

**QUEENSTOWN QUARRY (PTY) LTD
A PORTION OF THE FARM LESSEYTON NO 81,
CHRIS HANI MAGISTERIAL DISTRICT,
EASTERN CAPE PROVINCE**

**SECTION 102 APPLICATION – EXPANSION OF MINING AREA
DRAFT BASIC ASSESSMENT REPORT**

AUGUST 2026

REFERENCE NUMBER: EC 30/5/1/2/2/009 MR – 00052 MR/102

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EXECUTIVE SUMMARY

Queenstown Quarry was established in the 1970's over a portion of the farm Lesseyton No 81, within the Enoch Mjima Municipal Area of the Eastern Cape. The old order mining licence (ML 15 / 96) was converted, and a mining right was granted to Queenstown Quarry (Pty) Ltd (the "Right Holder") in 2015. The protocol number of the mining right is 179/2015 and the file reference number is EC 30/5/1/2/2/009 MR. The right is valid until 24 March 2045 and currently extends over 36.2505 ha.

The Right Holder applied for consent of the Minister to:

- ◆ update the 2011 EMPR; and
 - ◆ expand the mining footprint to 66.7419 ha;
- , in terms of Section 102 of the MPRDA, 2002.

The proposed expansion of the mine's footprint necessitates an application for a Part 2 amendment of the mine's EMPR in terms of GNR 326 Section 31 (NEMA). The application further constitutes listed/specified activities in terms of the NEMA: EIA Regulations, 2014 (as amended) and therefore requires an environmental impact assessment (basic assessment process).

This document, the draft Basic Assessment Report (DBAR) and draft environmental management programme (EMPR), combine the aspects related to the proposed expansion activities applied for by Queenstown Quarry (Pty) Ltd in terms of section 102 the MPRDA, 2002 with the operational aspects of the mine and update the 2011 EMPR of the mine to include both operational and expansion activities.

Need and Desirability

Queenstown Quarry has been in continuous operation since the 1970s and is an established supplier of aggregates and road pavement layering products to the construction and building industry, primarily within the Eastern Cape. The quarry supplies a broad customer base and contributes to the availability of locally produced construction materials required for roads, buildings, water and sanitation infrastructure and other development within the region.

Mining has progressively advanced the existing excavations to their maximum practicable extents within the currently approved mining areas, with the remaining economically recoverable reserves becoming increasingly constrained. The proposed Section 102 amendment is therefore required to provide access to additional dolerite and quartzite resources to the north, east and south and to support the continued operation of the quarry.

The proposed expansion represents the logical continuation of an established mining operation and will make use of the existing processing plant, access roads, workshops, offices and other operational infrastructure. This avoids the need to establish a new greenfield quarry and associated infrastructure elsewhere, while allowing continued local aggregate supply and supporting the retention of existing employment and economic benefits to suppliers, contractors and surrounding communities.

Alternatives Considered

During the EIA phase the following alternatives were considered:

(a) The property on which, or location where, it is proposed to undertake the activity

No alternative property was considered, as the proposed expansion is dependent on the location and accessibility of the identified dolerite and quartzite resources adjoining the existing Queenstown Quarry. Expansion of the existing operation also allows continued use of the established quarry workings, processing plant, access and supporting infrastructure, thereby limiting the need for additional infrastructure and associated disturbance elsewhere.

(b) The type of activity to be undertaken

The preferred activity entails the continued extraction of dolerite and quartzite through expansion of the existing quarry operation. No reasonable alternative activity was identified that would achieve the purpose of the application, namely, to provide continued access to the identified mineral resources and extend the operational life of the existing quarry.

(c) The design or layout of the activity

The proposed development footprint has been informed by the configuration of the existing quarry, location and accessibility of the mineral resources, existing infrastructure, property and infrastructure constraints, the N6 National Road and identified environmental sensitivities. The proposed footprint was assessed through the TBIA, which did not require amendment of the proposed layout. No alternative layout was therefore identified that would provide a meaningful environmental advantage while remaining technically and operationally feasible. The 40 m setback from the N6 road reserve will be maintained as a design and management constraint.

(d) The technology to be used in the activity

Conventional drilling, blasting, excavation, loading and hauling will remain the preferred mining technology. These methods are appropriate to the competent hard-rock nature of the resource and are consistent with the established quarry operation. No alternative technology was identified that would achieve the required extraction while offering a material environmental advantage.

(e) The operational aspects of the activity:

The proposed expansion will be integrated into the existing Queenstown Quarry operation and will largely utilise the existing processing plant, internal roads, access, workshop and service facilities and water management systems. No materially different operational alternative was identified that would provide an environmental advantage over continued integration with the existing operation.

(f) The option of not implementing the activity

The No-Go Alternative would avoid the additional environmental disturbance associated with the expansion, including further loss of grazing land, vegetation and habitat and additional topographical and visual impacts. It would, however, prevent access to the identified mineral resources adjoining the existing quarry and forego the proposed ± 35 -year extension of the life of mine, together with the associated continuation of employment, aggregate supply and socio-economic benefits.

(g) Outcome of the alternative assessment

The proposed expansion of the existing Queenstown Quarry was selected as the preferred alternative. Although the No-Go Alternative would avoid additional environmental disturbance, the preferred alternative provides access to a location-bound mineral resource through an established quarry using largely existing infrastructure and mining methods. Taking into account the findings of the environmental and specialist assessments, the identified residual impacts, the ability to manage the majority of impacts through the BAR and EMP, and the socio-economic benefits associated with extending the life of the quarry, the proposed expansion is considered the preferred and best practicable alternative.

Public Participation Process

During the public participation process of this S102 application the public and I&AP's will be informed of the project through an advertisement in The Rep Newspaper, and on-site notices that will be placed at the entrance to the Quarry, in Lesseyton Community and Komani. A notification letter/flyer inviting comments on the DBAR over a 30-days commenting period (ending 21 September 2026) will be sent to the landowner, neighbouring landowners (to the Quarry), stakeholders, and any other I&AP that may be interested in the project. The comments received on the DBAR will be incorporated into the final Basic Assessment Report (FBAR) to be submitted to the DMPR for consideration.

Basic Assessment Report

The basic assessment report identifies the potential positive and negative impacts that the proposed and operational activities will have on the environment and the community as well as the aspects that may impact on the socio-economic conditions of directly affected persons and proposes possible mitigation measure that could be applied to modify / remedy / control / stop the identified impacts. The key finding of the environmental impact assessment entail the following:

Agricultural Resources and Land Use

- ♦ The proposed expansion will extend into adjoining land that remains vegetated and is currently available for livestock grazing. The principal agricultural impact will therefore be the temporary to long-term loss of grazing land within the expanded mining footprint. The extent of this loss is relatively limited when considered in relation to the surrounding grazing landscape. Progressive rehabilitation and final closure measures will be implemented to establish a stable post-mining landform and suitable vegetation cover where practicable.

Topography

- ♦ The proposed expansion will result in a permanent and progressively increasing alteration of the existing topography as quarrying advances into the north-eastern, eastern and southern portions of the application area. The most pronounced alteration will occur along the elevated ridge in the central to eastern portion of the site. Extraction will progressively replace portions of the natural hillside and ridge with engineered quarry benches, faces and ultimately quarry voids.

Visual Character

- ♦ The existing quarry is already a prominent and established feature of the local landscape due to its position on an elevated ridge and its long operational history. The proposed expansion will not introduce an entirely new visual element into the landscape but will extend the existing quarry disturbance along the same elevated landform. Additional exposed rock faces and working areas will nevertheless increase the extent of visible quarry disturbance as mining progresses. Given the elevated position of the mineral resource, the visual impact cannot be fully avoided. Orderly bench development, limiting unnecessary disturbance, progressive rehabilitation and final rehabilitation will reduce visual contrast where practicable; however, a residual visual impact will remain following closure.

Air Quality

- ◆ Dust will continue to be generated by drilling, blasting, excavation, loading, hauling, processing and vehicle movement. The expansion does not introduce fundamentally new emission sources, although the location of dust-generating activities will progressively change as mining advances. Existing dust suppression and air-quality monitoring programmes will continue.

Noise, Blasting and Vibration

- ◆ The existing acoustic environment is already influenced by quarrying activities and surrounding infrastructure. Principal quarry-related noise sources include drilling, blasting, excavation, crushing, screening, loading, hauling and the operation of fixed and mobile equipment. The proposed amendment does not introduce new mining methods or equipment types, and the nature of the noise sources will therefore remain substantially consistent with the existing operation.
- ◆ The progressive movement of quarrying activities within the expansion footprint may nevertheless alter the proximity of individual sources to surrounding receptors. Blasting will remain an intermittent impact and will continue to be restricted to controlled periods and undertaken in accordance with established blasting procedures. Appropriate blasting design, notification and safety procedures, equipment maintenance and continued monitoring are therefore important mitigation measures.

Hydrology

- ◆ No natural watercourses or wetlands were identified within the proposed expansion footprint. The principal water-related risks are therefore associated with stormwater, erosion and sediment mobilisation, which will be managed through the quarry's stormwater management and drainage systems and associated EMP measures.

Terrestrial Biodiversity

- ◆ The proposed expansion will result in permanent loss of portions of degraded CBA2 plains habitat and relatively intact CBA2 ridge habitat. The TBIA assessed these impacts as Low significance and concluded that the expansion is not expected to materially compromise the ecological functionality of the broader CBA2 network. The likelihood of impacts on terrestrial plant and animal Species of Conservation Concern was also determined to be low.

Cultural and Heritage Resources

- ◆ No archaeological sites, historical structures, graves or other heritage resources were identified within the proposed mining footprint. A Chance Find Procedure will nevertheless apply should previously unidentified heritage resources be encountered during mining-related disturbance.

Palaeontology

- ◆ The site was verified by the specialist as having Low palaeontological sensitivity, and the probability of fossil material being encountered during quarrying is considered very low. A Fossil Chance Find Protocol will nevertheless be implemented.

Surrounding Infrastructure and Sensitive Receptors

- ◆ The expansion does not require the relocation or diversion of existing infrastructure or a new access onto the N6. The N6, nearby Lesseyton Community and adjacent quarry operation remain important receptors in relation to noise, blasting, dust, visual and cumulative impacts and will require continued consideration during operation.

Cumulative Impacts

- ◆ The principal cumulative impacts relate to progressive landscape and topographical alteration, vegetation and grazing-land loss, dust, noise, blasting and the visual presence of quarrying within an area already influenced by mining and other land uses. While topographical and visual impacts cannot be completely mitigated, other operational impacts are more amenable to management through established controls, monitoring and progressive rehabilitation.

Overall Finding

- ◆ The assessment indicates that the proposed Section 102 amendment represents the continued and spatially expanded operation of an established quarry using largely existing infrastructure and operational systems. Although the expansion will result in unavoidable and, in certain instances, permanent environmental impacts, the majority of operational impacts can be managed through the mitigation, monitoring, rehabilitation and management measures prescribed in the BAR and EMP. No environmental fatal flaws were identified that would preclude authorisation of the proposed Section 102 amendment.

Environmental Management Programme (EMPR)

The Section 102 application also provides for the update of the existing 2011 EMPr applicable to Queenstown Quarry. The updated EMPr incorporates the existing operation and proposed expansion and aligns the environmental management requirements with the current site conditions, findings of the environmental assessment and specialist studies, and the mitigation and monitoring requirements identified through the present application process. It establishes the impact management outcomes, management actions, mitigation measures, monitoring requirements and responsibilities applicable to the operational and decommissioning phases, together with the rehabilitation and closure objectives for the site.

The financial provision required for the rehabilitation and closure of the existing operation and proposed expansion area, including provision for premature closure and final planned closure, has been calculated at R 7 245 198.51. Queenstown Quarry (Pty) Ltd currently has a financial guarantee of R 7 121 668.10 lodged with the DMPR. Should the calculated financial provision be accepted by the DMPR and the Section 102 application be approved, the financial guarantee will be increased to address the resultant shortfall and ensure that adequate financial provision is maintained for the rehabilitation and closure obligations of the operation.

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LIST OF ABBREVIATIONS

AEL	Air Emissions Licence
ASTM	American Standard Test Method
BGIS	Biodiversity GIS
CARA	Conservation of Agricultural Resource Act, 1983 (Act No. 43 of 1983)
CBA	Critical Biodiversity Area
CBD	Central Business District
CHDM	Chris Hani District Municipality
CHIA	Cultural Heritage Impact Assessment
CR	Critical Endangered
CRM	Cultural Resources Management
DBAR	Draft Basic Assessment Report
DD	Data Deficient
DEDEAT	Department of Economic Development, Environmental Affairs and Tourism
DFFE	Department of Forestry, Fisheries and the Environment
DMPR	Department of Mineral and Petroleum Resources
DoA	Department of Agriculture
DoE	Department of Education
DoL	Department of Labour
DoT	Department of Transport
DPW	Department of Public Works
DRDAR	Department of Rural Development and Agrarian Reform
DRDLR	Department of Rural Development and Land Reform
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EAPASA	Environmental Assessment Practitioner Association of South Africa
ECBCP	Eastern Cape Biodiversity Conservation Plan
ECO	Environmental Control Officer
ECNEO	Eastern Cape Nature and Environmental Ordinance 19 of 1974 (as amended)
ECPHRA	Eastern Cape Provincial Heritage Resources Authority
EIA	Environmental Impact Assessment
EIA Regulations	Environmental Impact Assessment Regulations, 2014 (as amended)
EMLM	Enoch Mgijima Local Municipality
EMPR	Environmental Management Programme
EN	Endangered

ESA	Environmental Support Area
ESAge	Early Stone Age
ESG	Environmental and Social Governance
FBAR	Final Basic Assessment Report
FEPA	Freshwater Ecosystem Priority Area
GCD	Ground Control Districts
GDP	Gross Domestic Product
GNR	Government Notice
GPS	Global Positioning System
HDSA	Historically Disadvantaged South Africans
HSA	Hazardous Substances Act, 1973 (Act No. 15 of 1973)
I&AP's	Interested and Affected Parties
IDP	Integrated Development Plan
IUCN	International Union for Conservation of Nature
LC	Least Concern
LoM	Life of Mine
LSA	Late Stone Age
MHSA	Mine Health and Safety Act, 1996 (Act No. 29 of 1996)
MPD	Mapping Project Database
MPRDA	Minerals and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)
MR	Mining Right
MSA	Middle Stone Age
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:WA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
NFEPA	National Freshwater Ecosystem Priority Areas
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
NRTA	National Road Traffic Act, 1996 (Act No. 93 of 1996)
NT	Near Threatened
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
PHS	Provincial Heritage Sites
PIA	Palaeontological Impact Assessment
PPE	Personal Protective Equipment
PSM	Palaeontological Sensitivity Map
S102	Section 102 Amendment Application in terms of the MPRDA, 2002
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
SAMBF	South African Mining and Biodiversity Forum
SANS	South African National Standards
SANRAL	South African National Roads Agency
SCC	Species of Conservation Concern
SLP	Social and Labour Plan
SWMP	Stormwater Management Plan
VU	Vulnerable
WMA	Water Management Area



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:	Queenstown Quarry (Pty) Ltd
TEL NO:	051 433 2964/5
FAX NO:	-
POSTAL ADDRESS:	P.O. Box 2577, Komani, 5322
PHYSICAL ADDRESS:	Farm Lesseyton No 81, Komani
FILE REFERENCE NUMBER SAMRAD:	EC 30/5/1/2/2/009 MR – 00052 MR/102

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:
 - (21) 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 –
 - (21) 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.

NOTE: This document combine the aspects related to the proposed expansion activities applied for by Queenstown Quarry (Pty) Ltd in terms of section 102 the MPRDA, 2002 with the operational aspects of the mine and update the 2011 EMPR of the mine to include both operational and expansion activities.

PART A

SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

1. CONTACT PERSON AND CORRESPONDENCE ADDRESS

a) Details of: Greenmined Environmental (Pty) Ltd

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 NEMA. Queenstown Quarry (Pty) Ltd (hereafter referred to as the "Right Holder") appointed Greenmined Environmental (Pty) Ltd (hereafter referred to as "Greenmined") to undertake the study needed. Greenmined has no vested interest in the Right Holder or this 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 N.

(2) Summary of the EAP's experience.

(In carrying out the Environmental Impact Assessment Procedure)

Ms Fouché has twenty years' experience conducting Environmental Impact Assessments and Mining Applications in South Africa. She is a registered Environmental Assessment Practitioner (EAP) with the Environmental

Assessment Practitioners Association of South Africa (EAPASA), holding registration number 2019/1003. A list of past projects is attached as Appendix N.

b) Location of the overall Activity.

Table 1: Location of the operational and proposed expansion activities.

Farm Name:	Lesseyton No 81
Application area (Ha)	Once the expansion (S102) application is approved the mining area will be 66.7419 ha. ◆ Current Approved Mining Footprint = 36.2505 ha ◆ S102 Expansion Area = 30.4914 ha ◆ Total Expanded Footprint = 66.7419 ha
Magisterial district:	Chris Hani District (Enoch Mgijima Local Municipality)
Distance and direction from the nearest town	Queenstown Quarry is situated ±6 km west of Komani central along the N6 National Road.
21 digit Surveyor General Code for each farm portion	C06200010000008100000

c) Locality map

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

The requested map is attached as Appendix B.

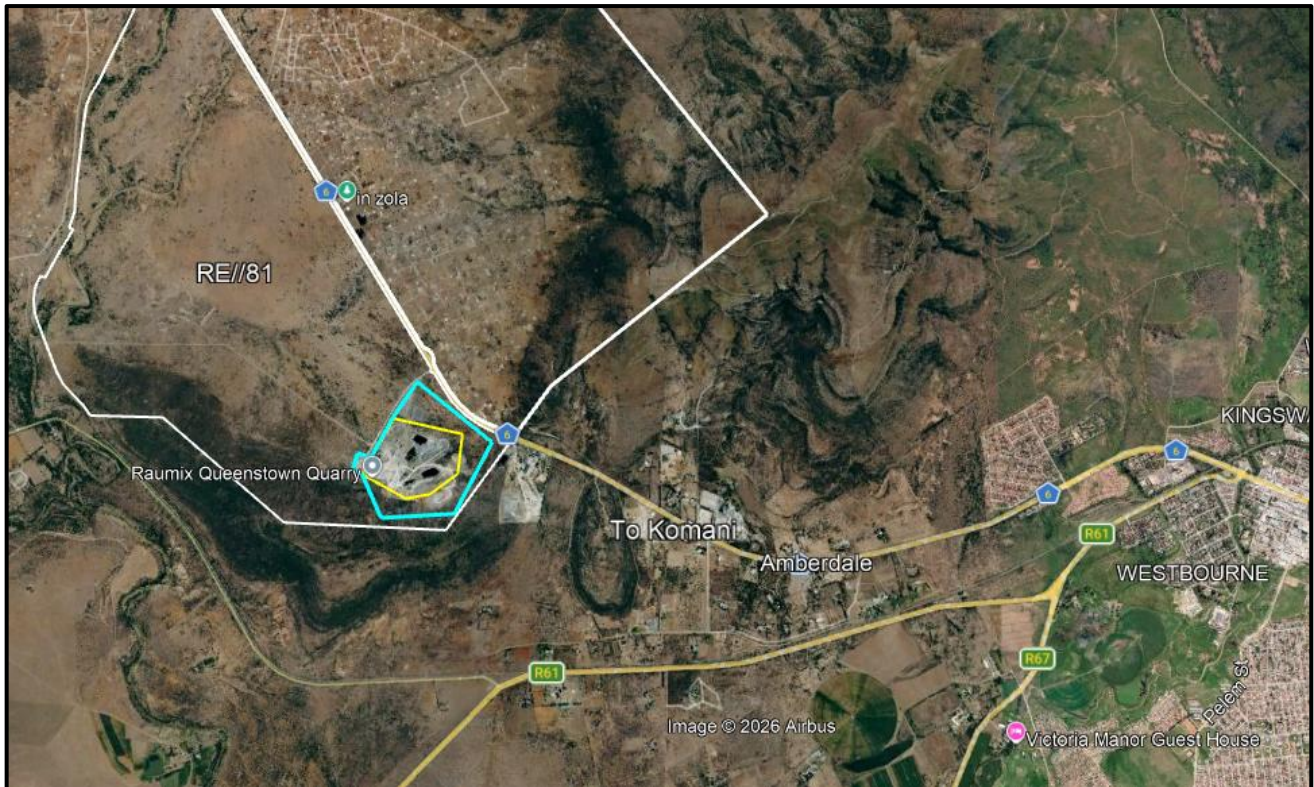


Figure 1: Satellite view showing the mining right area (yellow polygon) and the S102 application area (blue polygon) in relation to the surroundings where the white lines indicate the boundaries of the farm Lesseyton No 81 (image obtained from Google Earth).

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

SECTION 102 APPLICATION IN TERMS OF THE MPRDA, 2002, AND EA APPLICATION IN TERMS OF THE NEMA EIA REGULATIONS, 2014 (AS AMENDED)

Queenstown Quarry (Pty) Ltd, applied for a Section 102 (S102) amendment in terms of the MPRDA, 2002 to:

- ◆ update the 2011 EMPR, and
- ◆ expand the mining footprint. The current mining right was approved over 36.2505 ha, and the Right Holder now desires to extent the mining area to 66.7419 ha.

SCOPE OF THE OVERALL ACTIVITY

Mining at Queenstown Quarry (since the 1970's) brought about the development of the excavations to its ultimate extent. Considering this, the Right Holder identified the need to expand the mining footprint as this will allow development of the mining area in a northern, eastern and southern direction.

The mining method will remain unchanged, and no additional infrastructure needs to be established in the expansion area, as the motivation for the proposed extension is to expand the excavation perimeters. The Right Holder will therefore continue to use the existing offices, workshops, storerooms, plant etc. of the Quarry.

The proposed expansion of the mine's footprint necessitates an application for a Part 2 amendment of the mine's EMPR in terms of GNR 326 Section 31 (NEMA). The application further constitute listed/specified activities in terms of the NEMA: EIA Regulations, 2014 (as amended) and therefore requires an environmental impact assessment (basic assessment process) that assess project specific environmental impacts and alternatives, consider public input, and propose mitigation measures, to ultimately culminate in an environmental management programme that informs the competent authority (Department of Mineral and Petroleum Resources (DMPR)) when considering the environmental authorisation.

See attached as Appendix C1 a copy of the Site Activities Map of the operation, as well as Appendix C2 for the Plant Layout.

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 NOTICE	LISTING
(E.g. For prospecting – drill site, site camp, ablution facilities, accommodation, equipment storage, sample storage, site office, access route etc... etc... etc E.g. for mining – excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	Ha or m ²	Mark with an X where applicable or affected	(GNR 324, GNR 325, GNR 326 OR GNR 327)	
Application for a Section 102 MPRDA, 2002 amendment of the mining right, as well as a Part 2 amendment of the EMPR in terms of GNR 326 Section 31.	66.7419 ha (MR Footprint + Expansion)	X	GNR 983 Listing Notice 1 of 2014 (as amended) – Activity 21D	
<u>EIA Regulations GNR 983 Listing Notice 1 of 2014 (as amended) – Activity 21D:</u> <i>Any activity including the operation of that activity which requires an amendment or variation to a right or permit in terms of section 102 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity contained in this Listing Notice or in Listing Notice 3 of 2014, required for such amendment.</i>				

NAME OF ACTIVITY	Aerial extent of the activity	LISTED ACTIVITY	APPLICABLE NOTICE	LISTING
Demarcation of the expansion area with visible beacons.	66.7419 ha (MR Footprint + Expansion)	N/A	-	
Stripping and stockpiling of topsoil and/or overburden from the expansion area.	±19 ha	X	GNR 983 Listing Notice 1 of 2014 (as amended) – Activity 21D	
Drilling and blasting of hard rock in the expansion area.	±19 ha			
Excavation, loading and hauling of rock from the expansion area to processing area.	±19 ha			
Sloping, landscaping, and rehabilitation the affected areas (operational- and expansion area) upon closure of the mine.	66.7419 ha			

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)

(Information obtained from the Updated Environmental Impact Assessment & Environmental Management Programme compiled by Umhlaba Environmental Consulting CC, October 2011)

1. BACKGROUND INFORMATION

Queenstown Quarry was established in the 1970's over a portion of the farm Lesseyton No 81, within the Enoch Mggima Municipal Area of the Eastern Cape. The old order mining licence (ML 15 / 96) was converted, and a mining right was granted to Queenstown Quarry (Pty) Ltd in 2015. The protocol number of the mining right is 179/2015 and the file reference number is EC 30/5/1/2/2/009 MR. The right is valid until 24 March 2045 and currently extends over 36.2505 ha.

Mining is performed through an open cast drilling and blasting method. The blasted material is removed from the excavations by excavators and haul vehicles. The material is then processed through both a dry and/or a wet plant to produce various sizes of aggregate product. The mine is a major supplier of dolerite and quartzite aggregate material for the construction industry in the Komani area. Products are transported from the site by road.

2. APPROVED OPERATIONAL ACTIVITIES

As mentioned earlier, the approved mining area is 36.2505 ha. The table below lists the GPS coordinates of the approved mining footprint.

Table 3: GPS Coordinates of the approved mining right area.

NUMBER	DEGREES, MINUTES, SECONDS		DECIMAL DEGREES	
	LAT (S)	LONG (E)	LAT (S)	LONG (E)
A	31°53'21.00"	26°47'37.00"	-31.889167°	26.793611°
B	31°53'25.00"	26°47'57.00"	-31.890278°	26.799167°
C	31°53'35.00"	26°47'56.00"	-31.893056°	26.798889°
D	31°53'40.00"	26°47'48.00"	-31.894444°	26.796667°
E	31°53'41.00"	26°47'41.00"	-31.894722°	26.794722°
F	31°53'35.00"	26°47'28.00"	-31.893056°	26.791111°



Figure 2: Satellite view of the approved footprint of Queenstown Quarry (yellow polygon) where the white lines show the boundary of the farm Lesseyton No 81 (image obtained from Google Earth).

Lesseyton No. 81 is a substantial agricultural property encompassing ±4 526 hectares. Over time, the Lesseyton residential area has expanded along the sections of the property adjacent to the N6 National Road, primarily to the north-east and north-west. The quarry is in the southernmost portion of the farm, as illustrated in the figure below.

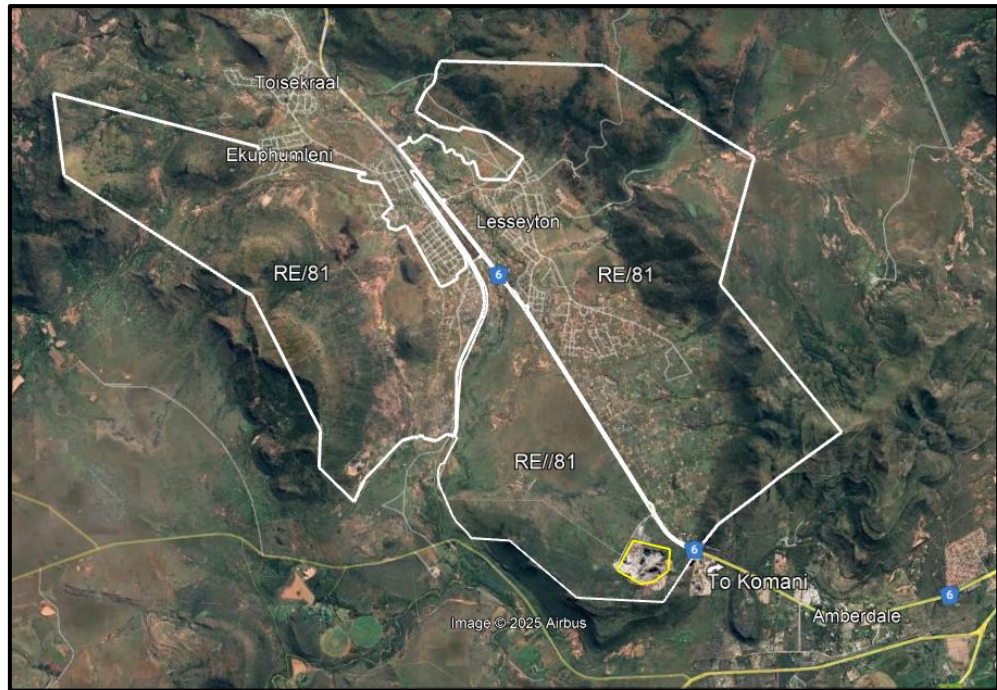


Figure 3: Satellite view of the Queenstown Quarry footprint (yellow polygon) in relation to the farm Lesseyton No 81 (white polygons) (image obtained from Google Earth).

2.1 SITE INFRASTRUCTURE

Queenstown Quarry has well established buildings and infrastructure on site. The following main areas are defined at the mine:

- A. Site offices, parking area, and weighbridge;
- B. Staff Change Rooms & Kitchen;
- C. Workshop, wash bay and stores;
- D. Gas Storage Cages;
- E. Loading area;
- F. Diesel depot;
- G. Various stockpile areas;
- H. Crushing plant area;
- I. Washing plant area;
- J. Plant Control Rooms;
- K. Salvage yard;
- L. Quartzite quarry;
- M. Dolerite quarry;
- N. Settling pond.



Figure 4: Satellite view of the various developed areas at Queenstown Quarry where the yellow polygon presents the current mining footprint (image obtained from Google Earth).

2.2 PROCESS DESCRIPTION

The Queenstown Quarry operation is an opencast mine in which quartzite and dolerite are extracted from two separate excavations. Following the removal of topsoil (where present) and overburden, both rock types are mined using conventional drilling and blasting methods. Topsoil and overburden are stockpiled separately at designated stockpile areas and are utilised for the progressive rehabilitation of mined-out sections as required.

The blasted material is loaded onto haul trucks and transported to a primary crusher, after which it is conveyed to the relevant secondary processing plants. Here, the material is crushed, washed, screened, and stockpiled. Finished products are loaded onto clients' trucks and dispatched via a weighbridge to ensure compliance with load limits. The resulting quartzite and dolerite aggregates are primarily supplied to the construction sector.

2.3 KOMANI QUARRY (PTY) LTD MINING PERMIT

A mining permit, with reference number EC 30/5/1/3/2/10498 MP (“10498MP”), was issued to Komani Quarry (Pty) Ltd on 27 November 2020. The permit covered an area of 4.9 ha and was situated directly adjacent to the south-eastern boundary of the mining right, as illustrated below. It remained valid until 26 November 2025. Mining activities within this area involved the drilling and blasting of hard rock, which was then transported to the Queenstown Quarry processing plant and integrated into its operations.



Figure 5: Satellite view of the approved footprint of Queenstown Quarry (yellow polygon) in relation to the mining permit granted to Komani Quarry (Pty) Ltd (red polygon). The white lines show the boundary of the farm Lesseyton No 81 (image obtained from Google Earth).

2.4 WATER USE AND MANAGEMENT

Queenstown Quarry has a General Authorisation in terms of Section 39 of the National Water Act, 1998 (Act No 36 of 1998) (NWA) to:

- ◆ extract 410 m³ of water per annum from a borehole situated on Portion 5 of the farm Lesseyton No 81; and
- ◆ store water in the excavations.

Potable Water

Potable water is pumped from the excavations to a storage tank, where it undergoes treatment through a water purification plant before being supplied for employee use.

Process Water

Process water for dust suppression and use at the washing plant is also obtained from the excavations. The water used at the plant for washing and screening of the material is pumped to an adjacent settling pond. The overflow of the pond is then piped back into the quartzite quarry for recirculation.

Sanitation and Wash Bay

Sanitation at the Quarry is provided through the use of enclosed septic tanks that are serviced when needed.

Berms and channels within the workshop and service bay area keep clean water out and direct the dirty water into a catchment trap with an oil separator.

Stormwater

The mine uses berms and channels to separate clean- and dirty water from the various operational areas that may originate due to stormwater runoff. Dirty water areas include the:

- ◆ workshop and service bay area;
- ◆ diesel depot;
- ◆ sanitation tanks;
- ◆ plant and stockpile area; and
- ◆ overburden and topsoil areas.

The stormwater berms are carefully graded and vegetated to slow the flow of clean water and minimize erosion. Coarser material is strategically incorporated to create seepage points within the berms, which trap sediment while allowing filtered water to pass through. Dirty water is contained in the oil sump, settling pond and/or septic tanks.

2.5 ELECTRICAL REQUIREMENT

The electricity for the plant, workshops, and administration offices is provided by the municipality. Generators are used as back-up power when needed.

2.6 WASTE MANAGEMENT

The mine generates limited amounts of general- and hazardous waste. The Right Holder has an integrated waste management policy, and the company strives to recycle where possible.

Presently, waste is separated into waste that can be re-used, recycled, and those that must be removed from the site. General waste (that cannot be reused on site) is removed to the Komani municipal landfill site. Hazardous waste is removed from site by qualified hazardous waste handling contractors.

Waste materials that can be reused/recycled is stored at the salvage yard of the mine until needed.

3. SECTION 102 APPLICATION

3.1 S102 PROJECT PROPOSAL – EXPANSION OF THE MINING FOOTPRINT

As mentioned earlier, the Right Holder applied for consent of the Minister to:

- ◆ update the 2011 EMPR; and
 - ◆ expand the mining footprint;
- , in terms of Section 102 of the MPRDA, 2002.

Should the S102 application (including EA) be approved, the Right Holder intends to expand the mining footprint to 66.7419 ha within the GPS coordinates as listed in the following table and depicted in the subsequent figure.

Table 4: GPS Coordinates of the proposed expansion area.

NUMBER	DEGREES, MINUTES, SECONDS		DECIMAL DEGREES	
	LAT (S)	LONG (E)	LAT (S)	LONG (E)
Q1	31°53'11.72"	26°47'43.28"	-31.886589°	26.795356°
Q2	31°53'26.98"	26°48'05.98"	-31.890829°	26.801660°
Q3	31°53'45.03"	26°47'55.23"	-31.895841°	26.798676°
Q4	31°53'46.34"	26°47'34.27"	-31.896205°	26.792853°
Q5	31°53'35.00"	26°47'28.00"	-31.893056°	26.791111°
Q6	31°53'34.06"	26°47'25.13"	-33.892794°	26.790314°
Q7	31°53'29.75"	26°47'26.38"	-33.891597°	26.790661°
Q8	31°53'30.75"	26°47'30.35"	-33.891875°	26.791764°

NUMBER	DEGREES, MINUTES, SECONDS		DECIMAL DEGREES	
	LAT (S)	LONG (E)	LAT (S)	LONG (E)
Q9	31°53'21.00"	26°47'37.00"	-33.889167°	26.793611°



Figure 6: Satellite view of the proposed expansion area (blue polygon) in relation to the mining footprint (yellow polygon). (Image obtained from Google Earth).

3.1.1 CONSTRUCTION PHASE / SITE ESTABLISHMENT

Should the expansion application be approved the mining method will remain unchanged. No additional infrastructure needs to be established in the expansion area as the motivation for the proposed extension is to expand the excavation perimeters. The Right Holder will continue to use the existing offices, workshops, storerooms, plant etc. of the Quarry and therefore no construction/site establishment phase is applicable.

3.1.2 OPERATIONAL PHASE

Should this Section 102 (S102) amendment application be approved, the Right Holder will be able to extend the dolerite pit in a southern to south-eastern direction. The quartzite pit can be expanded towards the north and north-east.

The Right Holder has entered into an agreement with Komani Quarry (Pty) Ltd to submit the proposed S102 amendment application over the former mining permit area, for which the permit lapsed on 26 November 2025. A copy of this agreement is provided in Appendix M. The S102 application was accompanied by a Transfer of Liabilities Application, in terms of which the environmental liabilities associated with Komani Quarry (Pty) Ltd will be transferred to the Right Holder upon approval of the amendment.

The mining method employed at the Quarry will remain unchanged, with bench mining also being applied within the proposed expansion areas. Mining-related equipment and machinery expected to operate within the expansion areas will include, at minimum, the following:

- ◆ Dumper trucks;
- ◆ Earthmoving machinery;
- ◆ Excavation equipment; and
- ◆ Water cart/s.

The Quarry will occasionally operate two shifts per day, six days per week, resulting in operations extending beyond normal daytime working hours when required. Blasting will, however, be restricted to weekdays between 08:00 and 17:00.

3.1.2.1 Demarcation of Mining Boundaries

Pursuant to receipt of the Environmental Authorisation (EA) and amended Mining Right (MR) the boundaries of the expansion area will be demarcated with visible beacons.

3.1.2.2 Clearing of Vegetation

(Also refer to Part A(1)(h)(iv)(c) Description of specific environmental features and infrastructures on the site – 6. Site Specific Terrestrial Biodiversity)

Prior to the commencement of vegetation clearing within areas designated for mining, a suitably qualified specialist will undertake a pre-clearing walk-through of the affected areas. The purpose of the walk-through will be to

identify and demarcate any plant species of conservation concern, with particular attention given to species identified in the Terrestrial Biodiversity Impact Assessment (TBIA) (Appendix E).

Where the removal, relocation or disturbance of protected plant species requires authorisation, the necessary plant removal and/or relocation permits will be obtained from the relevant authority prior to disturbance of such species.

Once the specialist walk-through has been completed, any required permits have been obtained, and applicable mitigation measures have been implemented, vegetation will be systematically cleared from areas required for mining and associated operational activities. Clearing will be undertaken progressively and limited to the extent necessary for the planned mining activities. Vegetation outside the immediate mining footprint will be retained in situ for as long as reasonably practicable and will only be cleared when the relevant area is required for mining.

3.1.2.3 Topsoil Stripping

It is proposed that topsoil (where available) removal will be restricted to the exact footprint of areas required during the operational phase of the activity. The topsoil will be stockpiled at an existing designated signposted area 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 2 m in height.

3.1.3 DECOMMISSIONING PHASE

Due to the impracticality of importing the large volumes of fill that would be required to restore the excavations to their original topography, the proposed rehabilitation strategy is to shape the pits into stable landscape features that comply with all applicable regulatory safety requirements. This will entail creating a series of irregular benches along the quarry faces, the top edges of each face 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 (refer to Appendix I for the Closure Plan).

The decommissioning activities will therefore consist of the following:

- ◆ Sloping and landscaping the quarry excavations;
- ◆ 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 excavations will be levelled and landscaped to return to agricultural (grazing) use. The buildings and roads at the property will most likely be retained for future use by the landowner and will therefore not be demolished unless required by the landowner. The Right Holder will comply with the minimum closure objectives as prescribed by the DMPR and detailed below.

◆ **Rehabilitation of the Excavated Areas**

The excavated areas must serve as a final depositing area for the placement of overburden. Rocks and coarse material removed from the excavations 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 excavations and it was profiled with acceptable contours and erosion control measures, the topsoil previously stored must be returned to its original depth over the areas.

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.

♦ **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 Right Holder is required to submit a closure application to the Department of Mineral and Petroleum Resources 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 5: 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) (CARA).	Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity. Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk.	The mitigation measures proposed for the site includes specifications of the CARA, 1983.
Eastern Cape Nature and Environmental Ordinance 19 of 1974 (as amended).	Part A(1)(g)(iv)(1)(a) Type of environment affected by the proposed activity. Part A(1)(g)(viii) The possible mitigation measures that could be applied on the level of risk.	The mitigation measures proposed for the site includes specifications of the ECNEO, 1974.
EC 139 – Final Integrated Development Plan (2025/26 Review) Enoch Mgijima Local Municipality (IDP)	Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity.	The description of the study area's socio-economic status is in accordance with that of the IDP.
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.
Mine Health and Safety Act, 1996 (Act No 29 of 1996) read together with applicable amendments and regulations thereto including relevant OHSA regulations.	Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk.	The mitigation measures proposed for the site includes specifications of the MHSA, 1996
Mineral and Petroleum Resources Development Act, 2002, (Act No. 28 of 2002) read together with applicable amendments and regulations thereto. ♦ Section 102 amendment application	Part A(1)(d) Description of the scope of the proposed overall activity	Application for a S102 amendment of the mining right submitted to DMPR-EC. Ref No: EC 30/5/1/2/2/009 MR – 00052 MR/102

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 Environmental Management Act, 1998 (Act No. 107 of 1998) and the Environmental Impact Assessment Regulations, 2014 (as amended) ♦ GNR 983 Listing Notice 1 of 2014 (as amended) – Activity 21D	Part A(1)(d)(i) Listed and specified activities.	Application for a Section 102 amendment application as well as a Part 2 amendment of the EMPR and EA submitted to DMPR-EC. Ref No: EC 30/5/1/2/2/009 MR – 00052 MR/102
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 R893	Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity. Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk.	The mitigation measures proposed for the site consider the NEM:AQA, 2004 and the National Dust Control Regulations.
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. Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk.	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.	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.	The mitigation measures proposed for the site consider the NEM:WA.
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. Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk.	The mitigation measures proposed for the site includes specifications of the NHRA, 1999.
National Water Act, 1998 (Act No 36 of 1998) read together with applicable amendments and regulations thereto. Department of Water Affairs and Forestry Best Practice Guideline Series (2007).	Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity.	The mitigation measures proposed for the site includes specifications of the NWA, 1998.

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.
	Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk. Part B(1)(d)(iii) Has a water use licence been applied for?	
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.

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)

Queenstown Quarry produces aggregates and road pavement layering products for the construction and building industry of mainly the Eastern Cape. Customers include, amongst others, the following:

- ◆ A2Z Block and Bricks;
- ◆ ARU Investment (Pty) Ltd t/a ARU Blocks;
- ◆ African Compass Trading 404 (Pty) Ltd;
- ◆ Al 2uhr Trading Enterprise;
- ◆ Cotterrells Construction CC;
- ◆ Down Touch Investments;
- ◆ Tau Pele Construction;
- ◆ Eastern Cape Ready Mix;
- ◆ Eastern Cape Builders;
- ◆ HDM Construction;
- ◆ KCW;
- ◆ Mitsu Developments;
- ◆ Mpumalanga Construction;
- ◆ MS Appliances;
- ◆ Mystic Maize Investments;
- ◆ Nashashi Hardware;
- ◆ Payek Traders;
- ◆ Queenstown Precast;
- ◆ Queens Precast;

- ◆ Roy Brothers;
- ◆ Roadmac Surfacing Cape;
- ◆ SAAD Group;
- ◆ Top Rock Aggregate Group;
- ◆ Universal Builders Trading;
- ◆ Vulindlela Sands & Logistics;
- ◆ Yebo Block Yard;
- ◆ Yomba Quarries.

The quarry has been in continuous operation since the 1970s and has established itself as an important source of construction materials within the region. The continued availability of locally produced aggregates contributes to the maintenance and development of public infrastructure, including roads, buildings, water and sanitation infrastructure, and other essential services. By supplying materials from an established operation, the quarry also reduces the need to transport aggregate over long distances, thereby improving the efficiency of regional construction projects.

Mining activities undertaken over the past several decades have progressively advanced the existing excavations to their maximum practicable extents within the currently approved mining areas. The remaining economically recoverable reserves within these areas are becoming increasingly constrained, limiting the long-term sustainability of the operation. To maintain a continuous supply of aggregate products and ensure the ongoing viability of the quarry, the Right Holder has identified the need to expand the mining footprint towards the north, east, and south through a Section 102 amendment.

The proposed expansion will enable the continued extraction of economically viable mineral resources while making use of the existing mining infrastructure, processing plant, access roads, workshops, offices, and other operational facilities already established on site. As such, the proposal represents the logical continuation of an established mining operation rather than the development of a new quarry at an alternative location. Expanding the existing quarry will maximise the use of existing infrastructure, avoid the unnecessary environmental impacts associated with establishing a new greenfield operation, and consolidate mining activities within an area that has already been disturbed by historic quarrying. Furthermore, the continuation of the operation will support the retention of existing employment opportunities, preserve the skills and experience of the current workforce, and continue to provide economic benefits to local suppliers, contractors, and the surrounding communities. The proposed expansion is therefore

considered a more sustainable and responsible approach than developing a new quarry elsewhere to meet the ongoing regional demand for construction aggregates.

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 6: Need and desirability determination.

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
<u>How will this development impact on the ecological integrity of the area?</u>		
Question	Response	Level of Desirability
How were ecological integrity considerations taken into account?	Ecological integrity and biodiversity considerations were incorporated into the assessment through site-specific verification and the TBIA, which considered the condition, ecological value and functionality of habitats within the proposed expansion area. The assessment confirmed that ecological condition is not uniform across the site: the plains between the existing quarry and the N6 are substantially degraded by historical and ongoing disturbance, while the ridge and associated rocky outcrops are relatively intact and have greater ecological value. Although the remaining natural vegetation falls within mapped CBA2, the affected habitats form part of a considerably larger biodiversity network and similar habitats remain represented within the surrounding landscape. The proposed development will not enhance the existing ecosystem and will result in the permanent loss of vegetation and habitat within the areas ultimately mined, including both degraded CBA2 plains habitat and relatively intact CBA2 ridge habitat. This represents an unavoidable consequence of accessing the location-bound mineral resource. The TBIA nevertheless determined that the area affected is small in relation to the broader CBA2 network and that the proposed habitat loss is not expected to fragment the network, sever ecological connectivity or materially affect landscape-scale ecological processes. The impacts on the affected CBA2 habitats were accordingly assessed as Low significance. The likelihood of impacts on terrestrial plant and animal Species of Conservation Concern (SCC) was also determined to be low. Ecological integrity will further be protected by confining mining and ancillary activities to the approved footprint, retaining vegetation outside areas required for mining for as long as practicable, undertaking pre-clearing specialist	Acceptable
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
	walk-throughs, obtaining any required plant removal or relocation permits, preventing unnecessary disturbance beyond the mining footprint, controlling alien invasive plants and progressively rehabilitating disturbed areas where practicable. The development will therefore result in localised and permanent biodiversity loss within the mining footprint but is not expected to materially compromise the ecological functionality or broader conservation objectives of the CBA2 network.	
How will this development pollute and/or degrade the biophysical environment?	This application is for the expansion of the excavations at Queenstown Quarry and will entail the same mining method that has been ongoing since inception of the mine. The expansion of the excavation will not generate additional and/or other waste products than those already managed on site.	Highly Desirable
What waste will be generated by this development?	As mentioned earlier, the mining activities generate limited general- and/or hazardous waste. The Right Holder has an integrated waste management policy, and the company strives to recycle where possible. The general waste mainly consists of paper, plastic, tin, and/or glass from the daily operations of the employees. A registered contractor services the septic tank on site. Hazardous waste result mainly from services, and accidental spillages/breakdowns. Contaminated areas are immediately cleaned, and the contaminated soil is contained in a designated bunded area with impermeable surface until it is removed from site by a registered hazardous waste handling contractor or cleaned through bioremediation. Other hazardous waste such as oils, filters, rags etc. are removed from site by an appropriately qualified contractor.	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
How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage?	The proposed development footprint does not constitute areas of cultural and/or heritage concern and the proposed activity will therefore not affect such.	Highly Desirable
How will this development use and/or impact on non-renewable natural resources?	If the expansion of the footprint is approved the Right Holder will continue to mine the resources and expand the mining footprint towards the north, east and south. The proposed expansion will extend the mine life of the dolerite excavation to ±33.5 years, while the mine life of the quartzite pit is expected to be ±35 years. Considering this, the right 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?		
How were a risk-averse and cautious approach applied in terms of ecological impacts?	A risk-averse and cautious approach was applied by verifying the ecological sensitivities identified for the site through a specialist TBIA, rather than relying solely on desktop information. The assessment considered the condition and ecological functionality of the affected habitats, the mapped CBA2 areas and the potential presence of plant and animal SCC. Although the TBIA assessed the terrestrial biodiversity impacts of the proposed expansion as Low significance, the CBA2 designation and the higher ecological value of the ridge and rocky habitats were nevertheless recognised in the assessment. The precautionary approach is further reflected in measures to confine all mining and ancillary activities to the approved footprint, minimise unnecessary vegetation clearing and disturbance beyond this footprint, retain vegetation until areas are required for mining, undertake specialist walk-throughs prior to clearing, obtain any	Acceptable

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
	required permits for protected plant species, control alien invasive plants and progressively rehabilitate disturbed areas where practicable. These measures provide for the avoidance and minimisation of unnecessary ecological disturbance notwithstanding the specialist's finding that the proposed expansion is not expected to materially compromise the ecological functionality of the broader CBA2 network.	
How will the ecological impacts resulting from this development impact on people's environmental right?	The proposed expansion will result in the permanent loss of vegetation and habitat within the mining footprint, including portions of mapped CBA2, and will therefore contribute to localised ecological change. The TBIA determined, however, that the affected area is small in relation to the broader CBA2 network and that the development is not expected to fragment ecological connectivity or materially compromise landscape-scale ecological processes or the conservation objectives of the CBA2 network. Impacts on terrestrial plant and animal SCC are also considered unlikely. In the context of the environmental right provided for in Section 24 of the Constitution, the identified ecological impacts have been assessed and will be subject to measures aimed at preventing unnecessary disturbance, limiting impacts to the approved mining footprint and progressively rehabilitating disturbed areas where practicable. While the ecological impacts cannot be entirely avoided, the specialist assessment indicates that they can be managed without materially compromising the ecological functioning of the wider landscape. The development is therefore not expected to result in ecological impacts of such a nature or extent that the environmental right of surrounding communities would be materially compromised.	Acceptable
Describe the linkages and dependencies between human wellbeing, livelihoods, and	If the S102 application is approved, the mine will be able to expand the excavations to the north, east and south. The betterment of the Quarry directly contributes to a prolonged lifespan of the operation and job security to the	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
ecosystem services applicable to the area in question and how the development's ecological impacts will result in socio-economic impacts.	employees. The mine will also continue to meet the commitments of the SLP regarding Human Resources Development, and Local Economic Development, amongst others.	
Based on all the above, how will this development positively or negatively impact on ecological integrity objectives/targets/considerations of the area? Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified, resulted in the selection of the "best practicable environmental option" in terms of ecological considerations	If the mitigation measures proposed in this document are adhered to, the proposed project could operate without influencing the status of the greater ecosystem, red data species or the conservation targets set out for a CBA2. Also refer to: ◆ Part A(1)(d)(ii) Description of the activities to be undertaken; ◆ 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; ◆ Part A(1)(h)(iv)(1)(c) Description of specific environmental features and infrastructure on the site.	Acceptable

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 the S102 application is approved, the mine will continue to generate income from the selling of aggregates. The betterment of the Quarry directly contributes to a prolonged lifespan of the operation and job security to employees. The continued management of the mining area enhances the socio-economic value of the area compared to the land being dormant, and as mentioned earlier, the continued existence of the mine ensures contributions to the community in terms of the SLP commitments.	
How will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities?	The state also receives compensation for the use of their land. The Quarry directly contributes to the needs of the community in terms of employment, aggregate sales, and social upliftment, while also indirectly contributing to infrastructure development in mainly the Eastern Cape.	
Will the development result in equitable impact distribution, in the short- and long-term?	The proposed activity will be operated in a socially and economically sustainable manner during both the short- and long term. Queenstown Quarry (Pty) Ltd is focused on Historically Disadvantaged South Africans, especially women, empowerment. The procurement progression plan of the Right Holder entails the support of local enterprises, of which preference is given to HDSA & women owned local suppliers (where possible). Queenstown Quarry' employment equity is also in line with the provisions of the Employment Equity Act, 1998 (as amended).	Highly Desirable

2. PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT

What is the socio-economic context of the area?

Question	Response	Level of Desirability
In terms of location, describe how the placement of the proposed development will contribute to the area.	Expanding the quarry and thereby mining the resources on the property will contribute to the surrounding area in that the project will prolong employment opportunities, and the use of the material will directly and indirectly promote the economy of the area as mentioned earlier.	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?	The proposed development is expected to provide positive socio-economic benefits through the continued operation of the quarry and the retention of employment opportunities. Although the activity has the potential to give rise to localised environmental impacts, these are capable of being effectively managed through the implementation of the proposed mitigation measures and monitoring programmes. It is therefore anticipated that the development will not result in unacceptable impacts on the environmental rights of surrounding communities.	Highly Desirable
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?	The surrounding area provides a range of ecosystem services, including grazing, biodiversity habitat, natural drainage functions, and the provision of land for agricultural and other economic activities. The continued operation of Queenstown Quarry contributes to human wellbeing and livelihoods by providing employment, supporting local suppliers and contractors, and supplying aggregates that are essential for regional infrastructure and development projects.	Highly Desirable

2. PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT

What is the socio-economic context of the area?

Question	Response	Level of Desirability
	The proposed Section 102 amendment will result in the expansion of the existing mining footprint, which will lead to the removal of additional vegetation and habitat, changes to land cover, and the continued generation of mining-related impacts such as dust, noise, and increased vehicle movement. These ecological impacts have been assessed as part of the environmental assessment process and will be managed through the implementation of the Environmental Management Programme (EMPr), rehabilitation measures, and ongoing environmental monitoring. As the proposal constitutes the logical extension of an established quarry making use of existing infrastructure, the development is not expected to result in significant additional ecological impacts beyond those identified and assessed, provided that the prescribed mitigation measures are effectively implemented.	
What measures were taken to pursue the selection of the “best practicable environmental option” in terms of socio-economic considerations?	The responsible use of additional land for mining purposes was considered by the project team. If the mitigation measures proposed in this document are adhered to, the proposed project can continue without influencing the status of the greater ecosystem, red data species or the conservation targets set out for a CBA2. Should the S102 application be approved, the project will continue to contribute to the socio-economic status of the receiving environment as discussed earlier. Also refer to: ♦ Part A(1)(h)(vii) <i>The positive and negative impacts that the proposed activity and alternatives will have on the environmental and the community that may be affected.</i>	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?		

2. PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT

What is the socio-economic context of the area?

Question	Response	Level of Desirability
What measures were taken to pursue equitable access to environmental resources, benefits and 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?	The mine operates in accordance with, amongst others, the following: ◆ CARA, 1983 – to ensure agriculture related compliance; ◆ 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; ◆ NWA, 1998 (as amended) – to ensure water use compliance. As mentioned earlier, the procurement progression plan of the Right Holder entails the support of local enterprises, of which preference is given to HDSA & women owned local suppliers (where possible).	Highly Desirable
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?		
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.	◆ The aggregate will be sold to building- and road contractors in and around the mine. ◆ Expansion of the mining area will prolong the lifespan of the operation, thereby safeguarding employees against downscaling and retrenchment. ◆ In addition to the above, the proposed expansion will enable the continued implementation of the Right Holder's approved Social and Labour Plan (SLP). This will allow the operation to continue contributing to the socio-	Highly Desirable

2. PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT

What is the socio-economic context of the area?

Question	Response	Level of Desirability
	economic development of surrounding communities through the implementation of agreed employment, skills development, local procurement and community development commitments.	
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 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.	The mine operates 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 holds regular toolbox talks with the site personnel regarding the work to be performed and the environment in which the work takes place. Grievances/concerns can be lodged during these toolbox sessions and site meetings.	Highly Desirable
Describe how the development will impact on job creation in terms of, amongst other aspects?	As this is a S102 amendment application for an existing operation the project itself will not generate additional work opportunities. It will however contribute to the lifespan of the operation providing the existing employees with prolonged job security.	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	The mine operates under a valid mining right and in accordance with an approved EMPR. Should the S102 application be approved, compliance of the site with the approved EA and EMPR 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

2. PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT

What is the socio-economic context of the area?

Question	Response	Level of Desirability
be protected as the people's common heritage.		
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 are 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 excavations to its original topography, the rehabilitation option is to develop the quarries into landscape features 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 agricultural use. 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 preventing, controlling or minimising further pollution environmental damage or adverse health effects will be paid for by those responsible for harming the environment.	In terms of Section 41 of the MPRDA, 2002 a mining right holder must submit a financial provision to the DMPR that is sufficient to rehabilitate or manage the negative environmental impacts related to the mining activity. The Right Holder already has a financial guarantee lodged with the DMPR that is deemed sufficient to cover the financial provision needed to rehabilitate the mining footprint. This guarantee may have to increase to cover the expansion area proposed by this application. The environmental liability of the operation will annually be reviewed and if a shortfall is indicated, the guarantee will be accordingly adjusted.	Highly Desirable
Considering the need to secure ecological integrity and a healthy bio-physical environment, describe how the alternatives	The alternatives assessment considered the need to protect ecological integrity together with the socio-economic purpose and benefits of the proposed expansion. The No-Go Alternative would provide the greatest immediate ecological benefit by avoiding the additional loss of vegetation and habitat; however, it would prevent access to	Highly Desirable

2. PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT

What is the socio-economic context of the area?

Question	Response	Level of Desirability
identified, resulted in the selection of the best practicable environmental option in terms of socio-economic considerations	the identified dolerite and quartzite resources adjoining the existing quarry and would forego the proposed ±35-year extension of the life of mine and the associated continuation of employment, aggregate supply and other socio-economic benefits. The preferred alternative represents the expansion of an existing quarry rather than the establishment of a new geographically separate mining operation and allows continued use of the existing processing plant, access, internal roads and supporting infrastructure. The location of the expansion is further constrained by the occurrence and accessibility of the mineral resource. Although the preferred alternative will result in unavoidable ecological disturbance, the TBIA concluded that the terrestrial biodiversity impacts are of Low significance and that the expansion can be accommodated without materially compromising the ecological functionality of the broader CBA2 network, provided that activities remain confined to the approved footprint. When the environmental advantages of the No-Go Alternative are weighed against the location-bound nature of the mineral resource, the use of an established quarry and existing infrastructure, the assessed ecological impacts and the socio-economic consequences of not extending the operation, the proposed expansion is considered the best practicable environmental option identified. It provides for continued socio-economic benefits while limiting ecological disturbance to an assessed and defined footprint and requiring the implementation of appropriate mitigation, management and rehabilitation measures. 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.	

2. PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT

What is the socio-economic context of the area?

Question	Response	Level of Desirability
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.	Refer to Part A(1)(t)(i)(1) <i>Impact on the socio-economic conditions of any directly affected person.</i>	Highly Desirable

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

The preferred alternative entails the expansion of the existing Queenstown Quarry mining right from 36.2505 ha to ±66.7419 ha over a portion of the farm Lesseyton No. 81. The proposed expansion represents a logical continuation of the existing quarry operation and will provide access to the identified dolerite and quartzite resources adjoining the existing mining areas.

The preferred location is principally determined by the occurrence and accessibility of the mineral resources, the position of the existing quarry excavations, existing mining and processing infrastructure, property boundaries, the N6 National Road and environmental sensitivities identified during the assessment process. The expansion of the existing quarry is preferred over the establishment of a geographically separate mining area, as it allows continued use of existing infrastructure and limits the need for additional infrastructure and associated disturbance.

The preferred activity entails the continued extraction of dolerite and quartzite as an extension of the existing quarry operation. Extracted material will be transported to the existing processing plant for crushing, screening and further processing. The expansion will largely utilise the quarry's existing infrastructure and services, including the processing plant, N6 access, internal road network, workshop and service facilities and existing water management system. No additional permanent buildings or processing infrastructure are presently proposed within the expansion area.

Conventional drilling, blasting, excavation, loading and hauling are retained as the preferred mining technology. These methods are appropriate to the competent hard-rock nature of the dolerite and quartzite resources and are consistent with the established Queenstown Quarry operation. Continued use of the existing mining methodology also allows the expansion area to be integrated into the current operation without requiring a separate processing facility or substantially different mining system.

The Terrestrial Biodiversity Impact Assessment (TBIA) confirmed that the proposed expansion area occurs within mapped Critical Biodiversity Area 2 (CBA2), resulting in the Very High sensitivity assigned to the Terrestrial Biodiversity Theme being retained. The assessment nevertheless identified considerable variation in the ecological condition and value of habitats within the proposed expansion area. Vegetation on the plains, particularly between the existing quarry and the N6 National Road, is heavily degraded and has

substantially reduced ecological functionality, whereas the ridge and associated rocky outcrops are relatively intact and have greater ecological value.

Notwithstanding the higher ecological value of the ridge and rocky outcrops, the TBIA determined that these habitats are well represented within the broader landscape and that their loss is not expected to fragment the CBA2 network or materially affect landscape-scale ecological connectivity or processes. The potential loss of both the degraded CBA2 plains habitat and the intact CBA2 ridge habitat was consequently assessed as being of Low significance. The TBIA therefore concluded that the proposed expansion can be accommodated without materially compromising the ecological functionality of the CBA2 network, provided that mining and ancillary activities are confined to the approved footprint.

The preferred development footprint therefore takes into account the findings of the TBIA and the environmental sensitivities identified within and surrounding the proposed expansion area. Prior to commencement of activities, the approved mining footprint will be clearly demarcated, and mining, access, stockpiling, blasting-related activities and other ancillary activities will be restricted to the approved footprint. Appropriate mining practices will further be implemented to minimise unnecessary soil disturbance, runoff and vegetation clearing, particularly in areas adjacent to the ridge.

The assessment of the no-go alternative confirms that non-implementation of the proposed expansion would have environmental benefits, principally through avoiding the additional disturbance and permanent loss of natural vegetation and habitat, including portions of mapped CBA2 habitat, as well as the additional physical and operational impacts associated with expansion of the quarry. These benefits must, however, be weighed against the consequences of preventing access to the identified dolerite and quartzite resources adjoining the existing quarry and foregoing the ±35-year extension of the life of mine. The proposed expansion will utilise an established mining operation and existing processing and support infrastructure, thereby avoiding the need to establish a separate quarry and associated infrastructure to access the identified resources.

Although the proposed expansion will result in unavoidable environmental impacts, including permanent vegetation and habitat loss and permanent alteration of the topography within the mining footprint, the specialist assessment indicates that the terrestrial biodiversity impacts associated with the proposed expansion will be of LOW significance and that the expansion can be accommodated without materially compromising the ecological functionality of the broader CBA2 network, subject to implementation of the prescribed mitigation and management measures. The TBIA

specifically notes that the LOW significance rating does not imply that CBA2 areas have low conservation value but reflects the limited ecological consequence of the proposed habitat loss within the context of the wider landscape.

When weighed against the purpose and need for the proposed expansion, the location-bound nature of the dolerite and quartzite resources, the continued use of existing quarry infrastructure, the findings of the specialist assessments and the continuation of the socio-economic benefits associated with the operation, the proposed expansion is considered preferable to the no-go alternative, subject to implementation of the BAR and EMP requirements and compliance with the approved mining footprint.

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.

1. SECTION 102 APPLICATION

In identifying and considering alternatives for the proposed Section 102 amendment, consideration was given to alternatives that are reasonable and feasible in the context of the expansion of an existing quarry. The alternatives assessment considered the location and accessibility of the mineral resources, the configuration of the existing mining operation, existing infrastructure and services, property and infrastructure constraints, environmental sensitivities, technical and operational requirements, and the purpose and need of the proposed amendment. Alternatives that would not achieve the purpose of the application or that are not technically or operationally feasible were not considered reasonable alternatives for detailed assessment. The no-go alternative has been retained for comparative assessment against the proposed activity.

A. THE PROPERTY ON WHICH, OR LOCATION WHERE, IT IS PROPOSED TO UNDERTAKE THE ACTIVITY

The S102 amendment application entails the expansion of the existing mining right of 36.2505 ha to 66.7419 ha over a portion of the farm Lesseyton No 81, within the boundaries of the GPS coordinates listed in Table 4 and depicted in Figure 6.

The proposed footprint of the Section 102 amendment application was determined taking into consideration the position and extent of the existing mining footprint, the occurrence and accessibility of the dolerite and quartzite resources, available geological information, the position of the N6 National Road, existing mining and processing infrastructure, property boundaries and environmental sensitivities identified during the assessment process.

The proposed activity entails the expansion of an existing quarry and is therefore inherently linked to the location of the existing excavations and the occurrence of the mineral resources. Development of a geographically separate mining area would not constitute a reasonable or feasible alternative to the proposed expansion, as it would not represent a logical extension of the existing quarry operation and would potentially require additional access, infrastructure and disturbance.

Accordingly, no alternative properties or geographically separate location alternatives are considered reasonable or feasible for further assessment in the BAR. Development footprint and layout alternatives within the proposed expansion area are considered separately below.

B. TYPE OF ACTIVITY TO BE UNDERTAKEN

No reasonable or feasible activity alternatives have been identified. The purpose of the Section 102 amendment application is specifically to allow for the continued extraction of the available dolerite and quartzite resources through the expansion of the existing Queenstown Quarry excavations.

The proposed expansion will form an integral part of the existing quarry operation and will utilise the existing mining method and processing infrastructure. Extracted material will be excavated, loaded and hauled to the existing processing plant for crushing and screening. An alternative activity

would not achieve the purpose and need of the application, namely the continued extraction and processing of the available mineral resources. Accordingly, no alternative activities are considered further in the BAR.

C. DESIGN AND LAYOUT OF THE ACTIVITY

The proposed layout of the expansion area has been informed by the configuration of the existing excavations, the location and accessibility of the dolerite and quartzite resources, existing mining and processing infrastructure, property boundaries, the N6 National Road and environmental sensitivities identified during the assessment process.

The proposed expansion footprint was assessed as part of the TBIA. Although portions of the expansion area occur within mapped CBA2 habitat, the specialist assessment determined that the ecological condition and functionality of the affected areas vary considerably across the site. The plains areas, particularly between the existing quarry and the N6, are substantially degraded, while the ridge and associated rocky outcrops retain higher ecological value. Notwithstanding this variation, the TBIA concluded that the proposed expansion can be accommodated without materially compromising the ecological functionality of the broader CBA2 network and did not require modification of the proposed development footprint.

No separate design or layout alternative has therefore been identified that would provide a meaningful environmental advantage while still allowing practical access to the identified mineral resources and integration with the existing quarry workings. The proposed layout is consequently retained as the preferred development layout.

A minimum 40 m setback from the N6 road reserve will be maintained as a design and safety constraint. This requirement does not necessitate amendment of the proposed expansion footprint and is therefore not considered a separate layout alternative, but rather a mitigation and management measure to be implemented during mining.

The final approved mining footprint must be clearly demarcated prior to commencement of expansion activities, and mining, access, stockpiling, laydown areas, blasting-related activities and other ancillary activities must remain confined to the approved footprint.

D. TECHNOLOGY TO BE USED IN THE ACTIVITY.

The proposed expansion area will be mined using conventional drilling, blasting and excavation methods. Primary rock breaking will be undertaken by drilling and blasting using crawler-mounted drill rigs and emulsion-type bulk explosives. Oversized material will be set aside within the excavations and, where required, reduced through secondary blasting. Excavated material will be loaded and hauled to the existing processing plant.

The competent hard-rock nature of the dolerite and quartzite resources, together with the existing quarry configuration and established processing infrastructure, limits the availability of reasonable and feasible alternative extraction technologies.

Continued use of the existing mining methodology will allow the expansion area to be integrated into the current operation without requiring a separate processing facility or substantially different mining system. No alternative technology has been identified that would achieve the purpose of the proposed activity while offering a material environmental advantage over the existing mining methodology. Accordingly, no further technology alternatives are considered in the BAR.

E. OPERATIONAL ASPECTS OF THE ACTIVITY

The proposed expansion will be integrated into the existing Queenstown Quarry operation and will largely utilise the existing operational infrastructure and services. Extracted material will be transported to the existing processing plant, while the existing access from the N6 National Road and established internal road network will continue to provide access to the mining areas, with additional internal haul roads developed as mining progresses.

No additional permanent buildings or processing infrastructure are presently proposed within the expansion area, and no additional electricity supply infrastructure is required to accommodate the proposed expansion. Routine servicing and maintenance of mining equipment will continue to be undertaken within the existing designated workshop and service areas and will not routinely be undertaken within the expansion areas.

Water accumulating within the quarry excavations is currently utilised for operational purposes, including dust suppression. Process water associated with the washing plant is recirculated and, where necessary, returned to the quarry excavations for reuse, thereby reducing the requirement for additional water abstraction.

As the proposed expansion will operate as an integral extension of the existing quarry and will utilise the established access, processing, water management and support infrastructure, no reasonable or feasible alternative operational arrangement has been identified that would provide a material environmental advantage. Accordingly, no further operational alternatives are considered in the BAR.

F. OPTION OF NOT IMPLEMENTING THE ACTIVITY (NO-GO ALTERNATIVE)

The no-go alternative entails the Section 102 amendment not being authorised, in which case the proposed expansion of the existing mining right and quarry excavations would not proceed. The current land use and environmental condition of the earmarked expansion area would largely remain unchanged, and the underlying dolerite and quartzite resources within the proposed expansion area would remain unmined.

The no-go alternative would avoid the environmental impacts associated with expansion of the quarry into the earmarked area, including the loss of grazing land, removal of vegetation, alteration of the existing topography, additional visual intrusion and the dust, noise and blasting impacts associated with mining. It would similarly avoid the additional disturbance of fauna and the rehabilitation liability associated with disturbance of the proposed expansion footprint.

Conversely, the existing quarry excavations have limited potential for further lateral expansion within the current mining footprint. Should the proposed expansion not be authorised, the Right Holder would be unable to access the mineral resources identified within the proposed expansion area, thereby limiting the remaining operational life of Queenstown Quarry. The proposed expansion is expected to extend the life of mine by ± 35 years.

Continuation of the quarry operation would prolong the employment opportunities associated with the existing operation and delay potential employment losses associated with resource depletion and eventual mine

closure. The continued operation of the quarry would also maintain the associated procurement, economic and socio-economic contributions of the operation within the local and regional economy.

G. OUTCOME OF THE ALTERNATIVE ASSESSMENT

Based on the assessment of reasonable and feasible alternatives, the proposed expansion of the existing Queenstown Quarry is retained as the preferred development alternative.

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.

SECTION 102 AMENDMENT APPLICATION

During the public participation process of this S102 amendment application the public and I&AP's will be informed of the project through an advertisement in The Rep Newspaper, and on-site notices that will be placed at the entrance to the Quarry, Lesseyton Community and Komani. A notification letter/flyer discussing the project and inviting comments on the DBAR over a 30-days commenting period (ending 21 September 2026) will be send to the landowner, neighbouring landowners (to the Quarry), stakeholders, and any other I&AP that may be interested in the project. The advertisement, on-site notices, and notification letter/flyers will be available in English and isiXhosa. The comments received on the DBAR will be incorporated into the final Basic Assessment Report (FBAR) to be submitted to the DMPR for consideration. The following I&AP's and stakeholders will be informed of the project.

Table 7: List of the I&AP's and stakeholders that will be notified of the S102 amendment application.

SURROUNDING LANDOWNERS & INTERESTED AND AFFECTED PARTIES	STAKEHOLDERS
<u>Landowner and Surrounding Landowner</u> Department of Rural Development and Agrarian Reform managed by the Department of Public Works. ♦ Farm Lesseyton No 81 <u>Surrounding landowners – neighbouring onto the Quarry</u> Me C Strydom ♦ Portion 0 (Remaining Extent) of the farm Doornhoek No 177 Mr N Visser ♦ Portion 0 (Remaining Extent) of the farm Weltevreden North No 175 Mr A Green ♦ Portion 31 of the farm Weltevreden North No 175 Civil and General (Pty) Ltd ♦ Portion 44 (Remaining Extent) of the farm Weltevreden North No 175 Mr Noor ♦ Portion 46 of the farm Weltevreden North No 175 Me Y Edwards ♦ Portion 8 of the farm Adanja No 174 Mr L Moorcroft ♦ Portion 0 (Remaining Extent) of the farm Providence No 149 Department of Public Works ♦ Portion 1 of the farm Bombani No 62 ♦ Portion 0 (Remaining Extent) of the farm Tabata No 63 Transnet Ltd ♦ Portion 0 of the farm Lesseytonrail 3 No 84 Ndlovukazi Public High School ♦ Portion 4 of the farm Lesseyton No 81 ♦ Lesseyton Hardware	♦ Department of Agriculture - Komani (DoA) ♦ Department of Education (DoE); ♦ Department of Economic Development, Environmental Affairs and Tourism (DEDEAT); ♦ Department of Labour (DoL); ♦ Department of Public Works (DPW); ♦ Department of Rural Development and Agrarian Reform (DRDAR); ♦ Department of Rural Development and Land Reform (DRDLR); ♦ Department of Transport (DoT); ♦ Department of Water and Sanitation (DWS); ♦ Eastern Cape Parks and Tourism Agency; ♦ Eastern Cape Provincial Heritage Resources Agency (ECPHRA); ♦ Eskom Ltd; ♦ Enoch Mgijima Local Municipality (EMLM); ♦ Enoch Mgijima Local Municipality Ward 18 Councillor; ♦ Chris Hani District Municipality (CHDM); ♦ Komani Airfield; ♦ SANRAL; and ♦ South African Heritage Resources Agency (SAHRA).

SURROUNDING LANDOWNERS & INTERESTED AND AFFECTED PARTIES	STAKEHOLDERS
♦ AH Community Shop / Soweto No 1 Store ♦ Lesseyton Primary School ♦ Lukhanyo Daycare	

iii) Summary of issues raised by I&APs

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

Table 8: Summary of issues raised by IAPs

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.
List the name of persons consulted in this column, and						
Mark with an X where those who must be consulted were in fact consulted						
<u>AFFECTED PARTIES</u>	X	-		-	-	-
Landowner/s	-	-		-	-	-
Department of Rural Development and Agrarian Reform (DRDAR) care of Department of Public Works (DPW) ♦ Farm Lesseyton No 81	X			The DRDAR and DPW will be invited to comment on the DBAR and proof will be attached to the FBAR.		
Lawful occupier/s of the land	X	-		-	-	-
Lesseyton Community	X			The Lesseyton Community will be informed of the application through flyers and on-site notices and invited to comment on the DBAR.		
Landowners or lawful occupiers on adjacent properties	X	-				
Me C Strydom ♦ Portion 0 (Remaining Extent) of the farm Doornhoek No 177	X			Any comments received on the project and/or draft BAR will be incorporated into the final BAR.		
Mr N Visser ♦ Portion 0 (Remaining Extent) of the farm Weltevreedden North No 175	X			Any comments received on the project and/or draft BAR will be incorporated into the final BAR.		

**S102 DRAFT BASIC ASSESSMENT REPORT
QUEENSTOWN QUARRY (PTY) LTD: EC 30/5/1/2/2/009 MR – 00052 MR/102**



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.
List the name of persons consulted in this column, and						
Mark with an X where those who must be consulted were in fact consulted						
Mr A Green ♦ Portion 31 of the farm Weltevreedden North No 175	X				Any comments received on the project and/or draft BAR will be incorporated into the final BAR.	
Civil and General (Pty) Ltd ♦ Portion 44 (Remaining Extent) of the farm Weltevreedden North No 175	X				Any comments received on the project and/or draft BAR will be incorporated into the final BAR.	
Mr Noor ♦ Portion 46 of the farm Weltevreedden North No 175	X				Any comments received on the project and/or draft BAR will be incorporated into the final BAR.	
Me Y Edwards ♦ Portion 8 of the farm Adanja No 174	X				Any comments received on the project and/or draft BAR will be incorporated into the final BAR.	
Mr L Moorcroft ♦ Portion 0 (Remaining Extent) of the farm Providence No 149	X				Any comments received on the project and/or draft BAR will be incorporated into the final BAR.	
Department of Public Works ♦ Portion 1 of the farm Bombani No 62 ♦ Portion 0 (Remaining Extent) of the farm Tabata No 63	X				Any comments received on the project and/or draft BAR will be incorporated into the final BAR.	

**S102 DRAFT BASIC ASSESSMENT REPORT
QUEENSTOWN QUARRY (PTY) LTD: EC 30/5/1/2/2/009 MR – 00052 MR/102**



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.
List the name of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted						
Transnet Ltd ♦ Portion 0 of the farm Lesseytonrail 3 No 84	X	Any comments received on the project and/or draft BAR will be incorporated into the final BAR.				
Ndlovukazi Public High School ♦ Portion 4 of the farm Lesseyton No 81	X	Any comments received on the draft BAR will be incorporated into the final BAR.				
♦ Lesseyton Hardware	X					
♦ AH Community Shop / Soweto No 1 Store	X					
♦ Lesseyton Primary School	X					
♦ Lukhanyo Daycare	X					
Municipal councillor	-	-	-	-	-	-
Cllr. N Solani (Ward 18)	X	Any comments received on the project and/or draft BAR will be incorporated into the final BAR.				
Municipality	-	-	-	-	-	-
Enoch Mgijima Local Municipality	X	Any comments received on the project and/or draft BAR will be incorporated into the final BAR.				
Organs of state (Responsible for infrastructure that may be affected)	-	-	-	-	-	-

**S102 DRAFT BASIC ASSESSMENT REPORT
QUEENSTOWN QUARRY (PTY) LTD: EC 30/5/1/2/2/009 MR – 00052 MR/102**



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.
List the name of persons consulted in this column, and						
Mark with an X where those who must be consulted were in fact consulted						
Roads Department, Eskom, Telkom, DWA e						
SANRAL	X	Any comments received on the project and/or draft BAR will be incorporated into the final BAR.				
Eastern Cape Parks and Tourism Agency	X					
Department of Education (DoE)	X					
Department of Public Works	X					
Department of Transport	X					
Department of Water and Sanitation	X					
Eskom Ltd	X					
Communities		The Lesseyton Community will be invited to comment on the project and the DBAR.				

**S102 DRAFT BASIC ASSESSMENT REPORT
QUEENSTOWN QUARRY (PTY) LTD: EC 30/5/1/2/2/009 MR – 00052 MR/102**



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.
List the name of persons consulted in this column, and						
Mark with an X where those who must be consulted were in fact consulted						
Dept. Land Affairs	X	Any comments received on the project and/or the draft BAR will be incorporated into the final BAR.				
Traditional Leaders	N/A	-	-	-	-	-
Dept. Environmental Affairs	-	-	-	-	-	-
Department of Economic Development, Environmental Affairs and Tourism (DEDEAT)	X	Any comments received on the draft BAR will be incorporated into the final BAR.				
Other Competent Authorities affected	-	-	-	-	-	-
Department of Agriculture (DoA)	X	Any comments received on the project and/or the draft BAR will be incorporated into the final BAR.				
Department of Rural Development and Agrarian Reform (DRDAR)	X	Any comments received on the project and/or the draft BAR will be incorporated into the final BAR.				
Department of Rural Development and Land Reform	X	Any comments received on the project and/or the draft BAR will be incorporated into the final BAR.				
Department of Labour	X	Any comments received on the project and/or the draft BAR will be incorporated into the final BAR.				
Department of Public Works	X					

**S102 DRAFT BASIC ASSESSMENT REPORT
QUEENSTOWN QUARRY (PTY) LTD: EC 30/5/1/2/2/009 MR – 00052 MR/102**



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.
List the name of persons consulted in this column, and						
Mark with an X where those who must be consulted were in fact consulted						
Eastern Cape Provincial Heritage Resources Agency.	X					
South African Heritage Resources Agency	X					
Komani Airfield	X					
Chris Hani District Municipality	X					
<u>OTHER AFFECTED PARTIES</u>		-		-	-	-
N/A		-		-	-	-
<u>INTERESTED PARTIES</u>		-		-	-	-
N/A		-		-	-	-

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)

(Description augmented by information of the Updated Environmental Impact Assessment & Environment Management Programme compiled by Umhlaba Environmental Consulting CC, 2011)

This section describes the biophysical-, cultural- and socio-economic environment of the greater study area. It is important to note that the mine has been operational for many years, and through the years the Quarry developed into a landscape feature. The following discussion of the type of environment to be affected therefore includes the *status quo* associated with the activities of the mine.

1. CLIMATE

The following chart shows the maximum, minimum and average temperatures ($\pm 22^{\circ}\text{C}$ daytime, $\pm 11^{\circ}\text{C}$ nighttime) of the Komani region. Komani experiences its highest temperatures during the summer months (December – February) with peaks of up to 27°C ; thereafter the mercury drops to lows of $\pm 5^{\circ}\text{C}$ during July.

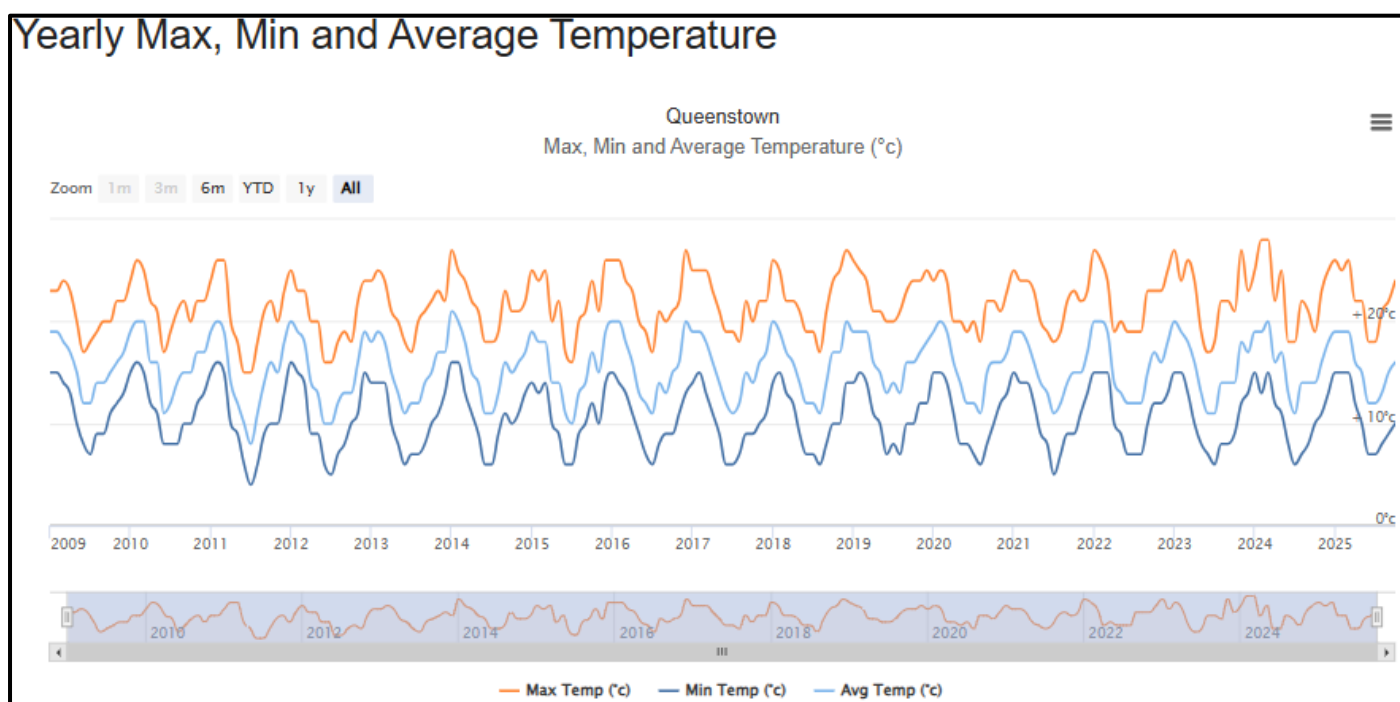


Figure 7: Chart showing the maximum, minimum, and average temperatures of the Komani region over a period of 16 years (chart obtained from <http://www.worldweatheronline.com>)

Average Temperature

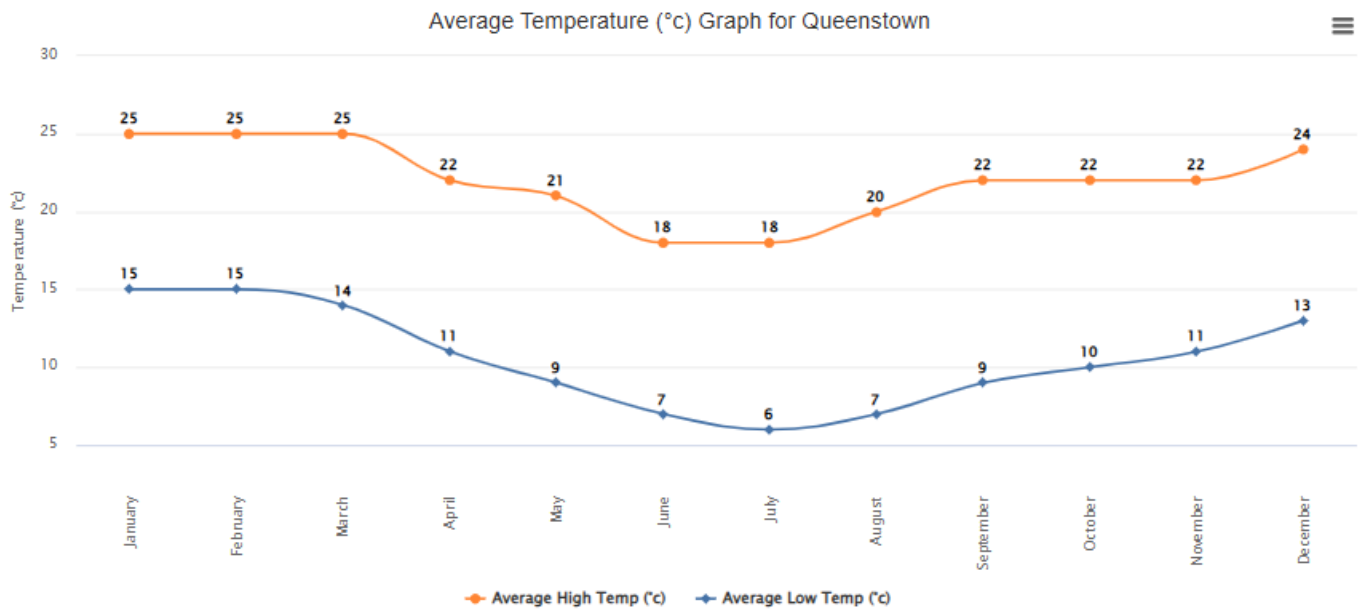


Figure 8: Chart showing the monthly average temperature of the Komani region (chart obtained from <http://www.worldweatheronline.com>)

According to the 2011 EMPR the average rainfall of Komani is ± 534 mm/year. The following chart, obtained from World Weather Online, shows that the measured rainfall for the period October 2024 to October 2025 was $\pm 1\ 088$ mm, while the area received the lowest rainfall during August 2025 and the highest in March 2025 (for the selected period).

Yearly Rainfall and Rain Days Averages

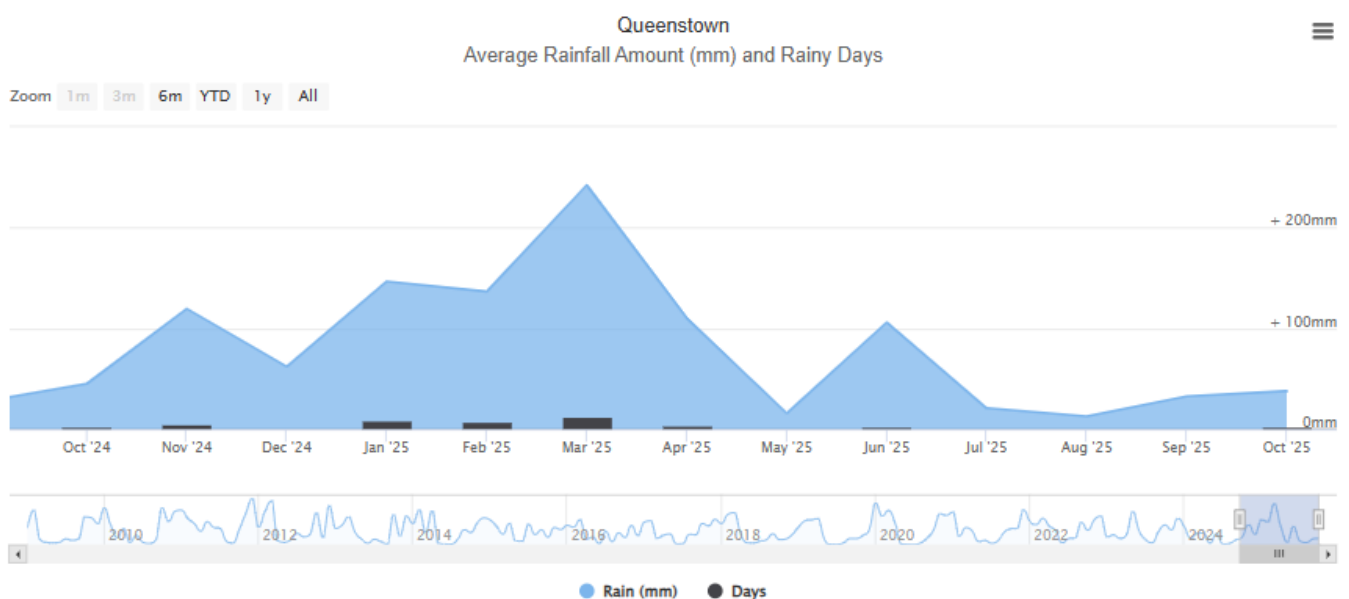


Figure 9: Chart showing the rainfall and rainy days for the Komani region (chart obtained from <http://www.worldweatheronline.com>)

Wind patterns in the Komani region are strongly influenced by seasonal variability. During the summer months, the prevailing winds originate predominantly from the east, whereas in winter the dominant wind direction shifts to the west. The following figure indicates the dominant wind direction and average wind speeds for the study area.

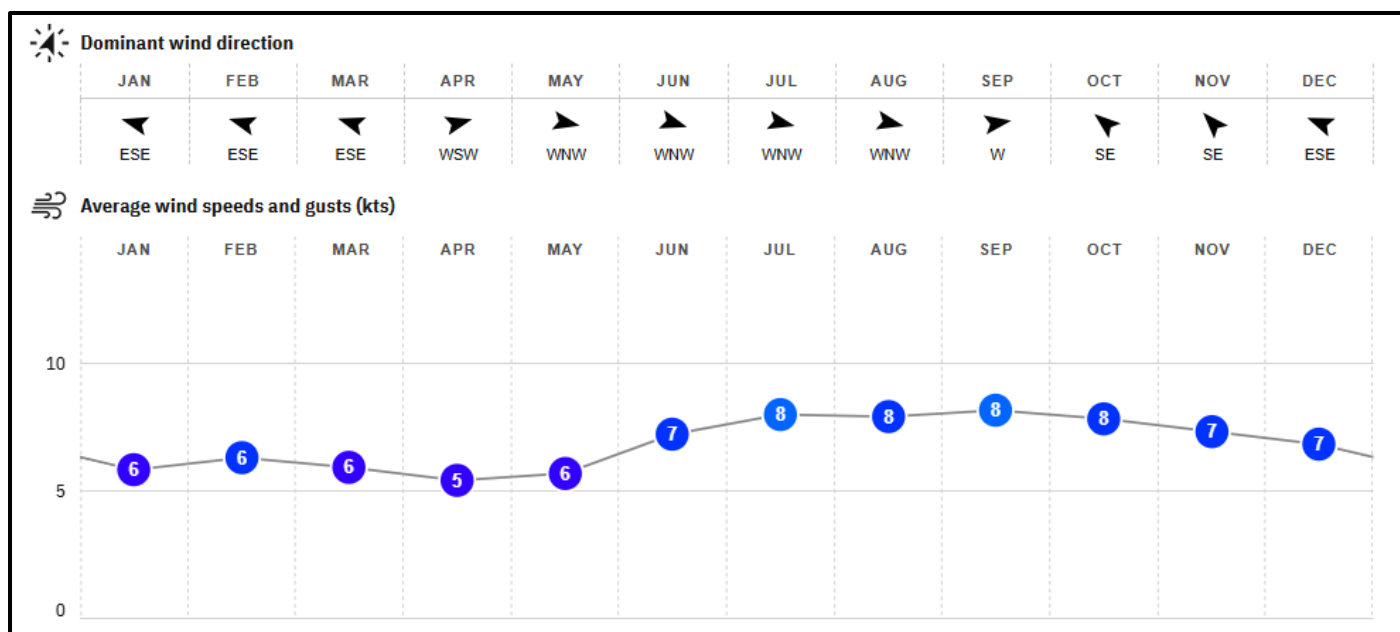


Figure 10: Dominant wind direction and wind speed and gust averages of the Komani region (image obtained from <http://www.windfinder.com/windstatistics/queenstown>).

2. REGIONAL TOPOGRAPHY

The broader region surrounding Queenstown Quarry is characterised by moderately undulating terrain typical of the interior Eastern Cape. Elevations generally range between 1 050 m and 1 350 m above sea level (masl), with the landscape comprising a combination of gently sloping valley floors and more pronounced ridges. The area forms part of the upper reaches of the Great Kei River system, and the river and its tributaries have shaped a series of valleys separated by rolling hills.

The regional topography is strongly influenced by the underlying geology of the Karoo Supergroup, including extensive dolerite intrusions. These intrusions weather more slowly than surrounding sedimentary rocks, resulting in the formation of distinct ridges and elevated features that contribute to the area's varied relief. In contrast, the valleys tend to display gentler gradients with deeper colluvial and alluvial deposits.

Overall, the topography can be described as moderately dissected, with a clear distinction between flatter valley bottoms and surrounding higher-lying slopes and ridgelines. This variability has implications for surface water runoff, erosion

potential and the design of mining infrastructure and rehabilitation measures within the project area.

The topography at Queenstown Quarry (existing operation) varies between 1 207 mamsl in the south-east (being the highest point) and 1 138 mamsl in the north-west (the lowest point). The current topography is largely unnatural because of the mining activities that resulted in steep gradients; most obvious on the sides of the pits.

The following figure shows the topography of the greater study area highlighting the elevated ridges.

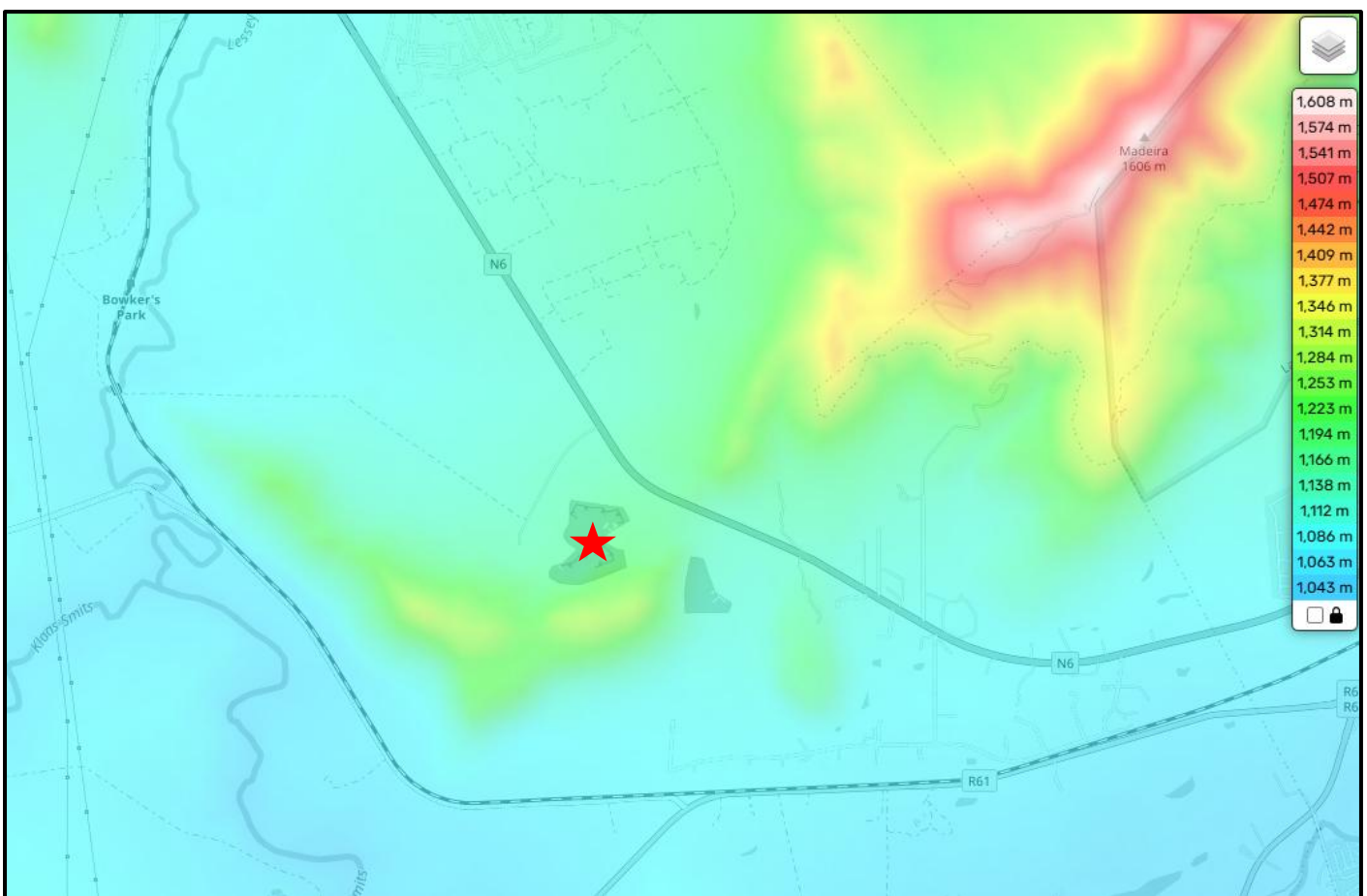


Figure 11: Map showing the topography of the greater Komani area where the red star indicates the Quarry (image obtained from <http://www.en-za.topographic-map.com/maps/gwpq/South-Africa/>).

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

3. VISUAL CHARACTERISTICS

The greater study area exhibits a landscape typical of the interior Eastern Cape, characterised by rolling hills, broad valleys and prominent dolerite-capped ridges.

These landforms create a visually varied setting, with expansive long-range views from elevated ridgelines and more contained views along valley floors.

Vegetation is predominantly open grassland interspersed with scattered shrubs and species such as *Vachellia* and *Searsia*, resulting in a generally open visual texture. Traditional rural land uses—primarily livestock grazing and small-scale agriculture—reinforce a semi-rural landscape character.

Human-made features are present across the area, although historically limited and dispersed. Notably, the Queenstown Quarry, which has been in operation since the 1970s, represents a longstanding and visually prominent anthropogenic element. The quarry's excavations, access roads, stockpiles and associated infrastructure have become established components of the local landscape, contributing to an altered but familiar visual character within the immediate and surrounding areas.

More recently, the development of the Lesseyton residential area, located opposite the N6 national route, has introduced a denser built footprint into the greater landscape. The N6 itself functions as a significant linear corridor, influencing both the movement of viewers and the visibility of surrounding land uses. Despite these modifications, the broader region maintains a predominantly open, semi-rural character shaped by natural landforms, agricultural land uses and long-established infrastructural elements such as the quarry.

Also refer to *Part A(1)(h)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – 2. Site Specific Visual Characteristics.*

4. AIR QUALITY AND NOISE AMBIANCE

The air quality of the greater Komani region is generally reflective of a semi-rural environment with limited heavy industrial activity. Baseline air pollutant levels are typically low, influenced primarily by natural sources such as windblown dust, seasonal grassland fires and minor emissions from domestic fuel use in rural settlements. Vehicular emissions along the N6 national route contribute to localised increases in nitrogen oxides and particulates but do not dominate regional air quality conditions.

The Queenstown Quarry has historically contributed intermittent dust emissions associated with blasting, drilling, hauling, crushing and stockpiling. However, due to its longevity, these emissions have become a familiar component of the local air quality profile. Agricultural activities, particularly livestock movement and soil

disturbance, also contribute to ambient dust levels during dry and windy periods. Overall, the air quality can be described as moderately influenced by dispersed rural and quarry-related activities, with the potential for short-term increases in particulate concentrations during high-wind conditions.

The noise environment of the study area corresponds to a semi-rural acoustic setting, characterised by relatively low ambient noise levels dominated by natural sounds such as wind, birdsong and livestock. Background noise remains generally low, especially during night-time periods, although daytime levels increase slightly due to agricultural activity and vehicular traffic along the N6, which serves as the main noise-generating transport corridor in the area.

The existing Queenstown Quarry is a notable source of intermittent operational noise, particularly during active drilling, blasting, crushing and hauling. These activities have formed part of the acoustic environment for several decades and are typically localised to the immediate surrounds of the quarry footprint. Noise levels diminish with distance due to the area's open landscape and intervening topography. Residential areas such as Lesseyton, located opposite the N6, experience a mixed noise environment shaped by both rural and transport-related sources.

Overall, the noise ambience of the region can be described as predominantly rural with periodic quarry- and traffic-related influence, consistent with a landscape characterised by mixed land uses and long-standing mining activity.

Also refer to *Part A(1)(h)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – 3. Site Specific Air Quality and Noise Ambiance.*

5. GEOLOGY AND SOIL

(Information obtained from the amended Mining Work Programme, 2026)

Regional Geological Setting

The Karoo Supergroup in the Eastern Cape, dating from the late Carboniferous to early Jurassic (300 - 180 Ma), is a thick sequence of sediments deposited in glacial to fluvial environments. The variety of depositional environments was primarily influenced by the northward drift of southwestern Gondwana out of a polar climate and was accentuated by the meteoric drying effect of the surrounding land masses. The main Karoo basin was initiated as a result of uplift, compression and erosion of Cape Supergroup rocks. Before deposition into the gently subsiding foreland basin there was a period of uplift and erosion while southern Gondwana drifted

over the south pole, resulting in an ice sheet over the highlands and floating ice on the lowland platform. This period was the commencement of Karoo sedimentation.

In the Eastern Cape, the geology of the Karoo Basin is dominated by sedimentary rocks of the Karoo Supergroup together with extensive Jurassic-aged dolerite intrusions associated with the Karoo Large Igneous Province (KLIP), see following figures. The Karoo sedimentary succession comprises quartz-rich sedimentary to weakly metamorphosed units formed predominantly from sandstones deposited within fluvial, deltaic, and shallow marine environments during the late Carboniferous to Jurassic periods as part of the evolving Karoo foreland basin. Due to extensive silica cementation and localized recrystallization, these quartzitic units exhibit high strength, abrasion resistance, and durability, and commonly form resistant ridges, elevated plateaus, and prominent escarpments where they are more resistant to weathering than adjacent mudstones and shales.

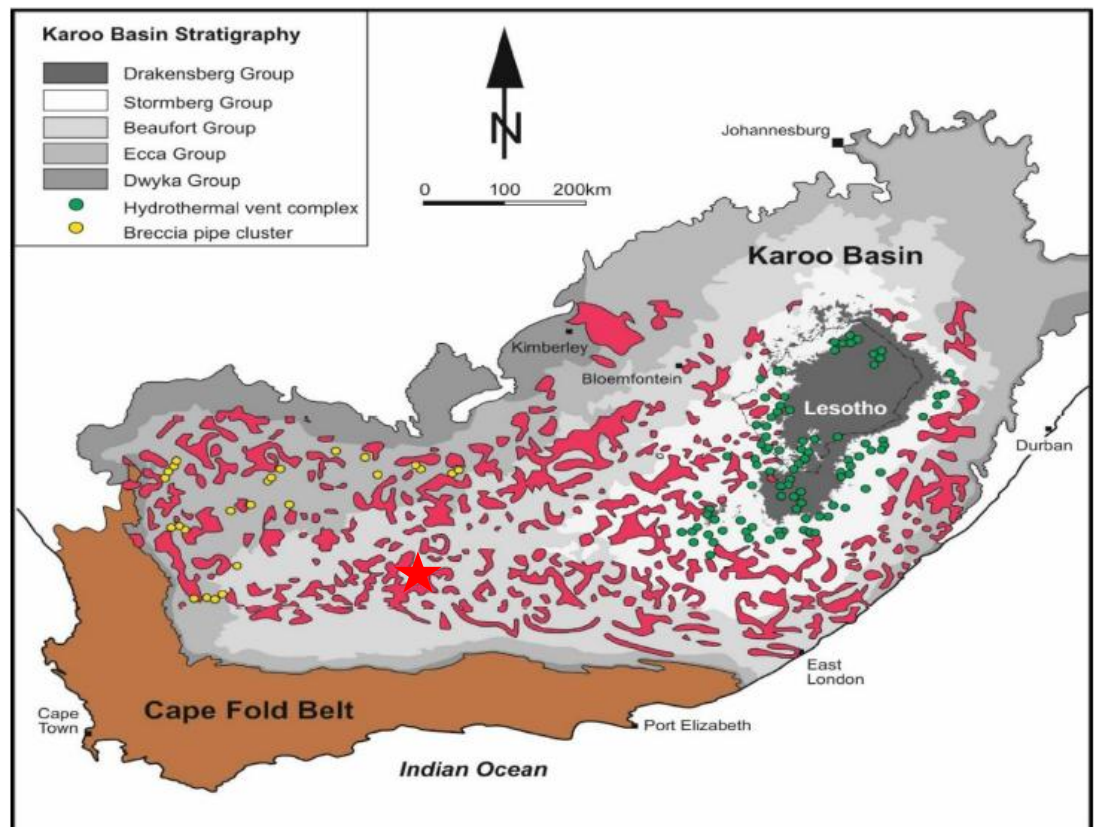


Figure 12: Map of the occurrences of dolerite intrusions within the Karoo Basin across southern Africa. Modified after Catuneanu et al. (1998) and Svenson et al. (2007). (MLB Consulting).

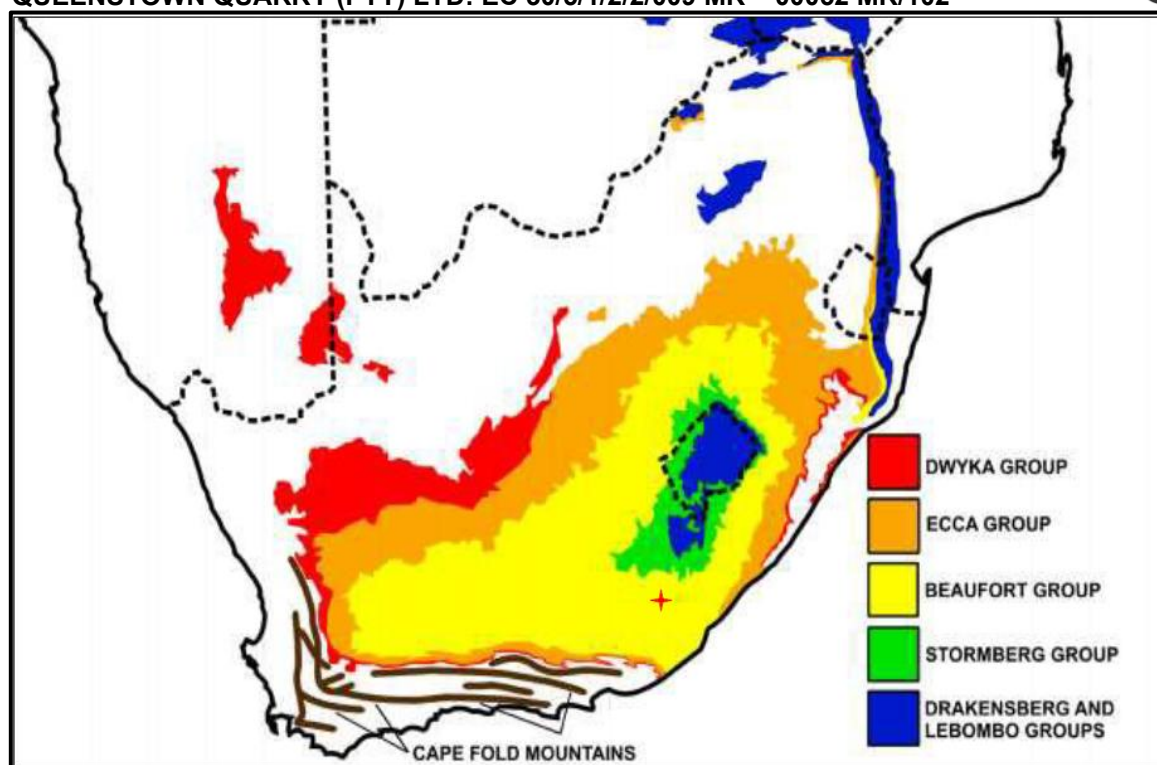


Figure 13: Map of the Eastern Cape Regional Geology where the star indicates the approximate location of Queenstown Quarry (MLB Consulting).

The soils in the area mainly consist of soils of the Swartland-Adelaide soil form and shallow to absent Mispah-Carnavon soil forms. According to the 2011 EMPR the following generalised soil patterns occur in the area as present in the following table.

Table 9: Table of soil categories (Umhlaba, 2011).

Depth	Clay Class	Clay	Leaching Class	Leaching	Soil Class	Description	Soil Class
< 450 mm	I	>= 15% and < 35%	f	non calcarious soils	EB	Soils with minimal development, usually shallow on hard or weathering rock, with or without intermittent diverse soils. Lime generally present in part or most of the landscape	SOILS WITH LIMITED PEDOLOGICAL DEVELOPMENT
>= 450 mm and < 750 mm	I	>= 15% and < 35%	g	calcarious soils	CB	Soils with a marked clay accumulation, strongly structured and a reddish colour	SOILS WITH A STRONG TEXTURE CONTRAST

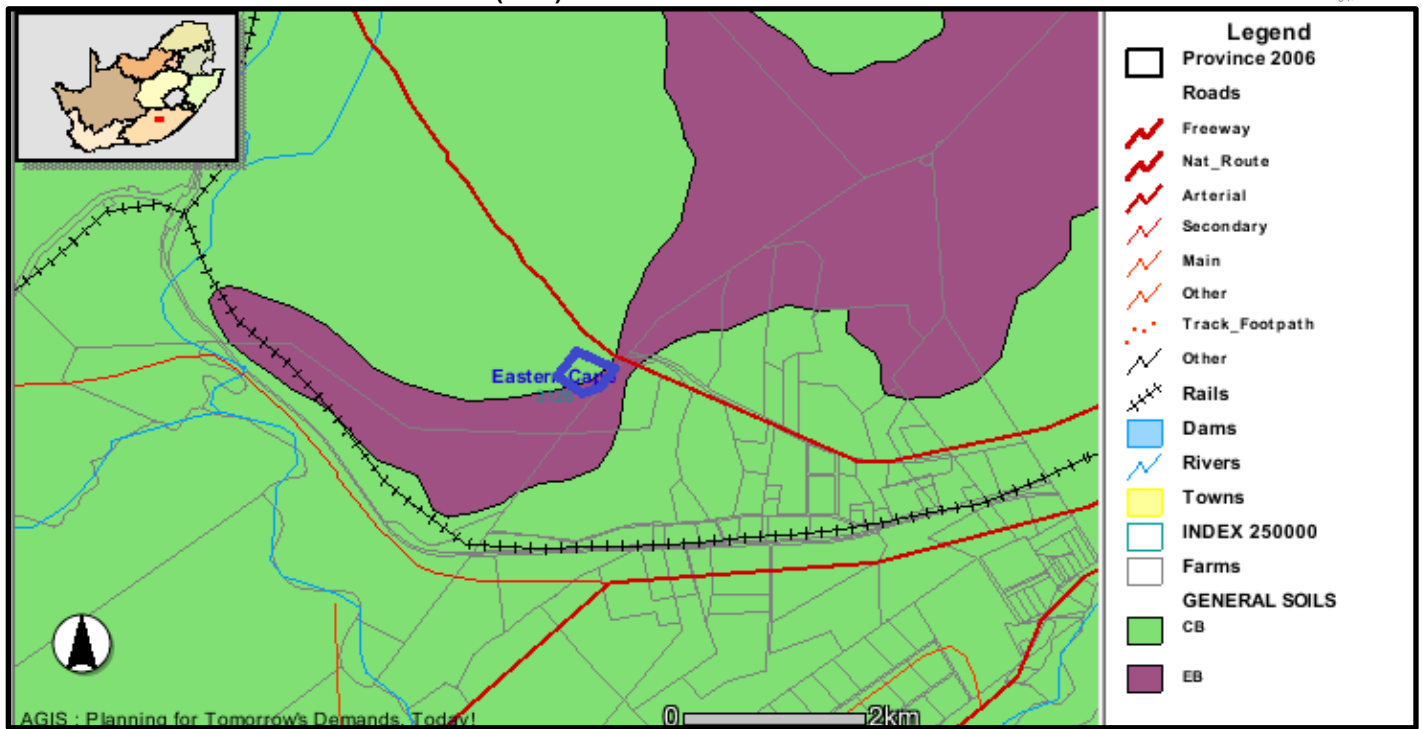


Figure 14: Soil map of the greater study area (Umhlaba, 2011).

Also refer to Part A(1)(h)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – 4. Site Specific Geology and Soil.

6. HYDROLOGY

The study area is situated in the Kei sub-water management area that forms part of the greater Mzimvubu to Kieskamma Water Management Area (ID 21). According to the National Freshwater Ecosystem Priority Areas (NFEPA) map as presented by SANBI, the NFEPA status of the study area is classified as a No Priority Area.

The Klaas Smits River passes the study area ± 1.8 km to the west, but no rivers or other natural open water sources is present in the proximity to the mining area. The figure below shows the position of the known wetlands that occurs within the surrounding area. As depicted in the figure there are no rivers, streams or wetlands within the mining footprint.

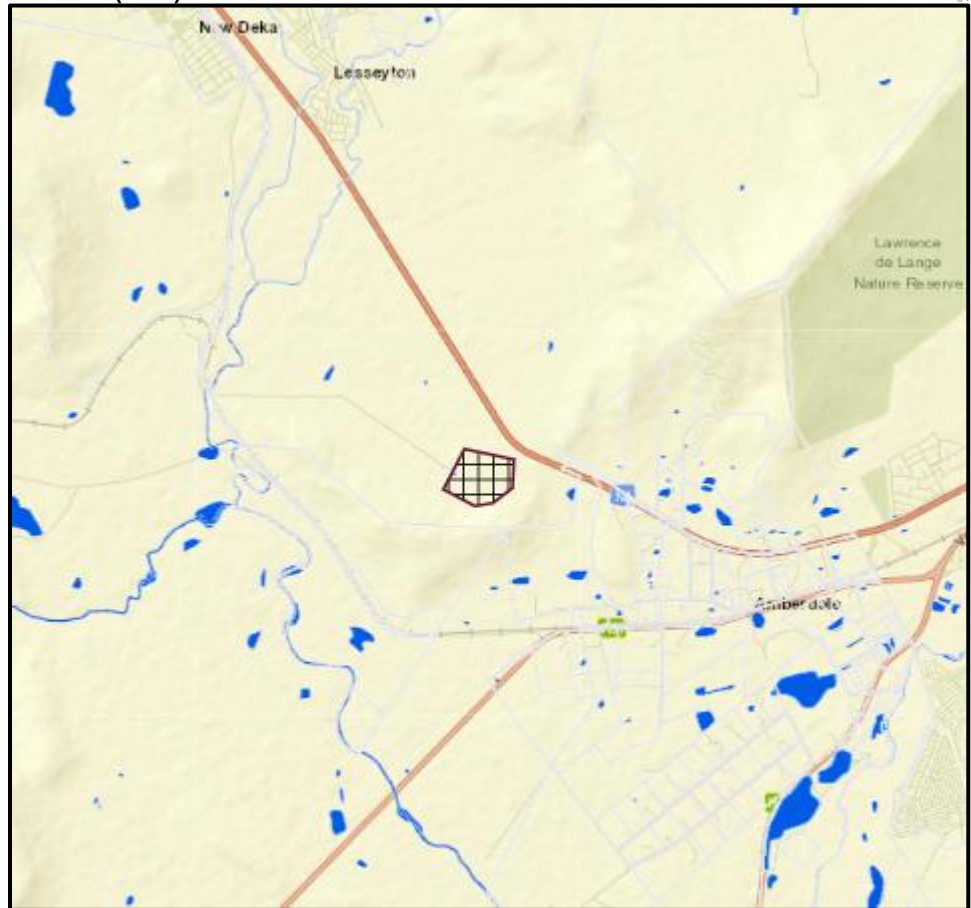


Figure 15: NFEPA BGIS Map Viewer showing the location of the Klaas Smits River (western blue line) in relation to the mining area (black crossed polygon). (Image obtained from the BGIS Map Viewer – National Wetlands and NFEPA).

According to Vegter (1995b), the mean depth to the water table in the region of the site is 10 m to 20 m below surface, with a standard deviation of 8 m to 15 m.

Also refer to *Part A(1)(h)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – 5. Site Specific Hydrology.*

7. 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 current mining right footprint is layered over the Mining and Biodiversity Map (following figure), the area does not extend over an area of biodiversity importance.



Figure 16: The Mining and Biodiversity Guidelines map shows that the current mining footprint (crossed polygon) does not extend over an area of biodiversity importance. (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 – 6. Site Specific Terrestrial Biodiversity.

8. **BIODIVERSITY CONSERVATION AREAS**

According to the 2019 Eastern Cape Biodiversity Conservation Plan a Terrestrial Critical Biodiversity Area (CBA) and Freshwater CBA extend into or over the existing mining footprint and greater surroundings as presented in the following figure.

The Lexicon of Biodiversity Planning in South Africa provides the following definition of a CBA:

- ❖ Critical Biodiversity Area (CBA): “an area that must be maintained in a good ecological condition to meet biodiversity targets. CBA’s collectively meet biodiversity targets for all ecosystem types as well as for species and ecological processes that depend on natural or near-natural habitat, that have not already been met in the protected area network.”

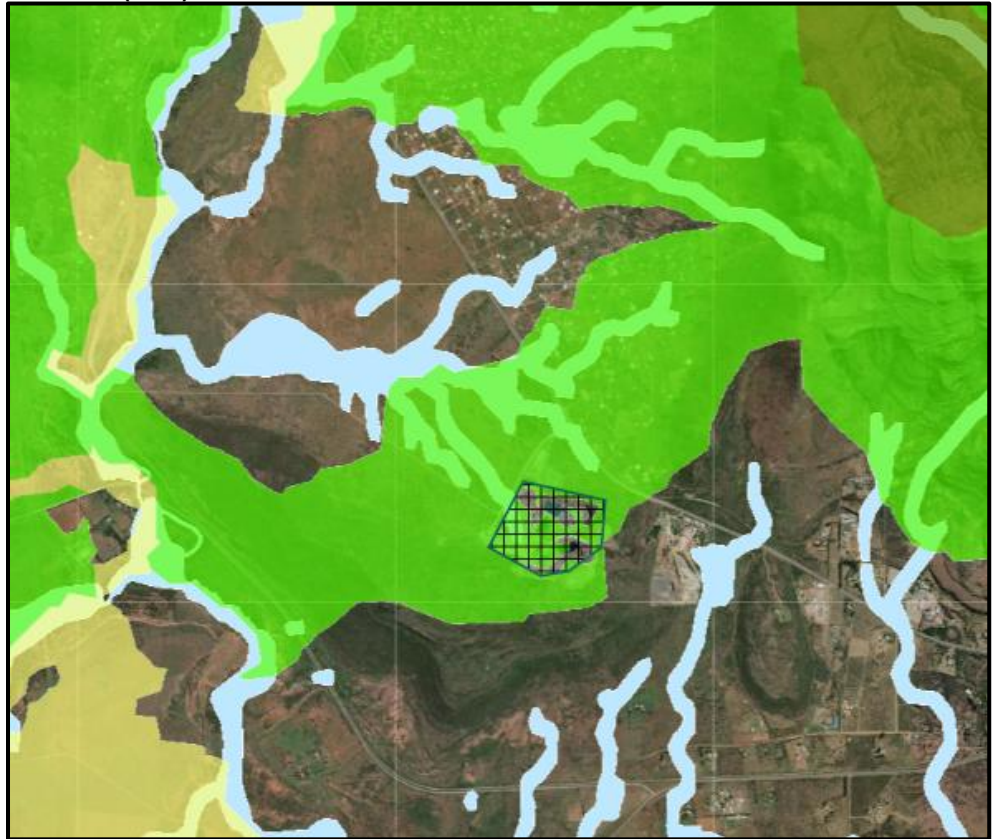


Figure 17: 2019 Eastern Cape Biodiversity Conservation Plan showing the position of the mining footprint (crossed polygon) in relation to the Terrestrial CBA (green shading) and the Freshwater CBA (blue shading). (Image obtained from BGIS Map Viewer – 2019 Eastern Cape Biodiversity Conservation Plan).

Also refer to *Part A(1)(h)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – 6. Site Specific Terrestrial Biodiversity.*

9. GROUND COVER

(Information extracted from the Plant, Animals and Terrestrial Biodiversity Assessment, BioCensus (Pty) Ltd, 2026)

There are two regional vegetation types in the study area, namely Queenstown Thornveld (Gs16) and Tarkastad Montane Shrubland (Gs17), as indicated in the following figure.

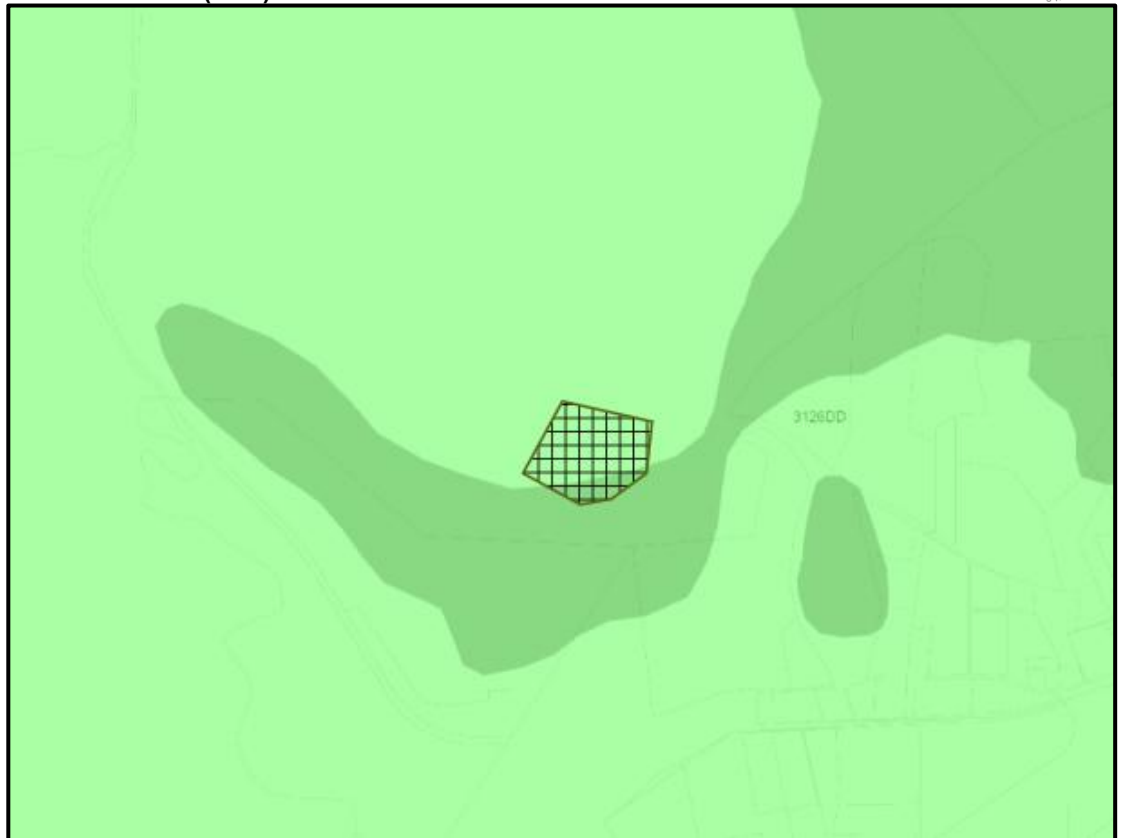


Figure 18: BGIS National Vegetation Map showing the vegetation type of the study area, where the light green shaded area indicates the Queenstown Thornveld (Gs16), and the dark green shaded area the Tarkastad Montane Shrubland (Gs17). The crossed polygon indicates the approved mine. (Image obtained from the BGIS Map Viewers website).

Queenstown Thornveld (Gs16):

The vegetation and landscape features of the Queenstown Thornveld (Gs16) is characterised by flat bottomlands of intramountain basins with adjacent slopes supporting a complex of *Vachellia natalitia* thornveld and grassland dominated by *Aristida congesta*, *Cymbopogon pospischilii*, *Eragrostis curvula* and *Tragus koelerioides*, with scattered shrubs and low *Vachellia* in places (Hoare 1997, Hoare & Bredenkamp 1999).

Some of the important taxa found in this vegetation type include (amongst others) the following *Vachellia natalitia*. Tall Shrub: *Euryops floribundus*. Low Shrubs: *Asparagus laricinus*, *Atriplex semibaccata* var. *appendiculata*, *Felicia filifolia* subsp. *filifolia*, *F. muricata*, *Helichrysum asperum* var. *albidulum*, *H. dregeanum*, *Melolobium microphyllum*, *Pentzia globosa*, *Sutera pinnatifida*, *Tephrosia capensis* var. *acutifolia*. Succulent Shrubs: *Hertia pallens*. Graminoids: *Aristida canescens*, *A. congesta*, *A. diffusa*, *Cymbopogon pospischilii*, *Cynodon incompletus*, *Digitaria argyrograpta*, *D. eriantha*, *Eragrostis chloromelas*, *E. curvula*, *E. lehmanniana*, *E. obtusa*, *E. trichophora*, *Heteropogon contortus*,

Microchloa caffra, *Panicum stapfianum*, *Themeda triandra*, *Tragus koelerioides*, *Brachiaria serrata*, *Cynodon dactylon*, *Cyperus usitatus*, *Elionurus muticus*, *Eustachys paspaloides*, *Microchloa kunthii*, *Sporobolus fimbriatus*, *Tragus racemosus*. Geophytic Herbs: *Arctotis microcephala*, *Blepharis integrifolia* var. *clarkei*, *Commelina africana*, *Cyanotis speciosa*, *Gazania krebsiana* subsp. *krebsiana*, *Helichrysum pedunculatum*, *H. rugulosum*, *Hermannia depressa*, *Indigofera alternans*, *Salvia stenophylla*, *Senecio asperulus*, *Tribulus terrestris*.

The vegetation type is classified as Least Threatened and according to Mucina and Rutherford (2012) nearly 1% of the unit is statutorily conserved in the Tsolwana Nature Reserve. Urbanisation of this unit is expanding at a rapid rate, and overgrazing is serious, especially by goats close to urban areas. A conservation target of 23% was set for the vegetation type.

Tarkastad Montane Shrubland (Gs17):

The vegetation and landscape features of the Tarkastad Montane Shrubland (Gs17) comprises of ridges, hills and isolated mountain slopes, characterised by high surface rock cover, this often consisting of large, round boulders. The vegetation is low, semi-open, mixed shrubland with 'white' grasses and dwarf shrubs forming a prominent component of the vegetation.

Some of the important taxa found in this vegetation type include (amongst others) the following *Aloe ferox*. Small Tree: *Vachellia karroo* complex. Tall Shrubs: *Diospyros austro-africana*, *Cadaba aphylla*, *Ehretia rigida*, *Rhus burchellii*, *Tarchonanthus minor*. Woody Climbers: *Asparagus racemosus*, *A. retrofractus*. Low Shrubs: *Euryops annae*, *Aptosimum elongatum*, *Asparagus striatus*, *Blepharis mitrata*, *B. villosa*, *Chrysocoma ciliata*, *Diospyros pallens*, *Eriocephalus ericoides*, *Felicia filifolia* subsp. *filifolia*, *F. muricata*, *Gymnosporia heterophylla*, *Helichrysum dregeanum*, *H. zeyheri*, *Hermannia filifolia*, *Indigofera sessilifolia*, *Lantana rugosa*, *Limeum aethiopicum*, *Melolobium microphyllum*, *Nenax microphylla*, *Pegolettia retro-fracta*, *Pentzia globosa*, *Phymaspermum parvifolium*, *Rosenia humilis*, *Sutera pinnatifida*, *Wahlenbergia albens*. Succulent Shrubs: *Lycium schizocalyx*, *Pachypodium succulentum*, *Sarcocaulon camdeboense*. Graminoids: *Aristida adscensionis*, *A. congesta*, *A. diffusa*, *Cynodon incompletus*, *Enneapogon scoparius*, *Eragrostis chloromelas*, *E. lehmanniana*, *E. obtusa*, *Heteropogon contortus*, *Tragus berteronianus*, *T. koelerioides*, *Chloris virgata*, *Cymbopogon pospischilii*, *Digitaria eriantha*, *Eragrostis curvula*, *Eustachys paspaloides*, *Fingerhuthia africana*, *Sporobolus fimbriatus*, *Themeda triandra*,

Tragus racemosus. Biogeographically Important Taxa (^{SE}Sub-Escarpment Grassland endemic, ^EEastern distribution limit) Small Tree: *Encephalartos friderici-guilielmi*^{SE}. Low Shrubs: *Eriocephalus africanus*^E, *Senecio acutifolius*^E.

The vegetation type is classified as Least Threatened and according to Mucina and Rutherford (2012) 1 - 2% of the unit is statutorily conserved in the Commando Drift, Tsolwana Nature Reserves, and Mountain Zebra National Park. A conservation target of 28% was set for the vegetation type.

2018 SANBI Vegetation Map:

According to the latest vegetation map provided for South Africa (SANBI, 2018), the project site is still situated within the Bisho Thornveld

Also refer to *Part A(1)(h)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – 6. Site Specific Terrestrial Biodiversity.*

10. FAUNA

The existing mining right area is highly transformed, having been subjected to continuous mining activities for more than 50 years. The 2011 EMPR for the mine focused on red data species that may historically have occurred within the study area. The mammal list included species such as the Black Rhino (*Diceros bicornis bicornis*) (CR), Brown Hyena (*Hyaena brunnea*) (NT), Spotted-necked Otter (*Hydrictis maculicollis*) (NT), and White-tailed Rat (*Mystromys albicaudatus*) (VU). However, the EMPR noted that the occurrence of these species on site is highly improbable, with the exception of the White-tailed Rat, which may occur with low probability. It is also known that Rock Hyrax (*Procavia capensis*) inhabit the oversize rock stockpile areas.

A list of protected bird species known to occur in the broader area was provided in the 2011 EMPR. The EMPR also identified several amphibian and reptile species that may occur within the study area. In addition, the 2026 DFFE Screening Report indicates that the Oribi (*Ourebia ourebia ourebia*) (EN) may potentially occur in the region.

The Oribi is a small antelope associated primarily with open grasslands, floodplains and other relatively open habitats. It reaches its highest densities in moist grasslands and prefers grassland in good condition containing a mosaic of shorter grass for feeding and taller grass for shelter. The species has experienced substantial habitat loss and fragmentation, and its preferred grassland habitat is

declining in both extent and quality. The remaining natural habitat within the study area is degraded and near urban areas, a national road, rural settlements (with domestic dogs) and other disturbances that are negatively associated with preferred animal occupation. The species is therefore not considered a realistic potential SCC for the site. No suitable habitat exists for animal SCC to occur on site, therefore the site sensitivity for the Animal Species Theme is Low.

Table 10: List of bird species likely to occur in the area (Umhlaba, 2011).

SCIENTIFIC NAME	COMMON NAME	IUCN STATUS	SUITABILITY OF HABITATS ON SITE		
			Use	Suitability	Overall
<i>Gyps coprotheres</i>	Cape Vulture	VU	Foraging:	Not suitable	Unlikely to be present
			Roosting:	Not suitable	
			Breeding:	Not suitable	
<i>Aquila Rapax</i>	Tawny Eagle	VU	Foraging:	Not suitable	Unlikely to be present
			Roosting:	Not suitable	
			Breeding:	Not suitable	
<i>Polemaetus Bellicosus</i>	Martial Eagle	EN	Foraging:	Not suitable	Unlikely to be present
			Roosting:	Not suitable	
			Breeding:	Not suitable	
<i>Cirus ranivorus</i>	African Marsh-Harrier	VU (National Status)	Foraging:	Not suitable	Unlikely to be present
			Roosting:	Not suitable	
			Breeding:	Not suitable	
			Roosting:	Not suitable	
			Breeding:	None	

SCIENTIFIC NAME	COMMON NAME	IUCN STATUS	SUITABILITY OF HABITATS ON SITE		
			Use	Suitability	Overall
<i>Anthropoides paradiseus</i>	Blue Crane	VU	Foraging:	Not suitable	Unlikely to be present
			Roosting:	Not suitable	
			Breeding:	Not suitable	
<i>Ardeotis kori</i>	Kori Bustard	NT	Foraging:	Not suitable	Unlikely to be present
			Roosting:	Not suitable	
			Breeding:	Not suitable	

Table 11: List of amphibian and reptile species likely to occur in the area (Umhlaba, 2011).

SCIENTIFIC NAME	COMMON NAME	STATUS	HABITAT DESCRIPTION	PROBABILITY FOR OCCURRENCE ON SITE
AMPHIBIANS				
<i>Pyxicephalus adspersus</i>	Giant bullfrog	NT (National)	Inhabits a variety of vegetation types in the Grassland, Savanna, Nama Karoo and thicket biomes. It typically breeds in seasonal, shallow, grassy pans in flat, open areas but also utilizes non-permanent vleis and shallow water on the margins of waterholes and dams. Although they sometimes inhabit clay soils, they prefer sandy substrates.	Unlikely
REPTILES				
<i>Homoroselaps dorsalis</i>	Striped Harlequin Snake	NT	Usually collected in old termitaria or under stones in grassveld.	Unlikely

Also refer to Part A(1)(h)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – 6. Site Specific Terrestrial Biodiversity.

11.1 REVIEW OF EXISTING INFORMATION

(Information extracted from the Cultural Heritage Impact Assessment, Coetzee 2026 – Appendix F)

The Cultural Heritage Impact Assessment (CHIA) conducted by Mr FP Coetzee reports that no archaeological Cultural Resources Management (CRM) reports are recorded in the SAHRA 2009 Mapping Project Database (MPD) situated near or within the survey footprint. Although several heritage surveys and research projects have been completed in the general vicinity of the project footprint during the last few years (registered on the SAHRIS database), no cultural heritage sites were recorded inside the current survey footprint (Booth 2012; Derricourt 1977; Dreyer & Looock 2014; Huffman 2011; Van Ryneveld 2011a, 2011b, 2012, 2014, 2015, 2016).

Five declared Provincial Heritage Sites (PHS) are recorded on the SAHRA online database for Komani Central which include the following:

- ◆ PHS 133 : SAHRA Identifier 9/2/077/0003 - Hexagon, Komani
- ◆ PHS 134 : SAHRA Identifier 9/2/077/0008 - Old municipal market, 5 Hexagon Str., Komani
- ◆ PHS 135 : SAHRA Identifier 9/2/077/0005 - Town Hall, Cathcart Rd., Komani
- ◆ PHS 136 : SAHRA Identifier 9/2/077/0008 - Museum, Naude Str., Komani
- ◆ PHS 137 : SAHRA Identifier 9/2/077/0009 - Queens College, Berry Str., Komani

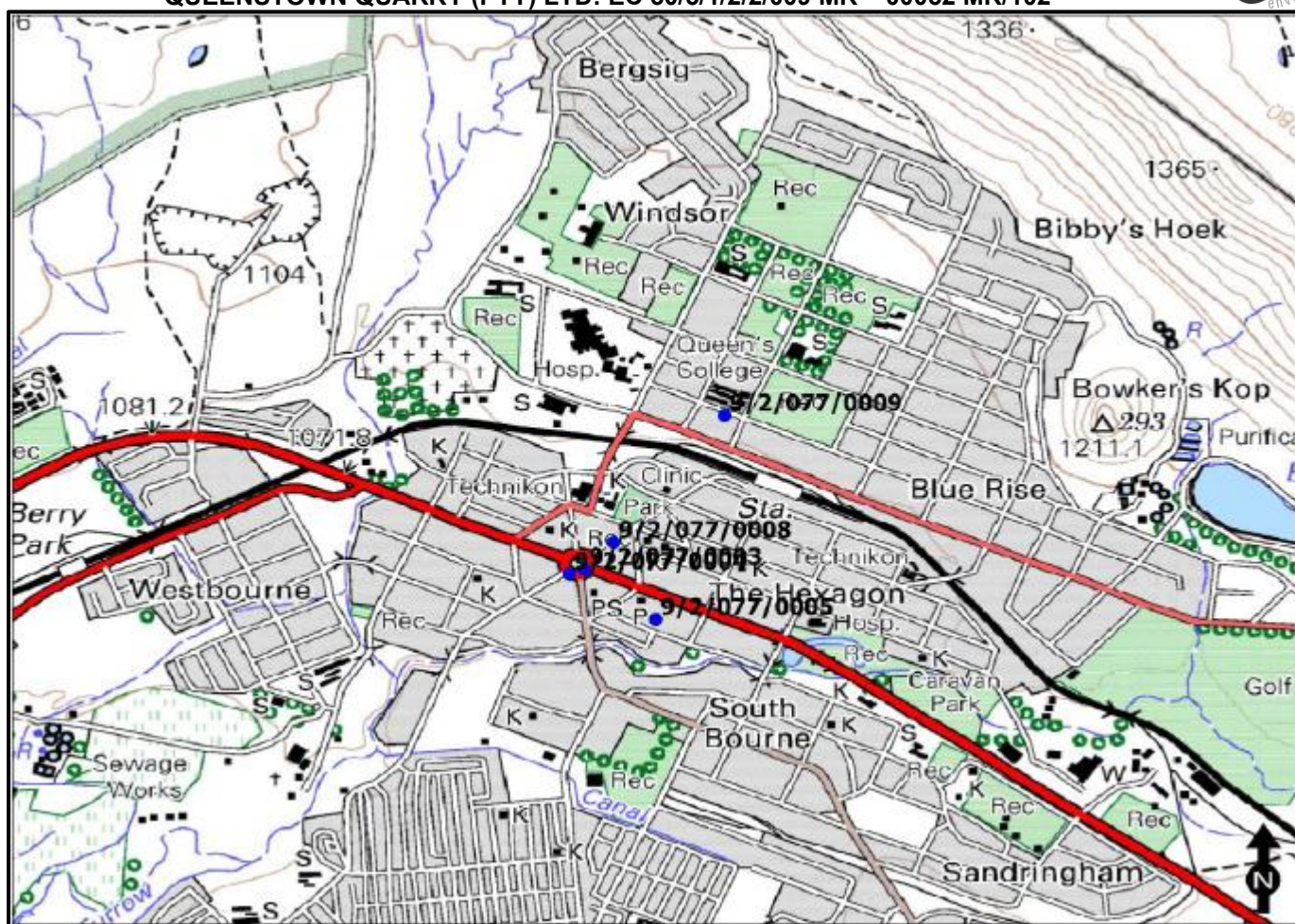


Figure 19: The location of the five declared Provincial Heritage Sites in central Queenstown. (Coetzee, 2026).

All the surveys conducted in the region seem to confirm that no Early Stone Age (ESAge) sites occur in the general area of the survey footprint. Middle Stone Age (MSA) sites to a lesser extent and Later Stone Age (LSA) deposits seem to dominate and are characteristic of the greater area at sites such as Rathwick in Komani. MSA and LSA artefacts were also identified along proposed bulk service lines, but with these in poorer contexts than at the Rathwick site itself. In Komani and surrounds significant MSA deposits were reported on from Xashimba. A number of MSA and LSA lithic occurrences, of varying significance were identified during the Penhoek Pass survey. A LSA lithic occurrence was reported on from the Dubeni area MSA deposits in proximity to this mining application site. Recorded Iron Age deposits are much scarcer with sites reported on from the Dubeni area.

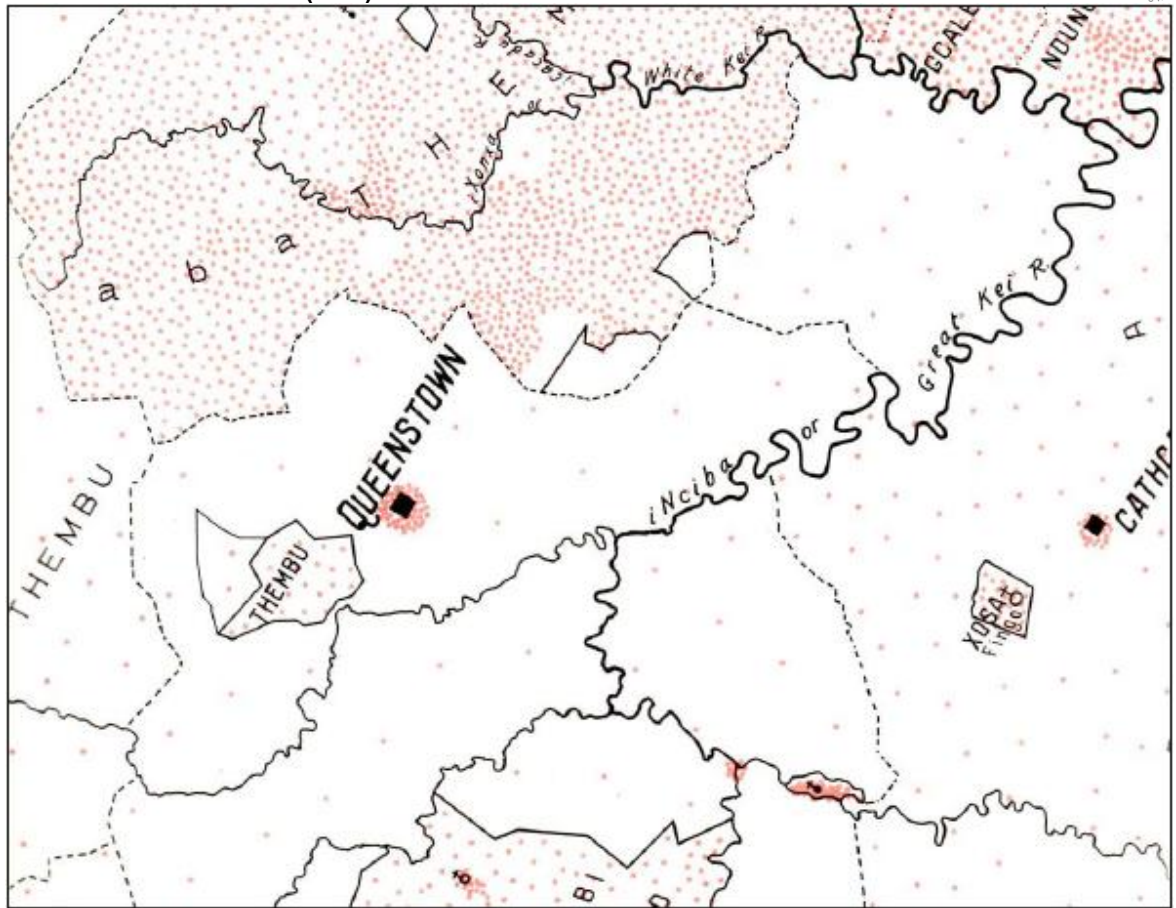
An extensive archaeological survey was conducted by Derricourt focussing on the erstwhile homelands known as the Transkei and Ciskei in the Eastern Cape in the early 1970s. He recorded a number of open sites and caves associated with Early, Middle and Later Stone deposits as well as rock art.

Paintings do not occur in the coastward side of the Amathole Range and is mainly located in the midlands and along the Kei River. Also paintings are known along the lower Fish River. Almost no rock art is recorded in the Tsolo and Umtata districts (Derricourt 1975:59).

Queenstown (Komani) was established in 1853 and is currently the commercial, administrative, and educational centre of the surrounding farming district. Queenstown was founded in early 1853 under the direction of Sir George Cathcart, who named the settlement, and then fort, after Queen Victoria. Work on its railway connection to East London on the coast was begun by the Cape government of John Molteno in 1876, and the line was officially opened on 19 May 1880. Also note that farms in the area were already surveyed by the Surveyor General's Office in 1856.

11.2 ETHNOGRAPHY

The term Xhosa has often been erroneously used to refer to all the so-called Cape Nguni groups. Although often used as a linguistic term Xhosa also include groups such as Gcaleke, Rarabe, Mpondo, Mpondomise, Thembu, Cwera, Xesibe, Qwathi, Mpinge, Fingo, Nhangwini and Hlangwini (and others) (see Jackson 1975). It would seem that the region around Komani has historically been settled by the amaThembu people (Van Warmelo 1935).



11.3 PALAEOONTOLOGY

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 mining area is placed on the PSM, it shows the study area to extend over and area of Insignificant/Zero (grey) and Very High (red) concern as presented in the figure below.

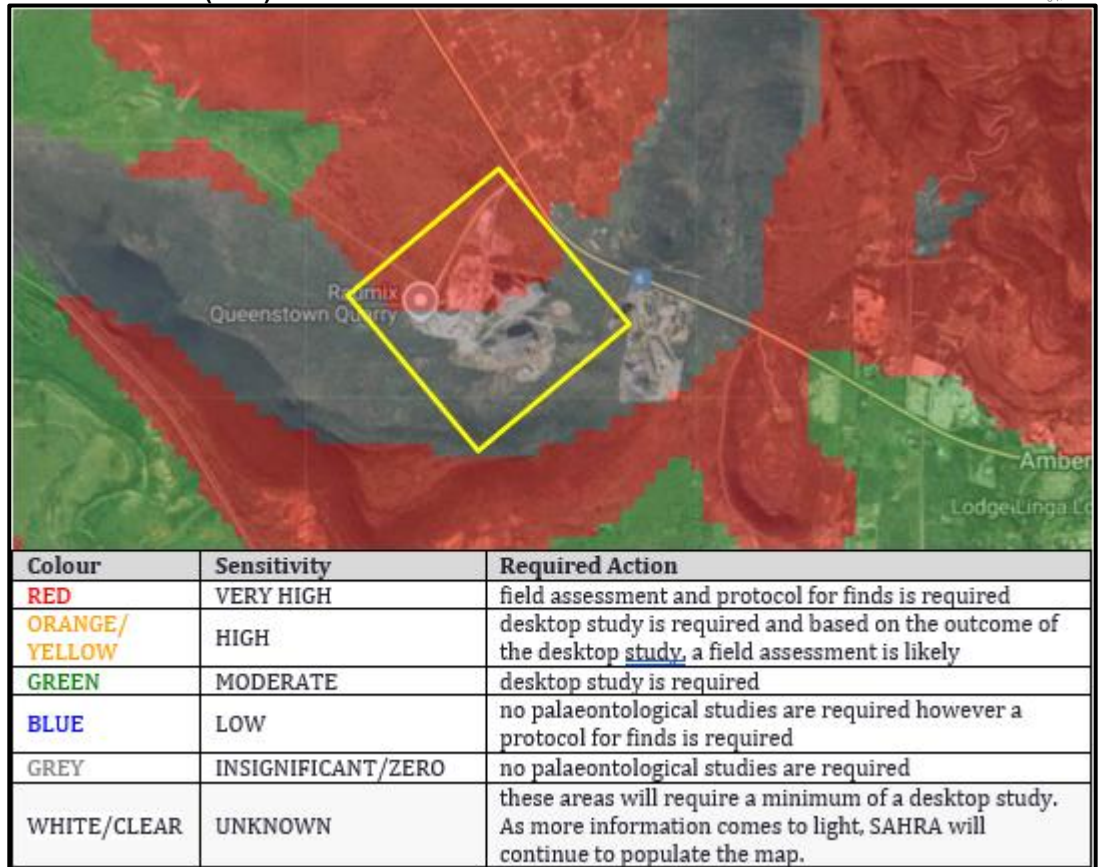


Figure 21: The SAHRA palaeontological sensitivity map where the yellow polygon indicates the proposed expansion area (Bamford 2025).

Also refer to Part A(1)(h)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – 7. Site Specific Cultural and Heritage Environment.

12. SOCIO-ECONOMIC ENVIRONMENT

(Information obtained from https://municipalities.co.za/demographic/1234/enoch-mgijima-local-municipality?utm_source=chatgpt.com)

The study area is in Ward 18 of the Enoch Mgijima Local Municipality (EMLM). The EMLM is a Category B Municipality in the Chris Hani District of the Eastern Cape Province. The municipality was formed in 2016 by merging Tsolwana, Inkwanca, and Lukhanji municipalities. It is the largest local municipality in the district and serves as an important regional node due to its transport links (road, rail, small airport) and rural–urban mix.

12.1 POPULATION AND DEMOGRAPHICS

The municipality's population has grown from ~250 776 in 2011 to ~297 055 in 2022, indicating modest growth. The age structure of the municipality, as presented below, reflects a predominantly working-age population with a substantial youth base, influencing dependency ratios and future labour

market prospects. The area combines urban centres (e.g., Komani) and rural settlements, contributing to varied socio-economic conditions across wards.

Table 12: Age structure of the Enoch Mgijima Local Municipality.

AGE STRUCTURE	2016	2022
Population under 15	35.7%	27.6%
Population 15 to 64	59.3%	63.9%
Population over 65	5.0%	8.5%

12.2 ECONOMIC PROFILE

The historical GDP growth of the EMLM has been weak or slightly negative, below provincial and national averages, indicating limited economic expansion. The key sectors include agriculture, government services, retail, community services, and finance/business. Some areas act as economic hubs, while others lag with underdeveloped infrastructure.

The average household incomes showed marginal increases in recent years, but broader data on income distribution suggests economic strain for many households. Historical unemployment rates have been high (around 29% +), reflecting persistent joblessness, though recent official figures may vary by source and year. A substantial share of residents live below poverty lines, with earlier socioeconomic profiles indicating around 60% of the population affected by poverty measures.

12.3 SOCIAL AND HUMAN DEVELOPMENT

The latest figures (as presented below) with regard to infrastructure access (2022) suggest improvements in service access compared to past averages, though service delivery challenges persist in some areas.

Table 13: Age structure of the Enoch Mgijima Local Municipality.

INFRASTRUCTURE ACCESS	2016	2022
Electricity for lighting	92.4%	96.5%

INFRASTRUCTURE ACCESS	2016	2022
Piped water inside dwelling	40.4%	55.0%
Flush toilets connected to sewerage	57.5%	72.2%
Weekly refuse removal	49.8%	40.9%

Education levels vary, with a notable share (26.7% in 2016) of the population having completed secondary schooling and a smaller but growing number obtaining higher education (10.8% in 2022). Workforce skill levels include a mix of low, semi-skilled, and skilled workers.

The health infrastructure includes multiple clinics and hospitals, with life expectancy improving slightly over recent years.

12.4 CHALLENGES & DEVELOPMENT ISSUES

In summary, the EMLM experiences the following challenges and development issues:

- ◆ High unemployment and poverty remain core development constraints, particularly among youth and in rural parts of the municipality.
- ◆ Service delivery gaps persist, notably in refuse removal and sanitation in some communities.
- ◆ Economic development hurdles stem from limited industrial diversification, infrastructural backlogs, and uneven investment across urban and rural zones.
- ◆ Governance and administrative capacity have been under scrutiny, with historical audit qualifications and fiscal pressures impacting municipal performance.

Overall, the Enoch Mgijima Local Municipality is a demographically growing area with mixed socio-economic conditions. It has important regional potential due to its geography and service access improvements, but continues to grapple with structural economic challenges, high unemployment, poverty, and uneven service delivery. Effective planning and

sustained investment in infrastructure, education, and job creation are central to improving socio-economic outcomes in the municipality.

(b) Description of the current land uses.

The Queenstown Quarry, ± 6 km west of Komani (Queenstown), is located within a predominantly rural and agricultural landscape. The Quarry footprint and the majority of the surrounding land towards the north and north-west is state owned.

Surrounding land uses comprise mainly grazing and small-scale agricultural activities, with rural residential dwellings and smallholdings in the wider area. The greater property is intersected by existing transport and service infrastructure, including the N6 national road, railway infrastructure, and electrical powerlines. Residential areas associated with the Lesseyton Community occur north and north-west of the quarry, while quarrying and associated concrete product manufacturing activities are located adjacent (east) to the existing mining operation.

The following images show the gradual development of the mine and surrounding areas since 2005.



Figure 22: Satellite view of the study area in 2005 (left pane) and again in 2008 (right pane) where the agricultural nature of the surrounding area is clear. (Images obtained from Google Earth).

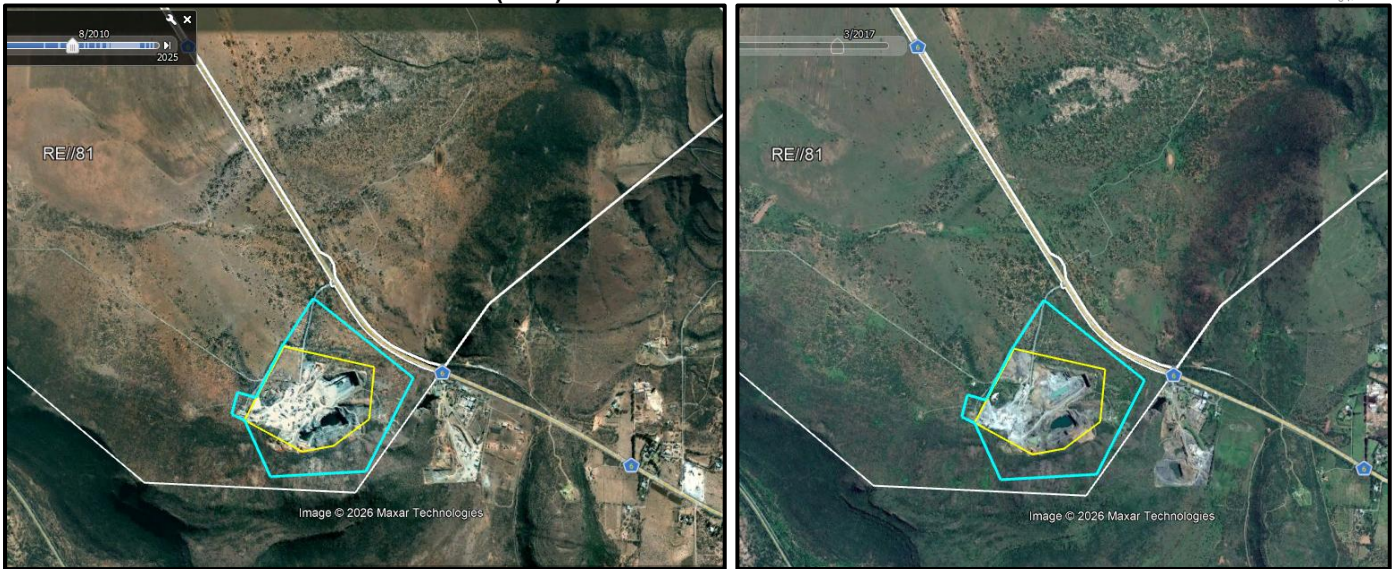


Figure 23: Satellite view of the study area in 2010 (left pane) and again in 2017 (right pane). Note the development of another quarry to the east of Queenstown Quarry (images obtained from Google Earth).



Figure 24: Satellite view of the study area in 2020 (left pane) and again in 2024 (right pane) showing the development of the Lesseyton residential area north of the N6 (images obtained from Google Earth).

The following figure and table provide a description of the land uses and/or prominent features that currently occur within a 500 m radius of the proposed extended mining footprint.

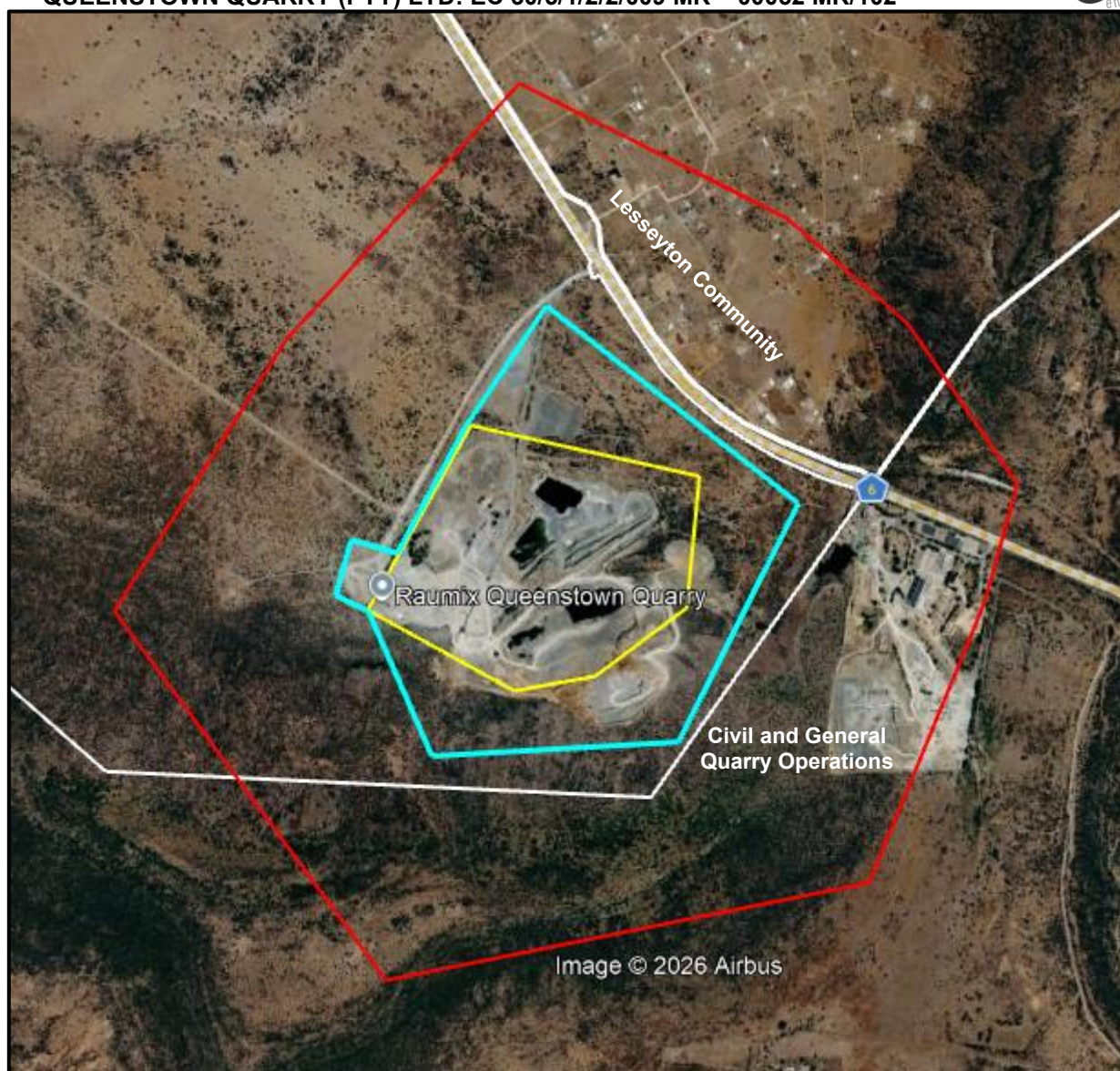


Figure 25: Satellite view showing the land use/infrastructure within 500 m (red polygon) of the application area (blue polygon). The white line indicates the property boundary, and the yellow polygon shows the current mining right footprint (image obtained from Google Earth).

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

LAND USE CHARACTER	YES	NO	DESCRIPTION
Natural area and/or agricultural land	YES	-	Natural areas border the study area to the east, south and west.
Low density residential	YES	-	The Lesseyton Community established north of the mine opposite the N6, and this includes various residential (formal and informal), commercial, industrial and other rural uses.
Medium density residential	-	NO	
High density residential	-	NO	
Informal residential	YES	-	
Retail commercial & warehousing	YES	-	The Civil and General operations, east of the Quarry, operates various industrial activities.
Light industrial	YES	-	
Medium industrial	YES	-	
Heavy industrial	-	NO	-
Power station	-	NO	-

S102 DRAFT BASIC ASSESSMENT REPORT
QUEENSTOWN QUARRY (PTY) LTD: EC 30/5/1/2/2/009 MR – 00052 MR/102



LAND USE CHARACTER	YES	NO	DESCRIPTION
High voltage power line	YES	-	Power lines do occur within 500 m of the mining boundary.
Office/consulting room	YES	-	The sales office of Queenstown Quarry operates from the property and the offices of Civil and General is within 500 m of the mine boundary.
Military or police base / station / compound	-	NO	-
Spoil heap or slimes dam	YES	-	Overburden heaps of the Quarry and Civil and General are present on site.
Quarry, sand or borrow pit	YES	-	This application is for the expansion of the existing Quarry footprint, and the Civil and General Quarry is within 500 m of the mine boundary.
Dam or reservoir	YES	-	Dams and reservoirs do occur within 500 m of the mining boundary.
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	The Queenstown – Cradock railway line is ±1.4 km from the Quarry.
Railway line	-	NO	-
Major road (4 lanes or more)	-	NO	The N6 passes the mining area but only has two lanes.
Airport	-	NO	-
Harbour	-	NO	-
Sport facilities	-	NO	-
Golf course	-	NO	-
Polo fields	-	NO	-
Filling station	-	NO	-
Landfill or waste treatment site	-	NO	-
Plantation	-	NO	-
River, stream or wetland	-	NO	The Klaas Smits River passes the mining area ±1.8 km to the west.
Nature conservation area	-	NO	The Lawrence de Lange Nature Reserve is ±3.5 km east of the mine while the Longhill Game Reserve is further to the north-east.
Mountain, hill or ridge	YES	-	The topography of the area is undulating, and the most prominent ridge is the one into which the dolerite quarry extends.
Museum	-	NO	-
Historical building	-	NO	-
Protected Area	-	NO	-
Graveyard	-	NO	-
Archaeological site	-	NO	-
Other land uses (describe)	-	NO	-

1. **AGRICULTURAL THEME: DFFE 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.

The DFFE Environmental Screening Tool identifies portions of the application area, particularly the north-western section, as having Medium to High agricultural sensitivity (following figure). This classification represents a strategic desktop assessment intended to identify areas that may require further consideration during the environmental assessment process.



Figure 26: DFFE screening tool output for agricultural sensitivity (DFFE screening tool report).

Ground-truthing, supported by recent satellite imagery, indicates that a substantial portion of the mapped Medium to High sensitivity coincides with the existing approved Mining Right area, where quarrying activities have been undertaken for several decades. This area comprises existing roads, processing infrastructure, stockpile areas and other mining-related disturbances. Consequently, the original agricultural land capability within the existing operational footprint has been permanently altered, and the land (in its current state) is no longer available for

agricultural production or livestock grazing. The operational area is fenced and managed exclusively for mining purposes.



Figure 27: Satellite image of the current land use of the mining right footprint (yellow polygon) in relation to the proposed expansion area (blue polygon) (Google Earth).

The proposed expansion does, however, include areas beyond the existing Mining Right boundary that have not yet been disturbed by mining and currently comprise natural vegetation utilised for livestock grazing. Should the application be authorised, these areas will be incorporated into the operational footprint and will no longer be available for grazing for the duration of the mining operation. The loss of grazing land, albeit heavily overgrazed, is therefore recognised as an impact associated with the proposed expansion.

Notwithstanding the above, the agricultural sensitivity mapped within the existing mining footprint is considered, following ground-truthing, to overstate the current agricultural value of the land due to the long-standing disturbance associated with quarrying activities. The remaining areas proposed for inclusion in the Mining Right retain a greater degree of agricultural function and should therefore be regarded as the primary areas where agricultural resources will be affected by the proposed development. The significance of this impact is reduced by the relatively small extent of the proposed expansion in relation to the surrounding grazing land and by the implementation of progressive rehabilitation and final closure measures aimed at restoring a stable post-mining landform capable of supporting an appropriate vegetation cover.

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 (In respect of the final site layout plan) through the life of the activity.*

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

SPECIFIC ENVIRONMENTAL FEATURES

NOTE: The site-specific features described below refers specifically to the expansion area that this Section 102 amendment application applies to.

1. SITE SPECIFIC TOPOGRAPHY

The proposed S102 application area extends beyond the current mining right to include land located to the north-east, east and south of the existing quarry. The area is characterised by a combination of previously disturbed quarry land and adjoining natural terrain that has not yet been affected by mining activities.

The most prominent topographic feature within the application area is an elevated ridge situated in the central to eastern portion of the site, with elevations reaching $\pm 1\ 275$ mamsl. This ridge forms the highest point within the application area and separates the existing quarry from the relatively undisturbed eastern extent. To the north-east, the terrain is comparatively gentle, gradually sloping from $\pm 1\ 128$ mamsl towards the existing quarry workings. The southern portion of the application area comprises gently undulating ground that transitions into the existing excavated areas.

The proposed expansion area therefore encompasses both elevated ground and lower-lying slopes, resulting in an overall elevation range of $\pm 1\ 117$ mamsl to $1\ 275$ mamsl. The existing quarry excavation occupies the western portion of the application area, where the natural landform has already been substantially modified through the development of benches, quarry faces and haul roads. In contrast, the far eastern and southern portions remain largely representative of the natural topography and have not been subjected to mining-related earthworks.

Should the proposed amendment to the mining right be approved, future quarry development would progressively extend into these currently undisturbed areas. Expansion towards the north-east, east and south would result in the gradual excavation of the natural hillside and ridge, replacing the existing landform with engineered quarry benches and excavation faces. The most pronounced topographic change would occur within the eastern portion of the application area,

where the elevated ridge would be progressively reduced as extraction advances.

The southern expansion would extend the existing quarry footprint into lower-lying terrain, while the north-eastern expansion would modify the gently sloping ground adjoining the current workings.

The anticipated topographic changes would be incremental and would occur progressively over the life of the mine in accordance with the approved mine plan. The altered landform would remain confined to the approved mining footprint, with the surrounding topography remaining unaffected. Following cessation of mining, the final landform would comprise stable engineered quarry voids with benches and slopes designed to meet geotechnical stability requirements.



Figure 28: Elevation profile of the proposed expansion area (Image obtained from Google Earth).

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 (In respect of the final site layout plan) through the life of the activity.*

2. SITE SPECIFIC VISUAL CHARACTERISTICS

The following figures show the viewshed analysis from the lowest, highest and most southern points of the proposed expansion area. The green shaded areas

indicate the positions from where the various points will be visible within a 10 km range.

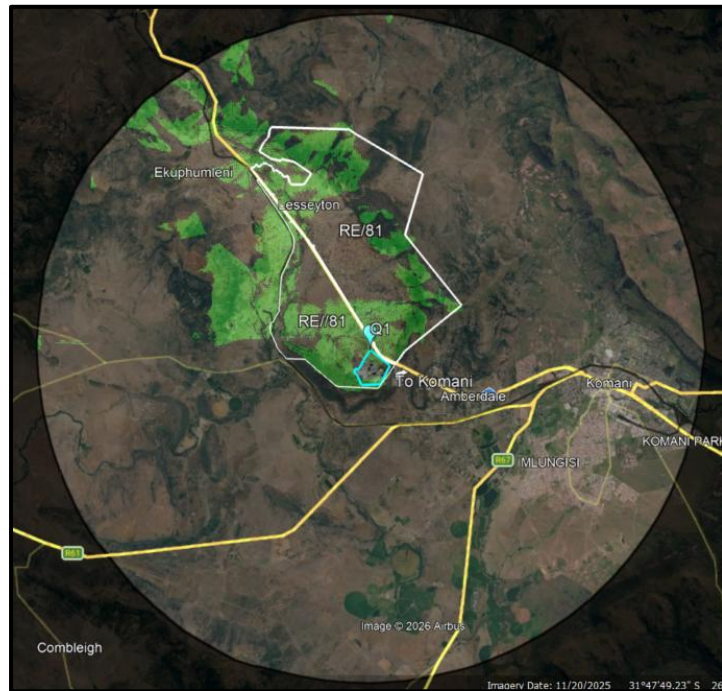


Figure 29: Viewshed analysis of the proposed expansion area (blue polygon) at the lowest elevation point (Q1). (Image obtained from Google Earth).

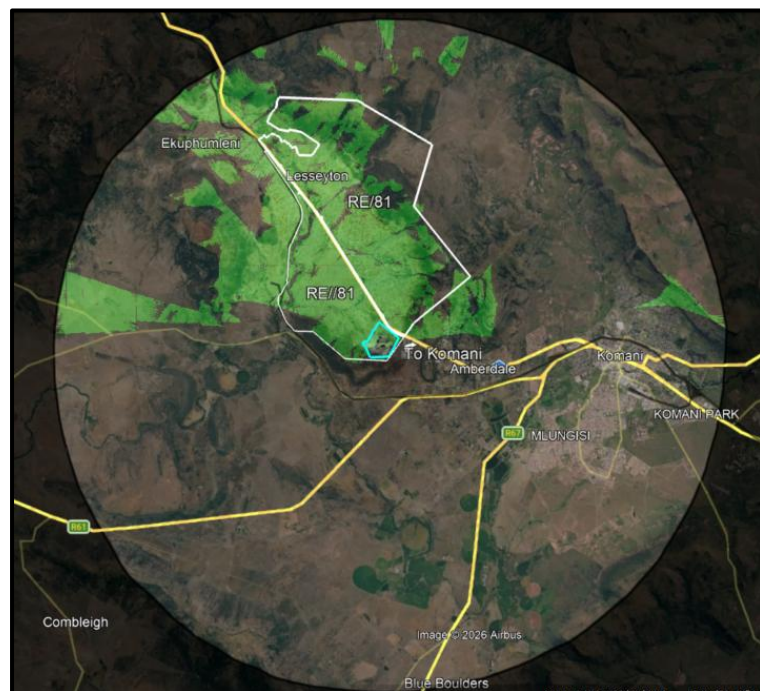


Figure 30: Viewshed analysis of the proposed expansion area (blue polygon) at the highest elevation point (Q3). (Image obtained from Google Earth).

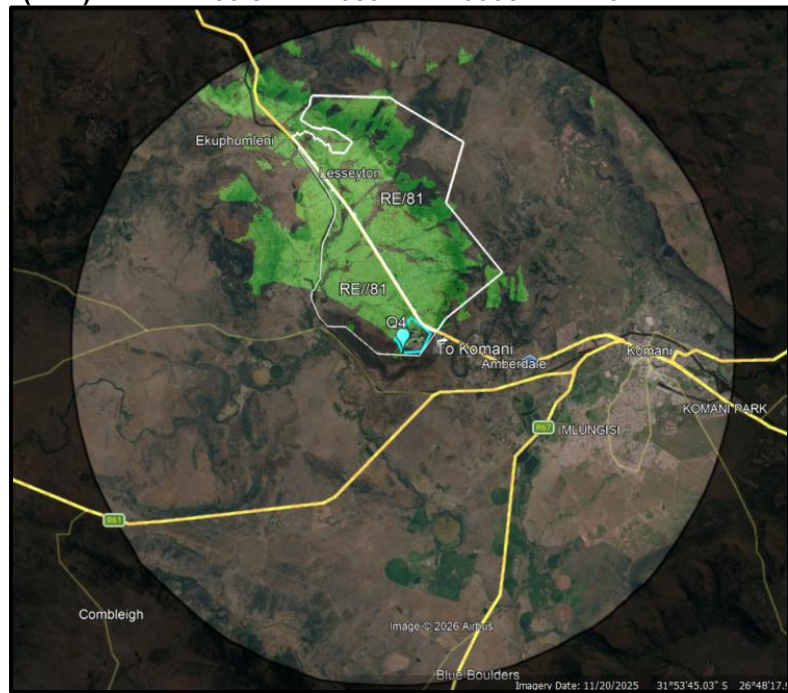


Figure 31: Viewshed analysis of the proposed expansion area (blue polygon) at the most southern point (Q4). (Image obtained from Google Earth).

The quarry is located on a prominent ridge immediately west of Komani and has been in operation since the 1970s. The surrounding landscape is characterised by gently undulating plains interspersed with prominent ridges, resulting in elevated landforms being visible over relatively long distances. The existing quarry has consequently become an established visual feature within the local landscape.

Viewshed modelling undertaken from the lowest point (Figure 29), highest point (Figure 30) and southern-most (Figure 31) extent of the proposed expansion indicates that the proposed disturbance will remain visible from a relatively large area within the 10 km assessment radius. The greatest extent of visibility occurs towards the north-west, north and west where the surrounding terrain is generally lower than the quarry ridge. Visibility towards the east and south-east is more limited by intervening topography, although the quarry remains visible from sections of the surrounding road network, elevated viewpoints and nearby properties.

The viewshed outputs indicate only minor variation between the three assessment points, suggesting that the proposed expansion occupies a consistently elevated position along the ridge. The expansion is therefore expected to remain visually connected to the existing quarry rather than creating a separate area of visual disturbance.

The proposed expansion will extend quarrying activities within the existing operational area and along the same ridgeline that has historically been mined. As such, the development is not expected to introduce a new landscape element but will extend an existing and established visual feature. Notwithstanding this, the exposure of additional rock faces and working areas will remain visually evident from a number of surrounding viewpoints and the visual impact is therefore expected to persist for the duration of mining.

The elevated topographic position of the quarry limits the extent to which visual impacts can be avoided. Accordingly, management measures should focus on reducing the visual prominence of active mining areas where practicable. This includes maintaining orderly bench development, minimising the extent of exposed working faces, restricting disturbance to the approved mining footprint, progressively rehabilitating completed areas where operationally feasible, and implementing final rehabilitation upon cessation of mining. While these measures are expected to reduce visual contrast and improve landscape integration over time, they will not completely remove the visual evidence of quarrying. Residual visual impacts are therefore expected to remain following closure, although they are anticipated to reduce progressively as rehabilitation becomes established.

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 (In respect of the final site layout plan) through the life of the activity.

3. SITE SPECIFIC AIR QUALITY AND NOISE AMBIANCE

The existing Queenstown Quarry has been operational for several decades and currently contributes to the site's ambient air quality and acoustic environment through routine quarrying activities. Air emissions are primarily associated with drilling, blasting, excavation, loading, hauling, crushing, screening and the movement of vehicles along unpaved haul roads. These activities generate dust and combustion-related emissions typical of hard-rock quarrying operations and occur intermittently in accordance with production requirements.

Similarly, the existing noise environment within and immediately surrounding the quarry is influenced by operational activities including drilling, blasting, crushing, screening, loading, hauling and the operation of fixed and mobile plant. Blasting is restricted to weekdays between 08:00 and 17:00, while excavation, hauling, crushing, screening and associated maintenance activities may continue during extended shifts when production requirements necessitate it. The intensity and

duration of these activities vary according to production demands and market requirements.

To monitor the effectiveness of the implemented environmental management measures, the quarry currently operates a comprehensive air quality monitoring programme comprising fallout dust monitoring, occupational gravimetric dust monitoring and a continuous real-time air quality monitoring system. These monitoring programmes provide ongoing information regarding dust generation and enable operational controls to be implemented where necessary. Occupational noise exposure of employees is similarly monitored by a qualified Occupational Hygienist in accordance with the applicable occupational health and safety requirements.

The proposed expansion does not introduce a new mining method, processing technology or operational activity. Extraction will continue by means of conventional bench mining within the expanded excavation areas, with material being transported to the existing processing plant where crushing, screening and stockpiling will continue using the established infrastructure and equipment. Consequently, the proposal represents a gradual lateral expansion of the existing excavations rather than an intensification or fundamental change in quarry operations.

From an air quality and noise perspective, the principal sources of emissions will therefore remain unchanged. While operational activities will progressively extend into the approved expansion area as mining advances, the nature, characteristics and management of the emissions are expected to remain consistent with those currently experienced at the site. The existing monitoring programmes and operational controls will continue to provide a mechanism for monitoring environmental performance throughout the life of the quarry and for identifying any trends that may require additional management measures.

The activities associated with the proposed expansion are limited to conventional quarrying operations and do not include processes listed under Section 21 of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) that require an Atmospheric Emission Licence (AEL). No combustion processes, mineral processing activities or other scheduled air emission activities requiring an AEL will be undertaken as part of the proposal. Air emissions will therefore continue to be managed through the implementation of the approved

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 (In respect of the final site layout plan) through the life of the activity.*

(Information extracted from the Queenstown Quarry – Resource-Reserve Estimation, MLB Consulting 2026.)

Although the Adelaide Subgroup consists mainly of sandstones and red mudstones, the quarry is found in a dolerite intrusion within the Middleton Formation (following figure). The targeted commodities of interest in the quarry are therefore the dolerite and quartzite, which forms the majority of the rock mass of the quarry.

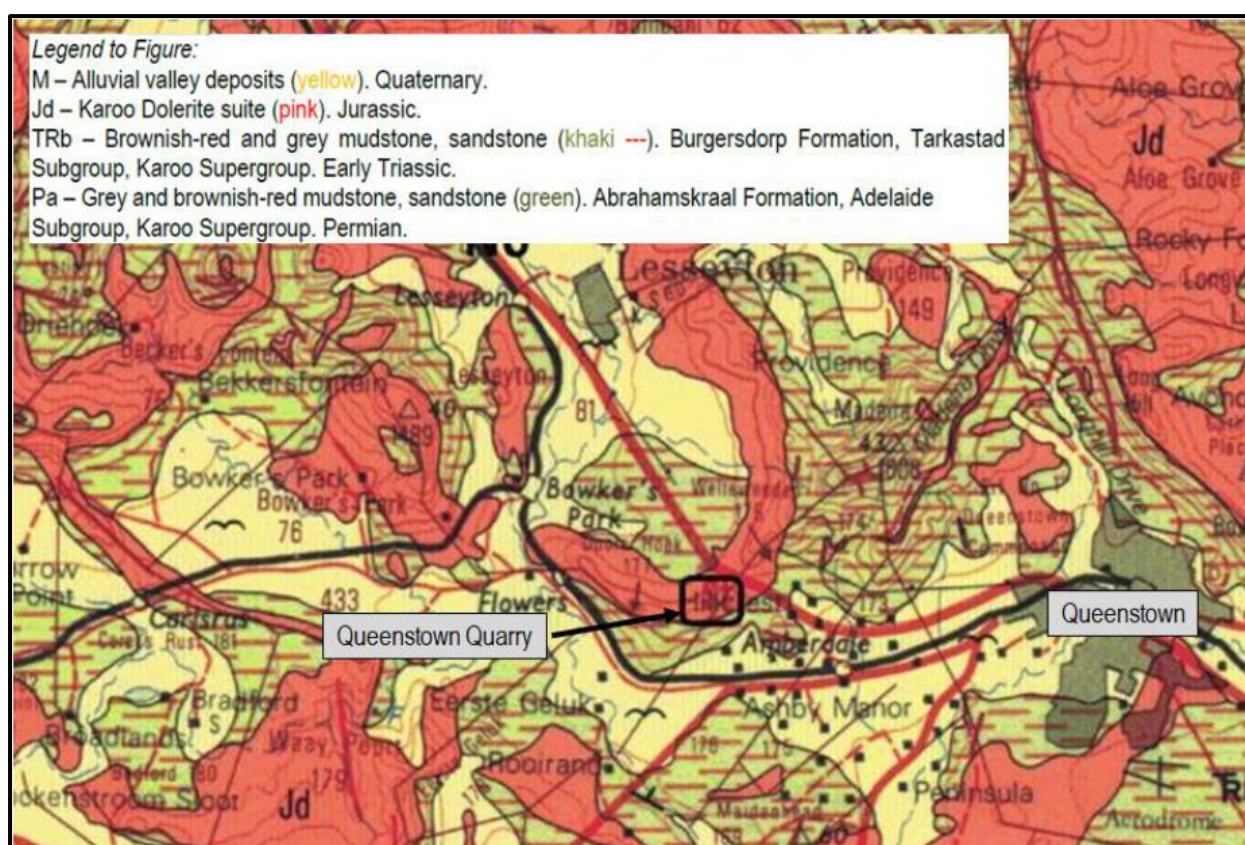


Figure 32: Geology map indicating the underlying geology at Queenstown Quarry (MLB Consulting 2026).

The dolerite deposit at Queenstown Quarry is a competent rock mass deposit with a general trend of increased competence the deeper the working levels become. Above the competent intact dolerite is a weathered zone (varying in thickness) consisting of weathered dolerite and a veneer of clayey and silty colluvial and alluvial deposits. The typical Karoo dolerite, i.e., a medium to fine grained, hard

igneous rock with the pyroxene and plagioclase crystals in the matrix exhibiting strong interlocking ophitic intergrowths has a small percentage of interstitial quartz grains that enhances the hardness of the rock.

The quartzite deposit at Queenstown Quarry is a competent rock mass deposit with a general trend of increased competence, the deeper the working levels become. Above the competent intact quartzite is a weathered zone (varying in thickness) consisting of weathered dolerite and a veneer of clayey and silty colluvial and alluvial deposits. The typical Karoo quartzite is a medium- to fine-grained, hard, competent, low-grade metamorphic meta-sedimentary rock predominantly composed of recrystallized quartz grains exhibiting strong interlocking textures. Minor feldspar grains may locally occur within the quartz-rich matrix. The rock mass is generally dense, silica-rich, and mechanically competent, with brittle failure characteristics typical of quartzitic lithologies.

Three separate ground control districts (GCD) have been identified, which are listed below:

- ◆ GCD 1: Topsoil - Soil material with low cohesion when dry. Visibly blocky rock mass conditions – up to 1 metre in depth.
- ◆ GCD 2: Weathered Dolerite Rock Mass - Massive rock mass with prominent joints. The residual soils containing core stones within highly weathered materials are between 1 m – 4 m thick.
- ◆ GCD 3: Fresh rock mass.

The Right Holder processes hard rock extracted from the quartzite and dolerite pits to produce and sell the following products:

- ◆ 10 mm Crusher Dust
- ◆ 13.2 mm Concrete Stone
- ◆ 19 mm Concrete Stone
- ◆ 13 mm Builders Blend
- ◆ 28 mm Crusher Run
- ◆ G2 Basecourse
- ◆ G4 Basecourse
- ◆ G5 Basecourse
- ◆ Rest (such as sabunga, rockfill, dump rock etc)

In 2026, MLB Consulting (MLB) did geological modelling of the dolerite resource up to the 1 115 masl datum. The study found that the dolerite is uniformly emplaced up to the pit bottom. All established benches and stacks have been found to be within the targeted dolerite intrusive. No geoscientific evidence of resource discontinuity or the possibility thereof was noted on the lateral extents of the resource model boundaries. The Vertical extent of the resource model has been truncated and limited to the 1 115 masl datum; the dolerite intrusive have been confirmed and mapped at this (lowest) elevation in the pit bottom.

MLB notes that future expansion plans would require a cutback on the current pit to maximise resource and extend life of mine (LOM). The simplified slope configuration section is shown in the following figure.

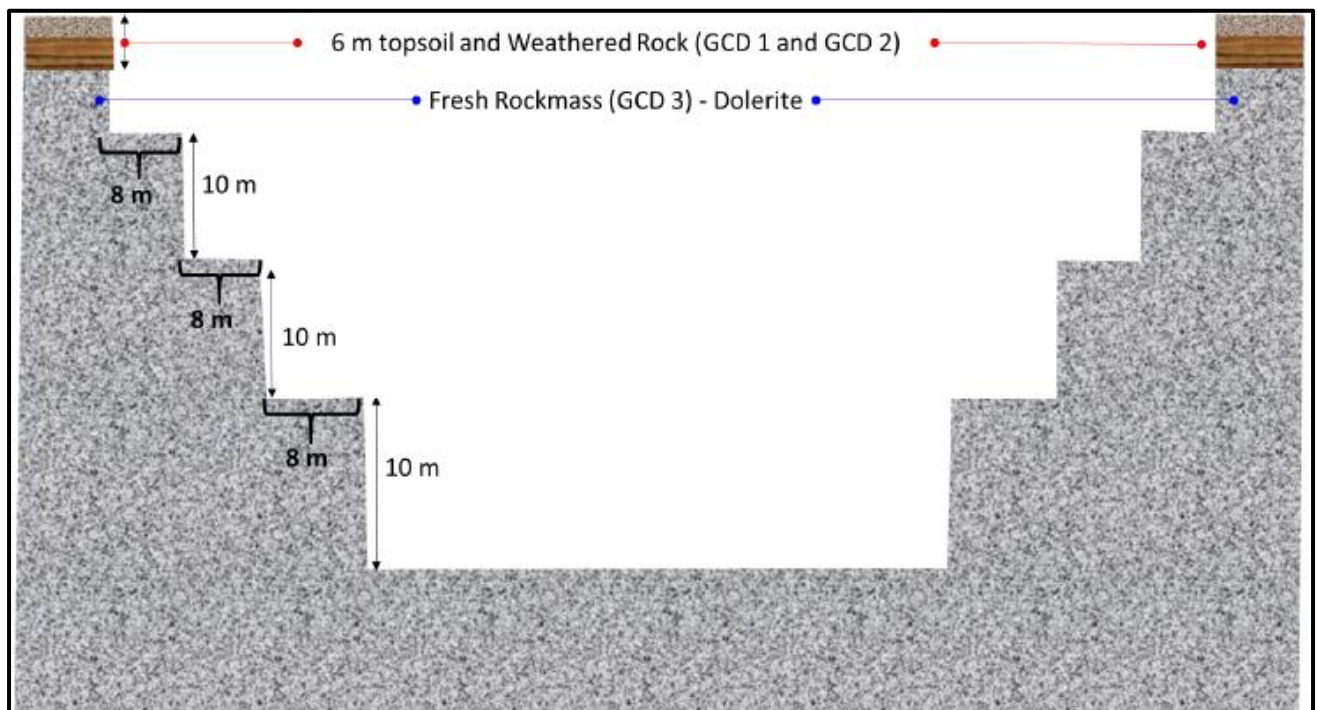


Figure 33: Image showing simplified expected excavation slope configuration of the dolerite quarry in expansion phase (MLB Consulting 2026).

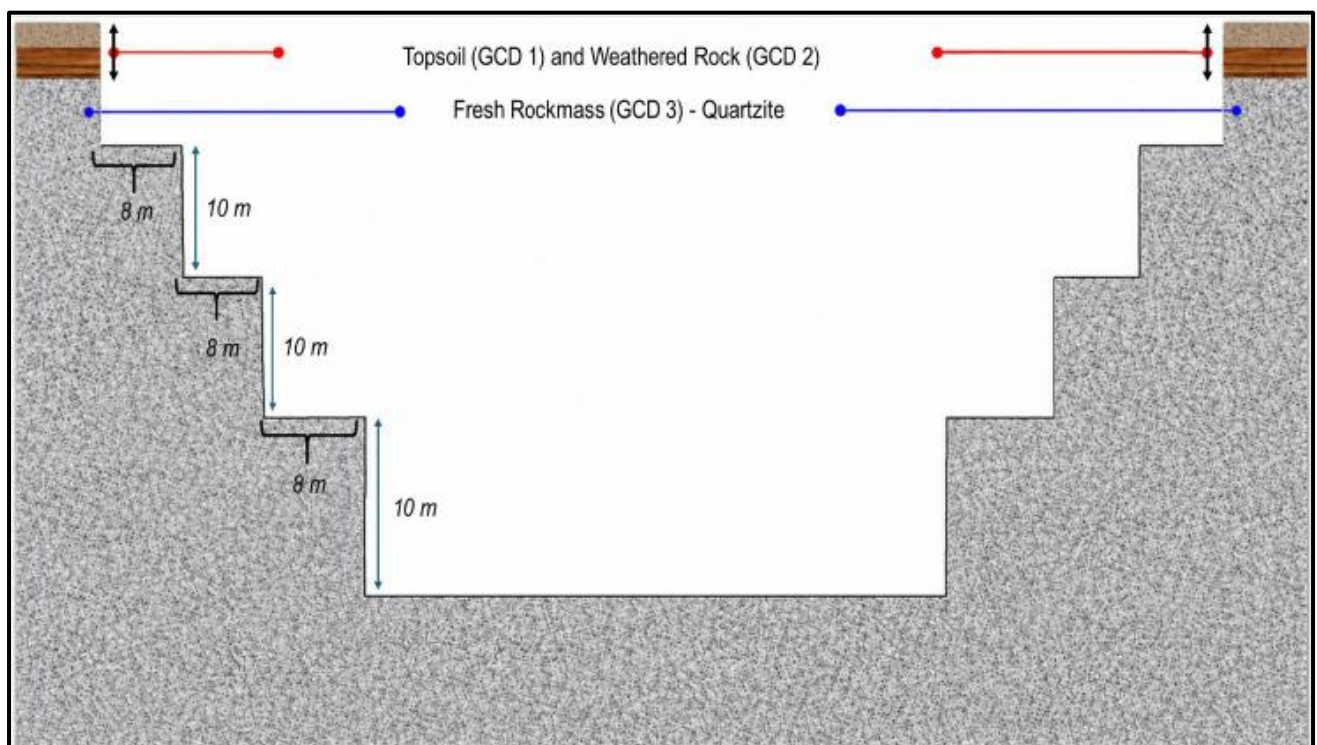
Geological losses may occur in the form of dilution with undulating weathering profiles, sedimentary host rocks (Karoo Supergroup), potholes in the targeted dolerite intrusive and/or any structural interferences within the rockmass; this will be accounted for in the reserve estimation by way of a 15% discount factor.

Areas with established infrastructure were discounted from the mining reserves, particularly where such infrastructure is assumed to form part of the core operation (e.g., established re-handling stockpiles, fixed crushing plants, water supply dams/vessels, haul roads, etc.). Upon accounting for these various specific discounts, the probable mining reserve was conservatively calculated by MLB in 2026 to be ± 5.3 million m^3 . Based on the current and proposed production rate of the mine, should the expansion of the mining footprint be approved, the LOM of the dolerite pit is in the region of 33.5 years.

4.2 QUARTZITE RESOURCE

Geological modelling of the quartzite resource was done up to the 1 120 masl datum. The study found that the quartzite is uniformly emplaced up to the pit bottom. All established benches and stacks have been found to be within the targeted quartzite deposit. No geoscientific evidence of resource discontinuity or the possibility thereof was noted on the lateral extents of the resource model boundaries. The Vertical extent of the resource model has been truncated and limited to the 1 120 masl datum; the quartzite deposit has been confirmed and mapped at this (lowest) elevation in the pit bottom.

MLB notes that future expansion plans would require a cutback on the current pit to maximise resource and extend life of mine (LOM). The simplified slope configuration section is shown in the following figure.



Geological losses may occur in the form of dilution with undulating weathering profiles, sedimentary host rocks (Karoo Supergroup), variability in metamorphic grade the targeted quartzite deposit and/or any structural interferences within the rockmass; this will be accounted for in the reserve estimation by way of a 15% discount factor.

5. SITE SPECIFIC HYDROLOGY

The DFFE Environmental Screening Tool identifies narrow linear corridors of Very High aquatic biodiversity sensitivity associated with Ecological Support Areas (ESA 1) traversing portions of the application area (following figure). These mapped features are indicative of landscape-scale ecological linkages associated with drainage lines and aquatic ecosystem processes identified through desktop spatial datasets.



Figure 35: DFFE screening tool output for aquatic biodiversity (image obtained from DFFE screening tool report).

Ground-truthing undertaken during the site assessment, together with a review of recent high-resolution satellite imagery, indicates that the mapped ESA 1 feature extending into the north-western portion of the application area does not correspond with the current on-site conditions. The mapped feature falls within the existing Mining Right area, which has been subject to quarrying activities for several decades. This area comprises established mining disturbances, with no discernible natural drainage line, riparian habitat or aquatic ecological feature observed during the site inspection.

The long-standing mining activities have substantially modified the original landform within this portion of the site and have interrupted the natural characteristics that could ordinarily have supported an Ecological Support Area. Consequently, the mapped ESA 1 feature is considered to represent a limitation of the desktop screening dataset rather than the current ecological condition of the site.

The proposed Mining Right expansion extends predominantly into previously undisturbed terrestrial areas located adjacent to the existing quarry. Site verification confirmed that no permanent watercourses, wetlands or riparian habitat occur within the proposed expansion footprint that would correspond with the mapped ESA1 feature within the existing operational area.

Based on the site verification, the mapped aquatic biodiversity sensitivity within the existing quarry footprint is not considered representative of the current environmental conditions. The aquatic biodiversity sensitivity of the operational footprint is therefore considered to be low.

5.2 CONCLUSION

No natural watercourse, wetland or riparian habitat associated with the mapped feature of the DFFE Screening Tool was identified during the site inspection.

The site-specific hydrology is therefore consistent with the regional hydrological setting described above. No rivers, streams, wetlands or other natural surface water features occur within either the existing operational footprint or the proposed expansion area. Surface runoff generated within the quarry is managed through the established stormwater management

system and internal drainage infrastructure designed to minimise erosion and prevent the uncontrolled discharge of sediment-laden runoff.

The proposed expansion will not directly encroach upon any mapped or verified watercourses or wetlands and does not require the diversion, impoundment or modification of a natural drainage feature. The expansion will constitute a lateral extension of the existing excavations into adjacent terrestrial areas, while the existing surface water management measures contained in the EMPr will continue to be implemented to protect the surrounding receiving environment.

Accordingly, the principal hydrological considerations associated with the proposed expansion relate to the management of clean and dirty stormwater, erosion prevention and sediment control, rather than the direct disturbance of aquatic ecosystems or watercourses.

Also refer to *Part A(1)(h)(viii) The possible mitigation measures that could be applied and the level of risk.*

6. SITE SPECIFIC TERRESTRIAL BIODIVERSITY

(Information extracted from the Plant, Animals and Terrestrial Biodiversity Assessment, BioCensus (Pty) Ltd, 2026 attached as Appendix E)

6.1 TERRESTRIAL BIODIVERSITY, PLANT AND ANIMAL THEME: DFFE NATIONAL SCREENING TOOL

According to the DFFE Environmental Screening Tool, the majority of the application area falls within an area of Very High terrestrial biodiversity sensitivity (following image). Smaller areas of Low sensitivity are mapped within the existing disturbed quarry footprint, reflecting the extent of historical mining disturbance. The surrounding landscape is also predominantly classified as Very High sensitivity, indicating the presence of biodiversity features considered important at a regional scale. These desktop classifications provide an indication of the potential biodiversity sensitivity of the area and have informed the requirement for a specialist Terrestrial Biodiversity Impact Assessment.



Figure 36: DFFE screening tool output for terrestrial biodiversity (DFFE screening tool report).

The DFFE Screening Tool classifies the entire application area as having Medium plant sensitivity. The Medium sensitivity classification indicates that botanical considerations should be assessed during the environmental assessment process. The significance of this mapped sensitivity, including the presence or absence of SCC and the condition of the vegetation, verified through the specialist terrestrial biodiversity impact assessment.



Figure 37: DFFE screening tool output for plant species (image obtained from DFFE screening tool report).

6.2 TERRESTRIAL BIODIVERSITY IMPACT ASSESSMENT FINDINGS

The assessment confirmed that the site comprises the existing transformed quarry workings surrounded by natural vegetation occurring in different ecological condition states. A distinct difference was identified between the vegetation associated with the ridge and rocky outcrops and that occurring

on the plains, particularly between the existing quarry and the N6 National Road.

6.2.1 VEGETATION AND HABITAT CONDITION

The ridge and associated rocky outcrops are relatively intact and in good ecological condition. The ridge has a high ecological value and provides biodiversity habitat and connectivity, while the rocky outcrops provide specialised microhabitats, including potential habitat for SCC. The TBIA notes, however, that these habitats are well represented elsewhere within the surrounding landscape.

In contrast, the plains between the existing quarry and the N6 are in poor ecological condition as a result of long-term secondary impacts associated with the quarry, severe livestock overgrazing and surrounding land uses. These pressures have resulted in reduced vegetation cover, soil erosion and changes in vegetation composition and structure and are expected to continue irrespective of whether the proposed quarry expansion proceeds.

The TBIA consequently found that the ecological value and functionality of the CBA2 habitat occurring on the property are not uniform. The intact ridge and rocky outcrops have a higher ecological value, while the degraded plains make a substantially reduced contribution to biodiversity pattern and ecological processes. The existing quarry workings are transformed and have very low current habitat value.



Figure 39: Map of habitats on site and in surrounding areas (BioCensus).

6.2.2 CRITICAL BIODIVERSITY AREAS

The remaining natural areas within the proposed expansion footprint occur within mapped CBA2. The TBIA acknowledges that the CBA2 designation represents a legitimate landscape-scale conservation priority, while noting that the ecological value of the affected habitat varies considerably at property scale.

The degraded plains retain their mapped CBA2 status but have substantially reduced ecological functionality. The specialist found that the conservation objectives represented by the CBA2 designation are not dependent on the persistence of this degraded patch, as comparable or better-condition habitat occurs elsewhere within the surrounding landscape.

The ridge and rocky outcrops represent the more ecologically important components of the CBA2 network within the site. Although these areas are relatively intact and have higher ecological value, similar ridge and rocky habitats are widely represented within the broader landscape and the range of Tarkastad Montane Shrubland.

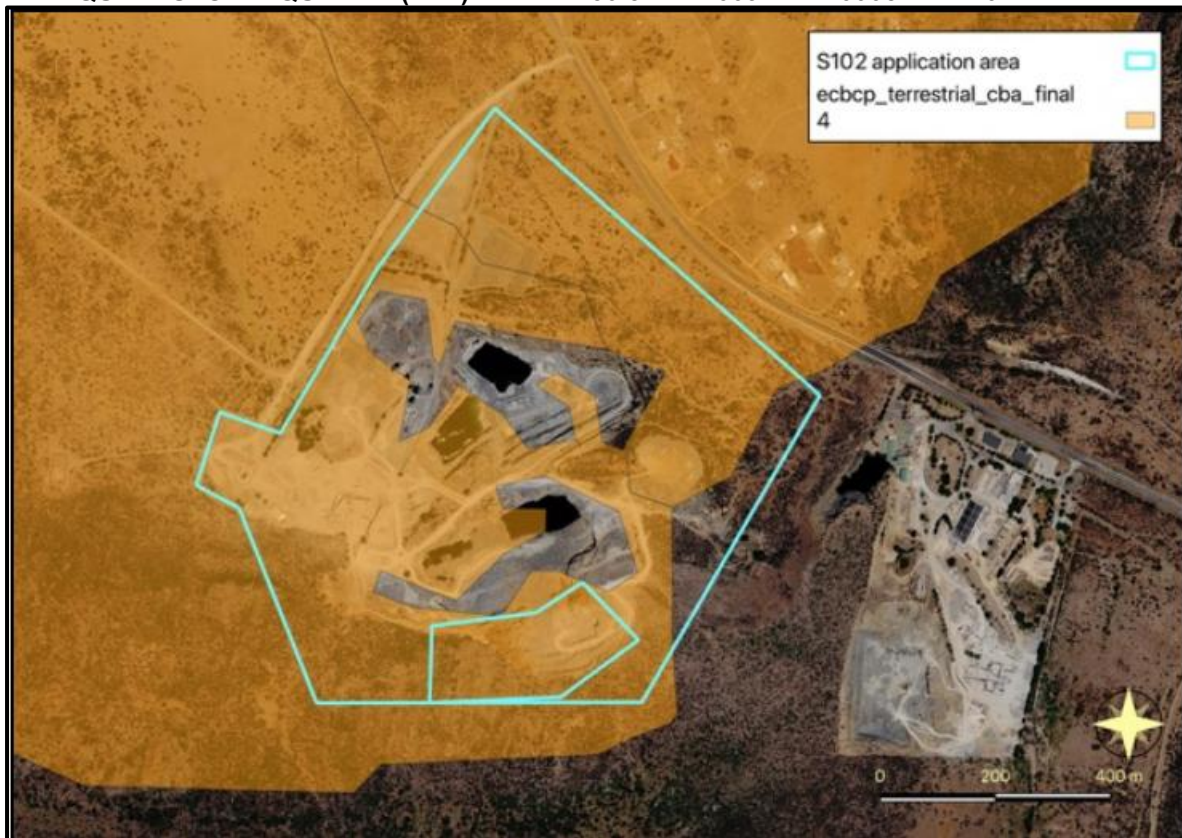


Figure 40: Eastern Cape Biodiversity Spatial Plan for the site (BioCensus).

6.2.3 PLANT AND ANIMAL SPECIES OF CONSERVATION CONCERN

The site investigation and desktop assessment determined that there is a low likelihood of the plant SCC identified for consideration occurring within the proposed development footprint, and the TBIA concluded that the proposed expansion is unlikely to impact terrestrial plant SCC.

Similarly, the assessment determined that there is a low likelihood of the identified terrestrial animal SCC occurring within the proposed development footprint, and impacts on terrestrial animal SCC are therefore considered unlikely.

6.2.4 BIODIVERSITY IMPACT OF THE PROPOSED EXPANSION

The TBIA separately assessed the localised loss of degraded CBA2 plains habitat and the potential loss of intact CBA2 ridge habitat.

The permanent loss of degraded CBA2 plains habitat was assessed as having a Low significance. Although the affected vegetation remains mapped as CBA2, it is already in poor ecological condition, and the affected area represents a negligible proportion of the broader CBA2 network. Its loss is not expected to fragment the CBA network, sever ecological connectivity

or materially affect the ecological processes for which the CBA was identified.

The potential permanent loss of intact CBA2 ridge habitat was similarly assessed as having a Low significance. Although the ridge has greater ecological integrity and ecological value than the degraded plains, the affected habitat is well represented within the broader landscape and its loss is not expected to fragment the CBA network, sever ecological connectivity or materially affect landscape-scale ecological processes.

The specialist emphasises that the Low significance ratings should not be interpreted as indicating that CBA2 habitat has low conservation importance. Rather, the ratings reflect the limited ecological consequence of the proposed loss within the context of the wider landscape and the continued representation of the principal conservation functions of the CBA network elsewhere.

6.2.5 SPECIALIST CONCLUSION

The TBIA concluded that the proposed expansion can be accommodated without materially compromising the ecological functionality of the CBA2 network, provided that mining and ancillary activities are confined to the approved footprint. The specialist further concluded that the ridge remains relatively intact and has greater ecological value than the plains, while the rocky outcrops provide specialised microhabitats but form part of an extensive system of similar ridges within the broader Komani area.

The final mining boundary must therefore be clearly demarcated, with mining, access, stockpiling, laydown areas, blasting-related activities and other ancillary activities restricted to the approved footprint. Mining practices must also minimise unnecessary soil disturbance, runoff and vegetation clearing in areas adjoining the ridge.

7. SITE SPECIFIC CULTURAL AND HERITAGE ENVIRONMENT

7.1 ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME: DFFE NATIONAL SCREENING TOOL

According to the DFFE Screening Tool, the application area is classified as having Low archaeological and cultural heritage sensitivity (following figure). No areas of Medium, High or Very High sensitivity are mapped within the proposed extension area.



Figure 41: DFFE screening tool output for archaeology (image obtained from DFFE screening tool report).

7.2 CULTURAL HERITAGE IMPACT ASSESSMENT

(Information extracted from the Cultural Heritage Impact Assessment, Coetzee 2026 – Appendix F)

A detailed pedestrian CHIA was undertaken by Mr Coetzee, a qualified archaeologist, across the proposed expansion area to identify any archaeological, historical or cultural heritage resources that may be affected by the proposed development. The survey covered the accessible portions of the application area, with only limited exclusions where existing quarry operations or steep terrain restricted access.

The field investigation did not identify any archaeological sites, isolated artefacts, historical structures, graves or other heritage features within the proposed mining footprint. Similarly, no Stone Age or Iron Age artefacts, assemblages, features or settlements were recorded during the survey. The application area is therefore considered devoid of identifiable surface heritage resources based on the findings of the site inspection.

Although no heritage resources were identified within the application area, archaeological material may occur below the present ground surface. Accordingly, should any archaeological material, graves or human remains be uncovered during earthworks, all work in the immediate vicinity should

cease and the find should be managed in accordance with the provisions of the National Heritage Resources Act, 1999 (Act No. 25 of 1999).

Also refer to *Part A(1)(h)(viii) The possible mitigation measures that could be applied and the level of risk.*

7.3 PALAEOLOGY THEME: DFFE NATIONAL SCREENING TOOL

According to the DFFE Screening Tool, the majority of the application area is classified as having no mapped palaeontological sensitivity. A portion along the north-western part of the application area is identified as having Very High palaeontological sensitivity (following figure).

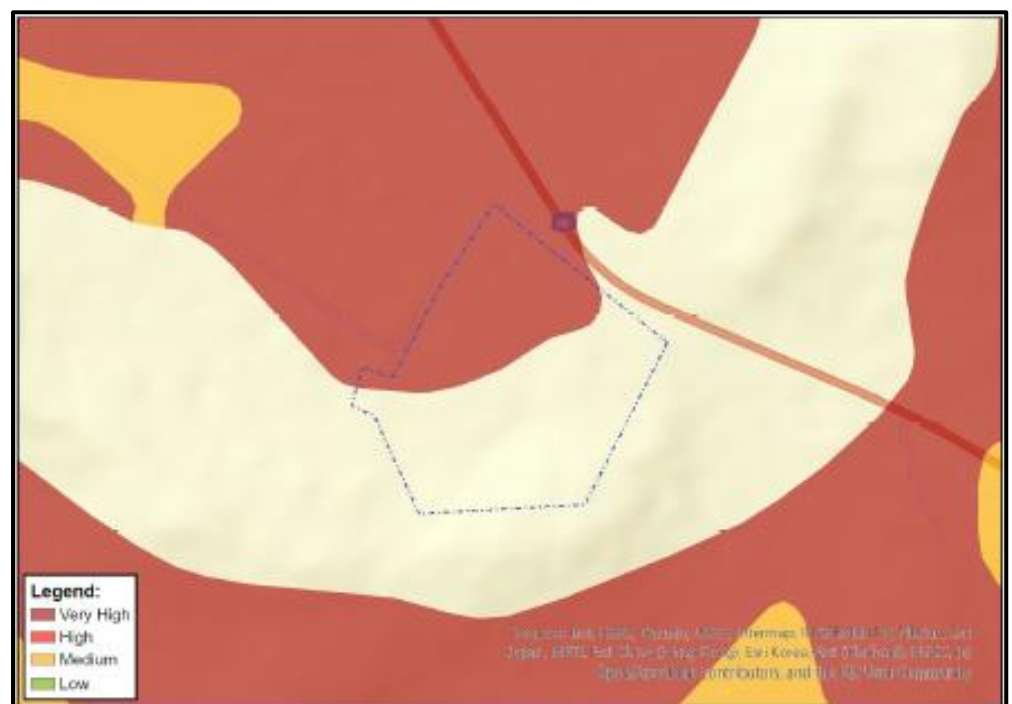


Figure 42: DFFE screening tool output for palaeontology (image obtained from DFFE screening tool report).

7.4 PALAEOLOGICAL IMPACT ASSESSMENT

(Information extracted from the Palaeontological Impact Assessment, Bamford 2025 attached as Appendix G)

A desktop Palaeontological Impact Assessment (PIA) was undertaken to verify the palaeontological sensitivity of the application area. The assessment indicates that the existing quarry and proposed expansion area are situated predominantly on Jurassic dolerite, with portions of the site mapped as overlying the Burgersdorp Formation. The existing quarry extracts dolerite, which is regarded as non-fossiliferous.

The Early to middle Triassic Burgersdorp Formation (Tarkstad Subgroup) is home to the *Cynognathus* Assemblage Zone. This post Permo-Triassic extinction event and recovery phase has a lower diversity of fauna and flora. It is typified by the presence of the cynodont genus *Cynognathus* (Kitching, 1995; Hancox et al., 2020), and has been divided into three subzones, namely the lower *Langbergia-Garjainia* Subzone, the *Trirachodon-Kannemeyeria* Subzone and the upper *Cricodon-Ufudocyclops* Subzone (Hancox et al., 2020). Other fauna include, fish, amphibians, parareptiles, eureptiles, therocephalians, cynodontians and trace fossils. Plants of the Burgersdorp Formation no longer include the glossopterids; there are lycopods (*Gregicaulis*), sphenophytes (*Calamites*), ferns (*Asterotheca*, *Cladophlebis*), seed ferns (*Lepidopteris*, *Dicroidium*), cycads (*Pseudoctenis*, *Nilssonina*), ginkgos (*Ginkgoites*, *Sphenobaiera*) and conifers (*Sewardistrobis*, *Agathoxylon*, *Podocarpoxylon*) (Plumstead, 1969; Anderson and Anderson, 1985; Bamford, 2004; Barbolini et al., 2018).

Although the DFFE Environmental Screening Tool identifies a portion of the application area as having Very High palaeontological sensitivity, the specialist assessment concludes that this is likely a consequence of the relatively coarse resolution of the geological mapping. The PIA notes that the resource being quarried is dolerite rather than the fossil-bearing mudstones of the Burgersdorp Formation. Furthermore, the intrusion of dolerite has likely thermally altered the adjacent sedimentary rocks, substantially reducing their potential to preserve fossil material.

Based on the geological characteristics of the site and the absence of previously recorded fossil occurrences associated with the resources, the specialist verified the palaeontological sensitivity of the application area as Low. While the likelihood of encountering fossil material during quarrying activities is considered to be extremely low, a Fossil Chance Find Protocol has been recommended for inclusion in the EMPR to ensure that any previously unknown fossil material encountered during excavation is managed in accordance with the National Heritage Resources Act.

Also refer to *Part A(1)(h)(viii) The possible mitigation measures that could be applied and the level of risk.*

8. SURROUNDING INFRASTRUCTURE

The proposed Section 102 expansion area is located adjacent to existing transportation and mining infrastructure but does not directly encroach upon any existing infrastructure or services. The expansion footprint has been designed to avoid roads, buildings, powerline servitudes and other established infrastructure within the surrounding area.

The N6 National Road forms the northern boundary of the broader quarry area, with the proposed Section 102 expansion approaching the road reserve to a minimum distance of ± 45 m at its closest point. The proposed expansion does not extend into the national road reserve, nor does it require any realignment of the N6 or associated road infrastructure. Access to the quarry will continue to utilise the existing authorised access arrangements, and no new access onto the N6 forms part of this application.

The proposed expansion extends eastwards towards the adjoining quarry operation (Civil and General). However, the two operations are separated by a prominent ridgeline that forms a natural topographical barrier. As a result, the active quarry faces are not intervisible, and the proposed expansion will remain physically separated from the neighbouring mining operation.

The nearest building (of Lesseyton Community) is located on the opposite side of the N6, ± 100 m from the proposed mining footprint. Although the expansion will occur in closer proximity to this receptor than portions of the existing operation, the intervening N6 road reserve will continue to provide physical separation between the quarry and the northern community development.

The DFFE Environmental Screening Tool identifies the application area as having Medium Civil Aviation sensitivity and Low Defence sensitivity (following figure). The proposed Section 102 expansion is an extension of the existing quarrying operation, which has been established and operational for several decades. The expansion will utilise the same mining methods, equipment and infrastructure currently employed on site and will not introduce any new activities or infrastructure that would alter the existing interaction with civil aviation or defence interests. No aviation-related infrastructure, defence facilities or associated servitudes occur within the proposed expansion area, and the proposed extension is therefore not expected to result in any additional impacts on these receptors beyond those associated with the existing authorised quarry operation.

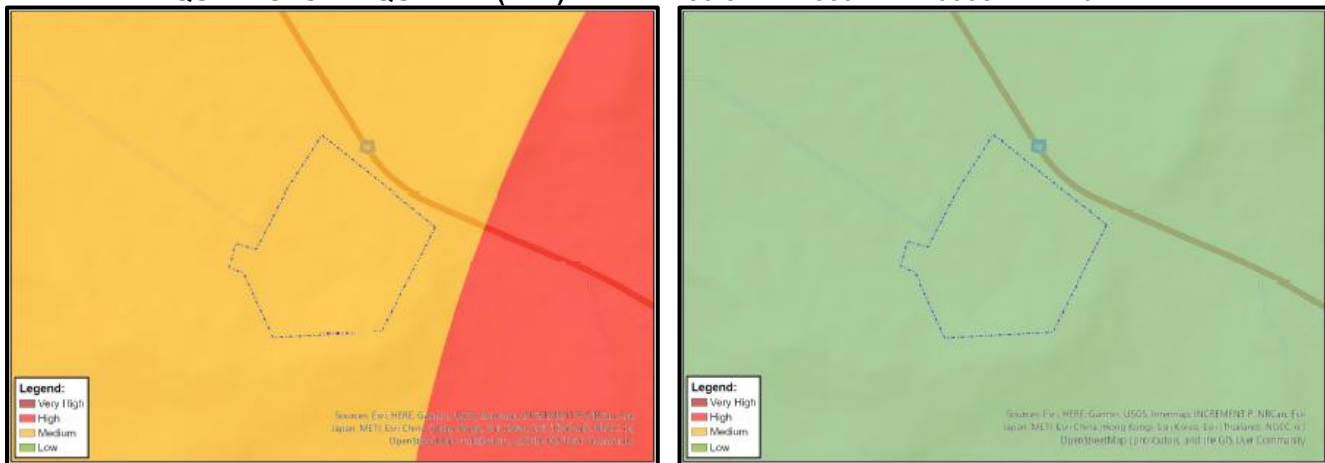


Figure 43: DFFE screening tool output for civil aviation (left pane) and defence theme (right pane) (image obtained from DFFE screening tool report).

Overall, the proposed expansion is not expected to require the relocation, diversion or removal of any existing infrastructure. Existing transport infrastructure, neighbouring mining operations and surrounding buildings will remain in place and continue to function independently of the proposed extension.

Also refer to *Part A(1)(h)(viii) The possible mitigation measures that could be applied and the level of risk.*

(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 B.

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 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.

1. EXPANSION ACTIVITIES

STRIPPING AND STOCKPILING OF TOPSOIL AND/OR OVERBURDEN

Loss of grazing land

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low-Medium			Project Proposal			Degree of Mitigation: None	
2	5	1	2.6	5	1	3	7.8

Visual intrusion

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: High			Project Proposal			Degree of Mitigation: Partial	
4	5	4	4.3	5	5	5	21.5

Dust generation

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium			Project Proposal			Degree of Mitigation: Full	
2	3	2	2.3	4	5	4.5	10.4

Noise disturbance

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

Soil and water contamination

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

Localised loss of CBA2 areas on the plains

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low			Project Proposal			Degree of Mitigation: Partial	
2	1	1	1.3	5	1	3	3.9

Localised loss of CBA2 areas on the ridge

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

Disturbance of fauna

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Low-Medium			Project Proposal			Degree of Mitigation: Partial	
3	5	1	3	4	1	2.5	7.5

Alien invasive plant infestation

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Low-Medium			Project Proposal			Degree of Mitigation: Full	
3	5	2	3.3	4	2	3	9.9

Increased runoff and erosion

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

Disturbance of heritage and palaeontological resources

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Low-Medium			Project Proposal			Degree of Mitigation: Full	
4	5	4	4.3	3	1	2	8.6

Alteration of surface drainage

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Low-Medium			Project Proposal			Degree of Mitigation: Full	
4	5	4	4.3	3	1	2	8.6

2. OPERATIONAL AND EXPANSION ACTIVITIES

DRILLING AND BLASTING

Topographical alteration

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Medium-High			Project Proposal			Degree of Mitigation: Partial	
4	5	1	3.5	5	5	5	16.5

Blasting safety risk

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Low-Medium			Project Proposal			Degree of Mitigation: Full	
5	5	1	3.6	3	1	2	7.2

Dust generation

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium			Project Proposal			Degree of Mitigation: Partial	
4	5	2	3.6	4	3	3.5	12.6

Noise disturbance

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium			Project Proposal			Degree of Mitigation: Partial	
4	5	2	3.6	4	3	3.5	12.6

Ground vibration

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

Flyrock

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low-Medium			Project Proposal		Degree of Mitigation: Full		
2	5	1	2.6	3	3	3	7.8

Potential impact of blasting on the N6 National Road and road users

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low-Medium			Project Proposal			Degree of Mitigation: Full	
5	2	4	3.6	3	1	2	7.2

EXCAVATION, PROCESSING, LOADING AND HAULING OF AGGREGATE

Dust generation

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium			Project Proposal		Degree of Mitigation: Full		
3	3	2	2.6	4	4	4	10.4

Noise disturbance

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium			Project Proposal			Degree of Mitigation: Partial	
3	3	2	2.6	4	4	4	10.4

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low-Medium			Project Proposal			Degree of Mitigation: Full	
5	5	1	3.6	3	1	2	7.2

Soil contamination

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

Alien invasive plant infestation

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

Runoff and erosion

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Low-Medium			Project Proposal			Degree of Mitigation: Full	
3	4	1	2.6	3	2	2.5	6.5

Overloading of haul trucks

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium			Project Proposal			Degree of Mitigation: Full	
4	4	5	4.3	3	3	3	12.9

Continued employment opportunities (Positive Impact)

			Consequence			Likelihood	Significance (+)
Severity(+)	Duration	Extent		Probability	Frequency		
Rating: High (+)			Project Proposal			Degree of Mitigation: N/A	
5	5	5	5	5	5	5	25

Continued supply of aggregates (Positive Impact)

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

Continued community investment (Positive Impact)

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

3. CUMULATIVE IMPACTS

The proposed Section 102 expansion does not seek to increase the production capacity or throughput of the existing quarry. Mining activities will progressively relocate into the expansion area as existing reserves are depleted. Accordingly, impacts such as dust generation, noise, traffic volumes and blasting frequency are not expected to increase cumulatively, as the expansion represents a continuation of the existing operation rather than an intensification of mining activities.

Cumulative loss of grazing land

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Medium			Project Proposal			Degree of Mitigation: None	
2	5	1	2.6	5	5	5	13

Cumulative ecological disturbance

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Medium			Project Proposal			Degree of Mitigation: Partial	
4	5	2	3.6	5	1	3	10.8

Cumulative topographical alteration

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Medium-High			Project Proposal			Degree of Mitigation: Partial	
4	5	2	3.6	5	5	5	18

4. DECOMMISSIONING PHASE

SLOPING AND LANDSCAPING DURING REHABILITATION

Safety risk from unrehabilitated excavations

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Medium-High			Project Proposal			Degree of Mitigation: Full	
5	5	1	3.6	4	5	4.5	16.2

Topsoil erosion

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Low-Medium			Project Proposal			Degree of Mitigation: Full	
3	5	1	3	4	2	3	9

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium-High			Project Proposal			Degree of Mitigation: Full	
3	5	2	3.3	5	5	5	16.5

Residual soil contamination

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium			Project Proposal			Degree of Mitigation: Full	
4	5	1	3.3	4	5	4.5	14.9

Failure of vegetation establishment

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium			Project Proposal			Degree of Mitigation: Full	
4	5	1	3.3	4	5	4.5	14.9

Visual scarring following rehabilitation

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium-High			Project Proposal			Degree of Mitigation: Partial	
4	5	2	3.6	4	5	4.5	16.2

Failure of stormwater controls

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium			Project Proposal			Degree of Mitigation: Full	
4	5	1	3.3	4	5	4.5	14.9

5. NO-GO ALTERNATIVE

The no-go alternative entails the proposed expansion of Queenstown Quarry not proceeding, while the existing authorised quarry operation would continue within the current mining right area for the remainder of its available operational life. The no-go alternative would therefore avoid the additional environmental impacts associated with disturbance and mining of the proposed expansion area but would also forego the benefits associated with extending the life of the existing quarry.

Avoidance of additional loss of grazing land and vegetation (Positive Impact)

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium (+)			No-go Alternative			Degree of Mitigation: N/A	
2	5	1	2.6	5	5	5	13

Avoidance of additional physical and ecological disturbance (Positive Impact)

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Medium (+)			No-go Alternative			Degree of Mitigation: N/A	
2	5	1	2.6	5	5	5	13

Avoidance of additional operational nuisance and blasting impacts (Positive Impact)

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Medium (+)			No-go Alternative			Degree of Mitigation: N/A	
2	5	1	2.6	5	5	5	13

Foregone extension of employment and socio-economic benefits

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Medium			No-go Alternative			Degree of Mitigation: No practical mitigation measure identified within the scope of the application.	
4	5	5	4.6	5	1	3	13.8

Foregone continued long-term supply of aggregate

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: High			No-go Alternative			Degree of Mitigation: No practical mitigation measure identified within the scope of the application.	
4	5	5	4.6	5	5	5	23

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 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:

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

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 15: 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
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 16: 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 17: 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 18: Example of calculating overall consequence.

CONSEQUENCE	RATING
Severity	Example 4
Duration	Example 2
Extent	Example 4
SUBTOTAL	10
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 below and in tables 6 and 7.

Determination of Frequency

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

Table 19: 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 20: 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 21: 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 22: 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

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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 23: 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 positive and negative impacts associated with the Project Proposal and the No-Go Alternative are compared below. The Project Proposal entails the proposed expansion of the existing Queenstown Quarry, while the No-Go Alternative entails the proposed expansion not proceeding and the existing authorised quarry continuing within the current mining right area for the remainder of its available operational life. The comparison below considers both the environmental consequences and the socio-economic implications of the alternatives.

Table 24: Comparison of the positive and negative impacts associated with the Project Proposal and the No-go Alternative.

IMPACT / CONSIDERATION	PROJECT PROPOSAL	NO-GO ALTERNATIVE
Grazing land	Negative: Mining will result in the loss of grazing land within the expansion footprint for the duration of mining. Grazing potential will be restored where reasonably practicable through rehabilitation following closure.	Positive: Additional loss of grazing land within the proposed expansion footprint will be avoided and the existing land use can continue.
Vegetation and habitat	Negative: The proposed expansion will result in the permanent loss and disturbance of vegetation and habitat within the mining footprint, including areas mapped as CBA2. The TBIA determined that the affected habitats are sufficiently represented within the broader landscape and that the proposed expansion is not expected to fragment the CBA2 network,	Positive: Vegetation and habitat within the proposed expansion footprint will remain undisturbed by the proposed expansion.

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IMPACT / CONSIDERATION	PROJECT PROPOSAL	NO-GO ALTERNATIVE
	sever ecological connectivity or materially compromise landscape-scale ecological processes.	
Topography	Negative: Expansion of the quarry excavations will result in permanent alteration of the existing topography that cannot be fully reversed through rehabilitation.	Positive: Additional topographical alteration within the proposed expansion area will be avoided.
Visual environment	Negative: Expansion of the quarry will increase the extent of the existing visual disturbance.	Positive: Additional visual disturbance associated with expansion of the quarry will be avoided, although the existing quarry will remain visible for its remaining operational life.
Dust and noise	Negative: Mining, processing and hauling will generate dust and noise requiring ongoing mitigation and monitoring.	Positive: Additional dust and noise impacts associated with the proposed expansion will be avoided. Existing impacts associated with the authorised quarry will continue for its remaining operational life.
Blasting, vibration and flyrock	Negative: Continued and expanded extraction will result in blasting-related impacts requiring management and monitoring, including potential impacts on surrounding land users and the N6 National Road.	Positive: Additional blasting impacts associated with mining of the proposed expansion area will be avoided.
Stormwater, erosion and soil	Negative: Disturbance of additional land will increase the potential for erosion, sediment transport and soil disturbance and will require appropriate stormwater and erosion controls.	Positive: Additional soil disturbance and associated erosion and stormwater risks within the expansion footprint will be avoided.
Fauna	Negative: Mining may result in disturbance and displacement of fauna from the expansion footprint.	Positive: Additional fauna disturbance associated with the proposed expansion will be avoided.
Heritage and palaeontology	Negative: Mining presents a potential risk to previously unidentified heritage or palaeontological resources, requiring implementation of the Chance Find Procedure.	Positive: Potential disturbance of heritage or palaeontological resources within the proposed expansion footprint will be avoided.
Rehabilitation liability	Negative: Expansion of the disturbed footprint will increase the area requiring rehabilitation and the associated financial provision for closure.	Positive: No additional rehabilitation liability will arise from disturbance of the proposed expansion footprint. Existing closure and rehabilitation obligations will remain.
Employment	Positive: The ±35-year extension of the life of mine will prolong employment opportunities associated with the existing quarry operation.	Negative: The extension of existing employment opportunities associated with the additional life of mine will be foregone. Existing employment will not cease immediately but will remain dependent on the remaining life of the currently authorised operation.

IMPACT / CONSIDERATION	PROJECT PROPOSAL	NO-GO ALTERNATIVE
Supply of aggregate	Positive: The expansion will enable continued extraction and supply of aggregate from the existing quarry for the extended life of mine.	Negative: The opportunity to extend the supply of aggregate from Queenstown Quarry through extraction of the resources within the expansion area will be foregone.
Community and socio-economic benefits	Positive: Continued operation for the extended life of mine will prolong the community investment, procurement and other socio-economic contributions associated with the quarry.	Negative: The opportunity to prolong these benefits for the additional life-of-mine period will be foregone.
Use of existing infrastructure	Positive: The expansion can utilise the existing processing plant, N6 access, internal infrastructure, workshop/service facilities and water-management system, limiting the requirement for additional infrastructure.	Neutral: No infrastructure is required for the proposed expansion, but the opportunity to utilise the existing quarry infrastructure to access the adjoining mineral resources is foregone.

The comparison demonstrates that the No-Go Alternative would provide an environmental advantage by avoiding the additional physical and ecological disturbance associated with expansion of the quarry. Conversely, the Project Proposal would allow the identified dolerite and quartzite resources adjoining the existing quarry to be accessed through an established mining operation using largely existing infrastructure and would extend the operational life of the quarry by ±35 years, thereby prolonging the associated employment, aggregate supply and socio-economic benefits.

The Project Proposal will result in unavoidable environmental impacts, including the loss of grazing land, vegetation and habitat, permanent alteration of the topography and long-term visual impacts. The assessment, including the findings of the specialist studies, indicates that the majority of the identified negative impacts can be reduced through implementation of the prescribed mitigation and management measures, although certain residual impacts will remain.

On balance, the Project Proposal is considered preferable to the No-Go Alternative, taking into account the location-bound nature of the mineral resources, continued use of the existing quarry infrastructure, assessed environmental impacts and the socio-economic benefits associated with extending the operational life of the quarry.

(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:

1. LAND USE

1.1 GRAZING LAND

- ◆ Mining activities must remain confined to the approved mining areas to avoid the unnecessary loss of additional grazing land.
- ◆ Grazing potential within the disturbed areas must be restored, where reasonably practicable, as part of the final rehabilitation undertaken in accordance with the approved Closure Plan.

2. TOPOGRAPHY

2.1 ALTERATION OF TOPOGRAPHY

- ◆ Mining activities must remain confined to the approved mining areas and no mining related disturbance may occur outside the authorised footprint.
- ◆ Mining must be undertaken in accordance with the approved mine plan to maintain stable excavation geometries and minimise unnecessary disturbance of the surrounding landform.
- ◆ Progressive rehabilitation of completed sections of the excavations must be undertaken where operationally practicable.
- ◆ The final rehabilitation of the mining area must be undertaken in accordance with the approved Closure Plan.

3. VISUAL CHARACTERISTICS

3.1 VISUAL INTRUSION

- ◆ The site must always have a neat appearance and be kept in good condition.
- ◆ Mining equipment must be stored neatly in dedicated areas when not in use.
- ◆ Vegetation clearing must be limited to the areas required for immediate mining activities to minimise the extent of visually disturbed land.
- ◆ Overburden and topsoil stockpiles must be kept to the minimum practicable height and footprint and must not be unnecessarily retained once the material is required for rehabilitation.

- ◆ Upon closure, the site must be rehabilitated in accordance with the approved Closure Plan to minimise the long-term visual impact of the quarry.
- ◆ Any buildings, equipment or infrastructure remaining on the property after closure must be left in a safe and functional condition, and the landowner must formally accept responsibility for such infrastructure in writing.

4. AIR QUALITY AND NOISE AMBIANCE

4.1 DUST MANAGEMENT

- ◆ Dust suppression measures must be implemented at all dust-generating activities to minimise the release of airborne dust.
- ◆ Dust suppression measures must be maintained throughout all operational periods, including night shift operations where applicable.
- ◆ Vehicle speeds on haul roads must be restricted to minimise dust generation.
- ◆ Vegetation clearing and the exposure of bare surfaces must be limited to areas required for immediate mining activities.
- ◆ Operational activities must be adjusted during adverse weather conditions, where necessary, to minimise excessive dust emissions.
- ◆ The operation must comply with the applicable National Dust Control Regulations and Dust Management Plan.
- ◆ Dustfall monitoring must be undertaken in accordance with the Dust Management Plan and applicable legislation.

4.2 NOISE MANAGEMENT

- ◆ No loud music may be permitted at the work areas.
- ◆ Mining equipment must be maintained in good working order to minimise unnecessary noise emissions.
- ◆ The unnecessary use of vehicle hooters, sirens and public address systems must be prohibited.
- ◆ Blasting activities must be planned to minimise disturbance to surrounding land users, and neighbouring landowners must be notified prior to each blast.
- ◆ The operation must comply with the applicable noise-related legislative requirements.

5. GEOLOGY AND SOIL

5.1 SOIL MANAGEMENT

- ◆ Topsoil must be stripped separately from subsoil prior to mining and retained for rehabilitation purposes.

- ◆ Topsoil must be handled, stockpiled and managed in a manner that preserves its physical, chemical and biological integrity.
- ◆ Topsoil stockpiles must be located within the approved mining footprint and protected against erosion, contamination and degradation.
- ◆ Topsoil must be replaced over rehabilitated areas as part of the final rehabilitation undertaken in accordance with the approved Closure Plan

6. HYDROLOGY

6.1 EROSION CONTROL AND STORM WATER MANAGEMENT

- ◆ A Stormwater Management Plan must be implemented and maintained throughout the life of the quarry.
- ◆ Surface water must be managed to minimise erosion and prevent the pollution of surrounding land and water resources.
- ◆ Clean and dirty water systems must be separated to prevent contamination of clean stormwater.
- ◆ Stormwater control measures must be implemented to prevent erosion, sedimentation and the uncontrolled discharge of sediment-laden runoff from disturbed areas.
- ◆ Vegetation clearing and disturbance of exposed soil must be limited to areas required for immediate mining activities.
- ◆ Stockpiles and disturbed areas must be managed to minimise erosion and sediment transport.
- ◆ Erosion and stormwater control measures must be regularly inspected and maintained to ensure their continued effectiveness.
- ◆ Erosion associated with mining activities must be rehabilitated as soon as reasonably practicable.
- ◆ Rehabilitated areas must be stabilised to minimise erosion until sustainable vegetation cover has been established.
- ◆ The operation must comply with the applicable Department of Water and Sanitation requirements relating to stormwater, erosion and sediment control.

7. TERRESTRIAL BIODIVERSITY

7.1 VEGETATION MANAGEMENT

- ◆ Mining boundaries must be clearly demarcated, and all mining activities must remain confined to the approved mining footprint.

- ◆ Vegetation clearing must be undertaken progressively and limited to the minimum area required for mining and associated activities. Vegetation must be retained in situ for as long as the relevant area is not required for mining.
- ◆ Prior to vegetation clearing, a suitably qualified specialist must undertake a walk-through of the area to be cleared to identify plant species of conservation concern and/or protected plant species requiring specific management.
- ◆ Where the removal, disturbance or relocation of identified plant species requires authorisation, the necessary permits must be obtained from the relevant authority prior to disturbance of such plants.
- ◆ Cleared vegetation suitable for rehabilitation must, where practicable, be retained for use during rehabilitation.
- ◆ Vehicles and machinery must remain on designated access routes to prevent unnecessary disturbance of surrounding vegetation.
- ◆ Stockpiles no longer required for operational purposes must be stabilised to minimise erosion and facilitate vegetation establishment where appropriate.

7.2 MANAGEMENT OF INVASIVE PLANT SPECIES

- ◆ An Alien Invader Plant Species Management Plan must be implemented throughout the life of the quarry.
- ◆ Alien and invasive plant species must be monitored and controlled on all disturbed, rehabilitated and stockpile areas to prevent their establishment and spread.
- ◆ No alien or invasive plant species may be introduced to the site for rehabilitation, landscaping or any other purpose.
- ◆ Rehabilitated areas must be monitored and managed to promote the establishment of indigenous vegetation and prevent the re-establishment of alien and invasive plant species.

7.3 MANAGEMENT OF FAUNA

- ◆ Fauna may not be intentionally harmed, killed, captured or disturbed unless authorised in terms of applicable legislation.
- ◆ Where reasonably practicable, fauna encountered within the active mining area must be allowed to move away naturally or, where necessary, be relocated to a suitable habitat by a suitably qualified person.
- ◆ The handling or relocation of dangerous or protected species must only be undertaken by suitably trained or authorised personnel.
- ◆ Mining personnel must exercise due care to avoid unnecessary impacts on fauna and must report injured, trapped or protected animals to site management.

- ◆ Hunting, trapping, snaring or the collection of fauna is prohibited on the site.
- ◆ Good housekeeping practices must be maintained to minimise the attraction of wildlife to the operational areas.

8. CULTURAL AND HERITAGE ENVIRONMENT

8.1 HERITAGE AND PALAEOLOGICAL

- ◆ All mining activities must remain confined to the approved development footprint.
- ◆ Should any archaeological, historical or cultural heritage resources be discovered during any phase of the project, work in the immediate vicinity of the find must cease immediately.
- ◆ Any heritage resources identified during mining must be reported to the ECO and assessed by a suitably qualified heritage specialist.
- ◆ Work may only recommence once the relevant heritage authority has confirmed that it may proceed.
- ◆ Should any suspected palaeontological material be encountered during mining, work in the immediate vicinity of the find must cease and a suitably qualified palaeontologist must be consulted to assess the significance of the find.

9. SURROUNDING INFRASTRUCTURE

9.1 N6 NATIONAL ROAD

- ◆ A minimum 40 m buffer must be maintained between mining activities and the N6 road reserve.
- ◆ Blasting activities must be undertaken in accordance with an approved blast design prepared by a competent person to ensure that flyrock remains within the authorised mining area and does not enter the N6 road reserve.
- ◆ Blasting activities must be planned and undertaken in a manner that does not compromise the safety of road users or damage the N6 road infrastructure.

9.2 TRAFFIC MANAGEMENT

- ◆ All vehicles transporting material from the quarry must be weighed before leaving the site.
- ◆ Vehicles may not be permitted to leave the site if they exceed the applicable legal gross vehicle mass (GVM) or axle load limits prescribed by road traffic legislation.
- ◆ The weighbridge must be maintained and calibrated to ensure the accurate determination of vehicle loads throughout the life of the quarry.

10.1 WASTE MANAGEMENT

- ◆ Annual surface water quality monitoring must be implemented that includes at least the quarry excavation/s, drinking water and final chamber of the oil separator/sump.
- ◆ General and hazardous waste must be managed separately and disposed of at appropriately authorised waste disposal or recycling facilities.
- ◆ Vehicle servicing, maintenance and repairs must, as far as reasonably practicable, be undertaken within designated workshop or service areas. Emergency repairs undertaken elsewhere must include appropriate measures to prevent soil and water contamination.
- ◆ Hydrocarbon storage, handling and refuelling activities must be undertaken in a manner that prevents spills and contamination of soil and water resources.
- ◆ Spill response equipment must be available on site, and all hydrocarbon or chemical spills must be contained and cleaned up immediately using appropriate spill response procedures.
- ◆ Wastewater and contaminated water generated by the operation must be contained and may not be discharged into the natural environment.
- ◆ Large pollution incidents that may pose a risk to the environment must be reported to the relevant authorities in accordance with applicable legislation.
- ◆ All waste, temporary infrastructure and redundant materials must be removed from disturbed areas during decommissioning and closure in accordance with the approved Closure Plan.

10.2 MANAGEMENT OF HEALTH AND SAFETY RISKS

- ◆ The mining area must be secured to prevent unauthorised access by members of the public and livestock.
- ◆ Mining activities must be undertaken in accordance with the Mine Health and Safety Act, 1996 (Act No. 29 of 1996) and all applicable regulations.
- ◆ Blasting must be undertaken by a competent person in accordance with the approved blast design.
- ◆ Surrounding landowners and other affected parties must be notified prior to each blasting event.
- ◆ Ground vibration and airblast overpressure must be monitored during each blasting event.
- ◆ Blasting must be undertaken to ensure that flyrock remains within the designated blast area.

- ◆ Upon closure, the quarry excavations must be secured in accordance with the approved Closure Plan to prevent unauthorised access and protect public safety.

ix) Motivation where no alternative sites were considered.

No alternative sites were considered, as the proposed activity entails the expansion of the existing Queenstown Quarry and is inherently linked to the location of the existing quarry excavations and the occurrence and accessibility of the dolerite and quartzite resources. The expansion will also utilise the existing mining and processing infrastructure. A geographically separate site would therefore not constitute a reasonable or feasible alternative to the proposed activity.

Refer to the discussion under Part A(1)(h)(i)(1)(A) *The property on which, or location where, it is proposed to undertake the activity* for further motivation.

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

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

No alternative development location within the overall site has been identified. The proposed development footprint has been informed by the configuration of the existing quarry, the occurrence and accessibility of the dolerite and quartzite resources, existing mining and processing infrastructure, property and infrastructure constraints, and the environmental sensitivities identified during the assessment process. The proposed footprint was assessed through the Terrestrial Biodiversity Impact Assessment, which did not identify a requirement to amend the proposed development location. No alternative location within the overall site has therefore been identified that would provide a meaningful environmental advantage while remaining technically and operationally feasible. Refer to the discussion under Part A(1)(h)(i)(C) *Design and Layout of the Activity*.

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 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.

1. EXPANSION ACTIVITIES

STRIPPING AND STOCKPILING OF TOPSOIL AND/OR OVERBURDEN

Loss of grazing land

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Low-Medium			Project Proposal			Degree of Mitigation: None	
2	5	1	2.6	5	1	3	7.8

Visual intrusion

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

Dust generation

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

Noise disturbance

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

Soil and water contamination

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

Localised loss of CBA2 areas on the plains

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Low			Project Proposal			Degree of Mitigation: Partial	
2	1	1	1.3	5	1	3	3.9

Localised loss of CBA2 areas on the ridge

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

Disturbance of fauna

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Low			Project Proposal			Degree of Mitigation: Partial	
2	1	1	1.3	2	1	1.5	2

Alien invasive plant infestation

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

Increased runoff and erosion

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

Disturbance of heritage and palaeontological resources

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

Alteration of surface drainage

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

2. OPERATIONAL AND EXPANSION ACTIVITIES

DRILLING AND BLASTING

Topographical alteration

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Medium-High			Project Proposal			Degree of Mitigation: Partial	
3	5	1	3	5	5	5	15

Blasting safety risk

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Low			Project Proposal			Degree of Mitigation: Full	
2	1	1	1.3	2	1	1.5	2

Dust generation

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Medium			Project Proposal			Degree of Mitigation: Partial	
2	5	2	3	4	3	3.5	10.5

Noise disturbance

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Low-Medium			Project Proposal			Degree of Mitigation: Partial	
2	5	2	3	3	3	3	9

Ground vibration

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Low			Project Proposal			Degree of Mitigation: Full	
2	1	1	1.3	2	1	1.5	2

Flyrock

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Low			Project Proposal			Degree of Mitigation: Full	
2	1	1	1.3	2	1	1.5	2

Potential impact of blasting on the N6 National Road and road users

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Low			Project Proposal			Degree of Mitigation: Full	
5	1	4	3.3	1	1	1	3.3

OPERATIONAL AND EXPANSION ACTIVITIES:

EXCAVATION, PROCESSING, LOADING, AND HAULING OF AGGREGATE

Dust generation

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

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Low			Project Proposal			Degree of Mitigation: Partial	
2	3	2	2.3	2	2	2	4.6

Unsafe working conditions

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Low			Project Proposal			Degree of Mitigation: Full	
3	1	1	1.6	2	1	1.5	2.4

Soil contamination

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Low			Project Proposal			Degree of Mitigation: Full	
2	1	1	1.3	3	3	3	3.9

Alien invasive plant infestation

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

Runoff and erosion

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Low			Project Proposal			Degree of Mitigation: Full	
2	2	1	1.6	2	2	2	3.2

Overloading of haul trucks

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Low			Project Proposal			Degree of Mitigation: Full	
1	1	5	2.3	2	2	2	4.6

Continued employment opportunities (Positive Impact)

Severity(+)	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance (+)
Rating: High (+)			Project Proposal			Degree of Mitigation: N/A	
5	5	5	5	5	5	5	25

Continued supply of aggregates (Positive Impact)

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

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

3. CUMULATIVE IMPACTS

Cumulative loss of grazing land

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Medium			Project Proposal			Degree of Mitigation: None	
2	5	1	2.6	5	5	5	13

Cumulative ecological disturbance

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Low-Medium			Project Proposal			Degree of Mitigation: Partial	
3	5	2	3.3	5	1	3	9.9

Cumulative topographical alteration

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Medium-High			Project Proposal			Degree of Mitigation: Partial	
3	5	2	3.3	5	5	5	16.5

4. DECOMMISSIONING PHASE

SLOPING AND LANDSCAPING DURING REHABILITATION:

Safety risk from unrehabilitated excavations

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Low			Project Proposal			Degree of Mitigation: Full	
2	1	1	1.3	2	1	1.5	2

Topsoil erosion

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

Alien invasive plant contamination

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

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Low			Project Proposal			Degree of Mitigation: Full	
2	1	1	1.3	2	1	1.5	2

Failure of vegetation establishment

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Low			Project Proposal			Degree of Mitigation: Full	
2	1	1	1.3	2	1	1.5	2

Visual scarring following rehabilitation

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Low-Medium			Project Proposal			Degree of Mitigation: Partial	
2	4	2	2.6	2	5	3.5	9.1

Failure of stormwater controls

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Low			Project Proposal			Degree of Mitigation: Full	
2	1	1	1.3	2	1	1.5	2

5. NO-GO ALTERNATIVE

Avoidance of additional loss of grazing land and vegetation (Positive Impact)

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Medium (+)			No-go Alternative			Degree of Mitigation: N/A	
2	5	1	2.6	5	5	5	13

Avoidance of additional physical and ecological disturbance (Positive Impact)

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Medium (+)			No-go Alternative			Degree of Mitigation: N/A	
2	5	1	2.6	5	5	5	13

Avoidance of additional operational nuisance and blasting impacts (Positive Impact)

Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	Significance
Rating: Medium (+)			No-go Alternative			Degree of Mitigation: N/A	
2	5	1	2.6	5	5	5	13

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Foregone extension of employment and socio-economic benefits

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: Medium			No-go Alternative			Degree of Mitigation: No practical mitigation measure identified within the scope of the application.	
4	5	5	4.6	5	1	3	13.8

Foregone continued long-term supply of aggregate

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
Rating: High			No-go Alternative			Degree of Mitigation: No practical mitigation measure identified within the scope of the application.	
4	5	5	4.6	5	5	5	23

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 25: 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.
◆ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden. ◆ <u>Cumulative Impacts</u>	◆ Loss of grazing land. ◆ Cumulative loss of grazing land.	The loss of grazing may affect the agricultural value of the landscape.	Site Establishment Phase	◆ Low-Medium ◆ Medium	<u>Control:</u> Implementing progressive rehabilitation where possible.	◆ Low-Medium ◆ Medium
◆ <u>Expansion Activities:</u> Stripping and stockpiling	◆ Visual intrusion. ◆ Visual scarring following rehabilitation.	The visual impact may affect the	Site Establishment, Operational and Decommissioning Phase	◆ High ◆ Medium-High	<u>Control:</u> Implementing proper housekeeping and progressive	◆ High ◆ Low-Medium

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ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
of topsoil and/or overburden. ♦ <u>Decommissioning Phase:</u> Sloping and landscaping during rehabilitation.		aesthetics of the landscape.			rehabilitation where possible.	
♦ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden. ♦ <u>Operational and Expansion Activities:</u> Drilling and blasting. ♦ <u>Operational and Expansion Activities:</u> Excavation, processing, loading and hauling of aggregate.	♦ Dust generation. ♦ Dust generation. ♦ Dust generation.	Increased dust generation will impact on the air quality of the receiving environment.	Site Establishment-, and Operational Phase	♦ Medium ♦ Medium ♦ Medium	<u>Control:</u> Dust suppression methods, dust monitoring and proper housekeeping.	♦ Low ♦ Medium ♦ Low
♦ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden. ♦ <u>Operational and Expansion Activities:</u> Drilling and blasting. ♦ <u>Operational and Expansion Activities:</u> Excavation, processing,	♦ Noise disturbance. ♦ Noise disturbance. ♦ Noise disturbance.	Should noise levels become excessive it may have an impact on the noise ambiance of the receiving environment.	Site Establishment-, and Operational Phase	♦ Low-Medium ♦ Medium ♦ Medium	<u>Control:</u> Noise suppression methods, and proper housekeeping.	♦ Low ♦ Low-Medium ♦ Low

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ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
loading and hauling of aggregate.						
♦ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden. ♦ <u>Operational and Expansion Activities:</u> Excavation, processing, loading and hauling of aggregate. ♦ <u>Decommissioning phase:</u> Sloping and landscaping during rehabilitation.	♦ Soil and water contamination. ♦ Soil contamination. ♦ Residual soil contamination.	Contamination of the footprint areas will negatively impact the soil, surface runoff and potentially the groundwater. It will also incur additional costs to the Right Holder.	Site Establishment-, Operational-, and Decommissioning Phase	♦ Low-Medium ♦ Low-Medium ♦ Medium	<u>Control & Remedy:</u> Proper housekeeping and implementation of an emergency response plan and waste management plan.	♦ Low ♦ Low ♦ Low
♦ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden. ♦ <u>Cumulative impacts</u>	♦ Localised loss of CBA2 areas on the plains. ♦ Localised loss of CBA2 areas on the ridge. ♦ Cumulative ecological disturbance.	This will impact on the biodiversity of the receiving environment.	Site Establishment & Operational Phase	♦ Low ♦ Low ♦ Medium	<u>Control:</u> Implementing proper housekeeping and the mitigation measures.	♦ Low ♦ Low ♦ Low-Medium
♦ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden.	♦ Disturbance of fauna.	This will impact on the biodiversity of the receiving environment.	Site Establishment & Operational Phase	♦ Low-Medium	<u>Control:</u> Implementing proper housekeeping and the mitigation measures.	♦ Low

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ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
♦ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden. ♦ <u>Operational and Expansion Activities:</u> Excavation, processing, loading and hauling of aggregate. ♦ <u>Decommissioning Phase:</u> Sloping and landscaping during rehabilitation.	♦ Alien invasive plant infestation. ♦ Alien invasive plant infestation. ♦ Alien invasive plant contamination.	Infestation of the footprint by invader plant species may affect the biodiversity of the receiving environment.	Site Establishment-, Operational, and Decommissioning Phase	♦ Low-Medium ♦ Low-Medium ♦ Low-Medium	<u>Control & Remedy:</u> Implementation of an invasive plant species management plan.	♦ Low ♦ Low ♦ Low
♦ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden. ♦ <u>Operational and Expansion Activities:</u> Excavation, processing, loading and hauling of aggregate. ♦ <u>Decommissioning Phase:</u> Sloping and landscaping during rehabilitation.	♦ Increased runoff and erosion. ♦ Runoff and erosion. ♦ Topsoil erosion. ♦ Failure of stormwater controls.	This could impact the hydrology of the receiving environment and cause erosion.	Site Establishment, Operational, and Decommissioning Phase.	♦ Low-Medium ♦ Low-Medium ♦ Low-Medium ♦ Medium	<u>Control and Remedy:</u> Implementing a stormwater management plan (SWMP) and erosion monitoring.	♦ Low ♦ Low ♦ Low ♦ Low
♦ <u>Expansion Activities:</u> Stripping and stockpiling	♦ Disturbance of heritage and palaeontological resources.	This could impact the heritage and or palaeontological	Site Establishment, and Operational, Phase.	♦ Low-Medium	<u>Control:</u> Implementing a chance-find procedure	♦ Low

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ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
of topsoil and/or overburden.		aspects of the receiving environment.			for the duration of the operations.	
♦ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden.	♦ Alteration of surface drainage.	This could impact the hydrology of the receiving environment and cause erosion.	Site Establishment, Operational, and Decommissioning Phase.	♦ Low-Medium	<u>Control and Remedy:</u> Implementing a stormwater management plan (SWMP) and erosion monitoring.	♦ Low
♦ <u>Operational and Expansion Activities:</u> Drilling and blasting. ♦ <u>Cumulative Impacts.</u>	♦ Topographical alteration. ♦ Cumulative topographical alteration.	This impact may alter the topography of the area.	Site Establishment, Operational and Decommissioning Phase	♦ Medium-High ♦ Medium-High	Should the proposed project be approved, the operation will change the topography of the mining footprint. The impact could be controlled to a certain extent through rehabilitation of the mining scar.	♦ Medium-High ♦ Medium-High
♦ <u>Operational and Expansion Activities:</u> Drilling and blasting. ♦ <u>Operational and Expansion Activities:</u> Excavation, processing, loading and hauling of aggregate. ♦ <u>Decommissioning Phase:</u> Sloping and landscaping during rehabilitation.	♦ Blasting safety risk. ♦ Unsafe working conditions. ♦ Safety risk from unrehabilitated excavations.	An unsafe working environment affects the labour force, as well as pose a threat to animals and humans that may enter the mining footprint.	Operational-, and Decommissioning Phase	♦ Low-Medium ♦ Low-Medium ♦ Medium-High	<u>Stop & Control:</u> Adherence to the blasting rules and regulations, demarcation of the mining area and proper housekeeping.	♦ Low ♦ Low ♦ Low

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ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
♦ <u>Operational and Expansion Activities:</u> Drilling and blasting.	♦ Ground vibration. ♦ Flyrock.	Damage to surrounding infrastructure will incur costs for the right holder and complaints from the landowner and/or community.	Operational Phase	♦ Medium ♦ Low-Medium	<u>Stop & Control:</u> Adherence to the blasting rules and regulations, demarcation of the mining area and proper housekeeping.	♦ Low ♦ Low
♦ <u>Operational and Expansion Activities:</u> Drilling and blasting.	♦ Potential impact of blasting on the N6 National Road and road users.	Damage to the road infrastructure will incur costs for the right holder and complaints from SANRAL and/or road users.	Operational Phase	♦ Low-Medium	<u>Stop & Control:</u> Adherence to the blasting rules and regulations, demarcation of the mining area and proper housekeeping.	♦ Low
♦ <u>Operational and Expansion Activities:</u> Excavation, processing, loading and hauling of aggregate.	♦ Overloading of haul trucks.	Impacting the condition of public roads may incur public complaints and additional costs to the MR Holder.	Operational Phase	♦ Medium	<u>Stop & Control:</u> Adherence to all road related legislation.	♦ Low
♦ <u>Operational and Expansion Activities:</u> Excavation, processing, loading and hauling of aggregate.	♦ Continued employment opportunities (+) ♦ Continued supply of aggregate (+) ♦ Continued community investment (+)	These impacts will affect the socio-economic status of the area positively.	Site Establishment, and Operational Phase	♦ High (+) ♦ High (+) ♦ High (+)	Not applicable as this is a Positive Impact.	♦ High (+) ♦ High (+) ♦ High (+)

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ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
♦ <u>Decommissioning Phase:</u> Sloping and landscaping during rehabilitation.	♦ Failure of vegetation establishment.	This will impact on the biodiversity of the receiving environment as well as its erosion potential.	Decommissioning Phase	♦ Medium	<u>Control:</u> Implementing and monitoring the effectiveness of the rehabilitation actions.	♦ Low
♦ <u>No-go Alternative</u>	♦ Avoidance of additional loss of grazing land and vegetation (+)	Land use; Vegetation	No-Go Alternative	♦ Medium (+)	Not applicable as this is a Positive Impact.	♦ Medium (+)
♦ <u>No-go Alternative</u>	♦ Avoidance of additional physical and ecological disturbance (+)	Topography; Visual character; Soil; Biodiversity; Fauna	No-Go Alternative	♦ Medium (+)	Not applicable as this is a Positive Impact.	♦ Medium (+)
♦ <u>No-go Alternative</u>	♦ Avoidance of additional operational nuisance and blasting impacts (+)	Air quality; Noise; Surrounding land users; N6 National Road	No-Go Alternative	♦ Medium (+)	Not applicable as this is a Positive Impact.	♦ Medium (+)
♦ <u>No-go Alternative</u>	♦ Foregone extension of employment and associated socio-economic benefits.	Socio-economic environment; Employment; Local community	No-Go Alternative / Long Term	♦ Medium	No practical mitigation type identified within the scope of the application.	♦ Medium
♦ <u>No-go Alternative</u>	♦ Foregone continued long-term supply of aggregate	Socio-economic environment; Mineral resource supply	No-Go Alternative / Long Term	♦ High	No practical mitigation type identified within the scope of the application.	♦ High

The supporting impact assessment conducted by the EAP must be attached as an appendix, marked Appendix H.

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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 26: 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
Cultural Heritage Impact Assessment: Phase 1 investigation for the proposed mining on a portion of the Farm Lesseyton 81, Queenstown (Komani), Enoch Mgijima Local Municipality, Chris Hani District Municipality, Eastern Cape Province. February 2026 See Appendix F	Recommendations and Conclusions: No archaeological (both Stone Age and Iron Age) artefacts, assemblages, features, structures or settlements were recorded during the survey of the project footprint. It is well known that Iron Age, especially Late Iron Age stone-walled settlements do not usually occur on steep mountainous slopes. It is therefore recommended, from a cultural heritage perspective that the proposed mining activities may proceed. No further mitigation measures are required. Also, please note: Archaeological deposits usually occur below ground level. Should archaeological artefacts or skeletal material be revealed in the area during development activities, such activities should be halted, and a university or museum notified in order for an investigation and evaluation of the find(s) to take place (cf. NHRA (Act No. 25 of 1999), Section 36 (6)).	All the recommendations proposed by the specialist have been included in the BAR and EMPR.	◆ Part A(1)(h)(iv)(c)(7) Site Specific Cultural and Heritage Environment. ◆ Part A(1)(h)(viii)(8) Cultural and Heritage Environment. ◆ Part B(1) 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.

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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
Palaeontological Impact Assessment: Queenstown Quarry S102 application, northwest of Komani, Eastern Cape Province. November 2025 See Appendix G	Recommendation: Based on experience and the lack of any previously recorded fossils from the area, it is extremely unlikely that any fossils would be preserved in the overlying soils of the Quaternary or the dolerite. There is a very small chance that fossils may occur in the mudstones of the Burgersdorp Formation (Beaufort Group, Karoo Supergroup) so a Fossil Chance Find Protocol should be added to the EMPr. If fossils are found by the environmental officer, or other responsible person once mining activities have commenced then they should be rescued and a palaeontologist called to assess and collect a representative sample. The impact on the palaeontological heritage would be low, as far as the palaeontology is concerned, so the project should be authorised.	All the recommendations proposed by the specialist have been included in the BAR and EMPR.	♦ Part A(1)(h)(iv)(c)(7) Site Specific Cultural and Heritage Environment. ♦ Part A(1)(h)(viii)(8) Cultural and Heritage Environment. ♦ Part B(1) 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.

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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
Plants, Animals and Terrestrial Biodiversity Assessment: Raumix Queenstown Quarry on the Farm Lesseyton No 81 near Komani in the Eastern Cape Province: Section 102 Mining Right Amendment August 2026 See Appendix E	Recommendation: The final mine boundary should be clearly demarcated before construction, and mining, access, stockpiling, laydown areas, blasting-related activities and other ancillary activities should be excluded from impacting on surrounding areas. Mining best practices must be implemented to minimise soil disturbance, runoff and vegetation clearing in areas adjacent to the ridge.	All the recommendations proposed by the specialist have been included in the BAR and EMPR.	♦ Part A(1)(h)(iv)(c)(6) Site Specific Terrestrial Biodiversity. ♦ Part A(1)(h)(viii)(7.1) Vegetation Management. ♦ Part B(1) 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.

I) Environmental impact statement

i) Summary of the key findings of the environmental impact assessment;

The environmental impact assessment undertaken for the proposed amendment of the Queenstown Quarry Mining Right considered the environmental characteristics of the existing quarry and proposed expansion area, the nature and extent of the proposed activities, the receiving environment, surrounding land uses and infrastructure, and the potential impacts associated with the continued and expanded quarrying operation.

The assessment confirms that the proposed Section 102 amendment constitutes the lateral expansion of an existing, long-established quarry operation, rather than the establishment of a new mining operation. Queenstown Quarry has operated at the site for several decades and the existing mining area has consequently been substantially transformed by quarry excavations, benches, haul roads, processing infrastructure and stockpiling activities. The proposed expansion will, however, extend mining into adjoining areas that are presently largely undeveloped, and support natural vegetation used predominantly for livestock grazing.

The key findings of the environmental impact assessment are summarised below.

1. AGRICULTURAL RESOURCES AND LAND USE

The DFFE Screening Tool identifies portions of the application area as having Medium to High agricultural sensitivity. Site-specific assessment indicates, however, that a substantial portion of this mapped sensitivity overlaps the existing Mining Right area, where the original agricultural capability has already been permanently altered through decades of quarrying and associated infrastructure development.

The proposed expansion will extend into adjoining land that remains vegetated and is currently available for livestock grazing. The principal agricultural impact will therefore be the temporary to long-term loss of grazing land within the expanded mining footprint. The extent of this loss is relatively limited when considered in relation to the surrounding grazing landscape. Progressive rehabilitation and final closure measures will be implemented to establish a stable post-mining landform and suitable vegetation cover where practicable.

2. TOPOGRAPHY

The proposed expansion will result in a permanent and progressively increasing alteration of the existing topography as quarrying advances into the north-eastern, eastern and southern portions of the application area. The most pronounced alteration will occur along the elevated ridge in the central to eastern portion of the site, which reaches $\pm 1\,275$ mamsl. Extraction will progressively replace portions of the natural hillside and ridge with engineered quarry benches, faces and ultimately quarry voids.

3. VISUAL CHARACTER

The existing quarry is already a prominent and established feature of the local landscape due to its position on an elevated ridge and its long operational history. Viewshed modelling undertaken from representative points within the proposed expansion area indicates that the quarry and future expanded workings will remain visible across a relatively extensive portion of the surrounding landscape, particularly towards the north-west, north and west.

The proposed expansion will not introduce an entirely new visual element into the landscape but will extend the existing quarry disturbance along the same elevated landform. Additional exposed rock faces and working areas will nevertheless increase the extent of visible quarry disturbance as mining progresses. Given the elevated position of the mineral resource, the visual impact cannot be fully avoided. Orderly bench development, limiting unnecessary disturbance, progressive rehabilitation and final rehabilitation will reduce visual contrast where practicable; however, a residual visual impact will remain following closure.

4. AIR QUALITY

Dust emissions will continue to arise principally from drilling, blasting, excavation, loading, hauling, crushing, screening, stockpiling and vehicle movement along unpaved roads. The proposed expansion will not introduce a new mining method or processing technology and consequently will not introduce fundamentally new sources of atmospheric emissions. Rather, the location of certain dust-generating activities will progressively shift as the quarry advances into the expansion area.

Queenstown Quarry already implements fallout dust monitoring, occupational gravimetric dust monitoring and continuous real-time air-quality monitoring. These systems, together with existing dust-suppression and operational controls, provide

an established mechanism for identifying and responding to changes in dust conditions. Continued implementation of the Dust Management Plan, appropriate suppression of haul roads and operational areas, maintenance of equipment and ongoing monitoring will remain important throughout the operational phase.

5. NOISE, BLASTING AND VIBRATION

The existing acoustic environment is already influenced by quarrying activities and surrounding infrastructure. Principal quarry-related noise sources include drilling, blasting, excavation, crushing, screening, loading, hauling and the operation of fixed and mobile equipment. The proposed amendment does not introduce new mining methods or equipment types, and the nature of the noise sources will therefore remain substantially consistent with the existing operation.

The progressive movement of quarrying activities within the expansion footprint may nevertheless alter the proximity of individual sources to surrounding receptors. This is particularly relevant towards the northern portion of the application area, where the nearest buildings associated with the Lesseyton Community occur on the opposite side of the N6. Blasting will remain an intermittent impact and will continue to be restricted to controlled periods and undertaken in accordance with established blasting procedures. Appropriate blasting design, notification and safety procedures, equipment maintenance and continued monitoring are therefore important mitigation measures.

6. HYDROLOGY

No rivers, streams, wetlands or riparian habitats were identified within the existing operational footprint or proposed expansion area during site verification. Although the DFFE Screening Tool identifies linear areas of Very High aquatic biodiversity sensitivity associated with mapped Ecological Support Areas, the feature extending into the north-western portion of the application area allegedly occurs within the historically disturbed quarry footprint and was not found to correspond with a natural drainage feature or aquatic habitat under current site conditions.

The proposed expansion will therefore not directly encroach upon or require the diversion or modification of a natural watercourse or wetland. The principal surface-water risks relate instead to the management of clean and dirty stormwater, erosion and sediment mobilisation associated with disturbed surfaces. These impacts can be managed through continued implementation and

maintenance of the quarry's stormwater management and internal drainage systems, erosion-control measures and the relevant provisions of the EMPr.

7. TERRESTRIAL BIODIVERSITY

The TBIA confirmed that the remaining natural vegetation within the proposed expansion area occurs within mapped CBA2 and that ecological condition varies across the site. The plains between the existing quarry and the N6 are substantially degraded, while the ridge and associated rocky outcrops are relatively intact and have higher ecological value.

The proposed expansion will result in the permanent loss of portions of both degraded CBA2 plains habitat and relatively intact CBA2 ridge habitat. The specialist assessed both impacts as Low significance, as the affected areas represent a small proportion of the broader CBA2 network and their loss is not expected to fragment the network or materially affect landscape-scale ecological connectivity or processes.

The TBIA further concluded that the proposed expansion can be accommodated without materially compromising the ecological functionality of the CBA2 network, provided that mining and associated activities remain confined to the approved footprint. The likelihood of impacts on terrestrial plant and animal Species of Conservation Concern was also determined to be low.

8. CULTURAL AND HERITAGE ENVIRONMENT

The CHIA included a pedestrian survey of the proposed expansion area and did not identify archaeological sites, isolated artefacts, historical structures, graves or other heritage resources within the proposed mining footprint. No Stone Age or Iron Age artefacts, features or settlements were recorded.

On the basis of the specialist investigation, no known surface heritage resources are expected to be directly affected by the proposed expansion. The possibility of previously unidentified subsurface heritage resources cannot, however, be entirely excluded. A Chance Find Procedure must therefore be implemented should archaeological material, graves or human remains be encountered during vegetation clearing, excavation or other earthworks.

9. PALAEONTOLOGY

Although the DFFE Screening Tool identifies a portion of the application area as having Very High palaeontological sensitivity, the specialist PIA verified the site as having Low palaeontological sensitivity. The quarry predominantly targets Jurassic dolerite, which is non-fossiliferous, while the emplacement of the dolerite is considered likely to have thermally altered adjacent sedimentary rocks and reduced their potential to preserve fossil material.

The probability of fossil material being encountered during quarrying is therefore considered very low. A Fossil Chance Find Protocol will nevertheless be implemented to ensure that any unexpected palaeontological material encountered during excavation is appropriately managed.

10. SURROUNDING INFRASTRUCTURE AND SENSITIVE RECEPTORS

The proposed expansion has been planned so that it does not require the relocation, diversion or removal of existing roads, buildings, powerline servitudes or other established infrastructure. Existing access arrangements will remain in use and no new access onto the N6 forms part of the application.

The N6 forms the northern boundary of the broader quarry area, with the proposed expansion approaching the road reserve to ± 45 m at its closest point without extending into the road reserve. The nearest buildings associated with the Lesseyton Community occur ± 100 m from the proposed mining footprint, on the opposite side of the N6. The adjacent Civil and General quarry operation lies east of Queenstown Quarry and is separated from the proposed workings by a prominent ridgeline.

The assessment therefore identifies the N6, Lesseyton Community and neighbouring quarrying activities as important receptors when considering noise, blasting, dust, visual and cumulative impacts. Existing controls and monitoring must continue throughout the operational phase, with additional corrective measures implemented where monitoring indicates that these are required.

11. CUMULATIVE IMPACTS

The proposed expansion must be considered within the context of an area already influenced by long-standing quarrying, the adjacent Civil and General operation, the N6, agricultural activities and the progressive development of the Lesseyton

Community. The principal cumulative impacts relate to the progressive alteration of the landscape and topography, loss and disturbance of vegetation and grazing land, dust emissions, noise, blasting and the visual presence of quarrying within the broader landscape.

The assessment recognises that certain impacts, particularly alteration of the natural landform and the visual manifestation of quarrying, cannot be completely mitigated. Other operational impacts are more amenable to management through the continued application of established environmental controls, monitoring, progressive rehabilitation and adaptive management.

12. OVERALL FINDING

Overall, the environmental impact assessment indicates that the proposed Section 102 amendment represents the continued and spatially expanded operation of an established quarry rather than the introduction of a new land use or mining activity. The most consequential impacts are associated with the irreversible alteration of the natural topography within the expanded quarry footprint, the extension of the existing visual disturbance, the loss of presently vegetated/grazing areas and the progressive movement of operational activities into areas closer to certain surrounding receptors.

Conversely, no natural watercourses or wetlands were identified within the proposed expansion footprint; no known archaeological or cultural heritage resources were identified by the specialist survey; palaeontological sensitivity was verified as Low; and the expansion does not require the relocation or diversion of existing infrastructure. The proposed operation will furthermore continue to utilise the existing quarry infrastructure, processing facilities, access arrangements, mining methods and established environmental monitoring and management systems.

The TBIA has confirmed that, although the proposed expansion will result in the permanent loss of vegetation and habitat within portions of mapped CBA2, the associated terrestrial biodiversity impacts are of Low significance and the expansion can be accommodated without materially compromising the ecological functionality of the broader CBA2 network. Subject to the effective implementation of the mitigation, monitoring, rehabilitation and management measures prescribed in the BAR and EMPr throughout the operational and closure phases, the identified environmental impacts are considered capable of being managed to the extent

reasonably practicable. On this basis, no environmental fatal flaws have been identified that would preclude authorisation of the proposed Section 102 amendment.

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 C1.

iii) Summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;

1. POSITIVE IMPACTS OF THE PROJECT PROPOSAL

Table 27: Potential positive impacts associated with the proposed activity

ACTIVITY	POTENTIAL IMPACT	SIGNIFICANCE
♦ <u>Operational and Expansion Activities:</u> Excavation, processing, loading and hauling of aggregate.	♦ Continued employment opportunities.	♦ High (+)
♦ <u>Operational and Expansion Activities:</u> Excavation, processing, loading and hauling of aggregate.	♦ Continued supply of aggregate.	♦ High (+)
♦ <u>Operational and Expansion Activities:</u> Excavation, processing, loading and hauling of aggregate.	♦ Continued community investment.	♦ High (+)

2. NEGATIVE IMPACTS OF THE PROJECT PROPOSAL

The residual negative impacts of the Project Proposal assessed as Low-Medium significance or higher following implementation of mitigation are summarised below.

Table 28: 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)
♦ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden.	♦ Loss of grazing land. ♦ Cumulative loss of grazing land.	♦ Low-Medium ♦ Medium	♦ Low-Medium ♦ Medium
♦ <u>Cumulative Impacts</u>			

ACTIVITY	POTENTIAL IMPACT	SIGNIFICANCE (BEFORE MITIGATION)	SIGNIFICANCE (AFTER MITIGATION)
- Expansion Activities: Stripping and stockpiling of topsoil and/or overburden. - Decommissioning Phase: Sloping and landscaping during rehabilitation.	- Visual intrusion. - Visual scarring following rehabilitation.	- High - Medium-High	- High - Low-Medium
Operational and Expansion Activities: Drilling and blasting.	Dust generation (due to blasting).	Medium	Medium
Operational and Expansion Activities: Drilling and blasting.	Noise disturbance (due to blasting).	Medium	Medium
- Operational and Expansion Activities: Drilling and blasting. - Cumulative Impacts.	- Topographical alteration. - Cumulative topographical alteration.	- Medium-High - Medium-High	- Medium-High - Medium-High
Cumulative Impacts.	Cumulative ecological disturbance.	Medium	Low-Medium

3. NO-GO ALTERNATIVE

Table 29: Potential impacts associated with the no-go alternative

ACTIVITY	POTENTIAL IMPACT	SIGNIFICANCE
No-go Alternative	Avoidance of additional loss of grazing land and vegetation	Medium (+)
No-go Alternative	Avoidance of additional physical and ecological disturbance	Medium (+)
No-go Alternative	Avoidance of additional operational nuisance and blasting impacts	Medium (+)
No-go Alternative	Foregone extension of employment and socio-economic benefits	Medium (-)
No-go Alternative	Foregone continued long-term supply of aggregate	High (-)

The No-Go Alternative therefore provides an environmental advantage through avoidance of the additional disturbance associated with the proposed expansion, while the Project Proposal provides for continued access to the identified mineral resources and extension of the operational and associated socio-economic benefits of the existing quarry.

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 30: Proposed impact management objectives and the impact management outcomes for inclusion in the EMPR

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
1. LAND USE 1.1 GRAZING LAND To minimise the permanent loss of grazing land by restricting disturbance to the approved mining areas and restoring grazing potential following closure, where reasonably practicable.	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	◆ Clearly demarcate the approved mining boundaries prior to commencement of mining. ◆ Confine all mining activities to the approved mining footprint. ◆ Regularly inspect the mining boundaries to ensure that no unauthorised disturbance occurs. ◆ Implement the approved Closure Plan to restore grazing potential on rehabilitated areas, where reasonably practicable.	◆ Loss of grazing land is limited to the authorised mining footprint. ◆ No unnecessary disturbance occurs outside the approved mining areas. ◆ Grazing potential is restored on rehabilitated areas where reasonably practicable following closure.
2. TOPOGRAPHY 2.1 ALTERATION OF TOPOGRAPHY To minimise the alteration of the natural topography by restricting mining activities to the approved mining areas, maintaining stable excavation geometries, implementing progressive rehabilitation where practicable, and	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	◆ Clearly demarcate the approved mining footprint prior to commencement of mining and ensure that all mining activities remain within the authorised boundaries. ◆ Conduct mining activities in accordance with the approved mine plan to maintain stable excavation geometries and avoid unnecessary disturbance. ◆ Implement progressive rehabilitation of completed sections of the excavations where operationally practicable.	◆ Alteration of the natural topography is confined to the authorised mining footprint. ◆ Stable excavation profiles are maintained throughout the operational life of the quarry. ◆ The extent of exposed disturbed areas is progressively reduced where operationally practicable.

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MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
rehabilitating the site in accordance with the approved Closure Plan.		- Regularly (at least monthly) inspect the mining areas to identify any unauthorised disturbance or unstable excavation areas and implement corrective measures where required. - Undertake final rehabilitation of the mining area in accordance with the approved Closure Plan.	A safe and stable post-mining landform is established in accordance with the approved Closure Plan.
3. VISUAL CHARACTERISTICS 3.1 VISUAL INTRUSION To minimise the visual intrusion associated with the quarry by maintaining a neat and orderly operation, limiting the extent of visually disturbed areas, managing stockpiles appropriately, and rehabilitating the site in accordance with the approved Closure Plan.	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	- Maintain the mining area in a neat and orderly condition throughout the operational life of the quarry. - Store mining equipment within designated areas when not in use. - Limit vegetation clearing to areas required for immediate mining activities. - Manage overburden and topsoil stockpiles to minimise their height, footprint and visual prominence, and utilise these materials for rehabilitation as soon as reasonably practicable. - Rehabilitate disturbed areas in accordance with the approved Closure Plan to minimise the long-term visual impact of the quarry. - Remove redundant infrastructure upon closure, unless otherwise agreed with the landowner, and ensure that any infrastructure remaining on site is left in a safe and functional condition, with written acceptance by the landowner.	- The visual appearance of the quarry is maintained in a neat and orderly condition throughout the operational life of the mine. - Vegetation disturbance and exposed areas are limited to those required for mining. - Stockpiles are managed to minimise their visual prominence. - The long-term visual impact of the quarry is reduced through rehabilitation. - Any infrastructure remaining after closure is left in a safe, stable and acceptable condition.

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MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
4. AIR QUALITY AND NOISE AMBIANCE 4.1 DUST MANAGEMENT To minimise dust emissions associated with the quarry to protect surrounding receptors, maintain acceptable ambient air quality, and ensure compliance with the applicable National Dust Control Regulations and the Dust Management Plan.	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer. Air Quality Monitoring Specialists to monitor and report on all air emissions.	◆ Implement and maintain effective dust suppression measures at all significant dust-generating activities. ◆ Ensure that dust suppression measures are maintained throughout all operational periods, including night shift operations where applicable. ◆ Maintain all dust suppression equipment in good working order and suspend dust-generating activities where critical dust suppression equipment is not operational. ◆ Restrict vehicle speeds on haul roads to 20 km/h to minimise dust generation. ◆ Limit vegetation clearing and the exposure of bare surfaces to areas required for immediate mining activities. ◆ Adjust operational activities during adverse weather conditions, where necessary, to minimise excessive dust emissions. ◆ Maintain the Dust Management Plan and ensure compliance with the applicable National Dust Control Regulations. ◆ Undertake dustfall monitoring in accordance with the Dust Management Plan and applicable legislation. ◆ Investigate dust-related complaints and dustfall monitoring exceedances and implement corrective measures where necessary.	◆ Dust emissions are effectively controlled throughout the operational life of the quarry. ◆ Dust nuisance to surrounding land uses is minimised. ◆ Dust-generating activities comply with the applicable National Dust Control Regulations and the Dust Management Plan. ◆ Dustfall monitoring demonstrates compliance with the applicable standards, or corrective measures are implemented where exceedances occur.

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MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
4. AIR QUALITY AND NOISE AMBIANCE 4.2 NOISE MITIGATION To minimise noise generated by the quarry to reduce disturbance to surrounding land users and ensure compliance with applicable legislative requirements.	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	◆ Prohibit the playing of loud music within the operational areas. ◆ Maintain mining equipment and vehicles in good working order, including manufacturer-installed noise attenuation systems, to minimise noise emissions. ◆ Prohibit the unnecessary use of vehicle hooters, sirens and public address systems. ◆ Plan blasting activities to minimise disturbance to surrounding land users. ◆ Notify neighbouring landowners in writing prior to each blasting event. ◆ Maintain records of all blasting notifications issued to neighbouring landowners. ◆ Investigate noise-related complaints and implement corrective measures where warranted.	◆ Noise generated by mining activities is minimised as far as reasonably practicable. ◆ Disturbance to surrounding land users is minimised. ◆ Blasting activities are undertaken in a manner that minimises nuisance to neighbouring land users.
5. GEOLOGY AND SOIL 5.1 SOIL MANAGEMENT To conserve available topsoil resources throughout the life of the quarry to facilitate the successful rehabilitation of disturbed areas upon closure.	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	◆ Strip topsoil separately from subsoil prior to mining and retain it for rehabilitation. ◆ Handle, stockpile and replace topsoil in a systematic manner to preserve its suitability for rehabilitation. ◆ Locate topsoil stockpiles within the approved mining footprint and manage them to minimise erosion, contamination and degradation.	◆ Available topsoil is conserved for rehabilitation purposes. ◆ Topsoil stockpiles remain stable and suitable for future rehabilitation. ◆ Topsoil is protected from degradation, erosion and contamination.

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MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
		◆ Limit the period of topsoil storage, where reasonably practicable, to maintain its physical, chemical and biological integrity. ◆ Implement appropriate erosion control measures to protect topsoil stockpiles. ◆ Control alien and invasive plant species on topsoil stockpiles. ◆ Replace topsoil over rehabilitated areas in accordance with the approved Closure Plan. ◆ Stabilise rehabilitated areas following topsoil replacement to minimise erosion until sustainable vegetation cover has been established. ◆ Monitor rehabilitated areas for signs of erosion or instability and implement corrective measures where required.	◆ Rehabilitated areas receive suitable topsoil to support the successful establishment of vegetation.
6. HYDROLOGY 6.1 EROSION CONTROL AND STORM WATER MANAGEMENT To minimise erosion and ensure the effective management of stormwater to prevent the degradation of land, pollution of water resources and the uncontrolled	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	◆ Implement and maintain the Stormwater Management Plan throughout the life of the quarry. ◆ Maintain separate clean and dirty water management systems to prevent contamination of clean stormwater. ◆ Install, inspect and maintain stormwater and erosion control measures to minimise erosion, sedimentation and the uncontrolled discharge of sediment-laden runoff. ◆ Limit vegetation clearing and soil disturbance to areas required for immediate mining activities.	◆ Stormwater is effectively managed throughout the life of the mine. ◆ Erosion associated with mining activities is minimised. ◆ Clean and dirty water systems remain separated. ◆ Sediment-laden runoff is prevented from leaving the mining area.

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MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
transport of sediment from the mining area.		◆ Manage topsoil, overburden stockpiles and other disturbed areas to minimise erosion and sediment transport. ◆ Inspect stormwater and erosion control measures regularly (at least monthly) and repair or maintain them where necessary to ensure their continued effectiveness. ◆ Rehabilitate erosion associated with mining activities as soon as reasonably practicable. ◆ Stabilise rehabilitated areas until sustainable vegetation cover has been established.	◆ Disturbed and rehabilitated areas remain stable and are protected against erosion.
7. TERRESTRIAL BIODIVERSITY 7.1 VEGETATION MANAGEMENT To minimise the loss and disturbance of indigenous vegetation by restricting disturbance to the approved mining footprint and promoting the rehabilitation of disturbed areas.	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	◆ Clearly demarcate the approved mining footprint prior to the commencement of expansion activities and maintain the demarcation for the duration of mining. ◆ Confine mining, access, stockpiling, laydown areas and other ancillary activities to the approved mining footprint. ◆ Undertake vegetation clearing progressively and restrict clearing to the minimum area required for planned mining activities. Retain vegetation in situ for as long as the relevant area is not required for mining. ◆ Prior to vegetation clearing, arrange for a suitably qualified specialist to undertake a walk-through of the area to be cleared to identify plant species of conservation concern and/or protected plant species requiring specific management.	◆ Disturbance and clearing of indigenous vegetation are confined to the approved mining footprint and limited to areas required for mining and associated activities. ◆ Plant species of conservation concern and protected plant species are identified prior to clearing and managed in accordance with specialist recommendations and applicable permit requirements. ◆ Vegetation outside areas required for mining is retained

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MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
		◆ Obtain the necessary permits from the relevant authority prior to the removal, disturbance or relocation of plant species for which authorisation is required. ◆ Retain suitable cleared vegetation for use during rehabilitation, where reasonably practicable. ◆ Restrict the movement of vehicles and machinery to designated access routes and operational areas to prevent unnecessary disturbance of surrounding vegetation. ◆ Implement mining practices that minimise unnecessary soil disturbance, runoff and vegetation clearing along the margins of the approved footprint, particularly adjacent to the ridge. ◆ Stabilise stockpiles no longer required for operational purposes to minimise erosion and facilitate vegetation establishment where appropriate.	for as long as reasonably practicable. ◆ Cleared vegetation suitable for rehabilitation is retained for reuse, where reasonably practicable. ◆ Unnecessary disturbance of vegetation surrounding the approved mining footprint is prevented. ◆ Disturbed areas and redundant stockpiles are progressively stabilised and rehabilitated where practicable.
7. TERRESTRIAL BIODIVERSITY 7.2 MANAGEMENT OF INVASIVE PLANT SPECIES To manage and control alien and invasive plant species in order to minimise their spread and promote the establishment of indigenous vegetation.	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	◆ Implement the Alien Invader Plant Species Management Plan (Appendix J) throughout the life of the quarry. ◆ Regularly inspect disturbed, rehabilitated and stockpile areas for the presence of alien and invasive plant species. ◆ Control alien and invasive plant species identified during inspections in accordance with the approved Alien Invader Plant Species Management Plan.	◆ Alien and invasive plant species are effectively managed and controlled within the mining area. ◆ No alien or invasive plant species are intentionally introduced to the site. ◆ The spread of alien and invasive plant species beyond the mining area is minimised.

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MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
		◆ Ensure that no alien or invasive plant species are intentionally introduced to the site for rehabilitation, landscaping or any other purpose. ◆ Monitor rehabilitated areas and implement appropriate control measures where alien and invasive plant species are identified.	◆ Rehabilitated areas support the establishment of indigenous vegetation.
7. TERRESTRIAL BIODIVERSITY 7.3 MANAGEMENT OF FAUNA To minimise impacts on fauna by preventing the unnecessary injury, mortality and disturbance of wildlife associated with mining activities.	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	◆ Prohibit the intentional harming, killing, capturing or disturbance of fauna, unless authorised in terms of applicable legislation. ◆ Allow fauna encountered within the active mining area to move away naturally where reasonably practicable, or relocate them using suitably qualified personnel where necessary. ◆ Ensure that only suitably trained or authorised personnel handle or relocate dangerous or protected species. ◆ Report injured, trapped or protected fauna to site management and implement appropriate measures to prevent further harm. ◆ Maintain good housekeeping practices to avoid attracting nuisance animals and minimise risks to wildlife.	◆ Unnecessary harm, disturbance and mortality of fauna are minimised. ◆ Fauna encountered during mining activities are managed appropriately. ◆ Hunting, trapping and the collection of fauna do not occur on the site. ◆ Mining activities do not unnecessarily attract or endanger wildlife.
8. CULTURAL HERITAGE AND ENVIRONMENT 8.1 HERITAGE AND PALAEONTOLOGY	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.	◆ Confine all mining activities to the approved development footprint. ◆ Implement the approved Chance Find Procedure (Appendix F and G) throughout the life of the quarry.	◆ Mining activities remain confined to the approved development footprint. ◆ Any archaeological, historical, cultural or palaeontological

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MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
To protect archaeological, historical, cultural and palaeontological resources by avoiding unnecessary disturbance and ensuring that any chance finds are managed in accordance with the applicable heritage legislation.	Compliance to be monitored by the Environmental Control Officer.	◆ Cease all work in the immediate vicinity of any archaeological, historical, cultural or palaeontological find until it has been assessed. ◆ Report all chance finds to the ECO immediately upon discovery. ◆ Appoint a suitably qualified heritage specialist or palaeontologist, where required, to assess the significance of the find and advise on the appropriate management actions. ◆ Resume work only once written confirmation has been obtained from the relevant heritage authority, where required.	resources discovered during mining are protected from further disturbance. ◆ Chance finds are assessed by suitably qualified specialists and managed in accordance with the requirements of the relevant heritage authority. ◆ Mining activities only recommence once the necessary approvals have been obtained.
9. SURROUNDING INFRASTRUCTURE 9.1 N6 NATIONAL ROAD To protect the N6 National Road, its users and associated infrastructure from potential impacts associated with mining and blasting activities.	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	◆ Maintain a minimum 40 m setback between mining activities and the N6 road reserve. ◆ Undertake blasting in accordance with an approved blast design prepared by a competent person. ◆ Ensure that flyrock remains within the authorised mining area and does not enter the N6 road reserve.	◆ Mining remains outside the prescribed 40 m setback. ◆ Flyrock remains within the authorised mining area. ◆ The N6 road reserve is not affected by blasting activities.
9. SURROUNDING INFRASTRUCTURE 9.2 TRAFFIC MANAGEMENT	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.	◆ Weigh all vehicles transporting material before they leave the quarry. ◆ Do not permit vehicles exceeding the applicable legal GVM or axle load limits to leave the site.	◆ All vehicles leaving the quarry comply with the applicable legal gross vehicle mass (GVM) and axle load limits.

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MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
To prevent the overloading of vehicles transporting material from the quarry.	Compliance to be monitored by the Environmental Control Officer.	◆ Maintain the weighbridge in good working (calibrated) order.	◆ The weighbridge is used to verify vehicle loads prior to departure. ◆ Overloaded vehicles are not permitted to leave the quarry.
10.GENERAL 10.1 WASTE MANAGEMENT To prevent the pollution of soil and water resources through the effective management of general waste, hazardous waste, hydrocarbons and wastewater.	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	◆ Implement an annual surface water quality monitoring programme for the quarry excavations, drinking water and final chamber of the oil separator/sump. ◆ Separate general and hazardous waste and dispose of each at appropriately authorised waste disposal or recycling facilities. ◆ Undertake routine servicing, maintenance and repairs within designated workshop or service areas. Where emergency field repairs are unavoidable, implement measures to prevent soil and water contamination. ◆ Store hydrocarbons within designated storage areas and undertake refuelling activities using measures that prevent spills and contamination of soil and water resources. ◆ Ensure that spill response equipment is available at all hydrocarbon storage, handling and refuelling areas, and that personnel are familiar with its use. ◆ Contain and clean up hydrocarbon and chemical spills immediately and dispose of contaminated material as hazardous waste at an authorised facility.	◆ Potential deterioration in water quality associated with mining is identified through routine monitoring, allowing appropriate corrective action to be implemented where necessary. ◆ General and hazardous waste are managed and disposed of in accordance with applicable legislation. ◆ Soil and water resources are protected from contamination associated with waste management activities. ◆ Hydrocarbon spills are effectively contained and cleaned up.

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MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
		◆ Contain untreated wastewater and contaminated water generated by the operation and prevent its discharge into the natural environment. ◆ Report significant pollution incidents to the relevant authorities in accordance with applicable legislation. ◆ Remove all waste, temporary infrastructure and redundant materials from disturbed areas during decommissioning and closure in accordance with the approved Closure Plan.	◆ Untreated wastewater is contained and not discharged into the natural environment. ◆ Disturbed areas are free of waste and redundant materials upon closure.
10. GENERAL 10.2 MANAGEMENT OF HEALTH AND SAFETY RISKS To protect employees, surrounding land users and the public from health and safety risks associated with quarrying and blasting activities.	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	◆ Secure the mining area to prevent unauthorised access by members of the public and livestock. ◆ Undertake blasting in accordance with the approved blast design prepared by a competent person. ◆ Notify surrounding landowners and other affected parties prior to each blasting event. ◆ Monitor ground vibration and airblast overpressure during each blasting event. ◆ Ensure that flyrock remains within the designated blast area. ◆ Secure quarry excavations upon closure in accordance with the approved Closure Plan.	◆ Unauthorised access to the mining area is prevented. ◆ Blasting activities are undertaken safely and in accordance with the approved blast design. ◆ Ground vibration, airblast overpressure and flyrock remain within acceptable limits. ◆ Surrounding landowners are informed of blasting activities. ◆ Quarry excavations are secured upon closure to protect public safety.

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.

o) Description of any assumptions, uncertainties and gaps in knowledge.

(Which relate to the assessment and mitigation measures proposed)

The impact assessment was undertaken using information obtained from site inspections, desktop investigations, specialist studies, available spatial datasets, and information provided by the Applicant. The assessment is based on the assumption that the proposed mining activities will be undertaken in accordance with the project description, the approved mine plan, and the mitigation measures contained in this BAR and the accompanying EMPR.

No material gaps in information were identified that would influence the findings or recommendations of the assessment. While all environmental assessments are subject to a degree of uncertainty due to the predictive nature of impact assessment, the information available was considered adequate to assess the likely environmental impacts and to develop appropriate mitigation measures.

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.

The assessment concluded that, subject to the implementation of the proposed mitigation measures, monitoring programmes and management actions, the majority of the anticipated impacts associated with the proposed quarry extension can be mitigated to acceptable levels. No environmental fatal flaws were identified that would justify refusing the proposed expansion of the existing operation.

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.

q) Period for which the Environmental Authorisation is required.

The Right Holder requests that the Environmental Authorisation be valid for the duration of the mining right.

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 financial provision required to manage and rehabilitate the existing quarry together with the proposed expansion area amounts to R 7 245 198.51. The amount was determined in accordance with the methodology prescribed in Section B of the Working Manual for the Determination of the Closure Cost of Mining Areas. The detailed financial provision assessment and calculation are presented in Part B(1)(f)(i) *Financial Provision*.

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).

Queenstown Quarry (Pty) Ltd has been managing the Queenstown Quarry since 2015 and is also responsible for the financial and technical aspects of the project. The operating expenditure is provided for as such, and the right holder has a guarantee to the value of R 7 121 668.10 lodged with the DMPR that will be increased should the cost estimate in this document be approved.

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)

The proposed expansion may result in both positive and negative effects on the socio-economic conditions of directly affected persons. The expansion will result in the loss of grazing land within the proposed mining footprint for the duration of mining, thereby temporarily restricting the agricultural use of the affected area. The impact will be limited to the approved mining footprint, and the grazing potential of disturbed areas will, where reasonably practicable, be restored through final rehabilitation.

Positive socio-economic impacts are associated with the approximately 35-year extension of the operational life of Queenstown Quarry, including the continuation of existing employment opportunities, community investment and the economic activity associated with the operation. The continued operation will also contribute to the ongoing supply of aggregate to the market.

Under the No-Go Alternative, the additional loss of grazing land associated with the proposed expansion would be avoided. Conversely, the opportunity to extend the operational life of the quarry and the associated employment and socio-economic benefits would be foregone.

The potential socio-economic impacts, including the impacts of the No-Go Alternative, have been assessed in the impact assessment and alternatives assessment sections of this BAR and must be read together with the mitigation and management measures prescribed in the BAR and EMPr.

(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 study 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)

No additional matters have been specifically identified by the Competent Authority (DMPR) for consideration under this section. The matters contemplated in section 24(4)(a) and (b) of NEMA, including the consideration of reasonable and feasible alternatives and the assessment and mitigation of potential environmental and socio-economic impacts, have been addressed in the relevant sections of this BAR and the associated EMPr.

PART B

NOTE: THE EMPr, APPLIES TO THE OPERATIONAL ACTIVITIES AS WELL AS THE EXPANSION ACTIVITIES, AND (UPON APPROVAL) REPLACES THE 2011 EMPr OF THE MINE.

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 N 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 to which this EMPr applies are described in Part A, section (1)(h) of this report and include the existing Queenstown Quarry activities together with the proposed expansion activities forming part of the Section 102 amendment application.

The EMPr therefore applies to the continued operation of the existing quarry and the proposed expansion thereof, including vegetation clearing and topsoil stripping, drilling and blasting, excavation, loading and hauling, processing of extracted material, stockpiling, operation and maintenance of associated infrastructure, water and waste management, and the progressive and final rehabilitation and closure of disturbed areas.

The description of the activities and associated environmental aspects contained in Part A, section (1)(h) is therefore incorporated into this EMPr and is not repeated here.

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 is attached as Appendix C1 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 overall objective of the rehabilitation plan is to minimise adverse environmental impacts associated with the quarrying activities whilst maximising the future utilisation of the property. The idea, therefore, is to leave the excavations in a condition that minimises the negative impacts associated with a mined area.

The primary objective, at the end of the mine's life, is to obtain a closure certificate in compliance 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:

- ◆ Demolish and remove all buildings and/or infrastructure that will no longer be required by the landowner, as well as all waste material, in accordance with the requirements of this EMPr and/or the Provincial Department of Mineral and Petroleum Resources (DMPR).
- ◆ Shape and contour all disturbed areas in accordance with the approved Closure Plan.
- ◆ Ensure that permanent changes to the topography resulting from mining activities are sustainable and do not pose erosion risks or safety hazards to the landowner or surrounding community.
- ◆ Effectively utilise available topsoil to promote the re-establishment of vegetation.
- ◆ Ensure that all rehabilitated areas are stable and self-sustaining with adequate vegetation cover.
- ◆ Eradicate all invasive and alien plant species by intensive management of the mining area.

The site-specific closure objectives are discussed in the attached Closure Plan (Appendix I), however, a summary of the closure objectives for the 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. The buildings and roads at the property will most likely be retained for future use by the landowner and will therefore not be demolished unless so required.

Should the excavations expand up to the proposed S102 application boundaries, ± 40 ha of the ± 66 ha mining footprint will be excavated. This will leave an area of ± 26 ha that can be returned to agricultural/residential use. Due to the impracticality of importing large volumes of fill to restore the excavations to its original topography, the rehabilitation option is to develop the quarry pits into landscape features.

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 softened with overburden, top-dressed with topsoil and vegetated with an appropriate 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 excavations;
- ◆ 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 Right Holder will comply with the minimum closure objectives as prescribed by the DMPR and detailed below:

◆ Rehabilitation of the Excavated Area:

The excavated areas 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 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 Plant, Offices and Service Areas:

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.
- ◆ Areas containing French drains shall be compacted and covered with a final layer of topsoil to a height of 10 cm above the surrounding ground surface.
- ◆ 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 DMPR 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 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 DMPR 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 (not needed by the landowner) 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 right holder is required to submit a closure application to the Department of Mineral and Petroleum Resources 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).

Residual Impacts After Closure

Overburden will be reintroduced to the quarry excavations to soften sides and assist with shaping of the excavation during post-quarrying rehabilitation. Provided all final slopes are maintained at 1:3 batters (quarry rim and mine residue infill) and successfully revegetated, there will be no long-term instability in the rehabilitated area. The quarry cliffs precision blasted to angles of not steeper than 85° also provide an element of stability to hard rock quarry cliffs.

The mine excavations will, nevertheless, behave as a sump and collect surface run-off after wet periods. The floor of the quarries may, therefore, reveal fluctuating water levels depending on rainfall patterns. Considering this, it is important to adequately fence/wall the excavations off to prevent unauthorized access to humans (especially children) and domestic animals upon closure of the mine. It is important that the fencing of the excavations upon mine closure is conducted with very close participation and support of the local community, to ensure the fencing remains in place and is not stolen.

ii) Volume and rate of water use required for the operation.

As mentioned earlier, potable water is pumped from the excavations to a storage tank, where it undergoes treatment through a water purification plant before being supplied for employee use. Process water for dust suppression and use at the washing plant is also obtained from the excavations. The water used at the plant for washing and screening of the material is pumped to an adjacent settling pond. The overflow of the pond is then piped back into the quartzite quarry for recirculation.

Water use is monitored and recorded in the Environmental and Social Governance (ESG) spreadsheet of the mine. For the period of January 2026 to July 2026 the mine used an average of 625 m³ of water per month.

The proposed expansion of the mining footprint will not increase the volume of water needed for the operation.

iii) Has a water use licence been applied for?

No. Queenstown Quarry (Pty) Ltd holds an existing water use registration certificate (Reference No. 28087926) for water uses in terms of sections 21(a) and 21(b) of the National Water Act, 1998 (Act No. 36 of 1998). The registered section 21(a) water use allows for the abstraction of 410 m³ of water per annum from a borehole, while the

registered section 21(b) water use allows for the storage of 47 500 000 m³ of water within the quarry excavation/s.

The quarry does not currently (August 2026) utilise water from the registered borehole. Water accumulating within the quarry excavations is utilised for operational purposes, including dust suppression. The water used at the plant for washing and screening of the material is pumped to an adjacent settling pond. The overflow of the pond is then piped back into the quartzite quarry for recirculation.

iv) Impacts to be mitigated in their respective phases

Table 31: Impact to be mitigated in their respective phases

ACTIVITIES (as listed in Table 25)	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.
1. LAND USE 1.1 GRAZING LAND ♦ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden. ♦ <u>Cumulative impact</u>	Site Establishment & Operational Phase	±19 ha	♦ Clearly demarcate the approved mining boundaries prior to commencement of mining. ♦ Confine all mining activities to the approved mining footprint. ♦ Regularly inspect the mining boundaries to ensure that no unauthorised disturbance occurs.	Management of the activities must be in accordance with the: ♦ CARA, 1983 ♦ NEMA, 1998 ♦ Closure Plan (Appendix I)	Throughout the site establishment- and operational phases.

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ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			Implement the approved Closure Plan to restore grazing potential on rehabilitated areas, where reasonably practicable.		
2. TOPOGRAPHY 2.1 ALTERATION OF TOPOGRAPHY - Operational and Expansion Activities: Drilling and blasting. - Cumulative Impacts.	Site Establishment & Operational Phase	±19 ha	- Clearly demarcate the approved mining footprint prior to commencement of mining and ensure that all mining activities remain within the authorised boundaries. - Conduct mining activities in accordance with the approved mine plan to maintain stable excavation geometries and avoid unnecessary disturbance. - Implement progressive rehabilitation of completed sections of the excavations where operationally practicable.	Management of the activities must be in accordance with the: - MPRDA, 2002 - NEMA, 1998 - Closure Plan (Appendix I)	Throughout the site establishment- and operational phases.
3. VISUAL CHARACTERISTICS 3.1 VISUAL INTRUSION - Expansion Activities: Stripping and stockpiling of topsoil and/or overburden. - Decommissioning Phase: Sloping and	Site Establishment & Operational Phase	66.7419 ha	- Maintain the mining area in a neat and orderly condition throughout the operational life of the quarry. - Store mining equipment within designated areas when not in use. - Limit vegetation clearing to areas required for immediate mining activities. - Manage overburden and topsoil stockpiles to minimise their height, footprint and visual prominence, and utilise these materials for	Management of the activities must be in accordance with the: - MPRDA, 2008 - NEMA, 1998	Throughout the site establishment- and operational phases.

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ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
landscaping during rehabilitation.			rehabilitation as soon as reasonably practicable. ◆ Rehabilitate disturbed areas in accordance with the approved Closure Plan to minimise the long-term visual impact of the quarry. ◆ Remove redundant infrastructure upon closure, unless otherwise agreed with the landowner, and ensure that any infrastructure remaining on site is left in a safe and functional condition, with written acceptance by the landowner.		
4. AIR QUALITY AND NOISE AMBIANCE 4.1 DUST MANAGEMENT ◆ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden. ◆ <u>Operational and expansion activities:</u> Drilling and blasting. ◆ <u>Operational and expansion activities:</u> Excavation, processing, loading	Site Establishment and Operational Phase	66.7419 ha	◆ Implement and maintain effective dust suppression measures at all significant dust-generating activities. ◆ Ensure that dust suppression measures are maintained throughout all operational periods, including night shift operations where applicable. ◆ Maintain all dust suppression equipment in good working order and suspend dust-generating activities where critical dust suppression equipment is not operational. ◆ Restrict vehicle speeds on haul roads to 20 km/h to minimise dust generation.	Dust generation on site must be managed in accordance with the: ◆ NEM:AQA, 2004 Regulation 6(1) ◆ National Dust Control Regulations, 2026 ◆ Dust Management Plan (Appendix K)	Throughout the site establishment-, and operational phases.

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ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
and hauling of aggregate.			◆ Limit vegetation clearing and the exposure of bare surfaces to areas required for immediate mining activities. ◆ Adjust operational activities during adverse weather conditions, where necessary, to minimise excessive dust emissions. ◆ Maintain the Dust Management Plan and ensure compliance with the applicable National Dust Control Regulations. ◆ Undertake dustfall monitoring in accordance with the Dust Management Plan and applicable legislation. ◆ Investigate dust-related complaints and dustfall monitoring exceedances and implement corrective measures where necessary.		
4. AIR QUALITY AND NOISE AMBIANCE 4.2 NOISE MITIGATION ◆ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden.	Site Establishment-, and Operational Phase	66.7419 ha	◆ Prohibit the playing of loud music within the operational areas. ◆ Maintain mining equipment and vehicles in good working order, including manufacturer-installed noise attenuation systems, to minimise noise emissions. ◆ Prohibit the unnecessary use of vehicle hooters, sirens and public address systems.	Noise generation on site must be managed in accordance with the: ◆ NEM:AQA, 2004 Regulation 6(1)	Throughout the site establishment-, and operational phases.

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ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
♦ <u>Operational and expansion activities:</u> Drilling and blasting. ♦ <u>Operational and expansion activities:</u> Excavation, processing, loading and hauling of aggregate.			♦ Plan blasting activities to minimise disturbance to surrounding land users. ♦ Notify neighbouring landowners in writing prior to each blasting event. ♦ Maintain records of all blasting notifications issued to neighbouring landowners. ♦ Investigate noise-related complaints and implement corrective measures where warranted.		
5. GEOLOGY AND SOIL 5.1 SOIL MANAGEMENT ♦ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden. ♦ <u>Operational and Expansion Activities:</u> Excavation, processing, loading and hauling of aggregate. ♦ <u>Decommissioning Phase:</u> Sloping and	Site establishment-, Operational-, and Decommissioning Phase	±19 ha	♦ Strip topsoil separately from subsoil prior to mining and retain it for rehabilitation. ♦ Handle, stockpile and replace topsoil in a systematic manner to preserve its suitability for rehabilitation. ♦ Locate topsoil stockpiles within the approved mining footprint and manage them to minimise erosion, contamination and degradation. ♦ Limit the period of topsoil storage, where reasonably practicable, to maintain its physical, chemical and biological integrity. ♦ Implement appropriate erosion control measures to protect topsoil stockpiles.	Soil must be managed in accordance with the: ♦ CARA, 1983 ♦ Closure Plan (Appendix I)	Throughout the site establishment-, operational-, and decommissioning phases.

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ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
landscaping during rehabilitation.			♦ Control alien and invasive plant species on topsoil stockpiles. ♦ Replace topsoil over rehabilitated areas in accordance with the approved Closure Plan. ♦ Stabilise rehabilitated areas following topsoil replacement to minimise erosion until sustainable vegetation cover has been established. ♦ Monitor rehabilitated areas for signs of erosion or instability and implement corrective measures where required.		
6. HYDROLOGY 6.1 EROSION CONTROL AND STORM WATER MANAGEMENT ♦ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden. ♦ <u>Operational and Expansion Activities:</u> Excavation, processing, loading	Site Establishment-, Operational-, and Decommissioning Phase	66.7419 ha	♦ Implement and maintain the Stormwater Management Plan throughout the life of the quarry. ♦ Maintain separate clean and dirty water management systems to prevent contamination of clean stormwater. ♦ Install, inspect and maintain stormwater and erosion control measures to minimise erosion, sedimentation and the uncontrolled discharge of sediment-laden runoff. ♦ Limit vegetation clearing and soil disturbance to areas required for immediate mining activities.	Water and erosion related matters must be managed in accordance with the: ♦ CARA, 1983 ♦ Closure Plan (Appendix I) ♦ NWA, 1998	Throughout the site establishment-, operational- and decommissioning phase.

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ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
and hauling of aggregate. ♦ <u>Decommissioning Phase:</u> Sloping and landscaping during rehabilitation.			♦ Manage topsoil, overburden stockpiles and other disturbed areas to minimise erosion and sediment transport. ♦ Inspect stormwater and erosion control measures regularly (at least monthly) and repair or maintain them where necessary to ensure their continued effectiveness. ♦ Rehabilitate erosion associated with mining activities as soon as reasonably practicable. ♦ Stabilise rehabilitated areas until sustainable vegetation cover has been established.		
7. TERRESTRIAL BIODIVERSITY 7.1 VEGETATION MANAGEMENT ♦ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden. ♦ <u>Cumulative impacts</u>	Site Establishment- and Operational Phase	±19 ha	♦ Clearly demarcate the approved mining footprint prior to the commencement of expansion activities and maintain the demarcation for the duration of mining. ♦ Confine mining, access, stockpiling, laydown areas and other ancillary activities to the approved mining footprint. ♦ Undertake vegetation clearing progressively and restrict clearing to the minimum area required for planned mining activities. Retain vegetation in situ for as long as the relevant area is not required for mining.	Vegetation handling must be managed in accordance with the: ♦ NEM:BA 2004	Throughout the site establishment- and operational phases.

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ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			♦ Prior to vegetation clearing, arrange for a suitably qualified specialist to undertake a walk-through of the area to be cleared to identify plant species of conservation concern and/or protected plant species requiring specific management. ♦ Obtain the necessary permits from the relevant authority prior to the removal, disturbance or relocation of plant species for which authorisation is required. ♦ Retain suitable cleared vegetation for use during rehabilitation, where reasonably practicable. ♦ Restrict the movement of vehicles and machinery to designated access routes and operational areas to prevent unnecessary disturbance of surrounding vegetation. ♦ Implement mining practices that minimise unnecessary soil disturbance, runoff and vegetation clearing along the margins of the approved footprint, particularly adjacent to the ridge. ♦ Stabilise stockpiles no longer required for operational purposes to minimise erosion and facilitate vegetation establishment where appropriate.		

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ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
7. TERRESTRIAL BIODIVERSITY 7.2 MANAGEMENT OF INVASIVE PLANT SPECIES - Expansion Activities: Stripping and stockpiling of topsoil and/or overburden. - Operational and Expansion Activities: Excavation, processing, loading and hauling of aggregate. - Decommissioning Phase: Sloping and landscaping during rehabilitation.	Site Establishment-, Operational- and Decommissioning Phase	66.7419 ha	- Implement the Alien Invader Plant Species Management Plan (Appendix J) throughout the life of the quarry. - Regularly inspect disturbed, rehabilitated and stockpile areas for the presence of alien and invasive plant species. - Control alien and invasive plant species identified during inspections in accordance with the approved Alien Invader Plant Species Management Plan. - Ensure that no alien or invasive plant species are intentionally introduced to the site for rehabilitation, landscaping or any other purpose. - Monitor rehabilitated areas and implement appropriate control measures where alien and invasive plant species are identified.	Aliens and invasive plants must be managed in accordance with the: - Alien Invader Plant Species Management Plan (Appendix J) - CARA, 1983 - NEM:BA, 2004	Throughout the site establishment-, operational- and decommissioning phases.
7. TERRESTRIAL BIODIVERSITY 7.3 MANAGEMENT OF FAUNA Expansion Activities: Stripping and	Site Establishment- and Operational Phase	66.7419 ha	- Prohibit the intentional harming, killing, capturing or disturbance of fauna, unless authorised in terms of applicable legislation. - Allow fauna encountered within the active mining area to move away naturally where reasonably practicable, or relocate them	Fauna must be managed in accordance with the: NEM:BA 2004	Throughout the site establishment- and operational phases.

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ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
stockpiling of topsoil and/or overburden.			using suitably qualified personnel where necessary. ◆ Ensure that only suitably trained or authorised personnel handle or relocate dangerous or protected species. ◆ Report injured, trapped or protected fauna to site management and implement appropriate measures to prevent further harm. ◆ Maintain good housekeeping practices to avoid attracting nuisance animals and minimise risks to wildlife.		
8. CULTURAL AND HERITAGE ENVIRONMENT 8.1 HERITAGE AND PALAEONTOLOGY ◆ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden.	Site Establishment & Operational Phase	±19 ha	◆ Confine all mining activities to the approved development footprint. ◆ Implement the approved Chance Find Procedure (Appendix F and G) throughout the life of the quarry. ◆ Cease all work in the immediate vicinity of any archaeological, historical, cultural or palaeontological find until it has been assessed. ◆ Report all chance finds to the ECO immediately upon discovery. ◆ Appoint a suitably qualified heritage specialist or palaeontologist, where	Cultural/heritage aspects must be managed in accordance with the: ◆ NHRA, 1999	Throughout the site establishment- and operational phases.

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ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			required, to assess the significance of the find and advise on the appropriate management actions. Resume work only once written confirmation has been obtained from the relevant heritage authority, where required.		
9. SURROUNDING INFRASTRUCTURE 9.1 N6 NATIONAL ROAD <u>Operational and Expansion Activities:</u> Drilling and blasting.	Operational Phase	±3 ha	- Maintain a minimum 40 m setback between mining activities and the N6 road reserve. - Undertake blasting in accordance with an approved blast design prepared by a competent person. - Ensure that flyrock remains within the authorised mining area and does not enter the N6 road reserve.	Road related aspects must be managed in accordance with the: NRTA, 1996	Throughout operational phase.
9. SURROUNDING INFRASTRUCTURE 9.2 TRAFFIC MANAGEMENT <u>Operational and Expansion Activities:</u> Excavation, processing, loading and hauling of aggregate.	Operational Phase	N/A	- Weigh all vehicles transporting material before they leave the quarry. - Do not permit vehicles exceeding the applicable legal GVM or axle load limits to leave the site. - Maintain the weighbridge in good working (calibrated) order.	Road related aspects must be managed in accordance with the: NRTA, 1996	Throughout the operational phase.

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ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
10. GENERAL 10.1 WASTE MANAGEMENT ♦ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden. ♦ <u>Operational and expansion activities:</u> Excavation, processing, loading and hauling of aggregate. ♦ <u>Operational and expansion activities:</u> Sloping and landscaping during rehabilitation.	Site Establishment-, Operational-, and Decommissioning Phase	66.7419 ha	♦ Implement an annual surface water quality monitoring programme for the quarry excavations, drinking water and final chamber of the oil separator/sump. ♦ Separate general and hazardous waste and dispose of each at appropriately authorised waste disposal or recycling facilities. ♦ Undertake routine servicing, maintenance and repairs within designated workshop or service areas. Where emergency field repairs are unavoidable, implement measures to prevent soil and water contamination. ♦ Store hydrocarbons within designated storage areas and undertake refuelling activities using measures that prevent spills and contamination of soil and water resources. ♦ Ensure that spill response equipment is available at all hydrocarbon storage, handling and refuelling areas, and that personnel are familiar with its use. ♦ Contain and clean up hydrocarbon and chemical spills immediately and dispose of contaminated material as hazardous waste at an authorised facility.	Project related waste must be managed in accordance with the: ♦ NEM:WA, 2008 ♦ NWA, 1998	Throughout the site establishment-, operational and decommissioning phases.

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ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			◆ Contain untreated wastewater and contaminated water generated by the operation and prevent its discharge into the natural environment. ◆ Report significant pollution incidents to the relevant authorities in accordance with applicable legislation. ◆ Remove all waste, temporary infrastructure and redundant materials from disturbed areas during decommissioning and closure in accordance with the approved Closure Plan.		
10. GENERAL 10.2 MANAGEMENT OF HEALTH AND SAFETY RISKS ◆ <u>Operational and Expansion Activities:</u> Drilling and blasting. ◆ <u>Operational and Expansion Activities:</u> Excavation, processing, loading and hauling of aggregate.	Operational-, and Decommissioning Phase	66.7419 ha	◆ Secure the mining area to prevent unauthorised access by members of the public and livestock. ◆ Undertake blasting in accordance with the approved blast design prepared by a competent person. ◆ Notify surrounding landowners and other affected parties prior to each blasting event. ◆ Monitor ground vibration and airblast overpressure during each blasting event. ◆ Ensure that flyrock remains within the designated blast area.	Health and safety aspects on site must be managed in accordance with the: ◆ MHSA, 1996 ◆ OHSA, 1993 ◆ OHSAS 18001 ◆ HSA, 1973	Throughout the operational and decommissioning phases.

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ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
♦ <u>Decommissioning</u> Phase: Sloping and landscaping during rehabilitation.			♦ Secure quarry excavations upon closure in accordance with the approved Closure Plan.		

e) Impact Management Outcomes

(A description of impact management outcomes, identifying the standard of impact management required for the aspects contemplated in paragraph ());

Table 32: 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. • 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.
◆ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden. ◆ <u>Cumulative Impacts</u>	◆ Loss of grazing land. ◆ Cumulative loss of grazing land.	The loss of grazing may affect the agricultural value of the landscape.	Site Establishment Phase	<u>Control:</u> Implementing progressive rehabilitation where possible.	Management of the activities must be in accordance with the: ◆ CARA, 1983 ◆ NEMA, 1998 ◆ Closure Plan (Appendix I)
◆ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden. ◆ <u>Decommissioning Phase:</u> Sloping and landscaping during rehabilitation.	◆ Visual intrusion. ◆ Visual scarring following rehabilitation.	The visual impact may affect the aesthetics of the landscape.	Site Establishment, Operational and Decommissioning Phase	<u>Control:</u> Implementing proper housekeeping and progressive rehabilitation where possible.	Management of the activities must be in accordance with the: ◆ MPRDA, 2008 ◆ NEMA, 1998

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ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
◆ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden. ◆ <u>Operational and Expansion Activities:</u> Drilling and blasting. ◆ <u>Operational and Expansion Activities:</u> Excavation, processing, loading and hauling of aggregate.	◆ Dust generation. ◆ Dust generation. ◆ Dust generation.	Increased dust generation will impact on the air quality of the receiving environment.	Site Establishment-, and Operational Phase	<u>Control:</u> Dust suppression methods, dust monitoring and proper housekeeping.	Dust generation on site must be managed in accordance with the: ◆ NEM:AQA, 2004 Regulation 6(1) ◆ National Dust Control Regulations, 2026 ◆ Dust Management Plan (Appendix K)
◆ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden. ◆ <u>Operational and Expansion Activities:</u> Drilling and blasting. ◆ <u>Operational and Expansion Activities:</u> Excavation, processing, loading and hauling of aggregate.	◆ Noise disturbance. ◆ Noise disturbance. ◆ Noise disturbance.	Should noise levels become excessive it may have an impact on the noise ambiance of the receiving environment.	Site Establishment-, and Operational Phase	<u>Control:</u> Noise suppression methods, and proper housekeeping.	Noise generation on site must be managed in accordance with the: ◆ NEM:AQA, 2004 Regulation 6(1)
◆ <u>Expansion Activities:</u> Stripping and	◆ Soil and water contamination.	Contamination of the footprint areas will negatively impact the	Site Establishment-, Operational-, and	<u>Control & Remedy:</u> Proper housekeeping and implementation of an	Project related waste must be managed in accordance with the: ◆ NWA, 1998

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ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
stockpiling of topsoil and/or overburden. ♦ <u>Operational and Expansion Activities:</u> Excavation, processing, loading and hauling of aggregate. ♦ <u>Decommissioning phase:</u> Sloping and landscaping during rehabilitation.	♦ Soil contamination. ♦ Residual soil contamination.	soil, surface runoff and potentially the groundwater. It will also incur additional costs to the Right Holder.	Decommissioning Phase	emergency response plan and waste management plan.	♦ NEM:WA, 2008
♦ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden. ♦ <u>Cumulative impacts</u>	♦ Localised loss of CBA2 areas on the plains. ♦ Localised loss of CBA2 areas on the ridge. ♦ Cumulative ecological disturbance.	This will impact on the biodiversity of the receiving environment.	Site Establishment & Operational Phase	<u>Control:</u> Implementing proper housekeeping and the mitigation measures.	Vegetation handling must be managed in accordance with the: ♦ NEM:BA 2004
♦ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden.	♦ Disturbance of fauna.	This will impact on the biodiversity of the receiving environment.	Site Establishment & Operational Phase	<u>Control:</u> Implementing proper housekeeping and the mitigation measures.	Fauna must be managed in accordance with the: ❖ NEM:BA 2004
♦ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden.	♦ Alien invasive plant infestation. ♦ Alien invasive plant infestation.	Infestation of the footprint by invader plant species may affect the biodiversity	Site Establishment-, Operational, and Decommissioning Phase	<u>Control & Remedy:</u> Implementation of an invasive plant species management plan.	Aliens and invasive plants must be managed in accordance with the: ♦ Alien Invader Plant Species Management Plan (Appendix J)

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ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
◆ <u>Operational and Expansion Activities:</u> Excavation, processing, loading and hauling of aggregate. ◆ <u>Decommissioning Phase:</u> Sloping and landscaping during rehabilitation.	◆ Alien invasive plant contamination.	of the receiving environment.			◆ CARA, 1983 ◆ NEM:BA, 2004
◆ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden. ◆ <u>Operational and Expansion Activities:</u> Excavation, processing, loading and hauling of aggregate. ◆ <u>Decommissioning Phase:</u> Sloping and landscaping during rehabilitation.	◆ Increased runoff and erosion. ◆ Runoff and erosion. ◆ Topsoil erosion. ◆ Failure of stormwater controls.	This could impact the hydrology of the receiving environment and cause erosion.	Site Establishment, Operational, and Decommissioning Phase.	<u>Control and Remedy:</u> Implementing a stormwater management plan (SWMP) and erosion monitoring.	Soil must be managed in accordance with the: ◆ CARA, 1983 ◆ Closure Plan (Appendix I)
◆ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden.	◆ Disturbance of heritage and palaeontological resources.	This could impact the heritage and or palaeontological aspects of the receiving environment.	Site Establishment, and Operational, Phase.	<u>Control:</u> Implementing a chance-find procedure for the duration of the operations.	Cultural/heritage aspects must be managed in accordance with the: ◆ NHRA, 1999

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ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
◆ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden.	◆ Alteration of surface drainage.	This could impact the hydrology of the receiving environment and cause erosion.	Site Establishment, Operational, and Decommissioning Phase.	<u>Control and Remedy:</u> Implementing a stormwater management plan (SWMP) and erosion monitoring.	Water and erosion related matters must be managed in accordance with the: ◆ CARA, 1983 ◆ Closure Plan (Appendix I) ◆ NWA, 1998
◆ <u>Operational and Expansion Activities:</u> Drilling and blasting. ◆ <u>Cumulative Impacts.</u>	◆ Topographical alteration. ◆ Cumulative topographical alteration.	This impact may alter the topography of the area.	Site Establishment, Operational and Decommissioning Phase	Should the proposed project be approved, the operation will change the topography of the mining footprint. The impact could be controlled to a certain extent through rehabilitation of the mining scar.	Management of the activities must be in accordance with the: ◆ CARA, 1983 ◆ NEMA, 1998 ◆ Closure Plan (Appendix I)
◆ <u>Operational and Expansion Activities:</u> Drilling and blasting. ◆ <u>Operational and Expansion Activities:</u> Excavation, processing, loading and hauling of aggregate. ◆ <u>Decommissioning Phase:</u> Sloping and landscaping during rehabilitation.	◆ Blasting safety risk. ◆ Unsafe working conditions. ◆ Safety risk from unrehabilitated excavations.	An unsafe working environment affects the labour force, as well as pose a threat to animals and humans that may enter the mining footprint.	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: ◆ MHSA, 1996 ◆ OHSA, 1993 ◆ OHSAS 18001 ◆ HSA, 1973

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ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
♦ <u>Operational and Expansion Activities:</u> Drilling and blasting.	♦ Ground vibration. ♦ Flyrock.	Damage to surrounding infrastructure will incur costs for the right holder and complaints from the landowner and/or community.	Operational Phase	<u>Stop & Control:</u> Adherence to the blasting rules and regulations, demarcation of the mining area and proper housekeeping.	Management of the activities must be in accordance with the: ♦ MPRDA, 2008 ♦ NEMA, 1998
♦ <u>Operational and Expansion Activities:</u> Drilling and blasting.	♦ Potential impact of blasting on the N6 National Road and road users.	Damage to the road infrastructure will incur costs for the right holder and complaints from SANRAL and/or road users.	Operational Phase	<u>Stop & Control:</u> Adherence to the blasting rules and regulations, demarcation of the mining area and proper housekeeping.	Road related aspects must be managed in accordance with the: ♦ NRTA, 1996
♦ <u>Operational and Expansion Activities:</u> Excavation, processing, loading and hauling of aggregate.	♦ Overloading of haul trucks.	Impacting the condition of public roads may incur public complaints and additional costs to the MR Holder.	Operational Phase	<u>Stop & Control:</u> Adherence to all road related legislation.	Road related aspects must be managed in accordance with the: ♦ NRTA, 1996
♦ <u>Decommissioning Phase:</u> Sloping and landscaping during rehabilitation.	♦ Failure of vegetation establishment.	This will impact on the biodiversity of the receiving environment as well as its erosion potential.	Decommissioning Phase	<u>Control:</u> Implementing and monitoring the effectiveness of the rehabilitation actions.	Vegetation handling must be managed in accordance with the: ♦ NEM:BA 2004 ♦ Closure Plan (Appendix I)

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 33: Impact Management Actions

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
whether listed or not listed (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc..etc.)	(e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc...etc..)	(modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc... etc.) E.g. • Modify through alternative method. • Control through noise control • Control through management and monitoring • Remedy through rehabilitation.	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.	(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)
◆ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden. ◆ <u>Cumulative Impacts</u>	◆ Loss of grazing land. ◆ Cumulative loss of grazing land.	<u>Control:</u> Implementing progressive rehabilitation where possible.	During the site establishment phase.	Management of the activities must be in accordance with the: ◆ CARA, 1983 ◆ NEMA, 1998 ◆ Closure Plan (Appendix I)
◆ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden.	◆ Visual intrusion. ◆ Visual scarring following rehabilitation.	<u>Control:</u> Implementing proper housekeeping and progressive rehabilitation where possible.	Throughout the site establishment, operational, and decommissioning phases.	Management of the activities must be in accordance with the: ◆ MPRDA, 2008 ◆ NEMA, 1998

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ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
◆ <u>Decommissioning Phase:</u> Sloping and landscaping during rehabilitation.				
◆ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden. ◆ <u>Operational and Expansion Activities:</u> Drilling and blasting. ◆ <u>Operational and Expansion Activities:</u> Excavation, processing, loading and hauling of aggregate.	◆ Dust generation. ◆ Dust generation. ◆ Dust generation.	<u>Control:</u> Dust suppression methods, dust monitoring and proper housekeeping.	Throughout the site establishment-, and operational phases.	Dust generation on site must be managed in accordance with the: ◆ NEM:AQA, 2004 Regulation 6(1) ◆ National Dust Control Regulations, 2026 ◆ Dust Management Plan (Appendix K)
◆ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden. ◆ <u>Operational and Expansion Activities:</u> Drilling and blasting. ◆ <u>Operational and Expansion Activities:</u> Excavation, processing,	◆ Noise disturbance. ◆ Noise disturbance. ◆ Noise disturbance.	<u>Control:</u> Noise suppression methods, and proper housekeeping.	Throughout the site establishment-, and operational phases.	Noise generation on site must be managed in accordance with the: ◆ NEM:AQA, 2004 Regulation 6(1)

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ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
loading and hauling of aggregate.				
♦ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden. ♦ <u>Operational and Expansion Activities:</u> Excavation, processing, loading and hauling of aggregate. ♦ <u>Decommissioning phase:</u> Sloping and landscaping during rehabilitation.	♦ Soil and water contamination. ♦ Soil contamination. ♦ Residual soil contamination.	<u>Control & Remedy:</u> Proper housekeeping and implementation of an emergency response plan and waste management plan.	Throughout the site establishment, operational- and decommissioning phases.	Project related waste must be managed in accordance with the: ♦ NWA, 1998 ♦ NEM:WA, 2008
♦ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden. ♦ <u>Cumulative impacts</u>	♦ Localised loss of CBA2 areas on the plains. ♦ Localised loss of CBA2 areas on the ridge. ♦ Cumulative ecological disturbance.	<u>Control:</u> Implementing proper housekeeping and the mitigation measures.	Throughout the site establishment, and operational phases.	Natural vegetated areas must be managed in accordance with the: ♦ NEM:BA 2004
♦ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden.	♦ Disturbance of fauna.	<u>Control:</u> Implementing proper housekeeping and the mitigation measures.	Throughout the site establishment, and operational phases.	Fauna must be managed in accordance with the: ❖ NEM:BA 2004

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ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
♦ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden. ♦ <u>Operational and Expansion Activities:</u> Excavation, processing, loading and hauling of aggregate. ♦ <u>Decommissioning Phase:</u> Sloping and landscaping during rehabilitation.	♦ Alien invasive plant infestation. ♦ Alien invasive plant infestation. ♦ Alien invasive plant contamination.	<u>Control & Remedy:</u> Implementation of an invasive plant species management plan.	Throughout the site establishment-, operational-, and decommissioning phases.	Aliens and invasive plants must be managed in accordance with the: ♦ Alien Invader Plant Species Management Plan (Appendix J) ♦ CARA, 1983 ♦ NEM:BA, 2004
♦ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden. ♦ <u>Operational and Expansion Activities:</u> Excavation, processing, loading and hauling of aggregate. ♦ <u>Decommissioning Phase:</u> Sloping and landscaping during rehabilitation.	♦ Increased runoff and erosion. ♦ Runoff and erosion. ♦ Topsoil erosion. ♦ Failure of stormwater controls.	<u>Control and Remedy:</u> Implementing a stormwater management plan (SWMP) and erosion monitoring.	Throughout the site establishment- and operational phases.	Soil must be managed in accordance with the: ♦ CARA, 1983 ♦ Closure Plan (Appendix I)
♦ <u>Expansion Activities:</u> Stripping and stockpiling	♦ Disturbance of heritage and palaeontological resources.	<u>Control:</u> Implementing a chance-find procedure for the duration of the operations.	Throughout the site establishment- and operational phases.	Cultural/heritage aspects must be managed in accordance with the:

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ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
of topsoil and/or overburden.				♦ NHRA, 1999
♦ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden.	♦ Alteration of surface drainage.	<u>Control and Remedy:</u> Implementing a stormwater management plan (SWMP) and erosion monitoring.	Throughout the site establishment, operational and decommissioning phases.	Water and erosion related matters must be managed in accordance with the: ♦ CARA, 1983 ♦ Closure Plan (Appendix I) ♦ NWA, 1998
♦ <u>Operational and Expansion Activities:</u> Drilling and blasting. ♦ <u>Cumulative Impacts.</u>	♦ Topographical alteration. ♦ Cumulative topographical alteration.	Should the proposed project be approved, the operation will change the topography of the mining footprint. The impact could be controlled to a certain extend through rehabilitation of the mining scar.	Throughout the site establishment, operational and decommissioning phases.	Management of the activities must be in accordance with the: ♦ CARA, 1983 ♦ NEMA, 1998 ♦ Closure Plan (Appendix I)
♦ <u>Operational and Expansion Activities:</u> Drilling and blasting. ♦ <u>Operational and Expansion Activities:</u> Excavation, processing, loading and hauling of aggregate. ♦ <u>Decommissioning Phase:</u> Sloping and landscaping during rehabilitation.	♦ Blasting safety risk. ♦ Unsafe working conditions. ♦ Safety risk from unrehabilitated excavations.	<u>Stop & Control:</u> Adherence to the blasting rules and regulations, demarcation of the mining area and proper housekeeping.	Throughout operational and decommissioning phases.	Health and safety aspects on site must be managed in accordance with the: ♦ MHSA, 1996 ♦ OHSA, 1993 ♦ OHSAS 18001 ♦ HSA, 1973

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ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
♦ <u>Operational and Expansion Activities:</u> Drilling and blasting.	♦ Ground vibration. ♦ Flyrock.	<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 activities must be in accordance with the: ♦ MPRDA, 2008 ♦ NEMA, 1998
♦ <u>Operational and Expansion Activities:</u> Drilling and blasting.	♦ Potential impact of blasting on the N6 National Road and road users.	<u>Stop & Control:</u> Adherence to the blasting rules and regulations, demarcation of the mining area and proper housekeeping.	Throughout operational phase.	Road related aspects must be managed in accordance with the: ♦ NRTA, 1996
♦ <u>Operational and Expansion Activities:</u> Excavation, processing, loading and hauling of aggregate.	♦ Overloading of haul trucks.	<u>Stop & Control:</u> Adherence to all road related legislation.	Throughout operational phase.	Road related aspects must be managed in accordance with the: ♦ NRTA, 1996
♦ <u>Decommissioning Phase:</u> Sloping and landscaping during rehabilitation.	♦ Failure of vegetation establishment.	<u>Control:</u> Implementing and monitoring the effectiveness of the rehabilitation actions.	Throughout decommissioning phase.	Vegetation handling must be managed in accordance with the: ♦ NEM:BA 2004 ♦ Closure Plan (Appendix I)

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 and support areas by removing the stockpiled material, and site infrastructure/equipment that will no longer be required by the landowner and landscaping the disturbed footprints. Due to the impracticality of importing large volumes of fill to restore the excavations to its original topography, the rehabilitation option is to develop the quarry pits into landscape features. 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 softened with overburden and top-dressed with topsoil and vegetated with an appropriate grass mix if vegetation does not naturally establish in the area within six months of the replacement of the topsoil. The Right Holder will comply with the minimum closure objectives as prescribed by DMPR.

(b) Confirm specifically that the environmental objectives in relation to closure have been consulted with landowner and interested and affected parties.

This report, the Draft Basic Assessment Report (DBAR) and the Closure Plan (Appendix I), includes all the environmental objectives with relation to closure and will be available for perusal by the landowner, registered I&AP's and stakeholders over a 30-days commenting period. Any comments received on the DBAR will be incorporated into the final BAR.

(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 map is attached as Appendix D.

(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 mine. 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 map attached as Appendix D, will comply with the minimum closure objectives as prescribed by DMPR and detailed below, and therefore is deemed to be compatible:

◆ Rehabilitation of the Excavated Areas:

The excavated areas must serve as a final depositing area for the placement of overburden. Unwanted rocks and coarse material removed from the mining area shall be returned 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 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 Plant, Offices and Service Areas:

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.
- ◆ Areas containing French drains shall be compacted and covered with a final layer of topsoil to a height of 10 cm above the surrounding ground surface.
- ◆ 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 DMPR 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 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 DMPR 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 (not needed by the landowner) 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.

- (e) Calculate and state the quantum of the financial provision required to manage and rehabilitate the environment in accordance with the applicable guideline.

The quantum for financial provision makes provision for both the current mining activities as well as the proposed expansion area and was calculated 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	Dolerite and Quartzite
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)	Class C
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) ♦ Rehabilitation of the primary and secondary crusher, screens and conveyors.	YES	-

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Component No.	Main description	Applicability of closure components (Circle Yes or No)	
2(A)	Demolition of steel buildings and structures	YES	-
2(B)	Demolition of reinforced concrete buildings and structures	YES	-
3	Rehabilitation of access roads ♦ The road/s will still be required to access the area after closure and will therefore not be rehabilitated.	-	NO
4(A)	Demolition and rehabilitation of electrified railway lines ♦ There are no railway lines associated with the mine.	-	NO
4(B)	Demolition and rehabilitation of non-electrified railway lines ♦ There are no railway lines associated with the mine.	-	NO
5	Demolition of housing and facilities	YES	-
6	Opencast rehabilitation including final voids and ramps	YES	-
7	Sealing of shafts, adits and inclines	-	NO
8(A)	Rehabilitation of overburden and spoils	YES	-
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 (A)	General surface rehabilitation, including grassing of all denuded areas (with remnants)	YES	-
10 (B)	General surface rehabilitation, including grassing of all denuded areas (without remnants)	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)	YES	-
14	2 to 3 years of maintenance and aftercare	YES	-

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Unit rates for closure components



The calculation of the financial provision amount required to manage and rehabilitate the environment was aligned with the guideline document prescribed in terms of Regulation 54 (1). The master rate for each closure component was inflated by the annual average Consumer Price Index (CPI) projected for 2026 (3.7%) to account for escalation over the past years as presented in the table below.

Component No.	Main description	2026 Master rate	Multiplication factor
1	Dismantling of processing plant and related structures (including overland conveyors and power lines)	R 20.86	1.00
2(A)	Demolition of steel buildings and structures	R 290.70	1.00
2(B)	Demolition of reinforced concrete buildings and structures	R 428.41	1.00
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	R 581.40	1.00
6	Opencast rehabilitation including final voids and ramps	R 295 906.75	0.04
7	Sealing of shafts, adits and inclines	-	-
8(A)	Rehabilitation of overburden and spoils	R 203 187.26	1.00
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(A)	General surface rehabilitation, including grassing of all denuded areas (with remnants)	R 160 958.59	1.00
10(B)	General surface rehabilitation, including grassing of all denuded areas (without remnants)	R 107 305.72	1.00
11	River diversions	-	-
12	Fencing	-	-
13	Water management (Separating clean and dirty water, managing polluted water and managing the impact on groundwater)	R 61 200.98	0.17
14	2 to 3 years of maintenance and aftercare	R 21 420.34	1.00

Determine weighting factors

According to Tables B.7 and B.8

Weighting factor 1: Nature of terrain/accessibility	1.00 (Flat)
Weighting factor 2: Proximity to urban area where goods and services are to be supplied	1.05 (Peri-Urban)

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Calculation of closure costs

Table B.10 Template for Level 2: "Rules-based" assessment of the quantum for financial provision

Table 34: Calculation of closure cost

CALCULATION OF THE QUANTUM							
Mine:	Queenstown Quarry			Location:	Komani		
Evaluators:	C Fouché			Date:	04 August 2026		
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 ³	3 500	20.86	1.00	1.00	R 73 010.00
2(A)	Demolition of steel buildings and structures	m ²	156	290.70	1.00	1.00	R 45 349.20
2(B)	Demolition of reinforced concrete buildings and structures	m ²	300	428.41	1.00	1.00	R 128 523.00
5	Demolition of housing and/or administration facilities	m ²	1 080	581.40	1.00	1.00	R 627 912.00
6	Opencast rehabilitation including final voids and ramps	ha	31	295 906.75	0.04	1.00	R 366 924.37
8(A)	Rehabilitation of overburden and spoils	ha	8	203 187.26	1.00	1.00	R 1 625 498.08
10(A)	General surface rehabilitation (with remnants)	ha	3	160 958.59	1.00	1.00	R 482 875.77
10(B)	General surface rehabilitation (without remnants)	ha	10	107 305.72	1.00	1.00	R 1 073 057.20
13	Water Management	ha	1	61 200.98	0.17	1.00	R 10 404.17
14	2 to 3 years of maintenance and aftercare	ha	34.5	21 420.34	1.00	1.00	R 739 001.73
Sum of items 1 to 15 above							R 5 172 555.52
Multiply Sum of 1-15 by Weighting factor 2 (Step 4.4)		1.05	R 5 172 555.52		Sub Total 1		R 5 431 183.29

1	Preliminary and General	6% of Subtotal 1 if Subtotal 1 <R100 000 000.00	R 325 871.00
		12% of Subtotal 1 if Subtotal 1 >R100 000 000.00	-
2	Contingency	10.0% of Subtotal 1	R 543 118.33
Sub Total 2 (Subtotal 1 + Preliminary and General + Contingency)			R 6 300 172.62

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Table B.10 Template for Level 2: "Rules-based" assessment of the quantum for financial provision

Table 34: Calculation of closure cost

CALCULATION OF THE QUANTUM		
	Vat (15%)	R 945 025.89
	GRAND TOTAL (Subtotal 2 + VAT)	R 7 245 198.51

Considering the above, the amount that will be necessary for the rehabilitation of damages caused by the operation (including both the current activities and the proposed expansion of the footprint), both sudden closures during the normal operation of the project and at final, planned closure gives a sum of R 7 245 198.51.

Queenstown Quarry (Pty) Ltd has a financial guarantee to the value of R 7 121 668.10 lodged with the DMPR that will have to be increased to provide for the shortfall should the above calculation be approved by the DMPR and the S102 application be successful.

(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 Right Holder 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 35: 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
1. LAND USE	◆ Demarcation of site with visible beacons.	◆ Beacons or fence to establish the boundaries.	<u>Responsible Person:</u> ◆ Site Manager and Environmental Control Officer (ECO) to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ◆ Compliance to be monitored by the independent Environmental Assessment Practitioner (EAP) during the annual environmental audit. <u>Mitigation / Monitoring to be Implemented:</u> ◆ Ensure beacons are in place or that the mining area is fenced throughout the life of the mine.	◆ Daily compliance monitoring by site management and ECO. ◆ Annual compliance monitoring by independent EAP.

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1. LAND USE 1.1 GRAZING LAND - Expansion Activities: Stripping and stockpiling of topsoil and/or overburden. - Cumulative impact	- Loss of grazing land. - Cumulative loss of grazing land.	- Approved mine plan available on site. - Approved mining boundaries clearly surveyed and demarcated on the ground. - Approved Closure Plan available on site. - Rehabilitation progress recorded as part of the mine's environmental monitoring programme.	<u>Responsible Person:</u> - Site Manager and Environmental Control Officer (ECO) to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. - Compliance to be monitored by the independent Environmental Assessment Practitioner (EAP) during the annual environmental audit. <u>Mitigation / Monitoring to be Implemented:</u> - Clearly demarcate the approved mining boundaries prior to commencement of mining. - Confine all mining activities to the approved mining footprint. - Regularly inspect the mining boundaries to ensure that no unauthorised disturbance occurs. - Implement the approved Closure Plan to restore grazing potential on rehabilitated areas, where reasonably practicable.	- Daily compliance monitoring by site management and ECO. - Annual compliance monitoring by independent EAP.

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2. TOPOGRAPHY 2.1 ALTERATION OF TOPOGRAPHY ◆ <u>Operational and Expansion Activities:</u> Drilling and blasting. ◆ <u>Cumulative Impacts.</u>	◆ Topographical alteration. ◆ Cumulative topographical alteration.	◆ Approved Mine Plan. ◆ Approved mining footprint survey and clearly demarcated mining boundaries. ◆ Approved Closure Plan. ◆ Rehabilitation programme and progress records. ◆ Environmental inspection records confirming that mining remains within the approved footprint.	<u>Responsible Person:</u> ◆ Site Manager and Environmental Control Officer (ECO) to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ◆ Compliance to be monitored by the independent Environmental Assessment Practitioner (EAP) during the annual environmental audit. <u>Mitigation / Monitoring to be Implemented:</u> ◆ Clearly demarcate the approved mining footprint prior to commencement of mining and ensure that all mining activities remain within the authorised boundaries. ◆ Conduct mining activities in accordance with the approved mine plan to maintain stable excavation geometries and avoid unnecessary disturbance. ◆ Implement progressive rehabilitation of completed sections of the excavations where operationally practicable.	◆ Daily compliance monitoring by site management and ECO. ◆ Annual compliance monitoring by independent EAP.

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3. VISUAL CHARACTERISTICS 3.1 VISUAL INTRUSION ◆ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden. ◆ <u>Decommissioning Phase:</u> Sloping and landscaping during rehabilitation.	◆ Visual intrusion. ◆ Visual scarring following rehabilitation.	◆ Approved Mine Plan. ◆ Approved Closure Plan. ◆ Current layout plan showing operational areas, stockpile areas and infrastructure. ◆ Rehabilitation programme and progress records. ◆ Environmental inspection records relating to housekeeping and visual management. ◆ Parking- and dedicated storage areas for equipment.	<u>Responsible Person:</u> ◆ Site Manager and Environmental Control Officer (ECO) to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ◆ Compliance to be monitored by the independent Environmental Assessment Practitioner (EAP) during the annual environmental audit. <u>Mitigation / Monitoring to be Implemented:</u> ◆ Maintain the mining area in a neat and orderly condition throughout the operational life of the quarry. ◆ Store mining equipment within designated areas when not in use. ◆ Limit vegetation clearing to areas required for immediate mining activities. ◆ Manage overburden and topsoil stockpiles to minimise their height, footprint and visual prominence, and utilise these materials for rehabilitation as soon as reasonably practicable.	◆ Daily compliance monitoring by site management and ECO. ◆ Annual compliance monitoring by independent EAP.

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			- Rehabilitate disturbed areas in accordance with the approved Closure Plan to minimise the long-term visual impact of the quarry. - Remove redundant infrastructure upon closure, unless otherwise agreed with the landowner, and ensure that any infrastructure remaining on site is left in a safe and functional condition, with written acceptance by the landowner.	
4. AIR QUALITY AND NOISE AMBIANCE 4.1 DUST MANAGEMENT <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden. <u>Operational and expansion activities:</u> Drilling and blasting. <u>Operational and expansion activities:</u> Excavation, processing, loading and hauling of aggregate.	Dust generation.	- Dust Management Plan. - Dust suppression equipment (e.g. water bowzers, water carts, fixed water sprayers or other approved dust suppression systems). - Dustfall monitoring network established in accordance with the Dust Management Plan. - Dustfall monitoring contractor and SANAS-accredited laboratory. - Dustfall monitoring records and reports. - Dust complaints register.	<u>Responsible Person:</u> - Site Manager and Environmental Control Officer (ECO) to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. - Compliance to be monitored by the independent Environmental Assessment Practitioner (EAP) during the annual environmental audit. <u>Mitigation / Monitoring to be Implemented:</u> - Implement and maintain effective dust suppression measures at all significant dust-generating activities.	- Daily compliance monitoring by site management and ECO. - Annual compliance monitoring by independent EAP.

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		◆ Vehicle speed limit signage on haul roads. ◆ Records confirming the implementation of dust suppression during night shift operations. ◆ Weather records (where operational decisions are influenced by adverse weather conditions).	◆ Ensure that dust suppression measures are maintained throughout all operational periods, including night shift operations where applicable. ◆ Maintain all dust suppression equipment in good working order and suspend dust-generating activities where critical dust suppression equipment is not operational. ◆ Restrict vehicle speeds on haul roads to 20 km/h to minimise dust generation. ◆ Limit vegetation clearing and the exposure of bare surfaces to areas required for immediate mining activities. ◆ Adjust operational activities during adverse weather conditions, where necessary, to minimise excessive dust emissions. ◆ Maintain the Dust Management Plan and ensure compliance with the applicable National Dust Control Regulations. ◆ Undertake dustfall monitoring in accordance with the Dust Management Plan and applicable legislation.	

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			Investigate dust-related complaints and dustfall monitoring exceedances and implement corrective measures where necessary.	
4. AIR QUALITY AND NOISE AMBIANCE 4.2 NOISE MITIGATION <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden. <u>Operational and expansion activities:</u> Drilling and blasting. <u>Operational and expansion activities:</u> Excavation, processing, loading and hauling of aggregate.	Noise disturbance.	- Equipment maintenance and service records. - Approved blast design. - Blast schedule and blast records. - Register of blasting notifications issued to neighbouring landowners. - Noise complaints register.	<u>Responsible Person:</u> - Site Manager and Environmental Control Officer (ECO) to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. - Compliance to be monitored by the independent Environmental Assessment Practitioner (EAP) during the annual environmental audit. <u>Mitigation / Monitoring to be Implemented:</u> - Prohibit the playing of loud music within the operational areas. - Maintain mining equipment and vehicles in good working order, including manufacturer-installed noise attenuation systems, to minimise noise emissions. - Prohibit the unnecessary use of vehicle hooters, sirens and public address systems.	- Daily compliance monitoring by site management and ECO. - Annual compliance monitoring by independent EAP.

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			♦ Plan blasting activities to minimise disturbance to surrounding land users. ♦ Notify neighbouring landowners in writing prior to each blasting event. ♦ Maintain records of all blasting notifications issued to neighbouring landowners. ♦ Investigate noise-related complaints and implement corrective measures where warranted.	
5. GEOLOGY AND SOIL 5.1 SOIL MANAGEMENT ♦ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden. ♦ <u>Operational and Expansion Activities:</u> Excavation, processing, loading and hauling of aggregate. ♦ <u>Decommissioning Phase:</u> Sloping and	♦ Increased runoff and erosion. ♦ Topsoil erosion.	♦ Approved Mine Plan. ♦ Approved Closure Plan. ♦ Designated and signposted topsoil stockpile area(s). ♦ Rehabilitation programme and rehabilitation records.	<u>Responsible Person:</u> ♦ Site Manager and Environmental Control Officer (ECO) to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ♦ Compliance to be monitored by the independent Environmental Assessment Practitioner (EAP) during the annual environmental audit. <u>Mitigation / Monitoring to be Implemented:</u> ♦ Strip topsoil separately from subsoil prior to mining and retain it for rehabilitation.	♦ Daily compliance monitoring by site management and ECO. ♦ Annual compliance monitoring by independent EAP.

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landscaping during rehabilitation.			◆ Handle, stockpile and replace topsoil in a systematic manner to preserve its suitability for rehabilitation. ◆ Locate topsoil stockpiles within the approved mining footprint and manage them to minimise erosion, contamination and degradation. ◆ Limit the period of topsoil storage, where reasonably practicable, to maintain its physical, chemical and biological integrity. ◆ Implement appropriate erosion control measures to protect topsoil stockpiles. ◆ Control alien and invasive plant species on topsoil stockpiles. ◆ Replace topsoil over rehabilitated areas in accordance with the approved Closure Plan. ◆ Stabilise rehabilitated areas following topsoil replacement to minimise erosion until sustainable vegetation cover has been established. ◆ Monitor rehabilitated areas for signs of erosion or instability and implement corrective measures where required.	

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6. HYDROLOGY 6.1 EROSION CONTROL AND STORM WATER MANAGEMENT ◆ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden. ◆ <u>Operational and Expansion Activities:</u> Excavation, processing, loading and hauling of aggregate. ◆ <u>Decommissioning Phase:</u> Sloping and landscaping during rehabilitation.	◆ Alteration of surface drainage. ◆ Failure of stormwater controls.	◆ Stormwater Management Plan. ◆ Stormwater control infrastructure (e.g. diversion channels, berms, silt fences, culverts, sediment traps and quarry sump, where applicable). ◆ Clearly demarcated clean and dirty water management systems. ◆ Rehabilitation programme and rehabilitation records. ◆ Records of maintenance and repairs undertaken on stormwater and erosion control infrastructure.	<u>Responsible Person:</u> ◆ Site Manager and Environmental Control Officer (ECO) to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ◆ Compliance to be monitored by the independent Environmental Assessment Practitioner (EAP) during the annual environmental audit. <u>Mitigation / Monitoring to be Implemented:</u> ◆ Implement and maintain the Stormwater Management Plan throughout the life of the quarry. ◆ Maintain separate clean and dirty water management systems to prevent contamination of clean stormwater. ◆ Install, inspect and maintain stormwater and erosion control measures to minimise erosion, sedimentation and the uncontrolled discharge of sediment-laden runoff. ◆ Limit vegetation clearing and soil disturbance to areas required for immediate mining activities.	◆ Daily compliance monitoring by site management and ECO. ◆ Annual compliance monitoring by independent EAP.

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			♦ Manage topsoil, overburden stockpiles and other disturbed areas to minimise erosion and sediment transport. ♦ Inspect stormwater and erosion control measures regularly (at least monthly) and repair or maintain them where necessary to ensure their continued effectiveness. ♦ Rehabilitate erosion associated with mining activities as soon as reasonably practicable. ♦ Stabilise rehabilitated areas until sustainable vegetation cover has been established.	
7. TERRESTRIAL BIODIVERSITY 7.1 VEGETATION MANAGEMENT ♦ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden. ♦ <u>Cumulative impacts</u>	♦ Localised loss of CBA2 areas on the plains. ♦ Localised loss of CBA2 areas on the ridge.	♦ Approved Mine Plan. ♦ Clearly demarcated mining boundaries and no-go areas. ♦ Approved Closure Plan. ♦ Designated access roads. ♦ Environmental awareness training material and register. ♦ Emergency Response Plan (including Fire Management).	<u>Responsible Person:</u> ♦ Site Manager and Environmental Control Officer (ECO) to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ♦ Compliance to be monitored by the independent Environmental Assessment Practitioner (EAP) during the annual environmental audit.	♦ Daily compliance monitoring by site management and ECO. ♦ Annual compliance monitoring by independent EAP.

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		◆ Rehabilitation programme and rehabilitation records. ◆ Site layout plan indicating approved mining and disturbance areas. ◆ Contact details of a suitably qualified ecologist. ◆ Plant permits for the removal, disturbance or relocation of plant species for which authorisation is required.	<u>Mitigation / Monitoring to be Implemented:</u> ◆ Clearly demarcate the approved mining footprint prior to the commencement of expansion activities and maintain the demarcation for the duration of mining. ◆ Confine mining, access, stockpiling, laydown areas and other ancillary activities to the approved mining footprint. ◆ Undertake vegetation clearing progressively and restrict clearing to the minimum area required for planned mining activities. Retain vegetation in situ for as long as the relevant area is not required for mining. ◆ Prior to vegetation clearing, arrange for a suitably qualified specialist to undertake a walk-through of the area to be cleared to identify plant species of conservation concern and/or protected plant species requiring specific management. ◆ Obtain the necessary permits from the relevant authority prior to the removal, disturbance or relocation of plant species for which authorisation is required.	

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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
			◆ Retain suitable cleared vegetation for use during rehabilitation, where reasonably practicable. ◆ Restrict the movement of vehicles and machinery to designated access routes and operational areas to prevent unnecessary disturbance of surrounding vegetation. ◆ Implement mining practices that minimise unnecessary soil disturbance, runoff and vegetation clearing along the margins of the approved footprint, particularly adjacent to the ridge. ◆ Stabilise stockpiles no longer required for operational purposes to minimise erosion and facilitate vegetation establishment where appropriate.	
7. TERRESTRIAL BIODIVERSITY 7.2 MANAGEMENT OF INVASIVE PLANT SPECIES ◆ Expansion Activities: Stripping and stockpiling of topsoil and/or overburden.	◆ Alien invasive plant infestation. ◆ Alien invasive plant contamination.	◆ Alien Invader Plant Species Management Plan. ◆ Alien and invasive plant monitoring records and control programme/schedule. ◆ Approved indigenous seed mix and/or rehabilitation specification (where applicable).	<u>Responsible Person:</u> ◆ Site Manager and Environmental Control Officer (ECO) to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ◆ Compliance to be monitored by the independent Environmental Assessment	◆ Daily compliance monitoring by site management and ECO. ◆ Annual compliance monitoring by independent EAP.

**S102 DRAFT BASIC ASSESSMENT REPORT
QUEENSTOWN QUARRY (PTY) LTD: EC 30/5/1/2/2/009 MR – 00052 MR/102**

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
◆ <u>Operational and Expansion Activities:</u> Excavation, processing, loading and hauling of aggregate. ◆ <u>Decommissioning Phase:</u> Sloping and landscaping during rehabilitation.		◆ Registered Pest Control Operator (PCO), where chemical control measures are implemented.	Practitioner (EAP) during the annual environmental audit. <u>Mitigation / Monitoring to be Implemented:</u> ◆ Implement the Alien Invader Plant Species Management Plan (Appendix J) throughout the life of the quarry. ◆ Regularly inspect disturbed, rehabilitated and stockpile areas for the presence of alien and invasive plant species. ◆ Control alien and invasive plant species identified during inspections in accordance with the approved Alien Invader Plant Species Management Plan. ◆ Ensure that no alien or invasive plant species are intentionally introduced to the site for rehabilitation, landscaping or any other purpose. ◆ Monitor rehabilitated areas and implement appropriate control measures where alien and invasive plant species are identified.	
7. TERRESTRIAL BIODIVERSITY	◆ Disturbance of fauna.	◆ Incident register. ◆ Contact details of a suitably qualified wildlife handler.	<u>Responsible Person:</u> ◆ Site Manager and Environmental Control Officer (ECO) to ensure day-to-day	◆ Daily compliance monitoring by site management and ECO.

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QUEENSTOWN QUARRY (PTY) LTD: EC 30/5/1/2/2/009 MR – 00052 MR/102**



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
7.3 MANAGEMENT OF FAUNA ♦ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden.		♦ Environmental induction records. ♦ Snake posters. ♦ Housekeeping inspection records.	compliance with the guidelines as stipulated in the EMPR. ♦ Compliance to be monitored by the independent Environmental Assessment Practitioner (EAP) during the annual environmental audit. <u>Mitigation / Monitoring to be Implemented:</u> ♦ Prohibit the intentional harming, killing, capturing or disturbance of fauna, unless authorised in terms of applicable legislation. ♦ Allow fauna encountered within the active mining area to move away naturally where reasonably practicable, or relocate them using suitably qualified personnel where necessary. ♦ Ensure that only suitably trained or authorised personnel handle or relocate dangerous or protected species. ♦ Report injured, trapped or protected fauna to site management and implement appropriate measures to prevent further harm.	♦ Annual compliance monitoring by independent EAP.

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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
			◆ Maintain good housekeeping practices to avoid attracting nuisance animals and minimise risks to wildlife.	
8. CULTURAL AND HERITAGE ENVIRONMENT 8.1 HERITAGE AND PALAEONTOLOGY ◆ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden.	◆ Disturbance of heritage and palaeontological resources.	◆ Chance Find Procedure (including Heritage and Palaeontology). ◆ Contact details of a suitably qualified archaeologist and palaeontologist. ◆ Environmental induction records covering the Chance Find Procedure. ◆ Incident register	<u>Responsible Person:</u> ◆ Site Manager and Environmental Control Officer (ECO) to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ◆ Compliance to be monitored by the independent Environmental Assessment Practitioner (EAP) during the annual environmental audit. <u>Mitigation / Monitoring to be Implemented:</u> ◆ Confine all mining activities to the approved development footprint. ◆ Implement the approved Chance Find Procedure (Appendix F and G) throughout the life of the quarry. ◆ Cease all work in the immediate vicinity of any archaeological, historical, cultural or palaeontological find until it has been assessed.	◆ Daily compliance monitoring by site management and ECO. ◆ Annual compliance monitoring by independent EAP.

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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
			♦ Report all chance finds to the ECO immediately upon discovery. ♦ Appoint a suitably qualified heritage specialist or palaeontologist, where required, to assess the significance of the find and advise on the appropriate management actions. ♦ Resume work only once written confirmation has been obtained from the relevant heritage authority, where required.	
9. SURROUNDING INFRASTRUCTURE 9.1 N6 NATIONAL ROAD ♦ <u>Operational and Expansion Activities:</u> Drilling and blasting.	♦ Potential impact of blasting on the N6 National Road and road users.	♦ Survey beacons or clearly demarcated mining boundary adjacent to the N6. ♦ Approved blast design. ♦ Blast records. ♦ Blast monitoring records (ground vibration and airblast).	<u>Responsible Person:</u> ♦ Site Manager and Environmental Control Officer (ECO) to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ♦ Compliance to be monitored by the independent Environmental Assessment Practitioner (EAP) during the annual environmental audit. <u>Mitigation / Monitoring to be Implemented:</u> ♦ Maintain a minimum 40 m setback between mining activities and the N6 road reserve.	♦ Daily compliance monitoring by site management and ECO. ♦ Annual compliance monitoring by independent EAP.

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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
			♦ Undertake blasting in accordance with an approved blast design prepared by a competent person. ♦ Ensure that flyrock remains within the authorised mining area and does not enter the N6 road reserve.	
9. SURROUNDING INFRASTRUCTURE 9.2 TRAFFIC MANAGEMENT ♦ <u>Operational and Expansion Activities:</u> Excavation, processing, loading and hauling of aggregate.	♦ Overloading of haul trucks.	♦ Operational weighbridge. ♦ Weighbridge calibration records. ♦ Vehicle weighing records.	<u>Responsible Person:</u> ♦ Site Manager and Environmental Control Officer (ECO) to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ♦ Compliance to be monitored by the independent Environmental Assessment Practitioner (EAP) during the annual environmental audit. <u>Mitigation / Monitoring to be Implemented:</u> ♦ Weigh all vehicles transporting material before they leave the quarry. ♦ Do not permit vehicles exceeding the applicable legal GVM or axle load limits to leave the site.	♦ Daily compliance monitoring by site management and ECO. ♦ Annual compliance monitoring by independent EAP.

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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
			◆ Maintain the weighbridge in good working (calibrated) order.	
10. GENERAL 10.1 WASTE MANAGEMENT ◆ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden. ◆ <u>Operational and expansion activities:</u> Excavation, processing, loading and hauling of aggregate. ◆ <u>Operational and expansion activities:</u> Sloping and landscaping during rehabilitation.	◆ Soil and water contamination. ◆ Residual soil contamination.	◆ Water sampling points and quality monitoring records. ◆ SANAS-accredited laboratory. ◆ Waste management areas and designated waste receptacles. ◆ Designated hazardous waste storage area with adequate secondary containment. ◆ Spill response equipment (spill kits) and drip trays. ◆ Designated workshop and service area. ◆ Waste disposal records and safe disposal certificates. ◆ Incident register. ◆ Designated wastewater containment facilities (where applicable).	<u>Responsible Person:</u> ◆ Site Manager and Environmental Control Officer (ECO) to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ◆ Compliance to be monitored by the independent Environmental Assessment Practitioner (EAP) during the annual environmental audit. <u>Mitigation / Monitoring to be Implemented:</u> ◆ Implement an annual surface water quality monitoring programme for the quarry excavations, drinking water and final chamber of the oil separator/sump. ◆ Separate general and hazardous waste and dispose of each at appropriately authorised waste disposal or recycling facilities. ◆ Undertake routine servicing, maintenance and repairs within designated workshop or service areas. Where emergency field repairs are unavoidable, implement	◆ Daily compliance monitoring by site management and ECO. ◆ Annual compliance monitoring by independent EAP.

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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
		◆ Material Safety Data Sheets	measures to prevent soil and water contamination. ◆ Store hydrocarbons within designated storage areas and undertake refuelling activities using measures that prevent spills and contamination of soil and water resources. ◆ Ensure that spill response equipment is available at all hydrocarbon storage, handling and refuelling areas, and that personnel are familiar with its use. ◆ Contain and clean up hydrocarbon and chemical spills immediately and dispose of contaminated material as hazardous waste at an authorised facility. ◆ Contain untreated wastewater and contaminated water generated by the operation and prevent its discharge into the natural environment. ◆ Report significant pollution incidents to the relevant authorities in accordance with applicable legislation. ◆ Remove all waste, temporary infrastructure and redundant materials from disturbed areas during decommissioning and closure	

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			in accordance with the approved Closure Plan.	
10. GENERAL 10.2 MANAGEMENT OF HEALTH AND SAFETY RISKS ◆ <u>Operational and Expansion Activities:</u> Drilling and blasting. ◆ <u>Operational and Expansion Activities:</u> Excavation, processing, loading and hauling of aggregate. ◆ <u>Decommissioning Phase:</u> Sloping and landscaping during rehabilitation.	◆ Blasting safety risk. ◆ Unsafe working conditions. ◆ Safety risk from unrehabilitated excavations. ◆ Ground vibration. ◆ Flyrock.	◆ Competent and legally appointed blaster. ◆ Approved blast design. ◆ Blast register. ◆ Ground vibration and airblast monitoring equipment (vibro recorder) and records. ◆ Blast notification register.	<u>Responsible Person:</u> ◆ Site Manager and Environmental Control Officer (ECO) to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ◆ Compliance to be monitored by the independent Environmental Assessment Practitioner (EAP) during the annual environmental audit. <u>Mitigation / Monitoring to be Implemented:</u> ◆ Secure the mining area to prevent unauthorised access by members of the public and livestock. ◆ Undertake blasting in accordance with the approved blast design prepared by a competent person. ◆ Notify surrounding landowners and other affected parties prior to each blasting event. ◆ Monitor ground vibration and airblast overpressure during each blasting event.	◆ Daily compliance monitoring by site management and ECO. ◆ Annual compliance monitoring by independent EAP.

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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
			◆ Ensure that flyrock remains within the designated blast area. ◆ Secure quarry excavations upon closure in accordance with the approved Closure Plan.	

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 DMPR 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 S102 application is approved, and the activities may commence, a copy of the FBAR & updated EMPR will be handed to senior management for their perusal. Issues such as activity boundaries, waste management, dust and water monitoring will be discussed.

An induction meeting will be held with all the site workers to inform them of the Basic Rules of Conduct regarding the environment and the proposed expansion area.

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, its requirement and commitments before commencement. An Environmental Control Officer needs to check compliance of the activities with 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 fire wood.
- 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 Right Holder undertakes to annually review and update the financial provision calculation, upon which it will be submitted to DMPR 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, and ☒
- 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 ☒

Christine Fouche

Signature of the environmental assessment practitioner:

Greenmined Environmental (Pty) Ltd

Name of Company:

14 August 2026

Date:

UNDERTAKING

I,.....the undersigned and duly authorised thereto
by.....*Queenstown Quarry (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 atKomani..... this day 2026

FINAL DOCUMENT TO BE SIGNED BY THE RIGHT HOLDER

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

EASTERN CAPE

Undertaking/eg

-END-

APPENDIX A1

REGULATION 42 APPROVED MINE PLAN

APPENDIX A2

REGULATION 42 AMENDED MINE PLAN

APPENDIX B

LOCALITY AND LAND USE MAP

APPENDIX C1

SITE ACTIVITIES MAP

APPENDIX C2

PLANT LAYOUT

APPENDIX D

REHABILITATION PLAN

APPENDIX E

TERRESTRIAL AND BIODIVERSITY IMPACT ASSESSMENT

APPENDIX F

HERITAGE IMPACT ASSESSMENT

APPENDIX G

PALAEONTOLOGICAL IMPACT ASSESSMENT

APPENDIX H

SUPPORTING IMPACT ASSESSMENT

APPENDIX I

CLOSURE PLAN

APPENDIX J

ALIEN INVADER PLANT SPECIES MANAGEMENT PLAN

APPENDIX K

DUST MANAGEMENT PLAN

APPENDIX L

PHOTOGRAPHS OF THE SITE

APPENDIX M

TRANSFER OF LIABILITIES AGREEMENT

APPENDIX N

CV AND EXPERIENCE RECORD OF EAP