</p>	<ul style="list-style-type: none"> ❖ Ensure regular vehicle maintenance, repairs and services only take place at an off-site workshop and service area. Ensure drip trays are present if emergency repairs are needed on equipment not able to move to the workshop. Dispose all waste products in a closed container/bin to be removed from the emergency service area (same day) to the workshop to ensure proper disposal. Treat this as hazardous waste and dispose of it at a registered hazardous waste handling facility, alternatively arrange collection by a registered hazardous waste handling contractor. File safe disposal certificates for auditing purposes. 	<ul style="list-style-type: none"> ❖ Wastes are appropriately handled and safely disposed of at registered waste facilities.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
		<ul style="list-style-type: none"> ❖ If a diesel bowser is used on site, always equip it with a drip tray. Use drip trays during each refuelling event. The nozzle of the bowser needs to rest in a sleeve to prevent dripping after refuelling. ❖ Ensure mixing and/or decanting of all chemicals and hazardous substances take place on an impermeable surface that is protected from the ingress and egress of stormwater. ❖ Ensure drip trays are cleaned after each use. Do not allow dirty drip trays to be used on site. Dispose of dirty rags used to clean the drip trays as hazardous waste into a designated bin at the workshop, where it is incorporated into the hazardous waste removal system. ❖ Collect any effluents containing oil, grease or other industrial substances in a suitable receptacle and remove it from the site, either for resale or for appropriate disposal at a registered facility. File proof. ❖ Obtain an oil spill kit and train the employees in the emergency procedures to follow when a spill occurs as well as the application of the spill kit. ❖ Clean spills immediately, within two hours of occurrence, to the satisfaction of the Regional Manager (DMRE) by removing the spillage together with the polluted soil and containing it in a designated hazardous waste bin until it is disposed of at a registered facility. File proof. ❖ Ensure suitable covered receptacles are always available and conveniently placed for the disposal of general waste. ❖ Store non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc., in a container with a closable lid at a collecting point to be collected at least once a month and disposed of at a recognized landfill site. Take specific precautions to prevent refuse from being dumped on or in the vicinity of the mine area. File proof of disposal. ❖ Handle biodegradable refuse as indicated above. ❖ Encourage re-use or recycling of waste products. ❖ Do not bury or burn waste on the site. 	

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
		<ul style="list-style-type: none"> ❖ Provide ablution facilities in the form of a chemical toilet/s. Anchor the chemical toilet (to prevent blowing/falling over) and arrange that it is serviced at least once a week for the duration of the mining activities by a registered liquid waste handling contractor. File the safe disposal certificates. ❖ Ensure that the use of any temporary, chemical toilet facilities do not cause any pollution to water sources or pose a health hazard. In addition, ensure that no form of secondary pollution arise from the disposal of refuse or sewage from the temporary, chemical toilets. Address any pollution problems arising from the above immediately. ❖ Do not discharge water containing waste into the natural environment. ❖ Implement measures to contain the wastewater and safely dispose thereof. ❖ Report any significant spillage of chemicals, fuels etc. during the lifespan of the mining activities to the Department of Water and Sanitation and other relevant authorities. ❖ Implement the use of waste registers to keep record of the waste generated and removed from the mining area. 	
<p>GENERAL</p> <p>Management of health and safety risks</p>	<p>Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.</p> <p>Compliance to be monitored by the Environmental Control Officer.</p>	<ul style="list-style-type: none"> ❖ Properly fence the mining area to prevent incursion by livestock and humans. ❖ Ensure that workers have access to the correct PPE as required by law. ❖ Locate sanitary facilities within 100 m from any point of work. ❖ Manage all operations in compliance with the Mine Health and Safety Act, 1996 (Act No 29 of 1996). ❖ Plan the type, duration and timing of blasting with due cognizance of other land users and structures in the vicinity. ❖ Inform the surrounding landowners and communities in writing ahead of any blasting event. ❖ Monitor the compliance of ground vibration and airblast levels to USBM standards with each blasting event. 	<ul style="list-style-type: none"> ❖ Employees work in a healthy and safe environment.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
		<ul style="list-style-type: none"> ❖ Record all blasts with a vibro recorder. ❖ Give audible warning of a pending blast at least 3 minutes in advance of the blast. ❖ Limit fly rock and collect and remove flyrock and rock spill that falls beyond the working area. 	

n) Aspects for inclusion as conditions of Authorisation.

Any aspects which must be made conditions of the Environmental Authorisation

The management objectives listed in this report under *Part A(1)(m) Proposed impact management objectives and the impact management outcomes for inclusion in the EMPR* above should be considered for inclusion in the environmental authorisation.

Additional to those conditions the following must be considered as conditions of the Environmental Authorisation:

- ❖ The proposed project must comply with the conditions of the GA issued by the DWS.
- ❖ Blasting approvals must be obtained from Eskom Distribution and -Transmission before the first blast as the mining area is within 500 m of the electrical infrastructure.

o) Description of any assumptions, uncertainties and gaps in knowledge.

(Which relate to the assessment and mitigation measures proposed)

The assumptions made in this document which relate to the assessment and mitigation measures proposed, stem from site specific information gathered from site inspections, specialist and desktop studies, and background information that were gathered. No uncertainty regarding the proposed project or the receiving environment could be identified.

p) Reasoned opinion as to whether the proposed activity should or should not be authorised

i) Reasons why the activity should be authorised or not.

Should the mitigation measures and monitoring programmes proposed in this document be implemented on site, no fatal flaws could be identified that were deemed as severe as to prevent the activity continuing.

ii) Conditions that must be included in the authorisation

The management objectives listed in this report under *Part A(1)(m) Proposed impact management objectives and the impact management outcomes for inclusion in the EMPR* should be considered for inclusion in the environmental authorisation.

Further to this, it is proposed that blasting activities may only commence upon approval of the Blasting Design by Eskom (Distribution & Transmission if applicable).

q) Period for which the Environmental Authorisation is required.

The Applicant requests the Environmental Authorisation to be valid for a five-year period to correspond with the validity of the mining permit.

r) Undertaking

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

The undertaking required to meet the requirements of this section is provided at the end of the EMPR and is applicable to both the Basic Assessment Report and the Environmental Management Programme report.

s) Financial Provision

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

i) Explain how the aforesaid amount was derived

The annual amount required to manage and rehabilitate the environment was estimated to be ±R 2 283 500.00. Please see the explanation as to how this amount was derived at attached as Appendix J – Financial and Technical Competence Report.

ii) Confirm that this amount can be provided from operating expenditure.

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

Raubex Construction (Pty) Ltd will be responsible for the financial and technical aspects of the proposed mining project. The operating expenditure is provided for as such in the Financial and Technical Competence Report attached as Appendix J to this report.

t) Specific Information required by the competent Authority

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

(1) Impact on the socio-economic conditions of any directly affected person.

(Provide the results of investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any directly affected person including the landowner, lawful occupier, or, where applicable, potential beneficiaries of any land restitution claim, attach the investigation report as an Appendix)

Also refer to Part A(1)(i) Full description of the process undertaken to identify, assess and rank the impacts and risks the activity will impose on the preferred site through the life of the activity.

The following potential impacts were identified that may impact on socio-economic conditions of directly affected persons:

❖ **Visual intrusion associated with the proposed mining activities:**

The proposed mining area will be visible from the nearby Collings Pass Road as well as the N11. Although no permanent infrastructure will be established on site that could permanently affect the visual impact, the removal of vegetation and the extension of the quarry pit will impact on the aesthetic quality of the area. It is proposed that the height of the stockpiles must be controlled to manage the visual impact and the Applicant remove as little vegetation as possible to screen the mining area from public view. The significance of the visual impact, because of the proposed activity, is expected to be medium-high for the duration of the operational phase. Should both the mining permit area and the additional stockpiling area (separately authorised) be established on site, the cumulative visual impact on the receiving environment is deemed to be of medium significance. Once mining ceased and the area, including the existing quarry, is rehabilitated the aesthetic quality of the area will improve and a very little to no residual effect is expected.

❖ **Dust nuisance caused because of the proposed mining activities:**

The proposed activity will generate dust because of blasting, the movement of earthmoving equipment, processing of the hard rock, and the loading and transporting of the material from site. The Applicant will have to implement dust suppression measures to control dust generation and prevent a dust nuisance to surrounding landowners/residents. The impact on the surrounding environment is deemed to be of low-medium significance. Should both the mining permit area and the additional stockpiling area (separately authorised) be established on site, the cumulative dust nuisance on the receiving environment (after mitigation) is deemed to be of low-medium significance. There will be no residual impact after closure.

❖ **Noise nuisance because of mining activities:**

Due to the nature of the proposed activity, noise will be generated because of blasting, the processing of the material, as well as loading and transporting. Work hours will however be restricted to daylight from Monday – Saturday. The nuisance value of noise to be generated by heavy earthmoving equipment

and the processing plant, to residence in the near vicinity is deemed to be of low-medium significance. The noise caused by blasting will be instantaneous and of short duration. The Applicant will timeously inform all the surrounding residents of each blasting event. All vehicles associated with the proposed activity will also be equipped with silencers and maintained in a road worthy condition in terms of the National Road Traffic Act, 1996 (Act No 93 of 1996). Should both the mining permit area and the additional stockpiling area (separately authorised) be established on site, the cumulative noise nuisance (after mitigation) will be of medium significance. There will be no residual impact after closure.

❖ **Potential damage to nearby infrastructure:**

As mentioned earlier the mining area will be near the Collings Pass Road, the Eskom power lines, and a house of the neighbouring farmer. Should the Applicant contain the mining activities within the boundaries of the permit area the impact on the existing infrastructure near the mining area is deemed to be of low significance.

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

(Provide the results of investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No 25 of 1999) with the exception of the national estate contemplated in section 3(2)(i)(vi) and (vii) of the Act, attach the investigation report as Appendix 2.19.2 and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6 and 2.12 herein).

No sites or artefacts classified as national estate as referred to in section 3(2) of the NHRA, 1999 were identified within the footprint of the proposed mining area.

u) Other matters required in terms of section 24(4)(a) and (b) of the Act.

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

As mentioned previously Site Alternative 1 is deemed the preferred and only viable site as it entails the extension of an existing quarry pit that remains unrehabilitated. Should the Applicant be allowed to mine this area the rehabilitation of the existing quarry will form part of the closure conditions for the mining area. The siting of the proposed mining area over the existing quarry pit will concentrate all mining related activities to one section of the landowner's property. Access to the mining area will be possible from the existing farm

road, and though the road will need some upgrading, no new access roads need to be constructed.

Moving the proposed mining area further to the east, will not only exclude the existing quarry pit from the mining area, but also move the mine to close to the power lines that passes the site ± 50 m to the east. Moving the mining area to the west is not possible as the Collings Pass Road borders the site. The mining area cannot be moved to the south as the resource which the Applicant intends to mine is concentrated on the hill and not found further to the south.

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

1. DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME.

a) Details of the EAP,

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

The details and expertise of Christine Fouché of Greenmined Environmental (Pty) Ltd that acts as EAP on this project has been included in Part A Section 1(a) as well as Appendix O as required.

b) Description of the Aspects of the Activity

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

The aspects of the activity that are covered by the environmental management programme has been described and included in Part A, section (1)(h).

c) Composite Map

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

As mentioned under Part A, section (1)(l)(ii) this map has been compiled and is attached as Appendix C to this document.

d) Description of impact management objectives including management statements

i) Determination of closure objectives. (Ensure that the closure objectives are informed by the type of environment described)

The primary objective, at the end of the mine's life, is to obtain a closure certificate at minimum cost and in as short a time as possible whilst still complying with the requirements of the Minerals and Petroleum Resources Development Act (Act No. 28 of 2002) [MPRDA]. To realise this, the following main objectives must be achieved:

- ❖ Remove all temporary infrastructure and waste from the mine as per the requirements of this EMPR and of the Provincial Department of Minerals and Resources.
- ❖ Shape and contour disturbed areas in compliance with the EMPR.
- ❖ Ensure that permanent changes in topography (due to mining) are sustainable and do not cause erosion or the uncontrolled damming of surface water.

- ❖ Make all excavations safe.
- ❖ Use the topsoil effectively to promote the re-establishment of vegetation.
- ❖ Ensure that all rehabilitated areas are stable and self-sustaining in terms of vegetation cover.
- ❖ Eradicate all weeds/invader plant species by intensive management of the mining area.

The site-specific closure objectives are discussed in the attached Closure Plan (Appendix K), however, a summary of the closure objectives for the proposed mine were included below.

The decommissioning phase will entail the reinstatement of the processing area by removing the stockpiled material, and site infrastructure/equipment and landscaping the disturbed footprints. Due to the impracticality of importing large volumes of fill to restore the quarry area to its original topography, the rehabilitation option is to develop the quarry into a minor landscape feature. This will entail creating a series of irregular benches along the quarry faces, the top edges of each face being blasted away to form scree slopes on the benches below, thereby reducing the overall face angle. The benches will be top-dressed with topsoil and vegetated with an appropriate indigenous grass mix if vegetation does not naturally establish in the area within six months of the replacement of the topsoil.

The decommissioning activities will therefore consist of the following:

- ❖ Sloping and landscaping the quarry pit;
- ❖ Removing all stockpiled material;
- ❖ Removing all mining machinery and equipment from site;
- ❖ Landscaping all disturbed areas and replacing the topsoil;
- ❖ Vegetating the reinstated area; and
- ❖ Controlling/monitoring the invasive plant species.

The future land use of the proposed area will be agriculture (grazing). Upon replacement of the topsoil, the area around the excavation will once again be available for grazing purposes, and the planting of the grass layer (to protect the topsoil) will tie in with the proposed land use.

The Applicant will comply with the minimum closure objectives as prescribed by the DMRE and detailed below:

❖ Rehabilitation of the excavated area:

The excavated area must serve as a final depositing area for the placement of overburden. Rocks and coarse material removed from the excavation must be dumped into the excavation.

No waste may be permitted to be deposited in the excavations.

Once overburden, rocks and coarse natural materials has been added to the excavation and it was profiled with acceptable contours and erosion control measures, the topsoil previously stored must be returned to its original depth over the area.

The area must be fertilized if necessary to allow vegetation to establish rapidly. The site shall be seeded with a local or adapted indigenous seed mix to propagate the locally or regionally occurring flora, should natural vegetation not re-establish within 6 months from closure of the site.

If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining operation be corrected and the area be seeded with a vegetation seed mix to his or her specification.

❖ Rehabilitation of processing area:

Coarse natural material used for the construction of ramps must be removed and dumped into the excavations.

Stockpiles must be removed during the decommissioning phase, the area ripped, and the topsoil returned to its original depth to provide a growth medium.

On completion of operations, all structures or objects shall be dealt with in accordance with section 44 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002):

- Where sites have been rendered devoid of vegetation/grass or where soils have been compacted owing to traffic, the surface shall be scarified or ripped.
- The site shall be seeded with a vegetation seed mix adapted to reflect the local indigenous flora.

Photographs of the camp and office sites, before and during the mining operation and after rehabilitation, shall be taken at selected fixed points and kept on record for the information of the DMRE Regional Manager. _

On completion of mining operations, the surface of these areas, if compacted due to hauling and dumping operations, shall be scarified to a depth of at least 200mm and graded to an even surface condition. Where applicable/possible topsoil needs to be returned to its original depth over the area.

The area shall then be fertilized if necessary to allow vegetation to establish rapidly. The site shall be seeded with a local, adapted indigenous seed mix.

If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the DMRE Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining operation be corrected and the area be seeded with a seed mix to his or her specification.

❖ Final rehabilitation:

Rehabilitation of the surface area shall entail landscaping, levelling, top dressing, land preparation, seeding (if required) and maintenance, and invasive plant species clearing.

All mining equipment, and other items used during the mining period must be removed from the site (section 44 of the MPRDA).

Waste material of any description, including receptacles, scrap, rubble and tyres, must be removed entirely from the mining area and disposed of at a recognized landfill facility. It will not be permitted to be buried or burned on the site.

The management of invasive plant species must be done in a sporadic manner during the life of the mining activities. Species regarded as Category 1a and 1b invasive species in terms of NEM:BA (National Environmental Management: Biodiversity Act 10 of 2004 and regulations applicable thereto) will be eradicated from the site.

Final rehabilitation shall be completed within a period specified by the Regional Manager.

Once the mining area was rehabilitated the permit holder is required to submit a closure application to the Department of Mineral Resources and Energy in accordance with section 43(4) of the MPRDA, 2002 that states: *“An application for a closure certificate must be made to the Regional Manager in whose region the land in question is situated within 180 days of the occurrence of the lapsing, abandonment, cancellation, cessation, relinquishment or completion contemplated in subsection (3) and must be accompanied by the prescribed environmental risk report”*. The Closure Application will be submitted in terms of Regulation 62 of the MPRDA, 2002, and Government Notice 940 of NEMA, 1998 (as amended).

ii) Volume and rate of water use required for the operation

Any water required for the implementation of the project will be bought from a legal source and transported to the mining area (in a truck) where it will be stored in tanks until used. Presently, no washing of material is proposed, and the Applicant will therefore mainly use the water for dust suppression purposes on denuded areas, the processing plant, and access road (when needed). It is proposed that $\pm 20\,000$ l water/day will be need for dust suppression measures during the dry months.

iii) Has a water use licence been applied for?

An application for a water use licence was submitted to the DWS in 2022 (see following figure). However, upon review of the relevant documentation and at the Department's discretion, the DWS authorised the proposed project under general authorisation in terms of Section 39 of the NWA, 1998 in January 2023.

Mr PENE SOLOMON FATAKI (Environmental Assessment Practitioner) e-Mail: solomon@afzelia.co.za e-WULAAS - Water Use Licence Applications

Raubex KZN (Pty) Ltd - The proposed expansion of the Elandspruit Quarry (WU23552)

HOME | How To | Consultant | Client | Applications | Withdraw | Cancel Licence | Status | Correspondence | Support | Logout

Phase 1: Application | Water Uses | Properties | Admin Docs | Application Forms | Submit | Phase 2: Site Visit | Confirm Site Visit | Phase 3: Tech Report | Application Forms | Tech Docs | Submit

Pre-Application Water Use Enquiries/Current Water Use Applications

Water User(s)

Raubex KZN (Pty) Ltd

WU23552 - The proposed expansion of the Elandspruit Quarry

Application Information (mandatory fields is indicated with a *)

*Authorised Signatory for Application Submission: Mr Andries Jacobus Kruger [Add New Authorised Signatory](#)

*Primary Contact Person for Application: Mr PENE SOLOMON FATAKI [Add New Primary Contact](#)

*Type of Application: New Registration

*Application Name: The proposed expansion of the Elandspruit Quarry
(Max 100 characters - Example: Sandworks on Vaalriver in Parys)

Why are you applying for a Water Use Application?: The Applicant identified the earmarked site in anticipation of a SANRAL

What is the Main Activity that will take place for this Application?: Stripping and stockpiling of topsoil » Blasting, » Excavation, » Crushing

*What is the Main Purpose of the Application? [Main Purpose](#)

- a. Taking of Water from a Resource
- c. Working in or near a Water Course/Drainage Line
- e. Discharge of Water containing Waste

Detailed information --> use Main Purpose option...

[Add New Pre-Application Enquiry](#) [Remove Application](#)

Figure 38: Proof of submission of the water use licence application to the Department of Water and Sanitation

iv) Impacts to be mitigated in their respective phases

Table 45: Impact to be mitigated in their respective phases.

ACTIVITIES (as listed in 2.11.1)	PHASE of operation in which activity will take place. State; Planning and design, Pre-Construction, Operational, Rehabilitation, Closure, Post closure	SIZE AND SCALE OF DISTURBANCE (volumes, tonnages and hectares or m ²)	MITIGATION MEASURES (describe how each of the recommendations herein will remedy the cause of pollution or degradation and migration of pollutants)	COMPLIANCE WITH STANDARDS (A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)	TIME PERIOD FOR IMPLEMENTATION Describe the time period when the measures in the environmental management programme must be implemented. Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. With regard to Rehabilitation, therefore state either – Upon cessation of the individual activity or Upon the cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.
❖ Demarcation of site with visible beacons.	Site Establishment phase	4.9 ha	Demarcation of the site will ensure that all employees are aware of the boundaries of the mining area, and that work stay within the approved area.	Mining is only allowed within the boundaries of the approved area. ❖ MPRDA, 2008 ❖ NEMA, 1998	Beacons need to be in place throughout the life of the activity.
❖ Site establishment and infrastructure development.	Site Establishment & Operational Phase	4.9 ha	<u>Loss of agricultural land for duration of mining:</u> ❖ The Applicant signed a lease agreement with the landowner to compensate for the loss of agricultural land for the duration of the mining period. If needed, mined/rehabilitated areas could revert to	Use of agricultural land must be managed in accordance with the: ❖ CARA, 1983 ❖ Closure Plan (Appendix K)	Throughout the site establishment-, and operational phases.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			agricultural use once the grass layer stabilised.		
<ul style="list-style-type: none"> ❖ Site establishment and infrastructure development. ❖ Stripping and stockpiling of topsoil and overburden. ❖ Excavation, loading and hauling to the processing plant. 	Site Establishment & Operational Phase	4.9 ha	<p><u>Visual Mitigation:</u></p> <ul style="list-style-type: none"> ❖ The site must have a neat appearance and always kept in good condition. ❖ Mining equipment must be stored neatly in dedicated areas when not in use. ❖ The permit holder must limit vegetation removal, and stripping of topsoil may only be done immediately prior to the mining/use of a specific area. ❖ The excavation must be contained within the approved footprint of the permitted area. ❖ Upon closure the site must be rehabilitated to ensure that the visual impact on the aesthetic value of the area is reduced to the minimum. 	<p>Management of the mining activities must be in accordance with the:</p> <ul style="list-style-type: none"> ❖ MPRDA, 2008 ❖ NEMA, 1998 	Throughout the site establishment- and operational phases.
<ul style="list-style-type: none"> ❖ Site establishment and infrastructure development. ❖ Cumulative Impacts 	Site Establishment phase	4.9 ha	<p><u>Management of vegetation removal:</u></p> <ul style="list-style-type: none"> ❖ The mining boundaries must be clearly demarcated, and all operations must be contained to the approved mining area. The area outside the mining boundaries must be declared a no-go area, and all staff must be educated accordingly. ❖ The Applicant must be committed to a conservation approach and the actual footprint of disturbance must be kept to a minimum. ❖ A pre-commencement environmental induction for all site staff must be provided to ensure that basic 	<p>Natural vegetated areas must be managed in accordance with the:</p> <ul style="list-style-type: none"> ❖ NEM:BA, 2004 	Throughout the site establishment- and operational phases.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<p>environmental principles are adhered to. This includes awareness of no littering, appropriate handling of pollution and chemical spills, avoiding fire hazards, minimising wildlife interactions, remaining within demarcated construction areas, etc.</p> <ul style="list-style-type: none"> ❖ A pre-commencement walkthrough must be done by an ecologist to identify and demarcate important species to be relocated and sub habitats not to be disturbed. ❖ Permits for the removal of protected plant species (especially <i>Aloe marlothii</i>) must be obtained and kept on-site in the possession of the flora search and rescue team. ❖ Bush-clearance may only commence once the plant permits were received, and the important plants were relocated by a suitably qualified person. ❖ Grubbing is not permitted as a method of clearing vegetation. Any trees needing clearing must be cut down using chain saws and hauled from the site using appropriate machinery where practically possible. ❖ Cleared vegetation to be retained at any time may not be burned but can be mulched and stockpiled. Ideally the heaps can be covered with stockpiled topsoil and the material be retained for future site rehabilitation purposes. 		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<ul style="list-style-type: none"> ❖ The ECO must provide supervision and oversight of vegetation clearing activities and other activities which may cause damage to the environment, especially during the site establishment phase, when most of the vegetation clearing takes place. ❖ All vehicles must remain on demarcated roads and no unnecessary driving in the veld outside these areas may be allowed. ❖ No plants may be translocated or otherwise uprooted or disturbed for rehabilitation or other purposes without express permission from the ECO and without the relevant permits. ❖ No fires must be allowed on-site. ❖ Spoil heaps and topsoil stockpiles must be provided with a vegetation cover of indigenous grasses. ❖ A biodiversity protocol and rehabilitation plan must be in place that can be implemented upon closure. 		
<ul style="list-style-type: none"> ❖ Site establishment and infrastructure development. ❖ Stripping and stockpiling of topsoil and overburden. 	Site Establishment & Operational Phase	4.9 ha	<p><u>Protection of Fauna:</u></p> <ul style="list-style-type: none"> ❖ The site manager must ensure no fauna is caught, killed, harmed, sold, or played with. ❖ Any fauna directly threatened by the operational activities must be removed to a safe location by the ECO or other suitably qualified person. 	<p>Site specific fauna must be managed in accordance with the:</p> <ul style="list-style-type: none"> ❖ NEM:BA, 2004 	Throughout the site establishment-, and operational phases.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<ul style="list-style-type: none"> ❖ The handling and relocation of any animal perceived to be dangerous/venomous/poisonous must be undertaken by a suitably trained individual. ❖ All personnel must undergo environmental induction regarding fauna management and in particular awareness about not harming or collecting species such as snakes, tortoises and owls which are often persecuted out of superstition. Workers must be instructed to report any animals that may be trapped in the working area. ❖ No snares may be set, or nests raided for eggs or young. ❖ All vehicles must adhere to a low speed limit (20 km/h is recommended) to avoid collisions with susceptible species such as snakes and tortoises. ❖ No litter, food or other foreign material may be thrown or left around the site. Such items must be kept in the site vehicles and daily removed to the site camp. ❖ Indigenous vegetation must be reserved wherever possible, and vegetation clearing during the breeding season must be avoided. 		
<ul style="list-style-type: none"> ❖ Site establishment and 	Site Establishment, & Operational Phase.	4.9 ha	<u>Archaeological, Heritage and Palaeontological Aspects:</u> <ul style="list-style-type: none"> ❖ All mining must be confined to the development footprint area. 	Cultural/heritage aspects on site must be managed in accordance with the: <ul style="list-style-type: none"> ❖ NHRA, 1999 	Throughout the site establishment-, and operational phases.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
<p>infrastructure development.</p> <ul style="list-style-type: none"> ❖ Excavation, loading and hauling to the processing plant. 			<ul style="list-style-type: none"> ❖ If during the pre-construction phase, construction, operations or closure phases of this project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance or heritage site, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager. ❖ It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find and confirm the extent of the work stoppage in that area. ❖ The senior on-site Manager must inform the ECO of the chance find and its immediate impact on operations. The ECO must then contact a professional archaeologist for an assessment of the finds who must notify the SAHRA. ❖ Work may only continue once the go-ahead was issued by SAHRA. 		
<ul style="list-style-type: none"> ❖ Stripping and stockpiling of topsoil and overburden. ❖ Excavation, loading and hauling to the processing plant. 	<p>Site Establishment-, Operational and Decommissioning Phase</p>	<p>4.9 ha</p>	<p><u>Topsoil Management</u></p> <ul style="list-style-type: none"> ❖ The upper 300 mm of the soil must be stripped and stockpiled before mining. ❖ Topsoil is a valuable and essential resource for rehabilitation, and it must therefore be managed carefully to conserve and maintain it throughout the stockpiling and rehabilitation processes. 	<p>Topsoil stripping must be managed in accordance with the:</p> <ul style="list-style-type: none"> ❖ CARA, 1983 ❖ NEM:BA, 2004 ❖ MPRDA, 2002 ❖ Closure Plan (Appendix K) 	<p>Throughout the site establishment-, and operational phases.</p>

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
<ul style="list-style-type: none"> ❖ Sloping and landscaping during rehabilitation. 			<ul style="list-style-type: none"> ❖ Topsoil stripping, stockpiling, and re-spreading must be done in a systematic way. The mining plan must be such that topsoil is stockpiled for the minimum possible time. ❖ The topsoil must be placed on a levelled area, within the mining footprint. No topsoil may be stockpiled in undisturbed areas. ❖ Topsoil stockpiles must be protected against losses by water- and wind erosion. Stockpiles must be positioned so as not to be vulnerable to erosion by wind and water. The establishment of plants (indigenous grass) on the stockpiles will help to prevent erosion. ❖ Topsoil heaps may not exceed 1.5 m in height and are not to be sloped more than 1:2 to avoid collapse. ❖ The temporary topsoil stockpiles must be kept free of invasive plant species. ❖ Topsoil heaps to be stored longer than a period of 3 months needs to be vegetated with an indigenous grass seed mix if vegetation does not naturally germinate within the first growth season. ❖ Storm- and runoff water must be diverted around the on-site stockpile area to prevent erosion. ❖ The stockpiled topsoil must be evenly spread, to a depth of 300 mm, over the rehabilitated area upon closure of the site. 		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<ul style="list-style-type: none"> ❖ The permit holder must strive to re-instate topsoil at a time of year when vegetation cover can be established as quickly as possible afterwards, so that erosion of returned topsoil by both rain and wind, before vegetation is established, is minimized. The best time of year is at the end of the rainy season, when there is moisture in the soil for vegetation establishment and the risk of heavy rainfall events is minimal. ❖ An indigenous grass layer must be planted and established immediately after spreading of topsoil, to stabilize the soil and protect it from erosion. The grass layer must be fertilized for optimum biomass production. It is important that rehabilitation be taken up to the point of stabilization. Rehabilitation cannot be considered complete until the first grass layer is well established. ❖ Run-off water must be controlled via temporary berms, where necessary, on the slopes to ensure that accumulation of run-off does not cause down-slope erosion. ❖ The rehabilitated area must be monitored for erosion, and appropriately stabilized if any erosion occurs for at least 12 months after reinstatement. 		
❖ Stripping and stockpiling of	Site Establishment-, Operational-, and	4.9 ha	<u>Fugitive Dust Emission Mitigation Measures:</u>	Dust generation on site must be managed in accordance with the:	Throughout the site establishment-, and operational phases.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
<p>topsoil and/or overburden.</p> <ul style="list-style-type: none"> ❖ Drilling and blasting. ❖ Excavation, loading and hauling to the processing plant. ❖ Processing, stockpiling, and transporting of material. 	<p>Decommissioning Phase</p>		<ul style="list-style-type: none"> ❖ The liberation of dust into the surrounding environment must be effectively controlled using, inter alia, straw, water spraying and/or environmentally friendly dust-allaying agents that contains no PCB's (e.g. DAS products). ❖ The site manager must daily assess the efficiency of all dust suppression equipment. ❖ Speed on the haul roads must be limited to 20 km/h and 40 km/h on the access road to prevent the generation of excess dust. ❖ Areas devoid of vegetation, which could act as a dust source, must be minimized and vegetation removal may only be done immediately prior to mining. ❖ The crusher plant must have operational water sprayers to alleviate dust generation from the conveyor belts. ❖ Fines, blowing from the drop end of the crusher plant, can be minimized by attaching strips of used conveyor belts to the conveyor's end. ❖ Compacted dust must weekly be removed from the crusher plant to eliminate the dust source. ❖ Loads must be flattened to prevent spillage during transportation on public roads. ❖ Weather conditions must be taken into consideration upon commencement of daily operations. Limiting operations 	<ul style="list-style-type: none"> ❖ NEM:AQA, 2004 Regulation 6(1) ❖ National Dust Control Regulations, GN No R827 ❖ ASTM D1739 (SANS 1137:2012) 	

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<p>during very windy periods would reduce airborne dust and resulting impacts.</p> <ul style="list-style-type: none"> ❖ All dust generating activities shall comply with the National Dust Control Regulations, GN No R827 promulgated in terms of NEM:AQA (Act 39 of 2004) and ASTM D1739 (SANS 1137:2012). ❖ Best practice measures shall be implemented during the stripping of topsoil, excavation, and transporting of material from site to minimize potential dust impacts. ❖ Monthly fallout-dust monitoring must be implemented at the site for the duration of the activities and the results must be compliant with the standards of the National Dust Control Regulations, 2013. 		
<ul style="list-style-type: none"> ❖ Stripping and stockpiling of topsoil and/or overburden. ❖ Drilling and blasting. ❖ Excavation, loading and hauling to the processing plant. ❖ Processing, stockpiling, and transporting of material. 	<p>Site Establishment-, Operational-, and Decommissioning Phase</p>	<p>4.9 ha</p>	<p><u>Noise Handling:</u></p> <ul style="list-style-type: none"> ❖ The permit holder must ensure that employees and staff conduct themselves in an acceptable manner while on site. ❖ No loud music may be permitted at the mining area. ❖ All mining vehicles must be equipped with silencers and maintained in a road worthy condition in terms of the National Road Traffic Act, 1996 (Act No 93 of 1996). ❖ The type, duration and timing of the blasting procedures must be planned with due cognizance of other land users and structures in the vicinity. 	<p>Noise generation on site must be managed in accordance with the:</p> <ul style="list-style-type: none"> ❖ NEM:AQA, 2004 Regulation 6(1) ❖ NRTA, 1996 	<p>Throughout the site establishment-, and operational phases.</p>

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<p>Surrounding landowners must be notified in writing prior to each blasting occasion.</p> <ul style="list-style-type: none"> ❖ A qualified occupational hygienist must be contracted to quarterly monitor and report on the personal noise exposure of the employees working at the mine. The monitoring must be done in accordance with the SANS 10083:2004 (Edition 5) sampling method as well as NEM:AQA, 2004, SANS 10103:2008. ❖ Site management must strive to minimise the noise caused by generators. All generators must be maintained and equipped with sound mufflers. If possible, the generators must be pointed away from the neighbouring land users. Further to this, all generators must be placed on a level area/footing to minimise vibration noise. ❖ Best practice measures shall be implemented to minimize potential noise impacts. ❖ Work hours must be from 07:00 to 18:00 Monday to Saturday. No work may be allowed after hours or on Sundays. 		
<ul style="list-style-type: none"> ❖ Stripping and stockpiling of topsoil and/or overburden. ❖ Processing, stockpiling and transporting of material. 	<p>Site Establishment-, Operational, and Decommissioning Phase</p>	<p>4.9 ha</p>	<p><u>Management of Invasive Plant Species:</u></p> <ul style="list-style-type: none"> ❖ An invasive plant species management plan must be implemented at the site to ensure the management and control of all species regarded as Category 1a and 1b invasive species in terms of NEM:BA (National Environmental Management: Biodiversity Act 10 of 2004 and 	<p>Weeds and invader plants on site must be managed in accordance with the:</p> <ul style="list-style-type: none"> ❖ CARA, 1983 ❖ NEM:BA, 2004 ❖ Invader Plants Species Management Plan (Appendix L) 	<p>Throughout the site establishment-, operational, and decommissioning phases.</p>

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
<ul style="list-style-type: none"> ❖ Sloping and landscaping during rehabilitation phase. 			<p>regulations applicable thereto). Weed/alien clearing must be done on an ongoing basis throughout the life of the mining activities.</p> <ul style="list-style-type: none"> ❖ No planting or importing of any alien species to the site for landscaping, rehabilitation or any other purpose may be allowed. ❖ All stockpiles (topsoil & overburden) must be kept free of invasive plant species. ❖ Management must take responsibility to control declared invader or exotic species on the rehabilitated areas. The following control methods can be used: ❖ Management must take responsibility to control declared invader or exotic species on the rehabilitated areas. The following control methods can be used: <ul style="list-style-type: none"> ▪ The plants can be uprooted, felled, or cut off and can be destroyed completely. ▪ The plants can be treated chemically by a registered pest control officer (PCO) using an herbicide recommended for use by the PCO in accordance with the directions for the use of such an herbicide. Only herbicides which have been certified safe for use in aquatic environments by independent testing authority are to be used. 		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
<ul style="list-style-type: none"> ❖ Stripping and stockpiling of topsoil and overburden. ❖ Excavation, loading and hauling to the processing plant. ❖ Sloping and landscaping during rehabilitation. 	<p>Site Establishment-, Operational and Decommissioning Phase</p>	<p>4.9 ha</p>	<p><u>Erosion Control and Storm Water Management:</u></p> <ul style="list-style-type: none"> ❖ A stormwater management plan must be implemented for the duration of the mining activities. ❖ It is recommended that construction be undertaken during the dry season to reduce erosion and sedimentation risks associated with summer rainfall in this region if possible. ❖ Clearing of vegetation must be limited to the proposed mining footprint and associated infrastructure. No clearing outside of the minimum required footprint to take place. ❖ Vegetation clearing activities must be put on hold when heavy rains are expected. ❖ Stormwater must be diverted around the topsoil heaps and mining areas to prevent erosion. ❖ Stockpiles must be protected from erosion, stored on flat areas where possible, and be surrounded by appropriate berms. ❖ When mining within steep slopes, it must be ensured that adequate slope protection is provided. ❖ During mining, the outflow of run-off water from the mining excavation must be controlled to prevent down-slope erosion. This must be done by way of the construction of temporary banks and ditches that will direct run-off water (if 	<p>Erosion and storm water must be managed in accordance with the:</p> <ul style="list-style-type: none"> ❖ CARA, 1983 ❖ NEMA, 1998 ❖ NWA, 1998 	<p>Throughout the site establishment-, and operational phases.</p>

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<p>needed). These must be in place at any points where overflow out of the excavation might occur.</p> <ul style="list-style-type: none"> ❖ A silt fence must be installed at the bottom of the perimeter fence to catch sediment carried by surface runoff from bare surfaces at the site. All demarcation must be signed off by the ECO before any work commences. ❖ No dirty water emanating from the quarry shall be discharged into the natural environment or any watercourse. All runoff must be channelled into the stormwater system. ❖ Roads and other disturbed areas within the project area must be regularly monitored for erosion and problem areas must receive follow-up monitoring to assess the success of the remediation. ❖ Any erosion problems within the mining area because of the mining activities observed must be rectified immediately (within 48 hours) and monitored thereafter to ensure that it does not re-occur. ❖ Silt/sediment traps/barriers must be used where there is a danger of topsoil or material stockpiles eroding and entering downstream drainage lines and other sensitive areas. These sediment/silt barriers must regularly be maintained and cleared to ensure effective drainage of the areas. 		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<ul style="list-style-type: none"> ❖ Mining must be conducted only in accordance with the Best Practice Guideline for small scale mining that relates to storm water management, erosion and sediment control and waste management, developed by the Department of Water and Sanitation (DWS), and any other conditions which that Department may impose: <ul style="list-style-type: none"> ▪ Clean water (e.g. rainwater) must be kept clean and be routed to a natural watercourse by a system separate from the dirty water system. You must prevent clean water from running or spilling into dirty water systems. ▪ Dirty water must be collected and contained in a system separate from the clean water system. ▪ Dirty water must be prevented from spilling or seeping into clean water systems. ▪ A storm water management plan must apply for the entire life cycle of the mining activity and over different hydrological cycles (rainfall patterns). ▪ The statutory requirements of various regulatory agencies and the interests of stakeholders must be considered and incorporated into a storm water management plan. ❖ All fuels and chemicals stored or used on site must be contained within fit for 		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<p>purpose containers and stored within designated storage areas. To prevent pollution of the surrounding environment during an accidental spillage, the designated storage areas must be situated on an impermeable surface and must feature a perimeter bund and a drainage sump. The volume of the bund and sump must be sized to contain at least 110% of the total volume of the fuel and chemicals being stored within the designated storage area. The storage areas must feature a roof to prevent inflow of rainwater, which would require the sump to be emptied more frequently.</p> <ul style="list-style-type: none"> ❖ Once shaped, all exposed/bare surfaces and embankments must be re-vegetated immediately. If revegetation of exposed surfaces cannot take place immediately, temporary erosion, and sediment control measures must be installed and maintained until such time that revegetation can commence.. ❖ All erosion and sediment control measures must be monitored (weekly) for the life of the operation and repaired immediately when damaged. The erosion and sediment control structures may only be removed once vegetation cover has successfully recolonised the affected areas. ❖ After heavy rainfall events, the contractor must check the site for erosion damage and rehabilitate this damage 		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<p>immediately. Erosion rills and gullies must be filled-in with appropriate material and/or silt fences until vegetation has recolonised the rehabilitated area.</p> <ul style="list-style-type: none"> ❖ Settlement ponds must be checked every month to assess the amount of sediment collected. Sediment must be removed at a predetermined depth of sediment and stockpiled separately. 		
<ul style="list-style-type: none"> ❖ Stripping and stockpiling of topsoil and/or overburden. ❖ Excavation, loading and hauling to the processing plant. ❖ Processing, stockpiling and transporting of material. ❖ Sloping and landscaping during rehabilitation phase. 	<p>Site Establishment-, Operational-, and Decommissioning Phase</p>	<p>4.9 ha</p>	<p><u>Waste Management:</u></p> <ul style="list-style-type: none"> ❖ Regular vehicle maintenance, repairs and services may only take place at an off-site workshop and service area. If emergency repairs are needed on equipment not able to move to the workshop, drip trays must be present. All waste products must be disposed of in a closed container/bin to be removed from the emergency service area (same day) to the workshop in order to ensure proper disposal. This waste must be treated as hazardous waste and must be disposed of at a registered hazardous waste handling facility, alternatively collected by a registered hazardous waste handling contractor. The safe disposal certificates must be filed for auditing purposes. ❖ If a diesel bowser is used on site, it must always be equipped with a drip tray. Drip trays must be used during each refuelling event. The nozzle of the bowser needs to 	<p>Mining related waste must be managed in accordance with the:</p> <ul style="list-style-type: none"> ❖ NWA, 1998 ❖ NEM:WA, 2008 	<p>Throughout the site establishment-, operational and decommissioning phases.</p>

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<p>rest in a sleeve to prevent dripping after refuelling.</p> <ul style="list-style-type: none"> ❖ Mixing and/or decanting of all chemicals and hazardous substances must take place on an impermeable surface and must be protected from the ingress and egress of stormwater.. ❖ Site management must ensure drip trays are cleaned after each use. No dirty drip trays may be used on site. The dirty rags used to clean the drip trays must be disposed as hazardous waste into a designated bin at the workshop, where it is incorporated into the hazardous waste removal system. ❖ Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a registered facility. Proof of safe disposal must be filed for auditing purposes. ❖ An oil spill kit must be obtained, and the employees must be trained in the emergency procedures to follow when a spill occurs as well as the application of the spill kit. ❖ Spills must be cleaned up immediately, within two hours of occurrence, to the satisfaction of the Regional Manager (DMRE) by removing the spillage together with the polluted soil and containing it in a designated hazardous 		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<p>waste bin until it is disposed of at a registered facility. Proof must be filed.</p> <ul style="list-style-type: none"> ❖ Suitable covered receptacles must always be available and conveniently placed for the disposal of general waste. ❖ Non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc., must be stored in a container with a closable lid at a collecting point to be collected at least once a month and disposed of at a recognized landfill site. Specific precautions must be taken to prevent refuse from being dumped on or in the vicinity of the mine area. Proof of disposal must be available for auditing purposes. ❖ Biodegradable refuse must be handled as indicated above. ❖ Re-use or recycling of waste products must be encouraged on site. ❖ No waste may be buried or burned on the site. ❖ Ablution facilities must be provided in the form of a chemical toilet/s. The chemical toilet must be anchored (to prevent blowing/falling over) and shall be serviced at least once a week for the duration of the mining activities by a registered liquid waste handling contractor. The safe disposal certificates must be filed for auditing purposes. ❖ The use of any temporary, chemical toilet facilities must not cause any pollution to water sources or pose a health hazard. 		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<p>In addition, no form of secondary pollution should arise from the disposal of refuse or sewage from the temporary, chemical toilets. Any pollution problems arising from the above are to be addressed immediately by the permit holder.</p> <ul style="list-style-type: none"> ❖ When small volumes of wastewater are generated during the life of the mine the following is applicable: <ul style="list-style-type: none"> ▪ Water containing waste must not be discharged into the natural environment. ▪ Measures to contain the wastewater and safely dispose thereof must be implemented. ❖ It is important that any significant spillage of chemicals, fuels etc. during the lifespan of the mining activities is reported to the Department of Water and Sanitation and other relevant authorities. ❖ Site management must implement the use of waste registers to keep record of the waste generated and removed from the mining area. 		
<ul style="list-style-type: none"> ❖ Stripping and stockpiling of topsoil and/or overburden. 	Site Establishment, & Operational Phase.	N/A	<p><u>Mitigating the potential impact on the wetland system:</u></p> <ul style="list-style-type: none"> ❖ It is recommended that construction be undertaken during the dry season to reduce erosion and sedimentation risks associated with summer rainfall in this region if possible. 	All water related matters must be managed in terms of the: <ul style="list-style-type: none"> ❖ NWA, 1998 ❖ GA conditions 	Throughout the site establishment-, and operational phases.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<ul style="list-style-type: none"> ❖ A 40 m buffer must be maintained around the seep- and valley bottom wetland areas throughout the lifespan of the mining activities and must be regarded as a no-go area. ❖ Prior to the commencement of the site the outer edge of the delineated watercourse (wetlands) and associated buffer zone must be staked out by a surveyor to be signed off by the ECO before work commences (if allowed by the landowner). The demarcations are to remain for the duration of the site. ❖ No equipment laydown or storage areas may be located within 40 m of any watercourse and/or within the 1:100 year flood line, whichever is greater in width.. ❖ The clearing of natural and semi-natural grasslands must be kept to a minimum and restricted to the approved footprint. ❖ Where it is necessary to remove surface water from the quarry site; water must be pumped to a site where it will not negatively influence the natural environment through erosion of permanent flooding, possibly the non-perennial stream. ❖ To prevent a decrease in groundwater infiltration storm water (and road-surface run-off) should be redirected towards remaining wetland features to increase groundwater infiltration, thereby providing sufficient soil moisture to support wetland species (ensure that this 		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<p>water is slowed down, not channelized and spread out across the surface in order to prevent this water flow from causing erosion – where erosion signs are present prompt actions and measures should be taken to rehabilitate these areas and prevent erosion from occurring in these areas in the future),</p> <ul style="list-style-type: none"> ❖ To prevent an increase in surface water flow velocity: <ul style="list-style-type: none"> ▪ Ensure that an approved storm water plan is compiled and implemented; ▪ The diameters of storm water pipes should be sufficiently large to not result in overly high flow velocities during rainfall events. ▪ The flow of storm water onto the buffer and wetland features must be moderated. ❖ To prevent the contamination of the aquatic environment: <ul style="list-style-type: none"> ▪ The contractor must notify the CM and ECO immediately of any pollution incidents on site. ▪ The contractor must prevent discharge of any pollutants, such as cement, concrete, lime chemicals and fuels into any water source. ❖ Ensure that structures like berms are built to prevent soil from entering wetlands as this can result in sedimentation. ❖ No lights must be established within the construction area near the buffer zones. 		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
<ul style="list-style-type: none"> ❖ Drilling and blasting. ❖ Excavation, loading and hauling to the processing plant. ❖ Sloping and landscaping during rehabilitation phase. 	Operational-, and Decommissioning Phase	4.9 ha	<p><u>Management of health and safety risks:</u></p> <ul style="list-style-type: none"> ❖ It must be ensured that the mining area is properly fenced off to prevent incursion by livestock and humans. ❖ Workers must have access to the correct personal protection equipment (PPE) as required by law. ❖ Sanitary facilities must be located within 100 m from any point of work. ❖ All operations must comply with the Mine Health and Safety Act, 1996 (Act No 29 of 1996). ❖ The type, duration and timing of the blasting procedures must be planned with due cognizance of other land users and structures in the vicinity. ❖ The surrounding landowners must be informed in writing ahead of each blasting event. ❖ The compliance of ground vibration and airblast levels must be monitored to USBM standards with each blasting event. ❖ A vibro recorder must be used to record all blasts. ❖ Audible warning of a pending blast must be given at least 3 minutes in advance of the blast. ❖ Measures to limit flyrock must be taken. All flyrock (of diameter 150 mm and larger) which falls beyond the working area, together with the rock spill must be collected and removed. 	<p>Health and safety aspects on site must be managed in accordance with the:</p> <ul style="list-style-type: none"> ❖ MHSA, 1996 ❖ OHSA, 1993 ❖ OHSAS 18001 ❖ USBM standards 	Throughout the site establishment-,operational and decommissioning phases.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
❖ Drilling and blasting.	Operational Phase	N/A	<p><u>Managing the power lines:</u> Building Restrictions for the 11kV Overhead Power Line:</p> <ul style="list-style-type: none"> ❖ No building or structures may be erected or installed above or below the surface of the ground, neither may any material which might endanger the safety of this power line be placed within 12 (twelve) metres from the centre line of this power line, or either side (overall servitude width 24 metres). ❖ The applicant will adhere to all relevant environmental legislation. Dimensions and specifics will be in accordance with ESKOM standards so as to not obstruct Eskom's existing infrastructure in any way. ❖ No mechanical equipment, including mechanical excavators or high lifting machinery, shall be used in the vicinity of Eskom's apparatus and/or services, without prior written permission having been granted by Eskom. If such permission is granted the applicant must give at least seven working days prior notice of the commencement of work. ❖ The clearances between Eskom's live electrical equipment and the proposed construction work shall be observed as stipulated by Regulation 15 of the Electrical Machinery Regulations of the Occupational Health and Safety Act 85 of 1993. Equipment shall be regarded 	The power lines must be protected in accordance with all Eskom specifications.	Throughout the site establishment-, and operational phases.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<p>electrically live and therefore dangerous at all times.</p> <ul style="list-style-type: none"> ❖ Mining and the use of explosives of any type within 500 metres of Eskom's services shall only occur with Eskom's prior written permission. If such permission is granted the applicant must give at least fourteen working days prior notice of the commencement of blasting. ❖ Any third party servitudes encroaching on Eskom land shall be registered against Eskom's Notaries deed at the applicant's own cost. ❖ Prior any construction activities, the applicant is required to contact Eskom and detailed Surveyed Plans are to be submitted to this office. <p>Terms and conditions pertaining to the 275kV Overhead Power Lines (Eskom Tx):</p> <ul style="list-style-type: none"> ❖ Eskom Tx's rights and services must be acknowledged and always respected, and Eskom must retain unobstructed access to and egress from its servitudes. ❖ All work within Eskom's servitude areas shall comply with the relevant Eskom earthing standards in force at the time. ❖ No construction or excavation work shall be executed within 23.5 metres from any Eskom powerline structure, and/or within 23.5 metres from any stay wire. ❖ Detailed designs of the proposed mining operations must be referred to Eskom Tx. In these designs Raubex Construction must cater for design 		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<p>specific issues such as acute angle crossings, separation distances and clearances between Eskom Tx's 275kV power lines and the proposed mining area.</p> <ul style="list-style-type: none"> ❖ The use of explosives of any type within 500 metres of Eskom Tx's services, shall only occur with Eskom Tx's previous written permission. If such permission is granted the applicant must give at least fourteen working days prior notice of the commencement of blasting. ❖ Changes in ground level may not infringe statutory ground to conductor clearances or statutory visibility clearances. After any changes in ground level, the surface shall be rehabilitated and stabilised so as to prevent erosion. The measures taken shall be to Eskom Tx's requirements. ❖ No mechanical equipment, including mechanical excavators or high lifting machinery, shall be used in the vicinity of Eskom Tx's apparatus and/or services, without prior written permission having been granted by Eskom Tx. If such permission is granted the applicant must give at least seven working days' notice prior to the commencement of work. ❖ Eskom Tx's rights and duties in the servitude shall be accepted as having prior right at all times and shall not be obstructed or interfered with. ❖ Under no circumstances shall rubble, earth or other material be dumped within 		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<p>the servitude restriction area. The applicant shall maintain the area concerned to Eskom Tx's satisfaction. The applicant shall be liable to Eskom Tx for the cost of any remedial action which has to be carried out by Eskom Tx.</p> <ul style="list-style-type: none"> ❖ The clearances between Eskom Tx's live electrical equipment and the proposed construction work shall be observed as stipulated by the Regulation 19 of Electrical Machinery Regulations 2011 (with reference to SANS10280-1) of the Occupational Health and Safety Act, 1993 (Act 85 of 1993). ❖ Equipment shall be regarded electrically live and therefore dangerous at all times. ❖ It is required of the applicant to familiarise himself with all safety hazards related to Electrical plant. ❖ The final design (blasting and stockpiles) of your proposed mining area should be referred to this office for final approval. ❖ No stockpiles may be placed nearer than 200 m from any of the power lines. 		
<ul style="list-style-type: none"> ❖ Drilling and blasting. ❖ Cumulative impact. 	Operational Phase	N/A	<p><u>Mitigating potential structural damage to adjacent residence:</u></p> <ul style="list-style-type: none"> ❖ An assessment of the structural integrity of Me Khumalo's residence must be conducted prior to the first blast. ❖ The neighbouring residents must be notified in writing before each blast. ❖ Vibration monitoring must be done with each blast. A seismograph must be 	<p>Management of the mining activities must be in accordance with the:</p> <ul style="list-style-type: none"> ❖ MPRDA, 2008 ❖ NEMA, 1998 	Throughout the site establishment-, and operational phases.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<p>placed at the Khumalo residence, for at least the first blast, to establish the ground vibrations associated with blasting at the quarry.</p> <ul style="list-style-type: none"> ❖ Should the results indicate that the blasting has a real impact on the residence, monitoring must be continued with each blast. ❖ Any damage to the residence, as a direct result of the mining activities, must be refurbished by the permit holder at his own cost. 		
<ul style="list-style-type: none"> ❖ Processing, stockpiling, and transporting of material. 	Operational phase	±200 m	<p><u>Access road Management:</u></p> <ul style="list-style-type: none"> ❖ Access to and from the mining area shall not be permitted from the N11, unless authorised by SANRAL. ❖ Storm water must be diverted around the access road to prevent erosion. ❖ Vehicular movement must be restricted to the existing access road and crisscrossing of tracks through undisturbed areas must be prohibited. ❖ Rutting and erosion of the access road caused as a direct result of the mining activities must be repaired by the permit holder. ❖ Overloading of the trucks must be prevented, and proof of load weights must be filed and be available for auditing by relevant officials. ❖ The speed of all mining equipment/vehicles must be restricted to 40 km/h on the access roads. 	<p>The access road must be managed in accordance with the:</p> <ul style="list-style-type: none"> ❖ NRTA, 1996 	<p>Throughout the site establishment-, and operational phases.</p>

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<ul style="list-style-type: none"> ❖ The intersection of the Collings Pass Road and the N11 shall be kept clear of any loose quarry material emanating from the source. ❖ Prior to commencement of the activities, the Applicant must discuss the maintenance requirements of Collings Pass Road with the Department of Transport (DoT). The proposed activity may not result in the degradation of Collings Pass Road. 		
<ul style="list-style-type: none"> ❖ Site establishment & infrastructure development. ❖ Stripping and stockpiling of topsoil and/or overburden. ❖ Drilling and blasting. ❖ Excavation, loading and hauling to the processing plant. ❖ Processing, stockpiling and transporting of material. ❖ Sloping and landscaping 	Site establishment-, and operational phase	4.9 ha	<p><u>Fire Management:</u></p> <ul style="list-style-type: none"> ❖ No open fires to be permitted on site. Fires may only be made within the areas and for purposes approved by the ECO. ❖ Fire prevention facilities must be present at all hazardous storage facilities. ❖ Ensure adequate fire-fighting equipment is available and train workers on how to use it. ❖ Ensure that all workers on site know the proper procedure in case of a fire occurring on site. ❖ Smoking must not be permitted in areas considered to be a fire hazard. 	<p>Management of the mining activities must be in accordance with the:</p> <ul style="list-style-type: none"> ❖ MPRDA, 2008 ❖ NEMA, 1998 	Throughout the site establishment-, and operational phases.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
during rehabilitation phase.					
❖ Sloping and landscaping during rehabilitation phase.	Decommissioning Phase	4.9 ha	<p><u>Rehabilitation/landscaping of mining area:</u></p> <ul style="list-style-type: none"> ❖ The excavated area must serve as a final depositing area for the placement of overburden. ❖ Rocks and coarse material removed from the excavation must be dumped into the excavation. ❖ Coarse natural material used for the construction of ramps must be removed and dumped into the excavations. ❖ Stockpiles must be removed during the decommissioning phase, the area ripped, and the topsoil returned to its original depth to provide a growth medium. ❖ No waste may be permitted to be deposited in the excavations. ❖ Once overburden, rocks and coarse natural materials have been added to the excavation and it was profiled with acceptable contours and erosion control measures, the topsoil previously stored must be returned to its original depth over the area. ❖ The area must be fertilized if necessary to allow vegetation to establish rapidly. The site shall be seeded with a local or adapted indigenous seed mix to propagate the locally or regionally 	<p>Rehabilitation of the mining area must be in accordance with the:</p> <ul style="list-style-type: none"> ❖ CARA, 1983 ❖ NEM:BA, 2004 ❖ MPRDA, 2002 ❖ Closure Plan (Appendix K) 	Throughout the decommissioning phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			<p>occurring flora, should natural vegetation not re-establish within six months from closure of the site.</p> <ul style="list-style-type: none"> ❖ If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining operation be corrected and the area be seeded with a vegetation seed mix to his or her specification. ❖ On completion of operations, all structures or objects shall be dealt with in accordance with section 44 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002). ❖ On completion of mining operations, the surface of all plant-, stockpiling-, and/or office areas, if compacted due to hauling and dumping operations, shall be scarified to a depth of at least 200mm and graded to an even surface condition. Where applicable/possible topsoil needs to be returned to its original depth over the area. ❖ Rehabilitation must be aligned with the guidelines proposed in the 2023 Terrestrial Biodiversity Impact Assessment. 		

e) Impact Management Outcomes

(A description of impact management outcomes, identifying the standard of impact management required for the aspects contemplated in paragraph ());

Table 46: Impact Management Outcomes.

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
whether listed or not listed (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc..etc.)	(e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc...etc..)		In which impact is anticipated (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure))	(modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc...etc..) E.g. <ul style="list-style-type: none"> • Modify through alternative method. • Control through noise control • Control through management and monitoring • Remedy through rehabilitation. 	(Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
❖ Demarcation of site with visible beacons.	❖ No impact could be identified other than the beacons being outside the boundaries of the approved mining area.	N/A	Site Establishment phase	Control through management and monitoring.	Mining is only allowed within the boundaries of the approved area. ❖ MPRDA, 2008 ❖ NEMA, 1998
❖ Site establishment and infrastructure development.	❖ Loss of agricultural land for duration of mining.	The impact may affect the agricultural opportunities of the property.	Site Establishment & Operational Phase	Should the proposed project be approved, the operation will temporarily interrupt the agricultural activities of the footprint area, only to be	Use of agricultural land must be managed in accordance with the: ❖ CARA, 1983 ❖ Closure Plan (Appendix K)

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
				reversed upon the closure of the mine. The impact could be controlled through progressive rehabilitation.	
<ul style="list-style-type: none"> ❖ Site establishment and infrastructure development. ❖ Stripping and stockpiling of topsoil and overburden. ❖ Excavation, loading and hauling to the processing plant. ❖ Cumulative impact. 	<ul style="list-style-type: none"> ❖ Visual intrusion as a result of site establishment. ❖ Visual intrusion caused by mining activities. ❖ Visual intrusion associated with the excavation activities. ❖ Cumulative visual impact when quarry and stockpile area are developed. 	The visual impact may affect the aesthetics of the landscape.	Site Establishment & Operational Phase	<u>Control:</u> Implementing proper housekeeping.	<p>Management of the mining activities must be in accordance with the:</p> <ul style="list-style-type: none"> ❖ MPRDA, 2008 ❖ NEMA, 1998
<ul style="list-style-type: none"> ❖ Site establishment and infrastructure development. ❖ Cumulative Impacts 	<ul style="list-style-type: none"> ❖ Alteration of natural environment and habitat loss. ❖ Impact on vegetation structure and plant species composition ❖ Impact on populations of species of special concern ❖ Impact on targets for threatened ecosystems ❖ Impact on ecological processes and functionality of ecosystems ❖ Impact on overall species and ecosystem diversity ❖ Impact on ecological connectivity. 	This will impact on the biodiversity of the receiving environment.	Site Establishment & Operational Phase	<u>Control:</u> Implementing proper housekeeping.	<p>Areas of conservation importance must be managed in accordance with the:</p> <ul style="list-style-type: none"> ❖ NEM:BA, 2004

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
<ul style="list-style-type: none"> ❖ Stripping and stockpiling of topsoil and overburden. ❖ Excavation, loading and hauling to the processing plant. ❖ Processing, stockpiling and transporting of material. ❖ Sloping and landscaping during rehabilitation. 	<ul style="list-style-type: none"> ❖ Loss of stockpiled topsoil during mining and stockpiling. ❖ Potential increase in runoff from bare areas and associated accelerated erosion. ❖ Facilitation of erosion due to mining activities. ❖ Potential increase in runoff from bare areas and associated accelerated erosion. ❖ Erosion of returned topsoil after rehabilitation. ❖ Exposed disturbed area with no indigenous vegetation upon closure. 	<p>The loss/contamination of topsoil and erosion of the footprint will affect the rehabilitation of the excavation upon closure of the site.</p>	<p>Site Establishment-, Operational and Decommissioning Phase</p>	<p><u>Control & Remedy:</u> Proper housekeeping and storm water management.</p>	<p>Topsoil stripping must be managed in accordance with the:</p> <ul style="list-style-type: none"> ❖ CARA, 1983 ❖ NEM:BA, 2004 ❖ MPRDA, 2002 ❖ Closure Plan (Appendix K)
<ul style="list-style-type: none"> ❖ Stripping and stockpiling of topsoil and/or overburden. ❖ Drilling and blasting. ❖ Excavation, loading and hauling to the processing plant. ❖ Processing, stockpiling, and transporting of material. ❖ Cumulative impact. 	<ul style="list-style-type: none"> ❖ Dust nuisance caused because of the disturbance of soil. ❖ Dust nuisance caused by blasting activities. ❖ Dust nuisance due to excavation and from loading and vehicles transporting the material. ❖ Dust nuisance generated at the processing plant. ❖ Cumulative dust nuisance when quarry and stockpile area operate. 	<p>Increased dust generation will impact on the air quality of the receiving environment.</p>	<p>Site Establishment-, Operational-, and Decommissioning Phase</p>	<p><u>Control:</u> Dust suppression methods and proper housekeeping.</p>	<p>Dust generation on site must be managed in accordance with the:</p> <ul style="list-style-type: none"> ❖ NEM:AQA, 2004 Regulation 6(1) ❖ National Dust Control Regulations, GN No R827 ❖ ASTM D1739 (SANS 1137:2012)

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
<ul style="list-style-type: none"> ❖ Stripping and stockpiling of topsoil and/or overburden. ❖ Drilling and blasting. ❖ Excavation, loading and hauling to the processing plant. ❖ Processing, stockpiling, and transporting of material. ❖ Cumulative impact. 	<ul style="list-style-type: none"> ❖ Noise nuisance generated by earthmoving machinery. ❖ Noise nuisance because of blasting. ❖ Noise nuisance because of the mining activities. ❖ Noise nuisance stemming from operation of the processing plant. ❖ Cumulative noise nuisance when quarry and stockpile area operate. 	<p>Should noise levels become excessive it may have an impact on the noise ambiance of the receiving environment.</p>	<p>Site Establishment-, Operational-, and Decommissioning Phase</p>	<p><u>Control:</u> Noise suppression methods and proper housekeeping.</p>	<p>Noise generation on site must be managed in accordance with the:</p> <ul style="list-style-type: none"> ❖ NEM:AQA, 2004 Regulation 6(1) ❖ NRTA, 1996
<ul style="list-style-type: none"> ❖ Stripping and stockpiling of topsoil and/or overburden. ❖ Processing, stockpiling, and transporting of material. ❖ Cumulative impact. ❖ Sloping and landscaping during rehabilitation phase. 	<ul style="list-style-type: none"> ❖ Infestation of the topsoil heaps and mining area with weeds or invader plant species. ❖ Infestation of the area with invader plant species. ❖ Cumulative impact of invader plants in both the quarry and stockpile footprints. ❖ Infestation of the reinstated areas by weeds and invader plant species. 	<p>Infestation of the footprint by invader plant species may affect the biodiversity of the receiving environment.</p>	<p>Site Establishment-, Operational, and Decommissioning Phase</p>	<p><u>Control & Remedy:</u> Implementation of an invasive plant species management plan.</p>	<p>Weeds and invader plants on site must be managed in accordance with the:</p> <ul style="list-style-type: none"> ❖ CARA, 1983 ❖ NEM:BA, 2004
<ul style="list-style-type: none"> ❖ Stripping and stockpiling of topsoil and/or overburden. ❖ Excavation, loading and hauling to the processing plant. 	<ul style="list-style-type: none"> ❖ Potential contamination of footprint area and surface runoff because of hydrocarbon spillages. ❖ Soil contamination from hydrocarbon spills and/or littering. 	<p>Contamination of the footprint area will negatively impact the soil, surface runoff and potentially the groundwater. It will also incur additional</p>	<p>Site Establishment-, Operational-, and Decommissioning Phase</p>	<p><u>Control & Remedy:</u> Proper housekeeping and implementation of an emergency response plan and waste management plan.</p>	<p>Mining related waste must be managed in accordance with the:</p> <ul style="list-style-type: none"> ❖ NWA, 1998 ❖ NEM:WA, 2008

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
<ul style="list-style-type: none"> ❖ Processing, stockpiling and transporting of material. ❖ Sloping and landscaping during rehabilitation phase. 	<ul style="list-style-type: none"> ❖ Potential contamination of environment due to improper waste management. ❖ Potential impact associated with litter/waste left at the mining area. 	costs to the permit holder.			
<ul style="list-style-type: none"> ❖ Site establishment & infrastructure development. ❖ Stripping and stockpiling of topsoil and/or overburden. ❖ Processing, stockpiling and transporting of material. 	<ul style="list-style-type: none"> ❖ Potential change of natural runoff and drainage patterns. ❖ Removal of mean annual precipitation from the catchment due to control of runoff water. ❖ Alteration of hydrological and geomorphological process. ❖ Impacts to ecological connectivity and/or ecological disturbance impacts (aquatic). ❖ Direct Physical loss or medication of freshwater habitat ❖ Impacts to water quality ❖ Potential change of natural runoff and drainage patterns. ❖ Impacts to ecological connectivity and/or ecological disturbance impacts (aquatic aspects). 	This could impact the hydrology of the receiving environment.	Site Establishment, & Operational Phase.	<u>Control:</u> Implementing the SWMP.	Any water related matters must be managed in accordance with the: <ul style="list-style-type: none"> ❖ NWA, 1998 ❖ GA conditions
<ul style="list-style-type: none"> ❖ Drilling and blasting. ❖ Excavation, loading and hauling to the processing plant. 	<ul style="list-style-type: none"> ❖ Health and safety risk posed by blasting activities. ❖ Unsafe working environment for employees. 	An unsafe working environment affects the labour force, as well as pose a threat to animals and humans	Operational-, and Decommissioning Phase	<u>Stop & Control:</u> Adherence to the blasting rules and regulations, demarcation of the mining area and proper housekeeping.	Health and safety aspects on site must be managed in accordance with the: <ul style="list-style-type: none"> ❖ MHSA, 1996 ❖ OHSA, 1993

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
❖ Sloping and landscaping during rehabilitation phase.	❖ Safety risk posed by un-sloped areas.	that may enter the mining footprint.			❖ OHSAS 18001 ❖ USBM standards
❖ Drilling and blasting.	❖ Potential damage to Eskom power lines.	Damage to the power lines will have a detrimental effect on the electricity supply of the community.	Operational Phase	<u>Stop & Control:</u> Adherence to the blasting rules and regulations, and Eskom specifications.	The power lines must be protected in accordance with all Eskom specifications.
❖ Drilling and blasting.	❖ Potential structural damage to adjacent residence.	Damage to the adjacent residence will affect the homeowner.	Operational Phase	<u>Stop & Control:</u> Adherence to the blasting rules and regulations, demarcation of the mining area and proper housekeeping.	Management of the mining activities must be in accordance with the: ❖ MPRDA, 2008 ❖ NEMA, 1998
❖ Processing, stockpiling, and transporting of material.	❖ Overloading of trucks impacting road infrastructure. ❖ Degradation of the access road.	Collapse of the internal road infrastructure will affect the landowner and lawful occupiers negatively. If the mine negatively affects public traffic, it may incur additional costs and complaints from the public.	Operational phase	<u>Control & Remedy:</u> Maintaining the access road for the duration of the operational phase, as well as leaving it in a representative or better condition than prior to mining.	The access road must be managed in accordance with the: ❖ NRTA, 1996

f) Impact Management Actions

(A description of impact management actions, identifying the manner in which the impact management objectives and outcomes in paragraph (c) and (d) will be achieved)

Table 47: Impact Management Actions.

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
<p>whether listed or not listed (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc..etc.)</p>	<p>(e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc...etc..)</p>	<p>(modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc... etc.)</p> <p>E.g.</p> <ul style="list-style-type: none"> • Modify through alternative method. • Control through noise control • Control through management and monitoring • Remedy through rehabilitation. 	<p>Describe the time period when the measures in the environmental management programme must be implemented Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. With regard to Rehabilitation, therefore state either: Upon cessation of the individual activity Or. Upon the cessation of mining bulk sampling or alluvial diamond prospecting as the case may be.</p>	<p>(A description of how each of the recommendations in 2.11.6 read with 2.12 and 2.15.2 herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)</p>
<p>❖ Demarcation of site with visible beacons.</p>	<p>❖ No impact could be identified other than the beacons being outside the boundaries of the approved mining area.</p>	<p>Control through management and monitoring.</p>	<p>Beacons need to be in place throughout the life of the mine.</p>	<p>Mining is only allowed within the boundaries of the approved area.</p> <ul style="list-style-type: none"> ❖ MPRDA, 2008 ❖ NEMA, 1998
<p>❖ Site establishment and infrastructure development.</p>	<p>❖ Loss of agricultural land for duration of mining.</p>	<p>Should the proposed project be approved, the operation will temporarily interrupt the agricultural activities of the footprint area, only to be reversed upon the closure of the mine. The impact could be controlled through progressive rehabilitation.</p>	<p>Throughout site establishment- and operational phases.</p>	<p>Use of agricultural land must be managed in accordance with the:</p> <ul style="list-style-type: none"> ❖ CARA, 1983 ❖ Closure Plan (Appendix K)

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
<ul style="list-style-type: none"> ❖ Site establishment and infrastructure development. ❖ Stripping and stockpiling of topsoil and overburden. ❖ Excavation, loading and hauling to the processing plant. ❖ Cumulative impacts. 	<ul style="list-style-type: none"> ❖ Visual intrusion as a result of site establishment. ❖ Visual intrusion caused by mining activities. ❖ Visual intrusion associated with the excavation activities. ❖ Cumulative visual impact when quarry and stockpile area are developed. 	<p><u>Control:</u> Implementing proper housekeeping.</p>	<p>Throughout site establishment- and operational phases.</p>	<p>Management of the mining activities must be in accordance with the:</p> <ul style="list-style-type: none"> ❖ MPRDA, 2008 ❖ NEMA, 1998
<ul style="list-style-type: none"> ❖ Site establishment and infrastructure development. ❖ Cumulative Impacts 	<ul style="list-style-type: none"> ❖ Alteration of natural environment and habitat loss. ❖ Impact on vegetation structure and plant species composition ❖ Impact on populations of species of special concern ❖ Impact on targets for threatened ecosystems ❖ Impact on ecological processes and functionality of ecosystems ❖ Impact on overall species and ecosystem diversity ❖ Impact on ecological connectivity. 	<p><u>Control:</u> Implementing proper housekeeping.</p>	<p>Applicable during the site establishment phase, and to be managed throughout the operational and decommissioning phases.</p>	<p>Areas of conservation importance must be managed in accordance with the:</p> <ul style="list-style-type: none"> ❖ NEM:BA, 2004
<ul style="list-style-type: none"> ❖ Stripping and stockpiling of topsoil and overburden. ❖ Excavation, loading and hauling to the processing plant. 	<ul style="list-style-type: none"> ❖ Loss of stockpiled topsoil during mining and stockpiling. ❖ Potential increase in runoff from bare areas and associated accelerated erosion. 	<p><u>Control & Remedy:</u> Proper housekeeping and storm water management.</p>	<p>Throughout operational- and decommissioning phases.</p>	<p>Topsoil stripping must be managed in accordance with the:</p> <ul style="list-style-type: none"> ❖ CARA, 1983 ❖ NEM:BA, 2004 ❖ MPRDA, 2002 ❖ Closure Plan (Appendix K)

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
<ul style="list-style-type: none"> ❖ Processing, stockpiling and transporting of material. ❖ Sloping and landscaping during rehabilitation. 	<ul style="list-style-type: none"> ❖ Facilitation of erosion due to mining activities. ❖ Potential increase in runoff from bare areas and associated accelerated erosion. ❖ Erosion of returned topsoil after rehabilitation. ❖ Exposed disturbed area with no indigenous vegetation upon closure. 			
<ul style="list-style-type: none"> ❖ Stripping and stockpiling of topsoil and/or overburden. ❖ Drilling and blasting. ❖ Excavation, loading and hauling to the processing plant. ❖ Processing, stockpiling, and transporting of material. ❖ Cumulative impacts. 	<ul style="list-style-type: none"> ❖ Dust nuisance caused because of the disturbance of soil. ❖ Dust nuisance caused by blasting activities. ❖ Dust nuisance due to excavation and from loading and vehicles transporting the material. ❖ Dust nuisance generated at the processing plant. ❖ Cumulative dust nuisance when quarry and stockpile area operate. 	<p><u>Control:</u> Dust suppression methods and proper housekeeping.</p>	<p>Throughout site establishment-, and operational phase.</p>	<p>Dust generation on site must be managed in accordance with the:</p> <ul style="list-style-type: none"> ❖ NEM:AQA, 2004 Regulation 6(1) ❖ National Dust Control Regulations, GN No R827 ❖ ASTM D1739 (SANS 1137:2012)
<ul style="list-style-type: none"> ❖ Stripping and stockpiling of topsoil and/or overburden. ❖ Drilling and blasting. ❖ Excavation, loading and hauling to the processing plant. 	<ul style="list-style-type: none"> ❖ Noise nuisance generated by earthmoving machinery. ❖ Noise nuisance because of blasting. ❖ Noise nuisance because of the mining activities. 	<p><u>Control:</u> Noise suppression methods and proper housekeeping.</p>	<p>Throughout site establishment-, and operational phase.</p>	<p>Noise generation on site must be managed in accordance with the:</p> <ul style="list-style-type: none"> ❖ NEM:AQA, 2004 Regulation 6(1) ❖ NRTA, 1996

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
<ul style="list-style-type: none"> ❖ Processing, stockpiling, and transporting of material. ❖ Cumulative impacts. 	<ul style="list-style-type: none"> ❖ Noise nuisance stemming from operation of the processing plant. ❖ Cumulative noise nuisance when quarry and stockpile area operate. 			
<ul style="list-style-type: none"> ❖ Stripping and stockpiling of topsoil and/or overburden. ❖ Processing, stockpiling, and transporting of material. ❖ Cumulative impacts. ❖ Sloping and landscaping during rehabilitation phase. 	<ul style="list-style-type: none"> ❖ Infestation of the topsoil heaps and mining area with weeds or invader plant species. ❖ Infestation of the area with invader plant species. ❖ Cumulative impact of invader plants in both the quarry and stockpile footprints. ❖ Infestation of the reinstated areas by weeds and invader plant species. 	<p><u>Control & Remedy:</u> Implementation of an invasive plant species management plan.</p>	<p>Throughout operational- and decommissioning phases.</p>	<p>Weeds and invader plants on site must be managed in accordance with the:</p> <ul style="list-style-type: none"> ❖ CARA, 1983 ❖ NEM:BA, 2004
<ul style="list-style-type: none"> ❖ Stripping and stockpiling of topsoil and/or overburden. ❖ Excavation, loading and hauling to the processing plant. ❖ Processing, stockpiling, and transporting of material. ❖ Sloping and landscaping during rehabilitation phase. 	<ul style="list-style-type: none"> ❖ Potential contamination of footprint area and surface runoff because of hydrocarbon spillages. ❖ Soil contamination from hydrocarbon spills and/or littering. ❖ Potential contamination of environment due to improper waste management. ❖ Potential impact associated with litter/waste left at the mining area. 	<p><u>Control & Remedy:</u> Proper housekeeping and implementation of an emergency response plan and waste management plan.</p>	<p>Throughout operational- and decommissioning phases.</p>	<p>Mining related waste must be managed in accordance with the:</p> <ul style="list-style-type: none"> ❖ NWA, 1998 ❖ NEM:WA, 2008

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
<ul style="list-style-type: none"> ❖ Site establishment & infrastructure development. ❖ Stripping and stockpiling of topsoil and/or overburden. ❖ Processing, stockpiling and transporting of material. 	<ul style="list-style-type: none"> ❖ Potential change of natural runoff and drainage patterns. ❖ Removal of mean annual precipitation from the catchment due to control of runoff water. ❖ Alteration of hydrological and geomorphological process. ❖ Impacts to ecological connectivity and/or ecological disturbance impacts (aquatic). ❖ Direct Physical loss or medication of freshwater habitat ❖ Impacts to water quality. ❖ Potential change of natural runoff and drainage patterns. ❖ Impacts to ecological connectivity and/or ecological disturbance impacts (aquatic aspects). 	<p><u>Control:</u> Implementing the SWMP.</p>	<p>Throughout site establishment-, and operational phase.</p>	<p>Any water related matters must be managed in accordance with the:</p> <ul style="list-style-type: none"> ❖ NWA, 1998 ❖ GA conditions
<ul style="list-style-type: none"> ❖ Drilling and blasting. ❖ Excavation, loading and hauling to the processing plant. ❖ Sloping and landscaping during rehabilitation phase. 	<ul style="list-style-type: none"> ❖ Health and safety risk posed by blasting activities. ❖ Unsafe working environment for employees. ❖ Safety risk posed by un-sloped areas. 	<p><u>Stop & Control:</u> Adherence to the blasting rules and regulations, demarcation of the mining area and proper housekeeping.</p>	<p>Throughout operational- and decommissioning phases.</p>	<p>Health and safety aspects on site must be managed in accordance with the:</p> <ul style="list-style-type: none"> ❖ MHSA, 1996 ❖ OHSA, 1993 ❖ OHSAS 18001 ❖ USBM standards
<ul style="list-style-type: none"> ❖ Drilling and blasting. 	<ul style="list-style-type: none"> ❖ Potential damage to Eskom power lines. 	<p><u>Stop & Control:</u> Adherence to the blasting rules and regulations, and Eskom specifications.</p>	<p>Throughout operational phase.</p>	<p>The power lines must be protected in accordance with all Eskom specifications.</p>

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
❖ Drilling and blasting.	❖ Potential structural damage to adjacent residence.	<u>Stop & Control:</u> Adherence to the blasting rules and regulations, demarcation of the mining area and proper housekeeping.	Throughout operational phase.	Management of the mining activities must be in accordance with the: ❖ MPRDA, 2008 ❖ NEMA, 1998
❖ Processing, stockpiling, and transporting of material.	❖ Overloading of trucks impacting road infrastructure. ❖ Degradation of the access road.	<u>Control & Remedy:</u> Maintaining the access road for the duration of the operational phase, as well as leaving it in a representative or better condition than prior to mining.	Throughout site establishment- and operational phases.	The access road must be managed in accordance with the: ❖ NRTA, 1996

i) Financial Provision

(1) Determination of the amount of Financial Provision.

(a) Describe the closure objectives and the extent to which they have been aligned to the baseline environment described under the Regulation.

The decommissioning phase will entail the reinstatement of the processing area by removing the stockpiled material, and site infrastructure/equipment and landscaping the disturbed footprints. Due to the impracticality of importing large volumes of fill to restore the quarry area to its original topography, the rehabilitation option is to develop the quarry into a minor landscape feature. This will entail creating a series of irregular benches along the quarry faces, the top edges of each face being blasted away to form scree slopes on the benches below, thereby reducing the overall face angle. The benches will be top-dressed with topsoil and vegetated with an appropriate indigenous grass mix if vegetation does not naturally establish in the area within six months of the replacement of the topsoil. The applicant will comply with the minimum closure objectives as prescribed by DMRE.

(b) Confirm specifically that the environmental objectives in relation to closure have been consulted with landowner and interested and affected parties.

The Draft Basic Assessment Report included all the environmental objectives in relation to closure and was available for perusal by the landowner, registered I&AP's and stakeholders over a 30-days commenting period. Subsequently, the comments received on the DBAR were incorporated into this report, the amended DBAR, that will also be made available for perusal of the I&AP's and stakeholders over 30-days commenting period.

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

The requested rehabilitation plan is attached as Appendix E.

(d) Explain why it can be confirmed that the rehabilitation plan is compatible with the closure objectives.

The decommissioning phase will entail the final rehabilitation of the mining site. Final landscaping, levelling and top dressing will be done on all areas to be rehabilitated. The rehabilitation of the mining area as indicated on the rehabilitation plan attached as Appendix E will comply with the minimum closure objectives as prescribed by DMRE and detailed below, and therefore is deemed to be compatible:

Rehabilitation of the excavated area:

- ❖ The excavated area must serve as a final depositing area for the placement of overburden.
- ❖ Rocks and coarse material removed from the excavation must be dumped into the excavation.
- ❖ No waste may be permitted to be deposited in the excavations.
- ❖ Once overburden, rocks and coarse natural materials has been added to the excavation and it was profiled with acceptable contours and erosion control measures, the topsoil previously stored must be returned to its original depth over the area.
- ❖ The area must be fertilized if necessary to allow vegetation to establish rapidly. The site shall be seeded with a local or adapted indigenous seed mix to propagate the locally or regionally occurring flora, should natural vegetation not re-establish within 6 months from closure of the site.
- ❖ If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager (DMRE) may require that the soil be analysed and any deleterious effects on the soil arising from the mining operation be corrected and the area be seeded with a vegetation seed mix to his or her specification

Rehabilitation of the Processing Area:

- ❖ Coarse natural material used for the construction of ramps must be removed and dumped into the excavations.
- ❖ Stockpiles must be removed during the decommissioning phase, the area ripped, and the topsoil returned to its original depth to provide a growth medium.
- ❖ On completion of operations, all structures or objects shall be dealt with in accordance with section 44 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002):
 - Where sites have been rendered devoid of vegetation/grass or where soils have been compacted owing to traffic, the surface shall be scarified or ripped.
 - The site shall be seeded with a vegetation seed mix adapted to reflect the local indigenous flora.
- ❖ Photographs of the camp and office sites, before and during the mining operation and after rehabilitation, shall be taken at selected fixed points and kept on record for the information of the DMRE Regional Manager. _
- ❖ On completion of mining operations, the surface of these areas, if compacted due to hauling and dumping operations, shall be scarified to a depth of at least 200mm

and graded to an even surface condition. Where applicable/possible topsoil needs to be returned to its original depth over the area.

- ❖ The area shall then be fertilized if necessary to allow vegetation to establish rapidly. The site shall be seeded with a local, adapted indigenous seed mix.
- ❖ If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the DMRE Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining operation be corrected and the area be seeded with a seed mix to his or her specification.

Final rehabilitation:

- ❖ Rehabilitation of the surface area shall entail landscaping, levelling, top dressing, land preparation, seeding (if required), maintenance, and clearing of invasive plant species.
- ❖ All equipment, plant, and other items used during the mining period must be removed from the site (section 44 of the MPRDA).
- ❖ Waste material of any description, including receptacles, scrap, rubble, and tyres, must be removed entirely from the mining area and disposed of at a recognized landfill facility. It will not be permitted to be buried or burned on the site.
- ❖ The management of invasive plant species must be done in a sporadic manner during the life of the mining activities. Species regarded as Category 1a and 1b invasive species in terms of NEM:BA (National Environmental Management: Biodiversity Act 10 of 2004 and regulations applicable thereto) need to be eradicated from the site.
- ❖ Final rehabilitation must be completed within a period specified by the Regional Manager (DMRE).

(e) Calculate and state the quantum of the financial provision required to manage and rehabilitate the environment in accordance with the applicable guideline.

The calculation of the quantum for financial provision was according to Section B of the working manual.

Mine type and saleable mineral by-product

According to Tables B.12, B.13 and B.14

Mine type	Gravel
Saleable mineral by-product	None

Risk ranking

According to Tables B.12, B.13 and B.14

Primary risk ranking (either Table B.12 or B.13)	C (Low risk).
Revised risk ranking (B.14)	N/A

Environmental sensitivity of the mine area

According to Table B.4

Environmental sensitivity of the mine area	Low
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Level of information

According to Step 4.2:

Level of information available	Extensive
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Identify closure components

According to Table B.5 and site-specific conditions

Component No.	Main description	Applicability of closure components (Circle Yes or No)	
1	Dismantling of processing plant and related structures (including overland conveyors and power lines)	-	NO
2(A)	Demolition of steel buildings and structures	-	NO
2(B)	Demolition of reinforced concrete buildings and structures	-	NO
3	Rehabilitation of access roads	-	NO
4(A)	Demolition and rehabilitation of electrified railway lines	-	NO
4(B)	Demolition and rehabilitation of non-electrified railway lines	-	NO
5	Demolition of housing and facilities	-	NO
6	Opencast rehabilitation including final voids and ramps	YES	-
7	Sealing of shafts, adits and inclines	-	NO
8(A)	Rehabilitation of overburden and spoils	-	NO
8(B)	Rehabilitation of processing waste deposits and evaporation ponds (basic, salt-producing)	-	NO
8(C)	Rehabilitation of processing waste deposits and evaporation ponds (acidic, metal-rich)	-	NO
9	Rehabilitation of subsided areas	-	NO
10	General surface rehabilitation, including grassing of all denuded areas	YES	-
11	River diversions	-	NO
12	Fencing	-	NO
13	Water management (Separating clean and dirty water, managing polluted water and managing the impact on groundwater)	-	NO
14	2 to 3 years of maintenance and aftercare	YES	-

Unit rates for closure components

According to Table B.6 master rates and multiplication factors for applicable closure components.

Component No.	Main description	Master rate	Multiplication factor
1	Dismantling of processing plant and related structures (including overland conveyors and power lines)	-	-
2(A)	Demolition of steel buildings and structures	-	-
2(B)	Demolition of reinforced concrete buildings and structures	-	-
3	Rehabilitation of access roads	-	-
4(A)	Demolition and rehabilitation of electrified railway lines	-	-
4(B)	Demolition and rehabilitation of non-electrified railway lines	-	-
5	Demolition of housing and facilities	-	-
6	Opencast rehabilitation including final voids and ramps	284 292	0.04
7	Sealing of shafts, adits and inclines	-	-
8(A)	Rehabilitation of overburden and spoils	-	-
8(B)	Rehabilitation of processing waste deposits and evaporation ponds (basic, salt-producing)	-	-
8(C)	Rehabilitation of processing waste deposits and evaporation ponds (acidic, metal-rich)	-	-
9	Rehabilitation of subsided areas	-	-
10	General surface rehabilitation, including grassing of all denuded areas	150 138	1.00
11	River diversions	-	-
12	Fencing	-	-
13	Water management (Separating clean and dirty water, managing polluted water and managing the impact on groundwater)	-	-
14	2 to 3 years of maintenance and aftercare	19 980	1.00

Determine weighting factors

According to Tables B.7 and B.8

Weighting factor 1: Nature of terrain/accessibility	1.10
Weighting factor 2: Proximity to urban area where goods and services are to be supplied	1.05

Calculation of closure costs

Table B.10 Template for Level 2: "Rules-based" assessment of the quantum for financial provision

Table 48: Calculation of closure cost

CALCULATION OF THE QUANTUM							
Mine:	Ladysmith Quarry			Location:	Ladysmith		
Evaluators:	C Fouché			Date:	06 September 2022		
No	Description	Unit	A Quantity	B Master rate	C Multiplication factor	D Weighting factor 1	E=A *B*C*D Amount (Rand)
			Step 4.5	Step 4.3	Step 4.3	Step 4.4	
1	Dismantling of processing plant and related structures (including overland conveyors and power lines)	m ²	0	19	1.00	1.10	R 0.00
2(A)	Demolition of steel buildings and structures	m ²	0	271	1.00	1.10	R 0.00
2(B)	Demolition of reinforced concrete buildings and structures	m ²	0	400	1.00	1.10	R 0.00
3	Rehabilitation of access roads	m ²	0	49	1.00	1.10	R 0.00
4(A)	Demolition and rehabilitation of electrified railway lines	m	0	471	1.00	1.10	R 0.00
4(B)	Demolition and rehabilitations of non-electrified railway lines	m	0	257	1.00	1.10	R 0.00
5	Demolition of housing and/or administration facilities	m ²	0	542	1.00	1.10	R 0.00
6	Opencast rehabilitation including final voids and ramps	ha	4	284 292	0.04	1.10	R 50 035.39
7	Sealing of shaft, audits and inclines	m ³	0	146	1.00	1.10	R 0.00
8(A)	Rehabilitation of overburden and spoils	ha	0	189 528	1.00	1.10	R 0.00
8(B)	Rehabilitation of processing waste deposits and evaporation ponds (basic, salt-producing waste)	ha	0	236 054	1.00	1.10	R 0.00
8(C)	Rehabilitation of processing waste deposits and evaporation ponds (acidic, metal-rich waste)	ha	0	685 612	0.51	1.10	R 0.00
9	Rehabilitation of subsided areas	ha	0	158 701	1.00	1.10	R 0.00
10	General surface rehabilitation	ha	0.9	150 138	1.00	1.10	R 148 636.62

11	River diversions	ha	0	150 138	1.00	1.10	R 0.00
12	Fencing	m	0	171	1.00	1.10	R 0.00
13	Water Management	ha	0	57 087	0.17	1.10	R 0.00
14	2 to 3 years of maintenance and aftercare	ha	4.9	19 980	1.00	1.10	R 107 692.20
15(A)	Specialists study	Sum	0				R 0.00
15(B)	Specialists study	Sum	0				R 0.00
Sum of items 1 to 15 above							R 306 364.21
Multiply Sum of 1-15 by Weighting factor 2 (Step 4.4)			1.05	R 306 364.21	Sub Total 1		R 321 682.42

1	Preliminary and General	6% of Subtotal 1 if Subtotal 1 <R100 000 000.00	R 19 300.95
		12% of Subtotal 1 if Subtotal 1 >R100 000 000.00	-
2	Contingency	10.0% of Subtotal 1	R 32 168.24
Sub Total 2 (Subtotal 1 plus management and contingency)			R 373 151.61
Vat (15%)			R 55 972.74
GRAND TOTAL (Subtotal 3 plus VAT)			R 429 124.35

The amount that will be necessary for the rehabilitation of damages caused by the operation, both sudden closures during the normal operation of the project and at final, planned closure gives a sum of **R 429 124.35**.

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

Herewith I, the person, whose name is stated below confirm that I am the person authorised to act as representative of the Applicant in terms of the resolution submitted with the application. I herewith confirm that the company will provide the amount that will be determined by the Regional Manager in accordance with the prescribed guidelines.

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

- g) Monitoring of Impact Management Actions**
- h) Monitoring and reporting frequency**
- i) Responsible persons**
- j) Time period for implementing impact management actions**
- k) Mechanisms for monitoring compliance**

Table 49: Mechanisms for monitoring compliance with and performance assessment against the EMPR and reporting thereon.

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
Demarcation of site with visible beacons	Maintenance of beacons	❖ Visible beacons need to be placed at the corners of the mining area.	<p><u>Responsibility:</u></p> <ul style="list-style-type: none"> ❖ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ❖ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <p><u>Role:</u></p> <ul style="list-style-type: none"> ❖ Ensure beacons are in place throughout the life of the mine. 	<p>Applicable throughout site establishment-, operational-, and decommissioning phases.</p> <ul style="list-style-type: none"> ❖ Daily compliance monitoring by site management. ❖ Annual compliance monitoring of site by an Environmental Control Officer.
❖ Site establishment and infrastructure development.	<u>Land Use:</u>	❖ Mining schedule	<p><u>Responsibility:</u></p> <ul style="list-style-type: none"> ❖ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. 	<p>Applicable throughout site establishment-, operational-, and decommissioning phases.</p>

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
	<ul style="list-style-type: none"> ❖ Loss of agricultural land for duration of mining. 		<ul style="list-style-type: none"> ❖ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <p><u>Role:</u></p> <ul style="list-style-type: none"> ❖ If needed, sign mined/rehabilitated areas back to grazing once the grass layer stabilised. 	<ul style="list-style-type: none"> ❖ Daily compliance monitoring by site management. ❖ Annual compliance monitoring of site by an Environmental Control Officer.
<ul style="list-style-type: none"> ❖ Site establishment and infrastructure development. ❖ Stripping and stockpiling of topsoil and/or overburden. ❖ Excavation, loading and hauling to the processing plant. ❖ Cumulative impacts. 	<p><u>Visual Characteristics:</u></p> <ul style="list-style-type: none"> ❖ Visual intrusion as a result of site establishment. ❖ Visual intrusion caused by mining activities. ❖ Visual intrusion associated with the excavation activities. ❖ Cumulative visual impact when quarry and stockpile area are developed. 	<ul style="list-style-type: none"> ❖ Minimize the visual impact of the activity on the surrounding environment through proper site management and implementing good housekeeping practices. 	<p><u>Responsibility:</u></p> <ul style="list-style-type: none"> ❖ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ❖ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <p><u>Role:</u></p> <ul style="list-style-type: none"> ❖ Ensure that the site have a neat appearance and is always kept in good condition. ❖ Store mining equipment in a dedicated area when not in use. ❖ Limit vegetation removal, and only strip topsoil immediately prior to the mining/use of a specific area. ❖ Contain excavations to the approved footprint of the permitted area. ❖ Upon closure, rehabilitate the site to ensure that the visual impact on the aesthetic value of the area is reduced to the minimum. 	<p>Applicable throughout site establishment-, operational-, and decommissioning phases.</p> <ul style="list-style-type: none"> ❖ Daily compliance monitoring by site management. ❖ Annual compliance monitoring of site by an Environmental Control Officer.

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
<ul style="list-style-type: none"> ❖ Site establishment and infrastructure development. ❖ Stripping and stockpiling of topsoil and/or overburden. ❖ Cumulative impacts. 	<p><u>Terrestrial Biodiversity, Conservation Areas and Groundcover:</u></p> <ul style="list-style-type: none"> ❖ Alteration of natural environment and habitat loss. ❖ Impact on vegetation structure and plant species composition ❖ Impact on populations of species of special concern ❖ Impact on targets for threatened ecosystems ❖ Impact on ecological processes and functionality of ecosystems ❖ Impact on overall species and ecosystem diversity ❖ Impact on ecological connectivity. 	<ul style="list-style-type: none"> ❖ Visible beacons indicating the boundary of the mineable area. ❖ Removal permit to relocate protected species. ❖ Indigenous grass mix to seed reinstated areas upon closure. 	<p><u>Responsibility:</u></p> <ul style="list-style-type: none"> ❖ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ❖ Botanist to identify plants of importance. ❖ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <p><u>Role:</u></p> <ul style="list-style-type: none"> ❖ Clearly demarcate the mining boundaries and contain all operations to the approved mining area. Declare the area outside the mining boundaries a no-go area and educate all staff accordingly. ❖ Commit to a conservation approach and keep the actual footprint of disturbance to a minimum. ❖ Arrange a pre-commencement environmental induction for all staff on site to ensure that basic environmental principles are adhered to. This must include awareness of no littering, appropriate handling of pollution and chemical spills, avoiding fire hazards, minimising wildlife interactions, remaining within demarcated construction areas, etc. ❖ Arrange a pre-commencement walkthrough by an ecologist to identify and demarcate important species to be relocated and sub habitats that may not be disturbed. ❖ Obtain permits for the removal of protected plant species (especially <i>Aloe marlothii</i>) and kept it on-site in the possession of the flora search and rescue team. 	<p>Applicable throughout site establishment-, operational-, and decommissioning phases.</p> <ul style="list-style-type: none"> ❖ Daily compliance monitoring by site management. ❖ Annual compliance monitoring of site by an Environmental Control Officer.

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
			<ul style="list-style-type: none"> ❖ Do not allow grubbing as a method of clearing vegetation. Cut any trees that need to be cleared using chain saws and hauled it from the site using appropriate machinery where practically possible. ❖ Only commence with bush-clearance once the plant permits were received, and the important plants were relocated by a suitably qualified person. ❖ Do not burn cleared vegetation to be retained at any time, but rather mulch and stockpiled it. Ideally cover the heaps with stockpiled topsoil and retain the material for future site rehabilitation. ❖ Arrange that the ECO provide supervision and oversight of vegetation clearing activities and other activities which may cause damage to the environment, especially during the site establishment phase, when most of the vegetation clearing takes place. ❖ Ensure all vehicles remain on demarcated roads and prevent unnecessary driving in the veld outside these areas. ❖ Do not translocated, uprooted, or disturbed plants for rehabilitation or other purposes without express permission from the ECO and without the relevant permits. ❖ Do not allow fires on-site. ❖ Provide spoil heaps and topsoil stockpiles with a vegetation cover of indigenous grasses. ❖ Generate a biodiversity protocol and rehabilitation plan that can be implemented upon closure. 	

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
<ul style="list-style-type: none"> ❖ Site establishment and infrastructure development. ❖ Stripping and stockpiling of topsoil and/or overburden. ❖ Cumulative impacts. 	<p><u>Fauna Management</u></p>	<ul style="list-style-type: none"> ❖ Toolbox talks to educate employees how to handle fauna that enter the work areas. 	<p><u>Responsibility:</u></p> <ul style="list-style-type: none"> ❖ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ❖ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <p><u>Role:</u></p> <ul style="list-style-type: none"> ❖ Ensure no fauna is caught, killed, harmed, sold, or played with. ❖ The ECO or other suitably qualified person must remove any fauna directly threatened by the operational activities to a safe location. ❖ Arrange a suitably trained individual to undertake the handling and relocation of any animal perceived to be dangerous/venomous/poisonous. ❖ Arrange that all personnel undergo environmental induction regarding fauna management and in particular awareness about not harming or collecting species such as snakes, tortoises and owls which are often persecuted out of superstition. Instruct workers to report any animals that may be trapped in the working area. ❖ Ensure no snares are set or nests raided for eggs or young. ❖ Ensure all vehicles adhere to a low speed limit (20 km/h is recommended) to avoid collisions with susceptible species such as snakes and tortoises. 	<p>Applicable throughout site establishment-, and operational phases.</p> <ul style="list-style-type: none"> ❖ Daily compliance monitoring by site management. ❖ Annual compliance monitoring of site by an Environmental Control Officer.

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
			<ul style="list-style-type: none"> ❖ Prevent litter, food or other foreign material thrown or left around the site. Keep such items in the site vehicles and daily removed it to the site camp. ❖ Reserve indigenous vegetation wherever possible and avoid vegetation clearing during the breeding season. 	
<ul style="list-style-type: none"> ❖ Site establishment and infrastructure development. ❖ Excavation, loading and hauling to the processing plant. 	<p><u>Cultural and Heritage Environment.</u></p>	<ul style="list-style-type: none"> ❖ Contact number of an archaeologist & palaeontologist that can be contacted when a discovery is made on site. 	<p><u>Responsibility:</u></p> <ul style="list-style-type: none"> ❖ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ❖ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <p><u>Role:</u></p> <ul style="list-style-type: none"> ❖ Confine all mining to the development footprint area. ❖ Implement the following change find procedure when discoveries are made on site: <ul style="list-style-type: none"> ▪ If during the pre-construction phase, construction, operations or closure phases of this project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance or heritage site, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager. ▪ It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find and confirm the extent of the work stoppage in that area. 	<p>Applicable throughout site establishment-, and operational phases.</p> <ul style="list-style-type: none"> ❖ Daily compliance monitoring by site management. ❖ Annual compliance monitoring of site by an Environmental Control Officer.

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
			<ul style="list-style-type: none"> ▪ The senior on-site Manager will inform the ECO of the chance find and its immediate impact on operations. The ECO will then contact a professional archaeologist for an assessment of the finds who will notify the AMAFA. ▪ Work may only continue once the go-ahead was issued by AMAFA. 	
<ul style="list-style-type: none"> ❖ Stripping and stockpiling of topsoil and/or vegetation. 	<p><u>Geology and Soil:</u></p> <ul style="list-style-type: none"> ❖ Loss of stockpiled topsoil during mining and stockpiling. 	<ul style="list-style-type: none"> ❖ Earthmoving equipment to strip and stockpile topsoil. ❖ Indigenous grass mix to be established on topsoil heaps (if needed). ❖ Erosion control infrastructure (if needed). 	<p><u>Responsibility:</u></p> <ul style="list-style-type: none"> ❖ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ❖ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <p><u>Role:</u></p> <ul style="list-style-type: none"> ❖ Strip and stockpile the upper 300 mm of the soil before mining. ❖ Carefully manage and conserve the topsoil throughout the stockpiling and rehabilitation process. ❖ Ensure topsoil stripping, stockpiling, and re-spreading is done in a systematic way. Plan mining in such a way that topsoil is stockpiled for the minimum possible time. ❖ Place the topsoil on a levelled area, within the mining footprint. Do not stockpile topsoil in undisturbed areas. ❖ Protect topsoil stockpiles against losses by water- and wind erosion. Position stockpiles so it is not vulnerable to erosion by wind and water. The establishment of plants (indigenous grass) on the stockpiles will help to prevent erosion. 	<p>Applicable throughout site establishment-, operational-, and decommissioning phases.</p> <ul style="list-style-type: none"> ❖ Daily compliance monitoring by site management. ❖ Annual compliance monitoring of site by an Environmental Control Officer.

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
			<ul style="list-style-type: none"> ❖ Ensure that topsoil heaps do not exceed 1.5 m and not sloped more than 1:2 to avoid collapse. ❖ Keep temporary topsoil stockpiles free of invasive plant species. ❖ Vegetate the topsoil heaps to be stored longer than 3 months with an indigenous grass seed mix if vegetation does not naturally germinate within the first growth season. ❖ Divert storm- and runoff water around the on-site stockpile area to prevent erosion. ❖ Spread the topsoil evenly, to a depth of 300 mm, over the rehabilitated area upon closure of the site. ❖ Strive to re-instate topsoil at a time of the year when vegetation cover can be established as quickly as possible afterwards, to that erosion of returned topsoil is minimized. The best time of year is at the end of the rainy season. ❖ Plant a grass layer (indigenous) immediately after spreading topsoil to stabilise the soil and protect it from erosion. Fertilise the grass layer for optimum production. Rehabilitation extends until the first grass layer is well established. ❖ Control run-off water with temporary banks, where necessary, to prevent accumulation of run-off causing down-slope erosion. ❖ Monitor the rehabilitated area for erosion, and appropriately stabilize if erosion do occur, for at least 12 months after reinstatement. 	

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
<ul style="list-style-type: none"> ❖ Stripping and stockpiling of topsoil and/or overburden; ❖ Drilling and blasting; ❖ Excavation, loading and hauling to the processing plant; ❖ Processing, stockpiling and transporting of material. ❖ Cumulative impacts. 	<p><u>Air and Noise Quality:</u></p> <ul style="list-style-type: none"> ❖ Dust nuisance because of the disturbance of soil. ❖ Dust nuisance caused by blasting activities. ❖ Dust nuisance due to excavation and from loading and vehicles transporting the material. ❖ Dust nuisance generated at the processing plant. ❖ Cumulative dust nuisance when quarry and stockpile area operate. 	<ul style="list-style-type: none"> ❖ Gravimetric dust monitoring equipment. ❖ Dust suppression equipment such as a water car, water dispenser and sprayers on the crusher plant. ❖ Signage that clearly reduce the speed on the access roads. 	<p><u>Responsibility:</u></p> <ul style="list-style-type: none"> ❖ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ❖ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <p><u>Role:</u></p> <ul style="list-style-type: none"> ❖ Control the liberation of dust into the surrounding environment using; inter alia, water spraying and/or other dust-allaying agents. ❖ Daily assess the efficiency of all dust suppression equipment. ❖ Limit speed on the haul roads to 20 km/h and 40 km/h on the access road to prevent the generation of excess dust. ❖ Minimise areas devoid of vegetation, and only remove vegetation immediately prior to mining. ❖ Install water sprayers at the crusher plant to alleviate dust generation from the conveyor belts. ❖ Minimise fines, blowing from the drop end of the crusher plant by attaching strips of used conveyor belts to the conveyor's end. ❖ Weekly remove compacted dust from the crusher plant to eliminate the dust source. ❖ Flatten loads to prevent spillage during transportation on public roads. 	<p>Applicable throughout site establishment-, and operational phases.</p> <ul style="list-style-type: none"> ❖ Daily compliance monitoring by site management. ❖ Annual compliance monitoring of site by an Environmental Control Officer.

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			<ul style="list-style-type: none"> ❖ Consider weather conditions upon commencement of daily operations. Limit operations during very windy periods to reduce airborne dust and resulting impacts. ❖ Ensure dust generating activities comply with the National Dust Control Regulations, GN No R827 promulgated in terms of NEM:AQA, 2004 and ASTM D1739 (SANS 1137:2012). ❖ Implement best practice measures during the stripping of topsoil, excavation, and transporting of material from site to minimize potential dust impacts. ❖ Implement monthly fallout-dust monitoring at the site for the duration of the activities and ensure that the results comply with the standards of the National Dust Control Regulations, 2013. 	
<ul style="list-style-type: none"> ❖ Stripping and stockpiling of topsoil and/or overburden. ❖ Drilling and blasting; ❖ Excavation, loading and hauling to the processing plant; ❖ Processing, stockpiling and transporting of material. 	<p><u>Air and Noise Quality:</u></p> <ul style="list-style-type: none"> ❖ Noise nuisance generated by earthmoving machinery. ❖ Noise nuisance because of blasting. ❖ Noise nuisance because of the mining activities. ❖ Noise nuisance stemming from operation of the processing plant. 	<ul style="list-style-type: none"> ❖ Personal noise exposure monitoring equipment. ❖ Signage indicating noise zones. ❖ Silencers fitted to all project related vehicles, and the use of vehicles that are in road worthy condition in terms of the National Road Traffic Act, 1996. 	<p><u>Responsibility:</u></p> <ul style="list-style-type: none"> ❖ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ❖ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <p><u>Role:</u></p> <ul style="list-style-type: none"> ❖ Ensure that employees and staff conduct themselves in an acceptable manner while on site. ❖ No loud music may be permitted at the mining area. ❖ Ensure that all project related vehicles are equipped with silencers and maintained in a road worthy condition in terms of the National Road Traffic Act, 1996. 	<p>Applicable throughout site establishment-, and operational phases.</p> <ul style="list-style-type: none"> ❖ Daily compliance monitoring by site management. <p>Annual compliance monitoring of site by an Environmental Control Officer.</p>

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<ul style="list-style-type: none"> ❖ Cumulative impacts. 	<ul style="list-style-type: none"> ❖ Cumulative noise nuisance when quarry and stockpile area operate. 	<ul style="list-style-type: none"> ❖ Noise mufflers fitted to generators. 	<ul style="list-style-type: none"> ❖ Plan the type, duration, and timing of the blasting procedures with due cognizance of other land users and structures in the vicinity. Notify the surrounding landowners in writing prior to each blasting occasion. ❖ Contract a qualified occupational hygienist to quarterly monitor and report on the personal noise exposure of the employees working at the mine. Monitoring must be in accordance with SANS 10083:2004 (Edition 5) sampling method as well as NEM:AQA 2004, SANS 10103:2008. ❖ Minimise the noise caused by generators. Maintain and equip all generators with sound mufflers, and if possible, point the generators away from the neighbouring land users. Place all generators on a level area/footing to minimise vibration noise. ❖ Implement best practice measures to minimise potential noise impacts. ❖ Restrict work hours from 07:00 to 18:00 Monday to Saturday. Do not allow work on Sundays or afterhours. 	
<ul style="list-style-type: none"> ❖ Stripping and stockpiling of topsoil and/or overburden; ❖ Processing, stockpiling and transporting of material. 	<p><u>Terrestrial biodiversity, conservation areas and groundcover:</u></p> <ul style="list-style-type: none"> ❖ Infestation of the topsoil heaps and mining area with weeds or invader plant species. 	<ul style="list-style-type: none"> ❖ Designated team to cut or pull out invasive plant species that germinated on site. ❖ Herbicide application equipment. 	<p><u>Responsibility:</u></p> <ul style="list-style-type: none"> ❖ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ❖ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <p><u>Role:</u></p> <ul style="list-style-type: none"> ❖ Implement an invasive plant species management plan to control all invasive plant species on site in terms of 	<p>Applicable throughout site establishment-, operational-, and decommissioning phases.</p> <ul style="list-style-type: none"> ❖ Daily compliance monitoring by site management.

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<ul style="list-style-type: none"> ❖ Cumulative impacts. ❖ Sloping and landscaping during rehabilitation. 	<ul style="list-style-type: none"> ❖ Infestation of the area with invader plant species. ❖ Cumulative impact of invader plants in both the quarry and stockpile footprints. ❖ Infestation of the reinstated areas by weeds and invader plant species. 		<p>NEM:BA, 2004 and CARA, 1983. Do weed/alien ongoing clearing on throughout the life of the mining activities.</p> <ul style="list-style-type: none"> ❖ Do not allow planting or importing of any alien species to the site for landscaping, rehabilitation, or any other purpose. ❖ Keep all stockpiles (topsoil & overburden) free of invasive plant species. ❖ Control declared invader or exotic species on the rehabilitated areas. ❖ Only use herbicides that are certified safe for use in aquatic environments by an independent testing authority. 	<ul style="list-style-type: none"> ❖ Annual compliance monitoring of site by an Environmental Control Officer.
<ul style="list-style-type: none"> ❖ Stripping and stockpiling of topsoil and/or overburden. ❖ Excavation, loading and hauling to the processing plant. ❖ Processing, stockpiling and transporting of material. ❖ Sloping and landscaping 	<p><u>Hydrology:</u></p> <ul style="list-style-type: none"> ❖ Potential change of natural runoff and drainage patterns. ❖ Removal of mean annual precipitation from the catchment due to control of runoff water. ❖ Alteration of hydrological and geomorphological process. ❖ Impacts to ecological connectivity and/or 	<ul style="list-style-type: none"> ❖ Storm water management structures such as berms to direct storm- and runoff water around the stockpiled topsoil area. ❖ Schedule for the visual monitoring of the buffer zone and water units. 	<p><u>Responsibility:</u></p> <ul style="list-style-type: none"> ❖ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ❖ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <p><u>Role:</u></p> <ul style="list-style-type: none"> ❖ Implement a stormwater management plan for the duration of the mining activities. ❖ Undertake construction during the dry season to reduce erosion and sedimentation risks associated with summer rainfall in this region if possible. ❖ Place vegetation clearing on hold when heavy rains are expected. 	<p>Applicable throughout site establishment-, operational-, and decommissioning phases.</p> <ul style="list-style-type: none"> ❖ Daily compliance monitoring by site management. <p>Annual compliance monitoring of site by an Environmental Control Officer.</p>

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during rehabilitation.	<p>ecological disturbance impacts (aquatic).</p> <ul style="list-style-type: none"> ❖ Direct Physical loss or medication of freshwater habitat ❖ Impacts to water quality ❖ Potential change of natural runoff and drainage patterns. ❖ Impacts to ecological connectivity and/or ecological disturbance impacts (aquatic aspects). 		<ul style="list-style-type: none"> ❖ Divert stormwater around the topsoil heaps and mining areas to prevent erosion. ❖ Protect stockpiles from erosion and store it on flat areas surrounded by appropriate berms where possible. ❖ Ensure that adequate slope protection is provided when mining within steep slopes. ❖ Control the outflow of run-off water from the mining excavation to prevent down-slope erosion, by constructing temporary banks and ditches that will direct run-off water (if needed). These must be in place at any points where overflow out of the excavation might occur. ❖ Install a silt fence at the bottom of the perimeter fence to catch sediment carried by surface runoff from bare surfaces at the site. All demarcation must be signed off by the ECO before any work commences. ❖ Do not discharge dirty water emanating from the quarry into the natural environment or any watercourse. Channel all runoff into the stormwater system. ❖ Regularly monitor roads and other disturbed areas within the project for erosion and ensure problem areas receive follow-up monitoring to assess the success of the remediation. ❖ Rectify erosion problems within the mining area because of the mining activities immediately (within 48 hours) and monitored thereafter to ensure that it does not re-occur. ❖ Use silt/sediment traps/barriers where there is a danger of topsoil or material stockpiles eroding and entering downstream drainage lines and other 	

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			<p>sensitive areas. Regularly maintain and clear the sediment/silt barriers to ensure effective drainage of the areas.</p> <ul style="list-style-type: none"> ❖ Conduct activity in terms of the Best Practice Guidelines for small-scale mining as developed by DWS. ❖ Contain all fuels and chemicals stored or used on site in fit for purpose containers and store within designated storage areas. Ensure the designated storage areas are situated on an impermeable surface with a perimeter bund and a drainage sump. Size the volume of the bund and sump to contain at least 110% of the total volume of the fuel and chemicals being stored within the designated storage area. Ensure that the storage areas have a roof to prevent inflow of rainwater, which would require the sump to be emptied more frequently. ❖ Re-vegetate all exposed/bare surfaces and embankments once shaped. If revegetation of exposed surfaces cannot take place immediately, temporary erosion, and sediment control measures must be installed and maintained until such time that revegetation can commence. ❖ Monitor all erosion and sediment control measures weekly for the life of the operation and repaired immediately when damaged. Only remove the erosion and sediment control structures once vegetation cover has successfully recolonised the affected areas. ❖ After heavy rainfall events, check the site for erosion damage and rehabilitate this damage immediately. Fill 	

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			<p>in erosion rills and gullies with appropriate material and/or silt fences until vegetation has recolonised the rehabilitated area.</p> <ul style="list-style-type: none"> ❖ Check settlement ponds every month to assess the amount of sediment collected. Remove sediment at a predetermined depth of sediment and stockpiled separately. 	
<ul style="list-style-type: none"> ❖ Stripping and stockpiling of topsoil and/or overburden. ❖ Excavation, loading and hauling to the processing plant; ❖ Processing, stockpiling and transporting of material; ❖ Sloping and landscaping during rehabilitation. 	<p><u>General:</u></p> <ul style="list-style-type: none"> ❖ Potential contamination of footprint area and surface runoff because of hydrocarbon spillages. ❖ Soil contamination from hydrocarbon spills and/or littering. ❖ Potential contamination of environment due to improper waste management. ❖ Potential impact associated with litter/waste left at the mining area. 	<ul style="list-style-type: none"> ❖ Oil spill kit. ❖ Sealed drip trays. ❖ Formal waste disposal system with waste registers. 	<p><u>Responsibility:</u></p> <ul style="list-style-type: none"> ❖ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ❖ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <p><u>Role:</u></p> <ul style="list-style-type: none"> ❖ Ensure regular vehicle maintenance, repairs and services only take place at an off-site workshop and service area. Ensure drip trays are present if emergency repairs are needed on equipment not able to move to the workshop. Dispose all waste products in a closed container/bin to be removed from the emergency service area (same day) to the workshop in order to ensure proper disposal. Treat this as hazardous waste and dispose of it at a registered hazardous waste handling facility, alternatively arrange collection by a registered hazardous waste handling contractor. File safe disposal certificates for auditing purposes. 	<p>Applicable throughout site establishment-, operational-, and decommissioning phases.</p> <ul style="list-style-type: none"> ❖ Daily compliance monitoring by site management. <p>Annual compliance monitoring of site by an Environmental Control Officer.</p>

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			<ul style="list-style-type: none"> ❖ If a diesel bowser is used on site, equip it with a drip tray at all times. Use drip trays during each and every refuelling event. The nozzle of the bowser needs to rest in a sleeve to prevent dripping after refuelling. ❖ Ensure mixing and/or decanting of all chemicals and hazardous substances take place on an impermeable surface that is protected from the ingress and egress of stormwater. ❖ Ensure drip trays are cleaned after each use. Do not allow dirty drip trays to be used on site. Dispose of dirty rags used to clean the drip trays as hazardous waste into a designated bin at the workshop, where it is incorporated into the hazardous waste removal system. ❖ Collect any effluents containing oil, grease or other industrial substances in a suitable receptacle and remove it from the site, either for resale or for appropriate disposal at a registered facility. File proof. ❖ Obtain an oil spill kit, and train the employees in the emergency procedures to follow when a spill occurs as well as the application of the spill kit. ❖ Clean spills immediately, within two hours of occurrence, to the satisfaction of the Regional Manager (DMRE) by removing the spillage together with the polluted soil and containing it in a designated hazardous waste bin until it is disposed of at a registered facility. File proof. ❖ Ensure suitable covered receptacles are available at all times and conveniently placed for the disposal of general waste. 	

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			<ul style="list-style-type: none"> ❖ Store non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc., in a container with a closable lid at a collecting point to be collected at least once a month and disposed of at a recognized landfill site. Take specific precautions to prevent refuse from being dumped on or in the vicinity of the mine area. File proof of disposal. ❖ Handle biodegradable refuse as indicated above. ❖ Encourage re-use or recycling of waste products. ❖ Do not bury or burn waste on the site. ❖ Provide ablution facilities in the form of a chemical toilet/s. Anchor the chemical toilet (to prevent blowing/falling over) and arrange that it is serviced at least once a week for the duration of the mining activities by a registered liquid waste handling contractor. File the safe disposal certificates. ❖ Ensure that the use of any temporary, chemical toilet facilities do not cause any pollution to water sources or pose a health hazard. In addition, ensure that no form of secondary pollution arise from the disposal of refuse or sewage from the temporary, chemical toilets. Address any pollution problems arising from the above immediately. ❖ Do not discharge water containing waste into the natural environment. ❖ Implement measures to contain the waste water and safely dispose thereof. ❖ Report any significant spillage of chemicals, fuels etc. during the lifespan of the mining activities to the 	

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			<p>Department of Water and Sanitation and other relevant authorities.</p> <ul style="list-style-type: none"> ❖ Implement the use of waste registers to keep record of the waste generated and removed from the mining area. 	
<ul style="list-style-type: none"> ❖ Site establishment and infrastructure development. ❖ Stripping and stockpiling of topsoil and/or overburden. ❖ Cumulative impacts. 	<p><u>Hydrology:</u></p> <ul style="list-style-type: none"> ❖ Potential change of natural runoff and drainage patterns. ❖ Removal of mean annual precipitation from the catchment due to control of runoff water. ❖ Alteration of hydrological and geomorphological process. ❖ Impacts to ecological connectivity and/or ecological disturbance impacts (aquatic). ❖ Direct Physical loss or medication of freshwater habitat ❖ Impacts to water quality 	<ul style="list-style-type: none"> ❖ General Authorisation approved by the DWS. ❖ Stormwater Management Plan. 	<p><u>Responsibility:</u></p> <ul style="list-style-type: none"> ❖ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ❖ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <p><u>Role:</u></p> <ul style="list-style-type: none"> ❖ Undertake construction during the dry season to reduce erosion and sedimentation risks associated with summer rainfall in this region if possible. ❖ Maintain a 40 m buffer around the seep- and valley bottom wetland areas throughout the lifespan of the mining activities and manage it as a no-go area. ❖ Prior to the commencement of the site stake the outer edge of the delineated watercourse (wetlands) and associated buffer zone (by surveyor; to be signed off by the ECO) before work commences (if allowed by the landowner). Maintain the demarcations for the duration of the site. ❖ Do not locate any equipment laydown or storage areas within 40 m of any watercourse and/or within the 1:100 year flood line, whichever is greater in width. 	<p>Applicable throughout site establishment-, and operational phases.</p> <ul style="list-style-type: none"> ❖ Daily compliance monitoring by site management. ❖ Annual compliance monitoring of site by an Environmental Control Officer.

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	<ul style="list-style-type: none"> ❖ Potential change of natural runoff and drainage patterns. ❖ Impacts to ecological connectivity and/or ecological disturbance impacts (aquatic aspects).. 		<ul style="list-style-type: none"> ❖ Keep the clearing of natural and semi-natural grasslands to the approved area and to a minimum. ❖ Keep the clearing of natural and semi-natural grasslands to a minimum. ❖ Where it is necessary to remove surface water from the quarry site; pump the water to a site where it will not negatively influence the natural environment through erosion of permanent flooding, possibly the non-perennial stream. ❖ Redirect stormwater (and road-surface run-off) towards remaining wetland features to increase groundwater infiltration, thereby providing sufficient soil moisture to support wetland species (ensure that this water is slowed down, not channelized and spread out across the surface in order to prevent this water flow from causing erosion – where erosion signs are present prompt actions and measures should be taken to rehabilitate these areas and prevent erosion from occurring in these areas in the future), ❖ To prevent an increase in surface water flow velocity: <ul style="list-style-type: none"> ▪ Ensure that an approved storm water plan is implemented; ▪ Ensure that the diameters of storm water pipes are sufficient to not result in overly high flow velocities during rainfall events. ▪ Moderate the flow of storm water onto the buffer and wetland features. ❖ To prevent the contamination of the aquatic environment: 	

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			<ul style="list-style-type: none"> ▪ Notify the CM and ECO immediately of any pollution incidents on site. ▪ Prevent discharge of any pollutants, such as cement, concrete, lime chemicals and fuels into any water source. ❖ Ensure that structures like berms are built to prevent soil from entering wetlands as this can result in sedimentation. ❖ No lights must be established within the construction area near the buffer zones. 	
<ul style="list-style-type: none"> ❖ Drilling and blasting; ❖ Excavation, loading and hauling to the processing plant; ❖ Sloping and landscaping during rehabilitation. 	<p><u>Health and Safety:</u></p> <ul style="list-style-type: none"> ❖ Health and safety risk posed by blasting activities. ❖ Unsafe working environment for employees. ❖ Safety risk posed by un-sloped areas. 	<ul style="list-style-type: none"> ❖ Stocked first aid box. ❖ Level 1 certified first aider. ❖ All appointments in terms of the Mine Health and Safety Act, 1996. ❖ Vibro recorder. 	<p><u>Responsibility:</u></p> <ul style="list-style-type: none"> ❖ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ❖ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <p><u>Role:</u></p> <ul style="list-style-type: none"> ❖ Properly fence the mining area to prevent incursion by livestock and humans. ❖ Ensure that workers have access to the correct PPE as required by law. ❖ Locate sanitary facilities within 100 m from any point of work. ❖ Manage all operations in compliance with the Mine Health and Safety Act, 1996 (Act No 29 of 1996). ❖ Plan the type, duration, and timing of blasting with due cognizance of other land users and structures in the vicinity. 	<p>Applicable throughout operational-, and decommissioning phases.</p> <ul style="list-style-type: none"> ❖ Daily compliance monitoring by site management. ❖ Annual compliance monitoring of site by an Environmental Control Officer.

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			<ul style="list-style-type: none"> ❖ Inform the surrounding landowners and communities in writing ahead of any blasting event. ❖ Monitor the compliance of ground vibration and airblast levels to USBM standards with each blasting event. ❖ Record all blasts with a vibro recorder. ❖ Give audible warning of a pending blast at least 3 minutes in advance of the blast. ❖ Limit fly rock and collect and remove flyrock and rock spill that falls beyond the working area. 	
<ul style="list-style-type: none"> ❖ Drilling and blasting. 	<p><u>Existing Infrastructure:</u></p> <ul style="list-style-type: none"> ❖ Potential damage to Eskom power lines. 	<ul style="list-style-type: none"> ❖ Contact number of an Eskom representative. 	<p><u>Responsibility:</u></p> <ul style="list-style-type: none"> ❖ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ❖ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <p><u>Role:</u></p> <ul style="list-style-type: none"> ❖ Implement or comply with the following requirements of Eskom: <p>Building Restrictions for the 11kV Overhead Power Line:</p> <ul style="list-style-type: none"> ❖ No building or structures may be erected or installed above or below the surface of the ground, neither may any material which might endanger the safety of this power line be placed within 12 (twelve) metres from the centre line of this power line, or either side (overall servitude width 24 metres). ❖ The applicant will adhere to all relevant environmental legislation. Dimensions and specifics will be in 	<p>Applicable throughout operational phase.</p> <ul style="list-style-type: none"> ❖ Daily compliance monitoring by site management. ❖ Annual compliance monitoring of site by an Environmental Control Officer.

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			<p>accordance with Eskom standards so as to not obstruct Eskom's existing infrastructure in any way.</p> <ul style="list-style-type: none"> ❖ No mechanical equipment, including mechanical excavators or high lifting machinery, shall be used in the vicinity of Eskom's apparatus and/or services, without prior written permission having been granted by Eskom. If such permission is granted the applicant must give at least seven working days prior notice of the commencement of work. ❖ The clearances between Eskom's live electrical equipment and the proposed construction work shall be observed as stipulated by Regulation 15 of the Electrical Machinery Regulations of the Occupational Health and Safety Act 85 of 1993. Equipment shall be regarded electrically live and therefore dangerous at all times. ❖ Mining and the use of explosives of any type within 500 metres of Eskom's services shall only occur with Eskom's prior written permission. If such permission is granted the applicant must give at least fourteen working days prior notice of the commencement of blasting. ❖ Any third party servitudes encroaching on Eskom land shall be registered against Eskom's Notaries deed at the applicant's own cost. ❖ Prior any construction activities, the applicant is required to contact Eskom and detailed Surveyed Plans are to be submitted to this office. <p>Terms and conditions pertaining to the 275kV Overhead Power Lines (Eskom Tx):</p>	

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			<ul style="list-style-type: none"> ❖ Eskom Tx's rights and services must be acknowledged and always respected, and Eskom must retain unobstructed access to and egress from its servitudes. ❖ All work within Eskom's servitude areas shall comply with the relevant Eskom earthing standards in force at the time. ❖ No construction or excavation work shall be executed within 23.5 metres from any Eskom powerline structure, and/or within 23.5 metres from any stay wire. ❖ Detailed designs of the proposed mining operations must be referred to Eskom Tx. In these designs Raubex Construction must cater for design specific issues such as acute angle crossings, separation distances and clearances between Eskom Tx's 275kV power lines and the proposed mining area. ❖ The use of explosives of any type within 500 metres of Eskom Tx's services, shall only occur with Eskom Tx's previous written permission. If such permission is granted the applicant must give at least fourteen working days prior notice of the commencement of blasting. ❖ Changes in ground level may not infringe statutory ground to conductor clearances or statutory visibility clearances. After any changes in ground level, the surface shall be rehabilitated and stabilised so as to prevent erosion. The measures taken shall be to Eskom Tx's requirements. ❖ No mechanical equipment, including mechanical excavators or high lifting machinery, shall be used in the vicinity of Eskom Tx's apparatus and/or services, 	

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
			<p>without prior written permission having been granted by Eskom Tx. If such permission is granted the applicant must give at least seven working days' notice prior to the commencement of work.</p> <ul style="list-style-type: none"> ❖ Eskom Tx's rights and duties in the servitude shall be accepted as having prior right at all times and shall not be obstructed or interfered with. ❖ Under no circumstances shall rubble, earth or other material be dumped within the servitude restriction area. The applicant shall maintain the area concerned to Eskom Tx's satisfaction. The applicant shall be liable to Eskom Tx for the cost of any remedial action which has to be carried out by Eskom Tx. ❖ The clearances between Eskom Tx's live electrical equipment and the proposed construction work shall be observed as stipulated by the Regulation 19 of Electrical Machinery Regulations 2011 (with reference to SANS10280-1) of the Occupational Health and Safety Act, 1993 (Act 85 of 1993). ❖ Equipment shall be regarded electrically live and therefore dangerous at all times. ❖ It is required of the applicant to familiarise himself with all safety hazards related to Electrical plant. ❖ The final design (blasting and stockpiles) of your proposed mining area should be referred to this office for final approval. ❖ No stockpiles may be placed nearer than 200 m from any of the power lines. 	

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
❖ Drilling and blasting.	<u>Existing Infrastructure:</u> <ul style="list-style-type: none"> ❖ Potential structural damage to adjacent residence. 	<ul style="list-style-type: none"> ❖ Contact number of the homeowner. ❖ Vibro reader. 	<u>Responsibility:</u> <ul style="list-style-type: none"> ❖ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ❖ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <u>Role:</u> <ul style="list-style-type: none"> ❖ Assess the structural integrity of Me Khumalo's home prior to the first blast. ❖ Notify the neighbouring residents in writing before each blast. ❖ Monitor the vibrations of each blast. Place a seismograph at the Khumalo residence, for at least the first blast, to establish the ground vibrations associated with blasting at the quarry. ❖ Continue monitoring with each blast, should the results indicate that the blasting has a real impact on the residence. ❖ Refurbish any damage to the residence, directly caused by the mining activities. 	<p>Applicable throughout operational phase.</p> <ul style="list-style-type: none"> ❖ Daily compliance monitoring by site management. ❖ Annual compliance monitoring of site by an Environmental Control Officer.
❖ Processing, stockpiling and transporting of material.	<u>Existing Infrastructure:</u> <ul style="list-style-type: none"> ❖ Overloading of trucks impacting road infrastructure. ❖ Degradation of the access road. 	<ul style="list-style-type: none"> ❖ Grader to restore the road surface when needed. 	<u>Responsibility:</u> <ul style="list-style-type: none"> ❖ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ❖ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. 	<p>Applicable throughout operational phase.</p> <ul style="list-style-type: none"> ❖ Daily compliance monitoring by site management.

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
			<p><u>Role:</u></p> <ul style="list-style-type: none"> ❖ Prevent access to and from the mining area from the N11, unless authorised by SANRAL. ❖ Divert storm water around the access road to prevent erosion. ❖ Restrict vehicular movement to the existing access road to prevent crisscrossing of tracks through undisturbed areas. ❖ Repair rutting and erosion of the access road caused as a direct result of the mining activities. ❖ Prevent the overloading of the trucks and file proof of load weights for auditing by relevant officials. ❖ Restrict the speed of all mining equipment/vehicles to 40 km/h on the access roads. ❖ Discuss the maintenance requirements of Collings Pass Road with the Department of Transport (DoT) prior to commencement. Do not allow the proposed activity to result in the degradation of Collings Pass Road. ❖ Keep the intersection of the Collings Pass Road and the N11 clear of any loose quarry material emanating from the source. 	<ul style="list-style-type: none"> ❖ Annual compliance monitoring of site by an Environmental Control Officer.
<ul style="list-style-type: none"> ❖ Site establishment & infrastructure development. ❖ Stripping and stockpiling of 	<p><u>Fire Management</u></p>	<ul style="list-style-type: none"> ❖ Fire fighting equipment. ❖ Fire fighting training for employees. 	<p><u>Responsibility:</u></p> <ul style="list-style-type: none"> ❖ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ❖ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. 	<p>Applicable throughout site establishment, and operational phase.</p>

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
<p>topsoil and/or overburden.</p> <ul style="list-style-type: none"> ❖ Drilling and blasting. ❖ Excavation, loading and hauling to the processing plant. ❖ Processing, stockpiling and transporting of material. ❖ Sloping and landscaping during rehabilitation phase. 			<p><u>Role:</u></p> <ul style="list-style-type: none"> ❖ Do not permit open fires on site. Only make fires within the areas and for purposes approved by the ECO. ❖ Ensure fire prevention facilities are present at all hazardous storage facilities. ❖ Ensure adequate fire-fighting equipment is available and train workers on how to use it. ❖ Ensure that all workers on site know the proper procedure in case of a fire occurring on site. ❖ Do not permit smoking in areas considered to be a fire hazard. 	<ul style="list-style-type: none"> ❖ Daily compliance monitoring by site management. ❖ Annual compliance monitoring of site by an Environmental Control Officer.
<ul style="list-style-type: none"> ❖ Sloping and landscaping during rehabilitation. 	<p><u>Topography:</u></p> <ul style="list-style-type: none"> ❖ Landscaping of mining area. 	<ul style="list-style-type: none"> ❖ Earthmoving equipment to reinstate mined-out areas. ❖ Indigenous grass mix to be established on reinstated area. 	<p><u>Responsibility:</u></p> <ul style="list-style-type: none"> ❖ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ❖ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <p><u>Role:</u></p> <ul style="list-style-type: none"> ❖ Use the excavated area for the final depositing of overburden. 	<p>Applicable throughout decommissioning phase.</p> <ul style="list-style-type: none"> ❖ Daily compliance monitoring by site management. ❖ Annual compliance monitoring of site by an Environmental Control Officer.

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
		<ul style="list-style-type: none"> ❖ Erosion control infrastructure (when needed). 	<ul style="list-style-type: none"> ❖ Dump rocks and coarse material removed from the excavation into the excavation. ❖ Remove coarse natural material used for the construction of ramps and dump it into the excavations. ❖ Remove stockpiles during the decommissioning phase, rip the area and return the topsoil to its original depth to provide a growth medium. ❖ Do not permit any waste to be deposited into the excavations. ❖ Return the previously stored topsoil to its original depth, once overburden, rocks and coarse natural materials have been added to the excavation and it was profiled with acceptable contours and erosion control measures. ❖ If necessary, fertilize the area to allow vegetation to establish rapidly. Seed the site with a local or adapted indigenous seed mix in order to propagate the locally or regionally occurring flora, should natural vegetation not re-establish within six months from closure of the site. ❖ If required by the Regional Manager (DMRE) the soil must be analysed and any deleterious effects on the soil arising from the mining operation must be corrected and the area be seeded with a vegetation seed mix to his/her specification. ❖ On completion of operations, deal with all structures or objects in accordance with section 44 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002). 	

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
			<ul style="list-style-type: none"> ❖ On completion of mining operations, scarify the surface of all plant-, stockpiling-, and/or office areas, if compacted due to hauling and dumping operations, to a depth of at least 200mm and graded it to an even surface condition. Where applicable/possible return topsoil to its original depth over the area. ❖ Align the rehabilitation with the guidelines proposed in the 2023 TBIA. 	

l) Indicate the frequency of the submission of the performance assessment/environmental audit report.

The Environmental Audit Report in accordance with Appendix 7 as prescribed in Regulation 34 of the EIA Regulations, 2014 (as amended) will annually be submitted to DMRE for compliance monitoring purposes or in accordance with the period stipulated by the Environmental Authorisation.

m) Environmental Awareness Plan

i) Manner in which the applicant intends to inform his or her employees of any environmental risk which may result from their work.

Once the Applicant received the mining permit and may commence with the proposed activity, a copy of the Environmental Management Programme will be handed to the site manager for his perusal. Issues such as the mining boundaries, fire principals and hazardous waste handling will be discussed.

An induction meeting will be held with all the site workers to inform them of the Basic Rules of Conduct with regard to the environment.

ii) Manner in which risk will be dealt with in order to avoid pollution or the degradation of the environment.

The operations manager must ensure that he/she understands the EMPR document and its requirement and commitments before any mining takes place. An Environmental Control Officer needs to check compliance of the mining activity to the management programmes described in the EMPR.

The following list represents the basic steps towards environmental awareness, which all participants in this project must consider whilst carrying out their tasks.

❖ **Site Management:**

- Stay within boundaries of site – do not enter adjacent properties.
- Keep tools and material properly stored.
- Smoke only in designated areas.
- Use toilets provided – report full or leaking toilets.

❖ **Water Management and Erosion:**

- Check that rainwater flows around work areas and are not contaminated.
- Report any erosion.
- Check that dirty water is kept from clean water.
- Do not swim in or drink from quarry pits.

❖ **Waste Management:**

- Take care of your own waste
- Keep waste separate into labelled containers – report full bins.
- Place waste in containers and always close lid.
- Don't burn waste.
- Pick-up any litter laying around.

❖ **Hazardous Waste Management (Petrol, Oil, Diesel, Grease)**

- Never mix general waste with hazardous waste.
- Use only sealed, non-leaking containers.
- Keep all containers closed and store only in approved areas.
- Always put drip trays under vehicles and machinery.
- Empty drip trays after rain.
- Stop leaks and spills, if safe:
 - ✓ Keep spilled liquids moving away.
 - ✓ Immediately report the spill to the site manager/supervision.
 - ✓ Locate spill kit/supplies and use to clean-up, if safe.
 - ✓ Place spill clean-up wastes in proper containers.
 - ✓ Label containers and move to approved storage area.

❖ **Discoveries:**

- Stop work immediately.
- Notify site manager/supervisor.
- Includes – archaeological finds, cultural artefacts, contaminated water, pipes, containers, tanks and drums, any buried structures.

❖ **Air Quality:**

- Wear protection when working in very dusty areas.
- Implement dust control measures:
 - ✓ Water all roads and work areas.
 - ✓ Minimize handling of material.
 - ✓ Obey speed limit and cover trucks.

❖ **Driving and Noise:**

- Use only approved access roads.
- Respect speed limits.
- Only use turn-around areas – no crisscrossing through undisturbed areas.
- Avoid unnecessary loud noises.

- Report or repair noisy vehicles.

❖ **Vegetation and Animal life:**

- Do not remove any plants or trees without approval of the site manager.
- Do not collect firewood.
- Do not catch, kill, harm, sell or play with any animal, reptile, bird or amphibian on site.
- Report any animal trapped in the work area.
- Do not set snares or raid nests for eggs or young.

❖ **Fire Management:**

- Do not light any fires on site, unless contained in a drum at demarcated area.
- Put cigarette butts in a rubbish bin.
- Do not smoke near gas, paints or petrol.
- Know the position of firefighting equipment.
- Report all fires.
- Don't burn waste or vegetation.

n) Specific information required by the Competent Authority

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

The Applicant undertakes to annually review and update the financial provision calculation, upon which it will be submitted to DMRE for review and approved as being sufficient to cover the environmental liability at the time and for closure of the mine at that time.

2. 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&AP's
- c) the inclusion of inputs and recommendations from the specialist reports where relevant, a
- d) that the information provided by the EAP to interested and affected parties and any response by the EAP to comments or inputs made by interested and affected parties are correctly reflected herein



Signature of the environmental assessment practitioner:

Greenmined Environmental (Pty) Ltd

Name of Company:

16 February 2023

Date:

UNDERTAKING

I,.....the undersigned and duly authorised thereto
by.....*Raubex Construction (Pty) Ltd*.....

Company / ~~Closed Corporation~~ / ~~Municipality or Council~~
(Delete whichever is not applicable)

hereby undertake to implement all the aspects contained in the BAR and EMPR / ~~EIA and EMPR~~ and accept
full responsibility therefore.

(Delete whichever is not applicable)

SIGNED at this day 2023

FINAL DOCUMENT TO BE SIGNED BY APPLICANT

SIGNATURE

WITNESSES:

1.....

2.....

Official use

APPROVAL

Approved in terms of the National Environmental Management Act (NEMA), 1998 (Act 107 of 1998), as
amended.

SIGNED at this day 202.....

REGIONAL MANAGER

KWAZULU-NATAL

Undertaking/eg

-END-

APPENDIX A
REGULATION 2(2) MINE MAP



APPENDIX B
1:250 000 LOCALITY MAP



APPENDIX C

SITE ACTIVITIES PLAN



APPENDIX D

SURROUNDING LAND USE MAP



APPENDIX E

REHABILITATION PLAN



APPENDIX F1 & F2
COMMENTS AND RESPONSE REPORT
&
PROOF OF PUBLIC PARTICIPATION



APPENDIX G1
WETLAND ASSESSMENT REPORT, 2017



APPENDIX G2
2022 WETLAND OPINION



APPENDIX G3
WETLAND ASSESSMENT REPORT, 2023



APPENDIX H1

TERRESTRIAL BIODIVERSITY IMPACT

ASSESSMENT, 2022



APPENDIX H2
TERRESTRIAL BIODIVERSITY IMPACT
ASSESSMENT REPORT, 2023



APPENDIX I

SUPPORTING IMPACT ASSESSMENT



ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, herewith please receive an environmental impact statement that summarises 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 the significance of impacts.

ENVIRONMENTAL IMPACT STATEMENT			
SITE ESTABLISHMENT & INFRASTRUCTURE DEVELOPMENT			
<u>TYPE OF IMPACT</u>	<u>DURATION</u>	<u>LIKELIHOOD</u>	<u>SIGNIFICANCE</u>
<ul style="list-style-type: none"> ❖ Loss of agricultural land for duration of mining. ❖ Alteration of natural environment and habitat loss. ❖ Visual intrusion because of site establishment. ❖ Impact on vegetation structure and plant species composition. ❖ Impact on populations of species of special concern. ❖ Impact on targets for threatened ecosystems. ❖ Impact on ecological processes and functionality of ecosystems (terrestrial) ❖ Impact on overall species and ecosystem diversity (terrestrial). ❖ Impact on ecological connectivity (terrestrial). ❖ Potential change of natural runoff and drainage patterns. ❖ Removal of mean annual precipitation from the catchment due to the control of runoff water. ❖ Alteration of hydrological and geomorphological process. ❖ Impacts to ecological connectivity and/or ecological disturbance impacts (aquatic). ❖ New job opportunities because of the mining operation (Positive Impact) 	<p>Duration of site establishment phase (±1 month)</p>	<p>Definite Definite Definite Definite Low Possibility Low Possibility Low Possibility Low Possibility Low Possibility Low Possibility Low Possibility Low Possibility Low Possibility Definite (+)</p>	<p>Medium Concern Low Concern Low-Medium Concern Low-Medium Concern Low-Medium Concern Low-Medium Concern Low-Medium Concern Low Concern Low Concern Low Concern Low Concern Low-Medium Concern Low Concern High (+)</p>
STRIPPING AND STOCKPILING OF TOPSOIL AND/OR OVERBURDEN			
<ul style="list-style-type: none"> ❖ Visual intrusion caused by mining activities. ❖ Loss of stockpiled topsoil during mining and stockpiling. 	<p>Duration of site establishment phase</p>	<p><u>LIKELIHOOD</u> Definite Low Possibility</p>	<p><u>SIGNIFICANCE</u> Low-Medium Concern Low Concern</p>

ENVIRONMENTAL IMPACT STATEMENT

SITE ESTABLISHMENT & INFRASTRUCTURE DEVELOPMENT

<ul style="list-style-type: none"> ❖ Dust nuisance because of the disturbance of soil. ❖ Noise nuisance generated by earthmoving machinery. ❖ Infestation of the topsoil heaps and mining area with weeds or invader plant species. ❖ Potential increase in runoff from bare areas and associated accelerated erosion. ❖ Potential contamination of footprint area and surface runoff because of hydrocarbon spillages. ❖ Direct physical loss or modification of freshwater habitat. ❖ Impacts to water quality. 	(±1 month)	Low Possibility	Low Concern
		Low Possibility	Low Concern
		Low Possibility	Low Concern
		Low Possibility	Low Concern
		Low Possibility	Low Concern
		Low Possibility	Low Concern
		Low Possibility	Low Concern

DRILLING AND BLASTING

<ul style="list-style-type: none"> ❖ Health and safety risk posed by blasting activities. ❖ Potential damage to Eskom power lines. ❖ Potential structural damage to adjacent residence. ❖ Dust nuisance caused by blasting activities. ❖ Noise nuisance because of blasting. 	Duration of operational phase (5 years maximum)	<u>LIKELIHOOD</u> Low Possibility	<u>SIGNIFICANCE</u> Low Concern
		Low Possibility	Low Concern
		Low Possibility	Low Concern
		Possible	Low-Medium Concern
		Definite	Low-Medium Concern

EXCAVATION, LOADING AND HAULING TO THE PROCESSING AREA

<ul style="list-style-type: none"> ❖ Visual intrusion associated with the excavation activities. ❖ Dust nuisance due to excavation and from loading and vehicles transporting the material. ❖ Noise nuisance because of the mining activities. ❖ Unsafe working environment for employees. ❖ Soil contamination from hydrocarbon spills and/or littering. ❖ Facilitation of erosion due to mining activities. 	Duration of operational phase (5 years maximum)	<u>LIKELIHOOD</u> Definite	<u>SIGNIFICANCE</u> Medium-High Concern
		Low Possibility	Low-Medium Concern
		Low Possibility	Low-Medium Concern
		Low Possibility	Low Concern
		Low Possibility	Low Concern
		Low Possibility	Low Concern

ENVIRONMENTAL IMPACT STATEMENT

SITE ESTABLISHMENT & INFRASTRUCTURE DEVELOPMENT

PROCESSING, STOCKPILING AND TRANSPORTING OF MATERIAL

		<u>LIKELIHOOD</u>	<u>SIGNIFICANCE</u>
<ul style="list-style-type: none"> ❖ Dust nuisance generated at the processing plant. ❖ Noise nuisance stemming from operation of the processing plant. ❖ Potential contamination of environment due to improper waste management. ❖ Infestation of the area with invader plant species. ❖ Potential increase in runoff from bare areas and associated accelerated erosion. ❖ Potential change of natural runoff and drainage patterns. ❖ Overloading of trucks impacting road infrastructure. ❖ Degradation of the access road. 	<p align="center">Duration of operational phase (5 years maximum)</p>	Possible	Low-Medium Concern
		Low Possibility	Low-Medium Concern
		Low Possibility	Low Concern
		Low Possibility	Low Concern
		Low Possibility	Low Concern
		Low Possibility	Low Concern
		Low Possibility	Low Concern
		Low Possibility	Low Concern

CUMULATIVE IMPACTS

		<u>LIKELIHOOD</u>	<u>SIGNIFICANCE</u>
<p><u>Cumulative Impacts:</u></p> <ul style="list-style-type: none"> ❖ Direct physical loss or modification of freshwater habitat. ❖ Alteration of hydrological and geomorphological processes. ❖ Impacts to water quality. ❖ Impacts to ecological connectivity and/or ecological disturbance impacts (aquatic) ❖ Cumulative dust nuisance when quarry and stockpile area operate. ❖ Cumulative noise nuisance when quarry and stockpile area operate. ❖ Cumulative visual impact when quarry and stockpile area are developed. ❖ Impact on vegetation structure and plant species composition. ❖ Impact on populations of species of special concern. ❖ Impact on targets for threatened ecosystems. 	<p align="center">Duration of operational phase (5 years maximum)</p>	Low Possibility	Low Concern
		Low Possibility	Low-Medium Concern
		Low Possibility	Low-Medium Concern
		Low Possibility	Low Concern
		Possible	Low-Medium Concern
		Possible	Medium Concern
		Definite	Medium Concern
		Possible	Low-Medium Concern
		Low Possibility	Medium Concern
		Definite	Medium Concern

ENVIRONMENTAL IMPACT STATEMENT

SITE ESTABLISHMENT & INFRASTRUCTURE DEVELOPMENT

<ul style="list-style-type: none"> ❖ Impact on ecological processes and functionality of ecosystems (terrestrial) ❖ Impact on overall species and ecosystem diversity. ❖ Impact on ecological connectivity (terrestrial) ❖ Cumulative impact of invader plants in both the quarry and stockpile footprints. ❖ Cumulative impact on job opportunities when quarry and stockpile area operate (+). 		<p align="center">Low Possibility</p> <p align="center">Low Possibility</p> <p align="center">Low Possibility</p> <p align="center">Low Possibility</p> <p align="center">Definite (+)</p>	<p align="center">Low Concern</p> <p align="center">Low Concern</p> <p align="center">Low Concern</p> <p align="center">Low-Medium Concern</p> <p align="center">High (+)</p>
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SLOPING AND LANDSCAPING DURING REHABILITATION

<ul style="list-style-type: none"> ❖ Safety risk posed by un-sloped areas. ❖ Erosion of returned topsoil after rehabilitation. ❖ Infestation of the reinstated areas by weeds and invader plant species. ❖ Exposed disturbed area with no indigenous vegetation upon closure. ❖ Potential impact associated with litter/waste left at the mining area. ❖ Return of the mining area to agricultural use upon closure (Positive Impact) 	<p align="center">Duration of decommissioning phase (±1 month)</p>	<p align="center"><u>LIKELIHOOD</u></p> <p align="center">Low Possibility</p> <p align="center">Low Possibility</p> <p align="center">Low Possibility</p> <p align="center">Low Possibility</p> <p align="center">Low Possibility</p> <p align="center">Definite (+)</p>	<p align="center"><u>SIGNIFICANCE</u></p> <p align="center">Low Concern</p> <p align="center">Low Concern</p> <p align="center">Low Concern</p> <p align="center">Low Concern</p> <p align="center">Low Concern</p> <p align="center">Medium-High (+)</p>
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APPENDIX J
FINANCIAL AND TECHNICAL
COMPETENCE



APPENDIX K

CLOSURE PLAN



APPENDIX L
INVASIVE PLANT SPECIES MANAGEMENT
PLAN



APPENDIX M
STORMWATER MANAGEMENT PLAN



APPENDIX N

PHOTOGRAPHS OF THE PROPOSED SITE



PHOTOGRAPH OF THE EXISTING QUARRY WITHIN THE PROPOSED MINING AREA



PHOTOGRAPH OF THE AREA SOUTHWEST OF THE EXISTING QUARRY



PHOTOGRAPH OF THE AREA WEST OF THE EXISTING QUARRY



PHOTOGRAPH OF THE APPLICATION AREA (EASTERN VIEW)



APPENDIX O
CV AND EXPERIENCE RECORD OF EAP

