DE AAR STONE CRUSHERS EMPOWER (PTY) LTD

PORTION 49, 54 AND A PORTION OF PORTION 50 OF THE FARM DE AAR NO 180, SITUATED IN THE MAGISTERIAL DISTRICT OF PIXLEY KA SEME.

FINAL BASIC ASSESSMENT REPORT – SECTION 102 APPLICATION

NOVEMBER 2025

REFERENCE NUMBER: NC 30/1/2/2/10075 MR – NC-00315-MR/102

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EXECUTIVE SUMMARY

De Aar Stone Crushers Empower (Pty) Ltd (hereinafter referred to as the "Right Holder" or "DASC"), entails the mining of a hard rock quarry on the Right Holder's land that extends over Portion 49 and 50 of Farm De Aar No 180, approximately 5.8 km south of De Aar central along the R388 and has been in operation since 2020. The current mining method loosens the hard rock at the quarry pit through blasting, upon which the loosened material is recovered using drilling, excavation and earth-moving equipment. Trucks transport the rock to the processing area where it is screened and stockpiled according to various sizes. A cement and brick making plant also operates on the site.

The mining Right Holder applied for a Section 102 (S102) amendment application to:

- update the EMPR;
- add sand as a new commodity ; and
- amend and expand the mining footprint. The current mining right was approved over 62.8810 ha, and the Right Holder now desires to expand the mining area with 97.6645 ha to the west of the farm, while abandoning the eastern 36.212 ha of the current mining footprint in terms of Section 102 of the MPRDA, 2002. This will result in an overall mining footprint of 133.1830 ha.

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).

This document, the final Basic Assessment Report (FBAR) and final environmental management programme (EMPR), combine the aspects related to the proposed expansion activities applied for by De Aar Stone Crushers Empower (Pty) Ltd in terms of section 102 of the MPRDA, 2002 with the operational aspects of the mine and update of the 2015 EMPR to include both operational and expansion activities.

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:

The proposed expansion footprint was based on the position of the current mining footprint, the available geological data and the position of the two drainage lines. No further location/site alternatives are possible for this application.

B. *The type of activity to be undertaken:*

The nature of the operation does not allow alternative activities. Considering the existing mining method of the quarry and the available infrastructure on site, there is no alternative other than to excavate, load and haul the aggregate material to the processing plant of the mine. The only additional mining activity will be for sand excavation.

C. *The design or layout of the activity:*

The design and layout of the proposed footprint were based on the *status quo*. The design will be based on the most profitable extraction of the available aggregate from the approved footprint in accordance with the requirements of all relevant legislation such as (but not limited to) the Mine Health and Safety Act.

D. The technology to be used in the activity:

The project does not require other complex technology to allow the expansion of the quarry pit.

E. The operational aspects of the activity:

The operational aspect of the activity is based on the current activities of the mine.

F. The option of not implementing the activity:

The no-go alternative entails no change to the *status quo* and is therefore a real alternative that needs to be considered. If the no-go alternative is implemented the land use of the earmarked footprint will remain undeveloped land with the aggregate resource unmined.

Public Participation Process

During the public participation process of this S102 application the relevant stakeholders and I&AP's was informed of the project through an advertisement in the NoordKaap Bulletin on 17 July 2025, and on-site notices that was placed at the entrance to the Quarry and in De Aar. A notification letter inviting comments on the DBAR over a 30-days commenting period (ending 01 September 2025) was also sent to the landowner, neighbouring landowners, stakeholders, and any other I&AP that may be interested in the project. The comments received on the DBAR was incorporated into the final Basic Assessment Report (FBAR) that was 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:

Topography:

- The proposed expansion area of the quarry features a predominantly flat terrain, ideal for mining activities. The elevation slopes gradually from west to east due to the presence of the existing excavation. The elevation ranges from 1292 meters above mean sea level at its highest point, descending at an average gradient of 3.4% over 2 km, with a maximum elevation difference of approximately 47.8 meters. This gentle slope enhances site accessibility and facilitates drainage but also shapes the operational planning of the quarry expansion.

Visual Characteristics:

- The viewshed analysis shows that the potential visual impact of the proposed activity will be of very low concern, and therefore the visual impact is deemed to be of low-medium significance.

Air and Noise Quality:

- The expansion activities do not fall under the regulatory thresholds of the Air Quality Act, as emissions mainly include dust from blasting, transport, and processing. Located in a rural setting, over 1 km from the nearest residences and 7 km from De Aar, the quarry's noise and dust impact is minimal. Operations occur only during daylight hours, which, combined with the site's remote location, ensures negligible air and noise pollution effects on nearby communities.
- Considering this, the proposed air and noise emissions of the expansion area will be comparable to the current emissions of the Quarry.

Hydrology:

- According to the Ecological and Wetland Assessment (Append J), the area hosts two ephemeral drainage lines that form tributaries to the Elands Spruit and Brak River systems. While these drainage features show no wetland conditions, they possess significant riparian vegetation and function as natural watercourses. One drainage line lies southwest of the site and has already been impacted by existing infrastructure (non-mining related). The other lies within the northern expansion area and remains mostly intact. Both should be designated as no-go zones for mining, with stormwater management systems implemented to divert runoff and prevent sedimentation. With proper mitigation, residual hydrological impacts are expected to remain low.

Terrestrial Biodiversity, Conservation Areas, Groundcover and Fauna:

- Despite the existing quarry pit reducing the area's conservation value, surrounding natural regions still support moderate biodiversity, including protected plant species and riparian habitats. The vegetation type is Northern Upper Karoo, currently listed as Least Concern. According to the Ecological and Wetland Assessment (Append J), the proposed expansion does not overlap with any Critical Biodiversity Area but is adjacent to habitat suitable for the endangered Ludwig's

Bustard. The area supports various common mammal species like Steenbok, Porcupine, and Common Molerat, indicating a healthy, though generalist, fauna. With adequate mitigation—including plant relocation, habitat conservation, and exclusion of watercourses—the impact on biodiversity can be maintained at a low level.

Cultural and Heritage Environment:

- The DFFE screening report categorizes the proposed expansion site as having low archaeological and paleontological sensitivity. Due to historical disturbances and ongoing mining activities, the probability of uncovering heritage artefacts is minimal, making the area environmentally acceptable in this regard.

Existing Infrastructure:

- No new infrastructure is planned for the expansion area. The existing infrastructure will remain intact, with fencing introduced to delineate and secure the expanded area, preventing unauthorized access and maintaining operational safety.

During the environmental impact assessment process the feasibility of the proposed project was assessed to identify fatal flaws that are deemed as severe as to prevent the activity continuing or warrant additional alternatives. The outcome of the assessment showed that should the mitigation measures and monitoring programmes proposed in this document be implemented, no fatal flaws could be identified that prevents the activity continuing.

Environmental Management Programme (EMPR)

The EMPR provides a description of the impact management outcomes and closure objectives. It presents the impacts to be mitigated in their respective phases as well as stipulates the mitigation measures to be applied on site.

The financial provision amount that will be necessary for the rehabilitation of damages caused by the operation, both sudden closures during the normal operation of the project and at final, planned closure gives a sum of R 5 282 675.67. De Aar Stone Crushers Empower (Pty) Ltd has a financial guarantee to the value of R 4 437 873 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.

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ASTM	American Standard Test Method
BGIS	Biodiversity GIS
CARA	Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)
CBA	Critical Biodiversity Area
CBD	Central Business District
DBAR	Draft Basic Assessment Report
DEDTEA	Department of Economic Development, Tourism and Environmental Affairs
DEFF	Department of Environment, Forestry and Fisheries
DMPR	Department of Mineral and Petroleum Resources
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EAPASA	Environmental Assessment Practitioner Association of South Africa
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EIA Regulations	Environmental Impact Assessment Regulations, 2014 (as amended)
ELM	Emthanjeni Local Municipality
EMPR	Environmental Management Programme
EN	Endangered
ESA	Environmental Support Area
ESG	Environmental and Social Governance
FBAR	Final Basic Assessment Report
FEPA	Freshwater Ecosystem Priority Area

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
MHSA	Mine Health and Safety Act, 1996 (Act No. 29 of 1996)
MPRDA	Minerals and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)
MR	Mining Right
NCNCA	Northern Cape Nature Conservation Act No.9 of 2009
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
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

SLP	Social and Labour Plan
VU	Vulnerable
WMA	Water Management Area

mineral resources
Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

BASIC ASSESSMENT REPORT

And

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

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

NAME OF APPLICANT:	De Aar Stone Crushers Empower (Pty) Ltd
TEL NO:	083 532 0901
FAX NO:	-
POSTAL ADDRESS:	De Aar Stone Crushers, Farm Fairview, R388 road, De Aar,7000
PHYSICAL ADDRESS:	Same as above
FILE REFERENCE NUMBER SAMRAD:	NC 30/1/2/2/10075 MR – NC-00315-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 De Aar Stone Crushers Empower (Pty) Ltd in terms of section 102 the MPRDA, 2002 with the operational aspects of the mine and update the 2015 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. De Aar Stone Crushers Empower (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

Prepared by:

Name of the Practitioner:	Ms Zoë Norval (Environmental Consultant)
Tel No.:	021 851 2673
Fax No.:	086 546 0579
E-mail address:	zoe@greenmined.co.za

Reviewed by:

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. Ms Z. Norval has a Bsc degree in Environmental Science and an Honours degree in Botany. In her Honours year, she focused mainly on environmental assessments and geographic information systems.

Please find CVs of both EAPs attached as Appendix J.

(2) Summary of the EAP's experience.

(In carrying out the Environmental Impact Assessment Procedure)

Ms Fouché has twenty years' experience in doing Environmental Impact Assessments and Mining Applications in South Africa. Ms. Fouche is a registered Environmental Assessment Practitioner (registration no: 2019/1003) with EAPASA (Environmental Assessment Practitioners Association of South Africa).

Zoë Norval is a Junior Environmental Consultant with four years of experience in environmental services, Environmental Control and Environmental Performance Assessments / Compliance Audits, preparation of environmental related documentation, Mining Right and Permit applications and applications for Environmental Authorisations.

b) Location of the overall Activity.

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

Farm Name:	❖ Portion 49, ❖ Portion 54 and ❖ a portion of Portion 50 of the farm De Aar 180
Application area (Ha)	Once the expansion (S102) application is approved the mining area will be 133.1830 ha ♦ Approved Mining Footprint = 62.8810 ha ♦ S102 Expansion Area = 97.6645 ha ♦ Removal of eastern area = (36.212 ha) ♦ Total Expanded Footprint = 133.1830 ha
Magisterial district:	Pixley Ka Seme District
Distance and direction from the nearest town	De Aar Stone Crushers is situated ±5.8 km south of De Aar central along the R388

21 digit Surveyor General Code for each farm portion	❖ C05700000000018000049 ❖ C05700000000018000050 ❖ C05700000000018000054

c) Locality map

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

The requested map is attached as Appendix B.

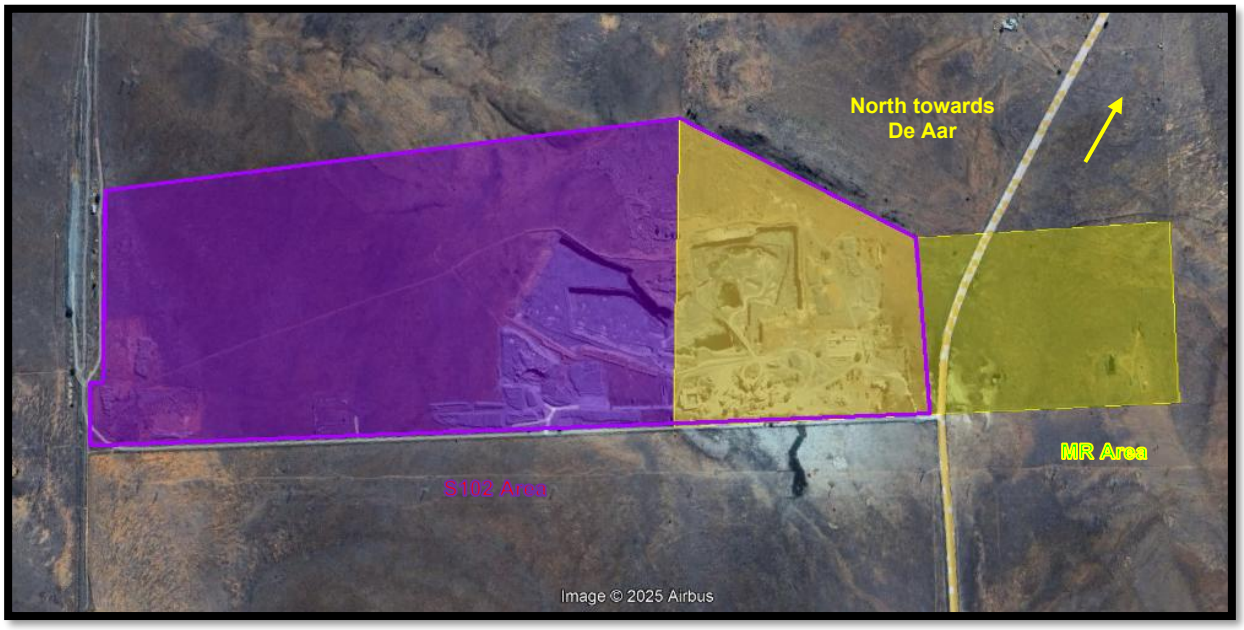


Figure 1: Satellite view showing the mining right area (yellow polygon) and the S102 application area (purple polygon) (image obtained from Google Earth).

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):

De Aar Stone Crushers Empower (Pty) Ltd, applied for a Section 102 (S102) amendment in terms of the MPRDA, 2002 to:

- update the EMPR;
- add sand as a new commodity ; and
- amend and expand the mining footprint. The current mining right was approved over 62.8810 ha, and the Right Holder now desires to expand the mining area with 97.6645 ha to the west of the farm, while abandoning the eastern 36.212 ha of the current mining footprint in terms of Section 102 of the MPRDA, 2002. This will result in an overall mining footprint of 133.1830 ha.

SCOPE OF THE OVERALL ACTIVITY:

De Aar Stone Crushers is an aggregate mining site which has been in operation since 2020. The mining activities were approved over Portion 49 and 50 of Farm De Aar No 180. The Right Holder identified the need to expand the mining footprint which will allow the development of the quarry pit in a western direction and to remove the eastern part of the mining area across the R388. Additionally, the expansion seeks to include the extraction of sand as a listed mineral resource, to be mined using front-end loaders in the south-west corner of the proposed expansion area.

The proposed expansion of the mining area will not affect the workforce numbers of the mine. It is proposed that the current workforce will continue working at the mine. Expansion of the mining area will extend the life of mine and thereby also grant the workforce peace of mind regarding mine closure and potential retrenchment

The mining method of the quarry pit will remain unchanged (except for the extraction of sand via front-end loaders in the south-west corner of the proposed area) and no additional infrastructure needs to be established in the expansion area, as the motivation for the proposed extension is to expand the quarry pit perimeter and add a mineral resource (SAND) to the existing mining right. 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 C a copy of the site activities map of the operation.

i) Listed and specified activities

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

NAME OF ACTIVITY (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.)	**Aerial extent of the activity** Ha or m^2	**LISTED ACTIVITY** Mark with an X where applicable or affected	**APPLICABLE LISTING NOTICE** (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.	133.1830 ha (Expansion Area)	X	GNR 983 of 2014 (as amended) Activity 21D
EIA Regulations GNR 983 of 2014 (as amended) Activity 21D: *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.*			
Demarcation of the expansion area with visible beacons.	133.1830 ha	N/A	-
Stripping and stockpiling of topsoil and/or overburden from the expansion area.	±33 ha	X	GNR 983 of 2014 (as amended) Activity 21D
Drilling and blasting of hard rock in the expansion area.	±29 ha		
Excavation, loading and hauling of rock from the expansion area to processing area.	±33 ha		
Sloping, landscaping, and rehabilitation the affected areas (operational- and expansion area) upon closure of the mine.	133.1830 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 Environmental Management Programme compiled by GES, 2015)

1. BACKGROUND INFORMATION

De Aar Stone Crushers is an aggregate mining site which has been in operation since 2020 and is situated ±5.8 km south of De Aar central along the R388. The mining activities were approved over Portion 49 and 50 of Farm De Aar No 180.

The Department of Mineral and Petroleum Resources (DMPR) approved the application, and the mining right (MR) commenced on 24 February 2020 and is valid until 24 February 2035.

2. APPROVED OPERATIONAL ACTIVITIES

Also refer to Part B(1)(b) Description of the Aspects of the Activity.

As mentioned earlier the approved mining area is 62.8810 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	30°42′28.06″	24°0′8.01″	-30.707794 º	24.002224 º
B	30°42′40.34″	24°0′27.89″	-30.711206 º	24.007746 º
C	30°42′42.11″	24°0′51.57″	-30.711698 º	24.014325 º
D	30°42′56.57″	24°0′49.53″	-30.715714 º	24.013759 º
E	30°42′52.00″	24°0′3.17″	-30.714441 º	24.000880 º

Figure 2: Satellite view of the approved mining right area (yellow polygon) (image obtained from Google Earth)

The current mining method loosens the hard rock at the quarry pit through blasting, upon which the loosened material is recovered using drilling, excavation and earth-moving equipment. Trucks transport the rock to the processing area where it is screened and stockpiled according to various sizes. The quarry pit adjacent to the western boundary of the approved mining right area has been non-operational since the commencement of the Mining Right. Mining activities have been confined strictly to the boundaries of the approved mining right area. The eastern portion of the approved mining right area has remained undisturbed, as it is intersected by the R388 regional road. A cement and brick making plant also operates on the site. DASC Quarry produces aggregates and road pavement layering products for the construction and building industry of mainly the Northern Cape.

2.1 SITE INFRASTRUCTURE

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

1. Truck parking area & secured entrance gate;
2. Weighbridge and supporting infrastructure;
3. Office buildings;
4. Workshop, wash bay and stores;
5. Processing area with crushing and screening plant;
6. Various stockpile areas;
7. Salvage yard; and
8. Quarry pit.

The Quarry is connected to the Eskom grid and access is gained directly from the R388. A railway line and overhead powerlines pass along the western border of the proposed expansion area, as well as a large gravel road along the eastern and southern border.

2.2 WATER USE

The potable water of the Quarry is obtained from the municipality, while process water is extracted from the quarry pit for dust suppression methods

(regular spraying or wetting to reduce dust generation from access road and processing).

2.3 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 municipal landfill site. Hazardous waste is removed from site by qualified hazardous waste handling contractors.

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 EMPR;
- add sand as a new commodity ; and
- amend and expand the mining footprint. The current mining right was approved over 62.8810 ha, and the Right Holder now desires to expand the mining area with 97.6645 ha to the west of the farm, while abandoning the eastern 36.212 ha of the current mining footprint in terms of Section 102 of the MPRDA, 2002. This will result in an overall mining footprint of 133.1830 ha.

Should the S102 application (including EA) be approved, the Right Holder intends to expand the mining footprint to 133.1830 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)
A	30°42'26.72"	23°59'14.32"	-30.707422º	23.987311º
B	30°42'28.06"	24°00'08.01"	-30.707794º	24.002225º

C	30°42'40.34"	24°00'27.88"	-30.711206º	24.007744º
D	30°42'54.32"	24°00'26.74"	-30.715089º	24.007428º
E	30°42'46.65"	23°59'09.18"	-30.712958º	23.985883º
F	30°42'41.58"	23°59'10.18"	-30.711550º	23.986161º
G	30°42'41.67"	23°59'10.75"	-30.711575º	23.986319º
H	30°42'41.75"	23°59'11.33"	-30.711597º	23.986481º

Figure 3: Satellite view of the Section 102 application area (image obtained from Google Earth).

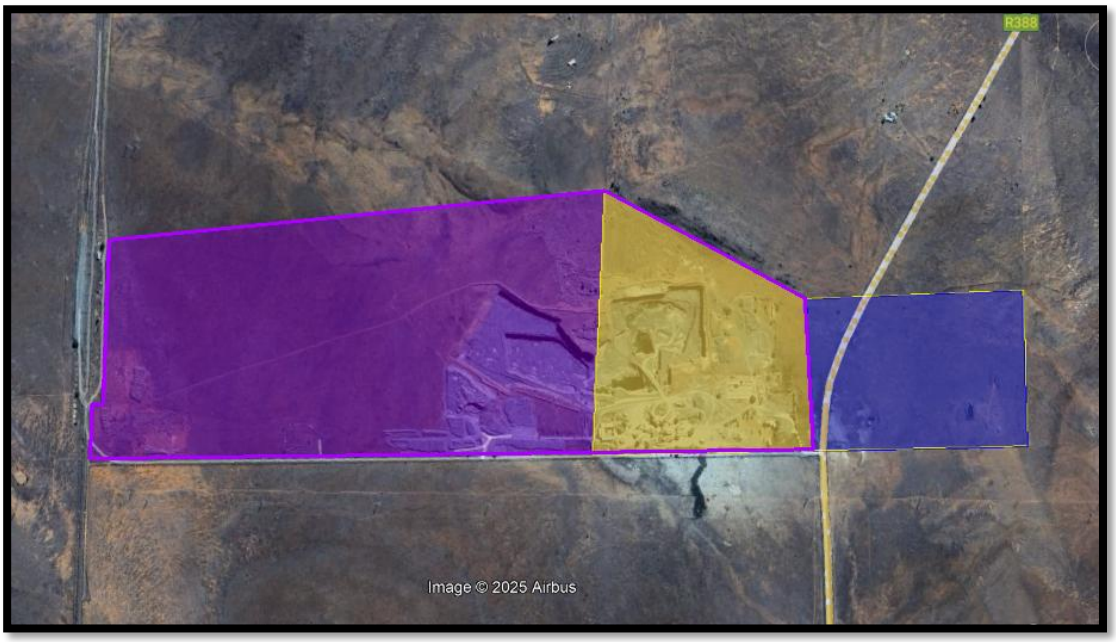


Figure 4:Satellite view of the proposed expansion area (purple polygon) in relation to the mining right area (yellow polygon) and the removal of the eastern part of the approved area (blue polygon) (image obtained from Google Earth).

3.2 CONSTRUCTION PHASE / SITE ESTABLISHMENT

Should the expansion application be approved the mining method of the quarry pit will remain unchanged. However, if the addition of the mineral (SAND) is approved, the south-west corner of the proposed expansion area will be disturbed due to the extraction of sand with front-end loaders.

No additional infrastructure needs to be established in the expansion area as the motivation for the proposed extension is to include the western part of the quarry pit, increase the pit perimeter as well as include the extraction of sand to the approved mining right activities. 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.

3.3 OPERATIONAL PHASE

Should this S102 application be approved the Right Holder will continue with the expansion of the quarry pit in a western direction. The mining method of the quarry will remain the same and bench mining will also be applicable in the expansion.

However, if the addition of the mineral (SAND) is approved, an additional mining method will include the extraction of sand using front-end loaders in the south-west corner of the proposed expansion area. The mining Right Holder intends to sell sand from the mining footprint that will be used in conjunction with the G5 and G7 aggregate material of the quarry.

If the expansion is approved, the south-west corner and northern part of the proposed expansion area will extend up to 44m from the two drainage lines (refer to Figure 27). No excavations will enter these buffer zones and an application for a General Authorization will be submitted to the Department of Water and Sanitation.

Mining related equipment/machinery that will operate within this area will consist of at least the following:

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

The Quarry will operate between 08:00 and 17:00, from Monday to Friday and 08:00 to 12:00 on Saturday. Blasting will take place on weekdays. The operation will entail the following main activities:

- Drilling and blasting;
- Excavations, loading and hauling material from the quarry to the processing area;
- Crushing, screening and stockpiling of material; and
- Dispatch.

3.3.1 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. The 44m buffer of the two drainage lines will also be indicated and managed as a no-go area.

3.3.2 Water usage:

As mentioned earlier, the potable water of the Quarry is obtained from the municipality, while process water is extracted from the quarry pit for dust suppression methods (regular spraying or wetting) to reduce dust generation from access road and processing. The mine intends to adopt water-saving practices such as recycling process water, limiting water use during dry seasons, and using alternative dust suppression methods where feasible. Alternative measures can also be done to reduce the use of water.

These measures will include a combination of the following:

- The speed of all mining equipment/vehicles will be restricted to 40 km/h on the internal farm road to minimize dust generation.
- The Right Holder will attempt to lessen denuded areas (dust source) to the absolute minimum.

Under very windy/dusty conditions the Right Holder might have to substitute the above-mentioned dust suppression methods with the spraying of water, in which case water will be pumped from the quarry pit or during dry seasons, the mine sources water from the adjacent registered borehole. The extracted water is stored in a 30 000 L dam and used immediately for dust-suppression purposes. In extreme cases, water will be bought and transported to the mining area in a water truck that will moisten the problem area. The water truck driver will receive proper training to ensure effective use of the water on problem areas preventing water wastage. Should additional water be required at any stage of the process, water will be bought and transported to site.

According to the Ecologist (Appendix K), there are two ephemeral drainage lines that form tributaries to the Elands Spruit and Brak River systems overlapping the northern part and south-west corner of the proposed expansion. While these drainage features show no wetland conditions, they possess significant riparian vegetation and function as natural watercourses. In light of this, an application for a General Authorization will be submitted to the Department of Water and Sanitation.

3.3.3 Clearing of Vegetation

(Also refer to Part A(1)(h)(iv)(c) Description of specific environmental features and infrastructures on the site – Site Specific Terrestrial Biodiversity, Conservation Areas, Groundcover and Fauna))

The site and surroundings are considered as transformed, mostly associated with existing mining areas, and Other Natural Areas (ONA) (Appendix A: Map 2 the Ecological and Wetland Assessment (Appendix K)). The site is therefore not considered as essential to meeting conservation targets for the area and therefore has a fairly low default conservation value. The area to the west of the site is however considered a Critical Biodiversity Area 2 (CBA 2), with the reason being given that it provides habitat to Endangered Ludwig's Bustard (*Neotis ludwigii*), a large, terrestrial bird species occurring in this arid region.

As the motivation for the proposed extension is to deepen and expand the quarry pit perimeter and include the extraction of sand in the south-west corner of the proposed expansion, clearing of vegetation will only be limited to these areas. The Right Holder will strive to conserve as much vegetation within the expansion area as possible. Vegetation will only be stripped immediately prior to the mining of a specific area. Blanket clearing will not be allowed. It is the opinion of the specialist stipulated herein that the proposed development is favourable only if all mitigation measures provided in this and other specialist reports are implemented.

3.3.4 Topsoil Stripping

It is proposed that topsoil removal will be restricted to the exact footprint of areas required during the operational phase of the activity. The topsoil will be stockpiled at a designated signposted area 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 (if available) will be stripped. The topsoil berm will measure a maximum of 2 m in height.

3.4 DECOMMISSIONING PHASE

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

The decommissioning activities will therefore consist of the following:

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

Upon rehabilitation, the area around the excavation will be levelled and landscaped. 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. 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 area must serve as a final depositing area for the placement of overburden. Rocks and coarse material removed from the excavation must be dumped into the excavation.

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

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

The 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 the Sand Excavation Area:

Once sand extraction is complete, all mobile equipment such as front-end loaders is removed from the site. The excavation area is then reshaped to ensure safe and stable slopes, minimizing erosion and preventing ponding. Topsoil that was previously stockpiled prior to excavation, must be evenly re-spread across the site to support natural vegetation regrowth.

- **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)
Pixley Ka Seme District Municipality Integrated Development Plan 2022 - 2027 (IDP)	Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – *Socio-economic Environment.*	The description of the study area's socio-economic status is in accordance with that of the IDP.
Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983).	Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity: *Physical Environment – Geology and Soil.* Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – *Management of invader plant species*.	The mitigation measures proposed for the site includes specifications of the CARA, 1983.

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.
Northern Cape Nature Conservation Act No.9 of 2009 (as amended).	Part A(1)(g)(iv)(1)(a) Type of environment affected by the proposed activity - *Biological Environment* Part A(1)(g)(viii) The possible mitigation measures that could be applied on the level of risk – *Terrestrial Biodiversity, Conservation Areas and Groundcover*.	The mitigation measures proposed for the site includes specifications of the NCNCA, 2009.
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 – *Management of Health and Safety Risks.*	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-NC. Ref No: NC 30/1/2/2/10075 MR – NC-00315-MR/102
National Environmental Management Act,1998 (Act No. 107 of 1998) and the Environmental Impact Assessment Regulations, 2014 (as amended) ❖ GNR 517 Listing Notice 1 Activity 21D	Part A(1)(d)(i) Listed and specified activities.	Application for a Part 2 amendment of the EMPR as well as an EA submitted to DMPR-NC. Ref NC 30/1/2/2/10075 MR – NC-00315-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 – *Air and Noise Quality.* 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.

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.
	Fugitive Dust Emission Mitigation Measures.	
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 - *Biological Environment* Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – *Management of Vegetation Removal & Management of invader plant species*.	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 – *Waste Management*.	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 – *Human Environment.* Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – *Archaeological, Heritage and Palaeontological Aspects*.	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 – *Hydrology.* Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – *Erosion Control and Storm Water Management.* Part B(1)(d)(iii) Has a water use licence been applied for?	The mitigation measures proposed for the site includes specifications of the NWA, 1998. The Right Holder is in process of applying for a General Authorisation application with DWS.

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.
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)

DASC Quarry produces aggregates for construction, road infrastructure, and related civil works in the Pixley ka Seme District Municipality and surrounding areas. Customers include, amongst others, the following:

- Actophambile Roads Pty Ltd
- Afrimat
- Readymix Cape Pty Ltd
- Albertyn
- Amandla Construction CC
- Buildit De Aar
- C S V Construction
- Cash
- Cashbuild (SA) Pty Ltd
- Civils 2000 Pty Ltd
- Concor Construction Pty Ltd
- Cocoon Roads Rehabilitation
- Concrete Cutting + Services Cape Pty Ltd
- De Aar Overview
- Departement Ervoeer Paaie & Openb. Werke
- Dept Paaie Ervoeer-Openbare Werke De Aar
- Dept Van Resiewe En Bosbou
- Ewald Du Toit
- Emhalhalane Pty Ltd
- Funda Civils
- Graaff Reinet Ervoeer
- Group Five
- H & H Construction

- Hennopskraal Earthmovers
- Arthmovers
- Imvula Roads and Civils Pty Ltd
- Jack of All Trades
- JR Kopano Engineering CC
- Karoo Leisboere
- Kontant
- Le Moloko Pty Ltd
- Massbuild Pty Ltd
- Middelburg Precast Factory JV
- Molette Naire Roof
- Multi Trade
- Munisipaliteit Mthanjeni
- Munisipaliteit Uba Yethemba
- National Asphalt Pty Ltd
- NMC Civils Pty Ltd
- Noluntu Construction
- Orania Infrastruktuur Pty Ltd
- Power Construction Pty Ltd
- Quthing Construction
- Raubex Infra Pty Ltd
- Road Mac Surfacing Cape Pty Ltd
- Roadspan Surfaces (Pty) Ltd
- S V Vervoer
- Sanyati Civil Engineering Construction Pty Ltd
- Scribante Concrete Pty Ltd
- Stone Farmers
- Tarka Power Pty Ltd
- Tau Pele
- Tau Pele Construction
- Stalenergies Hydra Storage RF Pty Ltd
- Trucon
- Tshenolo Resources
- Tyris Construction Pty Ltd
- Umzamo Civils CC
- Venleo Group Pty Ltd

- Westland Civils
- Wilco Vervoer Trust
- WTW Civils (Pty) Ltd

As the current and any additional workforce is sourced from the local community, the project has a positive impact on the socio-economic structure of the area. This activity also has a positive impact on the regional socio-economic structure through its support of the development industry, profit generation, employment opportunities and the skills development of its employees.

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		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
How were ecological integrity considerations taken into account?	According to the Ecological and Wetland Assessment (Appendix K), the proposed mining expansion area, while adjacent to natural vegetation in good condition, contains protected plant species and drainage lines with high conservation value. Although the existing mining zone is already heavily transformed, mitigation is necessary for the surrounding expansion zones. Key mitigation actions include obtaining permits for clearing vegetation involving protected species—most of which are common but some are rare and should be transplanted—and ensuring that nearby drainage lines, despite being small, remain excluded from future operations to preserve downstream ecological integrity. These measures aim to reduce the impact on significant conservation elements. Also refer to: ❖ Part A(1)(d)(ii) Description of the activities to be undertaken – Clearing of Vegetation; ❖ Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – Mining and Biodiversity; ❖ Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – Biodiversity Conservation Areas; ❖ Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – Groundcover; ❖ Part A(1)(h)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – Site Specific Terrestrial Biodiversity, Conservation Areas and Groundcover, ❖ Part A(1)(h)(viii) The possible mitigation measures that could be applied and the level of risk.	Desirable
How will this development disturb or enhance ecosystems and/or result in the loss or protection of biological diversity?		

1. SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES		
How will this development impact on the ecological integrity of the area?		
Question	**Response**	**Level of Desirability**
	It is the opinion of the specialist stipulated herein that the proposed development is favourable only if all mitigation measures provided in this and other specialist reports are implemented.	
How will this development pollute and/or degrade the biophysical environment?	This application is for the expansion of the quarry pit at DASC Quarry and the addition of a mineral resource (SAND) to the mining right. The expansion of the quarry pit will entail the same mining method that has been ongoing since inception of the mine. However, the sand in the south-west corner of the proposed expansion area will be extracted via front-end loaders. The expansion 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 very little 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 consist 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 (within two hours of occurrence) 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 mining the resource and expand the quarry pit towards the west. Right Holder intends to mine ±357 979m³ material per year depending on market demand and sales and the life of mine is therefore expected to be ±10 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?	If the proposed mitigation measures and monitoring programs, as proposed in this document, is implemented, it is believed that ecological impacts should be fully mitigated. Refer to the following sections: ❖ 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) The environmental attributes associated with the alternatives; ❖ 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; ❖ Part A(1)(l) Environmental impact statement.	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 the ecological impacts resulting from this development impact on people's environmental right?	Should the expansion be approved the potential visual-, dust-, and noise impacts associated with the proposed activity will be of low significance. If the proposed mitigation measures and monitoring programs, as proposed in this document, is implemented, it is believed that no environmental rights of the surrounding residents/public will be affected by the ecological impacts associated with the proposed activity.	Highly Desirable
Describe the linkages and dependencies between human wellbeing, livelihoods, and ecosystem services applicable to the area in question and how the development's ecological impacts will result in socio-economic impacts.	If the proposed mitigation measures and monitoring programs, as proposed in this document, is implemented, it is believed that the expansion will not affect the physical, psychological, cultural or social needs of the community in a negative manner nor will it impact negatively on the socio-economic status of the area.	Highly Desirable
Based on all the above, how will this development positively or negatively impact on ecological integrity objectives/targets/considerations of the area?		Highly Desirable
Considering the need to secure ecological integrity and a healthy biophysical		

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**
environment, describe how the alternatives identified, resulted in the selection of the "best practicable environmental option" in terms of ecological considerations		

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	

2. PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT		
What is the socio-economic context of the area?		
Question	**Response**	**Level of Desirability**
How will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities?	area laying dormant, and as mentioned earlier, the continued existence of the mine ensures contributions to the community in terms of the SLP commitments. 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 Northern 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. De Aar Stone Crushers Empower (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). DASC Quarry's employment equity is also in line with the provisions of the Employment Equity Act, 1998 (as amended).	Highly Desirable
In terms of location, describe how the placement of the proposed development will contribute to the area.	Expanding the quarry and thereby mining the resource on the property will contribute to the surrounding area, 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

2. PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT		
What is the socio-economic context of the area?		
Question	**Response**	**Level of Desirability**
How will the socio-economic impacts resulting from this development impact on people's environmental right?	If the mitigation measures and monitoring programs, proposed in this document, are implemented it is believed that no environmental rights of the surrounding residents/public will be affected by any potential socio-economic impacts associated with the proposed activity.	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?	If the S102 application is approved, the mine will be able to expand the quarry excavation to the west onto land that has been previously disturbed. The betterment of the Quarry directly contributes to a prolonged lifespan of the operation and job security to employees. The mine will also continue to meet the commitments of the SLP regarding Human Resources Development, and Local Economic Development, amongst others.	Highly Desirable
What measures were taken to pursue the selection of the "best practicable environmental option" in terms of socio-economic considerations?	The responsible use of the remaining land between the quarry and two drainage lines were 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 ecosystem type, red data species or the conservation targets set out in this document. Should the S102 application be approved, the project will directly contribute to the socio-economic status of the receiving environment as discussed earlier. Also refer to:	Highly Desirable
What measures were taken to pursue environmental justice so that adverse environmental impacts shall not be		

2. PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT		
What is the socio-economic context of the area?		
Question	**Response**	**Level of Desirability**
distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons?	❖ 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.	
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? 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?	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
Considering the interests, needs and values of all the interested and affected parties,	❖ The aggregate will be sold to building- and road contractors in and around the mine.	Highly Desirable

2. PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT		
What is the socio-economic context of the area?		
Question	**Response**	**Level of Desirability**
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.	❖ Expansion of the mining area will prolong the lifespan of the operation, thereby safeguarding employees against downscaling and retrenchment. ❖ The vacant land, presently trespassed upon, will be managed by the Quarry for the duration of the mining right.	
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	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	Highly Desirable

2. PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT		
What is the socio-economic context of the area?		
Question	**Response**	**Level of Desirability**
environmental resources will serve the public interest, and that the environment will be protected as the people's common heritage.	departmental specifications. Considering this, the proposed activity will take place in an environmentally sustainable manner with the least possible impact on the receiving environment.	
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 quarry pit to its original topography, the rehabilitation option is to develop the quarry into a landscape feature that will be rendered safe upon final site closure. The benches will be top-dressed with topsoil and vegetated with an appropriate indigenous grass mix and the area will be returned to previous land 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 amount 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

2. PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT		
What is the socio-economic context of the area?		
Question	**Response**	**Level of Desirability**
Considering the need to secure ecological integrity and a healthy bio-physical environment, describe how the alternatives identified, resulted in the selection of the best practicable environmental option in terms of socio-economic considerations	If the mitigation measures proposed in this document are adhered to, the proposed activity can take place without influencing the status of the ecosystem type, red data species or the conservation targets set out for an CBA. Also refer to: ❖ Part A(1)(h)(vii) The positive and negative impacts that the proposed activity and alternatives will have on the environmental and the community that may be affected.	Highly Desirable
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) Impact on the socio-economic conditions of any directly affected person.	Highly Desirable

g) 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

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

The S102 project proposal entails the expansion of the existing mining right of ±62.88 ha to ±133.18 ha over Portion 49, 54 and a portion of Portion 50 of Farm De Aar No 180 within the boundaries of the GPS coordinates listed in Table 4 and depicted in Figure 3.

The Right Holder intends to deepen and expand the quarry pit perimeter, maintaining a 44m buffer zone around the two drainage lines and seeks to include the extraction of sand as a listed mineral resource, to be mined using front-end loaders in the south-west corner of the proposed extension.

The proposed footprint of the MR application was based on the position of the current mining footprint and the available geological data. No further location/site alternatives are considered in the Basic Assessment Report (BAR) and EIA process.

B) TYPE OF ACTIVITY TO BE UNDERTAKEN

The Right Holder intends to mine the expansion of the quarry pit in the same way as the current pit is being mined. Mining will therefore entail benched open pit excavations at elevations. Hard rock breaking will be done by drilling and blasting. The broken rock will be sorted and loaded

onto articulated dump trucks, that will haul it to the existing primary crushing plant of the mine, where various products will be conveyed to secondary-, tertiary- and quaternary crushing and screening processes to result in the desired products.

The extraction of sand will be mined using front-end loaders in the south-west corner of the proposed extension.

The nature of the operation does not allow alternative activities. Considering the existing mining method of DASC Quarry and the available infrastructure on site there is no alternative other than to excavate, load and haul the aggregate material to the processing plant of the mine.

C) DESIGN AND LAYOUT OF THE ACTIVITY

The Right Holder will not establish any permanent infrastructure and/or buildings within the expansion area. Haul roads will be developed as mining progress.

As mentioned earlier, the current layout of the mine dictated the proposed locality of the expansion area. Similarly, the design and layout of the proposed footprint were based on the *status quo*. The specific design of the quarry pit will be done in consultation with a qualified mine planner/engineer. The design will be based on the most profitable extraction of the available aggregate from the approved footprint in accordance with the requirements of all relevant legislation such as (but not limited to) the Mine Health and Safety Act. The only viable layout of the proposed expansion area will be dictated by the 44m buffer of the two drainage lines.

No further design/layout alternatives are considered in the BAR.

D) TECHNOLOGY TO BE USED IN THE ACTIVITY.

The proposed expansion area will be mined through drilling, blasting, and excavation with earthmoving machinery. Rock breaking is done initially by drilling and blasting using crawler mounted rigs and emulsion type bulk explosives. Oversized boulders are placed aside in the pit and large

boulders are broken with explosives utilizing secondary blasting. Sand will be extracted by the existing mine machinery on the property.

This project does not require other complex technology to allow the expansion of the quarry pit, and therefore no further technology alternatives are considered in the BAR.

E) OPERATIONAL ASPECTS OF THE ACTIVITY

The operational aspect of expanding the quarry perimeter is based on the current activities of the mine. Since the proposed expansion area will be incorporated into the current operations of DASC Quarry the operational requirement of the mine is lenient. The extraction of sand, in the south-west corner of the proposed area, will be mined via front-end loaders that will be used in conjunction with the aggregate material of the Quarry. The Right Holder already extract water from the quarry pit, no electricity is needed to allow the continuation of the proposed activity (expansion of the pit), no servicing of mining equipment will be required on site (within the expansion area), R388 and the existing internal roads will provide access to the quarry.

The project does however consider mitigating impacts such as dust generation, noise handling, waste management, and rehabilitation.

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

The no-go alternative entails no change to the *status quo* and is therefore a real alternative that needs to be considered. If the no-go alternative is implemented the land use of the earmarked footprint will remain undeveloped land with the aggregate resource unmined.

The no-go option will prevent the Right Holder from expanding the quarry pit and the extraction of sand.

As mentioned earlier, the quarry excavation has been developed to the maximum extent possible. Should the expansion of the pit not be approved it will directly affect the lifespan of the Quarry, as the proposed expansion indicated a life of mine of ±10 years. An increase in the life of

mine will provide the employees with peace of mind regarding downscaling and retrenchments linked to mine closure, as well as socio-economic benefits and growth development opportunities. Given the high levels of unemployment and poverty in the Pixley Ka Seme District the loss of such opportunities is considered significant.

The positive implications of the no-go alternative are that there will be no impact on the bio- and geophysical environment of the earmarked area.

Considering the above, the no-go option was not deemed a preferred development option.

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.

S102 APPLICATION

During the public participation process of this S102 application the relevant stakeholders and I&AP's was informed of the project through an advertisement in the NoordKaap Bulletin on 17 July 2025, and on-site notices that was placed at the entrance to the Quarry and in De Aar. A notification letter inviting comments on the DBAR over a 30-days commenting period (ending 01 September 2025) was also sent to the landowner, neighbouring landowners, stakeholders, and any other I&AP that may be interested in the project. The comments received on the DBAR was incorporated into the final Basic Assessment Report (FBAR) that was 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 application.

SURROUNDING LANDOWNERS & INTERESTED AND AFFECTED PARTIES	STAKEHOLDERS
Landowner and Surrounding Landowner: De Aar Stone Crushers Empower (Pty) Ltd ❖ Portion 49 of Farm De Aar 180 ❖ Portion 54 of Farm De Aar 180 ❖ Portion 50 of Farm De Aar 180	❖ Department of Mineral and Petroleum Resources NC: Kimberley ❖ Department Of Agriculture, Environment Affairs, Rural Development and Land Reform ❖ Department of Labour; ❖ Department of Roads and Public Works De Aar Branch; ❖ Department of Transport;

SURROUNDING LANDOWNERS & INTERESTED AND AFFECTED PARTIES	STAKEHOLDERS
Surrounding landowners – neighbouring onto the Quarry: De Put Trust ❖ Farm Elands Kloof 135 ❖ Portion 1 of Farm Elands Kloof 135 Transnet Ltd ❖ Farm de Aar 180 Portion 13 Emthanjeni Local Municipality ❖ De Aar 147 Remaining Extent De Aar Stone Crushers Empower (Pty) Ltd ❖ Portion 15 Farm De Aar 180 ❖ Remaining Extent of Portion 16 Farm De Aar 180 ❖ Remaining Extent of Portion 18 Farm De Aar 180 ❖ Portion 53 Farm De Aar 180	❖ Department of Water and Sanitation; ❖ Northern Cape Protected Area Expansion Review Committee; ❖ Eskom Ltd; ❖ Emthanjeni Local Municipality; ❖ Pixley Ka Seme District Municipality; and ❖ South African Heritage Resources Agency.

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 **List the name of persons consulted in this column, and** **Mark with an X where those who must be consulted were in fact consulted**		**Date Comments Received**	**Issues raised**	**EAPs response to issues as mandated by the applicant**	**Section and paragraph reference in this report where the issues and or response were incorporated.**
AFFECTED PARTIES	**X**	-	-	-	-
Landowner/s	**-**	-	-	-	-
De Aar Stone Crushers Empower (Pty) Ltd ❖ Portion 49 of Farm De Aar 180 ❖ Portion 54 of Farm De Aar 180 ❖ Portion 50 of Farm De Aar 180	X	The applicant is the lawful landowner of the proposed expansion area.			
Lawful occupier/s of the land	-	-	-	-	-
N/A	-	No lawful occupiers of the land is applicable to this project.			
Landowners or lawful occupiers on adjacent properties	**X**	-			
De Put Trust ❖ Farm Elands Kloof 135 ❖ Portion 1 of Farm Elands Kloof 135	X	None.			
Transnet Ltd ❖ Farm de Aar 180 Portion 13	X	None.			

Interested and Affected Parties **List the name of persons consulted in this column, and** **Mark with an X where those who must be consulted were in fact consulted**		**Date Comments Received**	**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.**
De Aar Stone Crushers Empower (Pty) Ltd ❖ Portion 15 Farm De Aar 180 ❖ Remaining Extent of Portion 16 Farm De Aar 180 ❖ Remaining Extent of Portion 18 Farm De Aar 180 ❖ Portion 53 Farm De Aar 180	X	None.			
Municipal councillor					
Cllr. Ms L E Andrews (Ward 06)	X	None.			
Municipality					
Emthanjeni Local Municipality	X	None.			
Pixley Ka Seme District Municipality	X	None.			
Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA e					

Interested and Affected Parties **List the name of persons consulted in this column, and** **Mark with an X where those who must be consulted were in fact consulted**		**Date Comments Received**	**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.**
Department of Transport	X	None.			
Department of Water and Sanitation	X	09 September 2025	Attention: Mr Jan-Sauer Lambrechts DRAFT BASIC ASSESSMENT REPORT FOR PORTION 49, 54 AND A PORTION OF PORTION 50 OF THE FARM DE AAR NO 180, SITUATED IN THE MAGISTERIAL DISTRICT OF PIXLEY KA SEME. AREA NORTHERN CAPE PROVINCE Reference is made to the above-mentioned report received on the email received in September 2025 with the reference number NC 30/1/2/2/10075 MR – NC-00315-MR/102. The Department of Water and Sanitation (DWS) has assessed the above-mentioned application and	*Dear reader* *RE: COMMENTS ON THE DRAFT BASIC ASSESSMENT REPORT WITH RESPECT TO THE SECTION 102 APPLICATION OVER PORTION 49 AND 50 OF FARM DE AAR NO 180, SITUATED IN THE MAGISTERIAL DISTRICT OF PIXLEY KA SEME* *The above matter as well as letter received from you dated 09 September 2025 refers. Please see responses to your comments listed below:*	Appendix E - Proof of Public Participation

Interested and Affected Parties List the name of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	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.
			wish to comment as follows: • Prioritize Water Use Licensing and Compliance: It is essential that De Aar Stone Crushers Empower (Pty) Ltd fully complies with the provisions of the National Water Act by obtaining the necessary water use licenses before commencing any activities that involve water abstraction, especially for process water and dust suppression. Proper licensing ensures sustainable water management and prevents over-extraction that could compromise water availability for downstream users and ecosystems. • Implement Effective Stormwater and Erosion Control Measures: Given the proximity of ephemeral drainage lines and riparian zones, the project must incorporate robust stormwater	• *The comments are noted and appreciated. Greenmined Environmental has been appointed to act on behalf of the applicant, De Aar Stone Crushers Empower (Pty) Ltd, to facilitate and submit a Water Use Application in accordance with the National Water Act (Act No. 36 of 1998). The Water Use Application process is currently underway, and the applicant is committed to ensuring full compliance with all water-related legislative requirements*	

Interested and Affected Parties List the name of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	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.
			management and erosion control strategies. These measures will prevent sedimentation and contamination of watercourses, safeguarding water quality and maintaining the hydrological integrity of the surrounding environment in line with the Water Act's objectives. • Protect Riparian Vegetation and No-Go Zones: The areas around the two identified drainage lines should be designated as no-go zones, with clearly demarcated buffer zones of at least 44 meters, to prevent disturbance to natural watercourses and riparian habitats. Maintaining these zones is crucial for preserving natural water filtration, habitat connectivity, and flood attenuation functions. • Minimize Water Pollution and		

Interested and Affected Parties List the name of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	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.
			Contamination Risks: All operational activities, including blasting, excavation, and vehicle movement, must be managed to prevent pollutants such as oils, chemicals, and sediments from entering water sources. Proper waste management, spill prevention protocols, and regular monitoring should be implemented to comply with the Water Act's pollution control requirements. Promote Water Conservation and Efficient Use: The project should adopt water-saving practices such as recycling process water, limiting water use during dry seasons, and using alternative dust suppression methods where feasible. These measures support the sustainable use of water resources and align with		

Interested and Affected Parties List the name of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted		Date Comments Received	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.
			national priorities under the Water Act to conserve water and ensure equitable access. • Conduct Continuous Monitoring and Reporting: Regular monitoring of water quality, water levels, and flow conditions should be mandatory throughout the project's lifespan. Transparent reporting to the Department of Water and Sanitation will ensure ongoing compliance, early detection of water-related issues, and the implementation of corrective actions to protect the water environment.	• *All recommendations provided by the Department, particularly those relating to water use licensing and compliance, stormwater and erosion control, riparian zone protection, and pollution prevention have been duly noted and will be integrated into operational planning.*	
Eskom Ltd	X	None.			
Communities	No communities were identified within the study area.				

Interested and Affected Parties **List the name of persons consulted in this column, and** **Mark with an X where those who must be consulted were in fact consulted**		**Date Comments Received**	**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.**
Dept. Land Affairs	X	None.			
Traditional Leaders	N/A	-	-	-	-
Dept. Environmental Affairs	-	-	-	-	-
Department Of Agriculture, Environment Affairs, Rural Development and Land Reform	X	None.			
Other Competent Authorities affected	-	-	-	-	-
Department of Roads and Public Works De Aar Branch	X	None.			
Department of Labour	X	None.			
Department of Transport	X	None.			
Northern Cape Protected Area Expansion Review Committee	X	None.			
South African Heritage Resources Agency	X	None.			
OTHER AFFECTED PARTIES					

Interested and Affected Parties **List the name of persons consulted in this column, and** **Mark with an X where those who must be consulted were in fact consulted**	**Date Comments Received**	**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.**
N/A				
INTERESTED PARTIES				
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)

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.

PHYSICAL ENVIRONMENT

CLIMATE

The following chart shows the maximum, minimum and average temperatures (±22°C daytime, ±11°C nighttime) of the De Aar region which experiences its highest temperatures during the summer months (December – February) with peaks of up to 32°C; thereafter the mercury drops to lows of ±4°C during July.

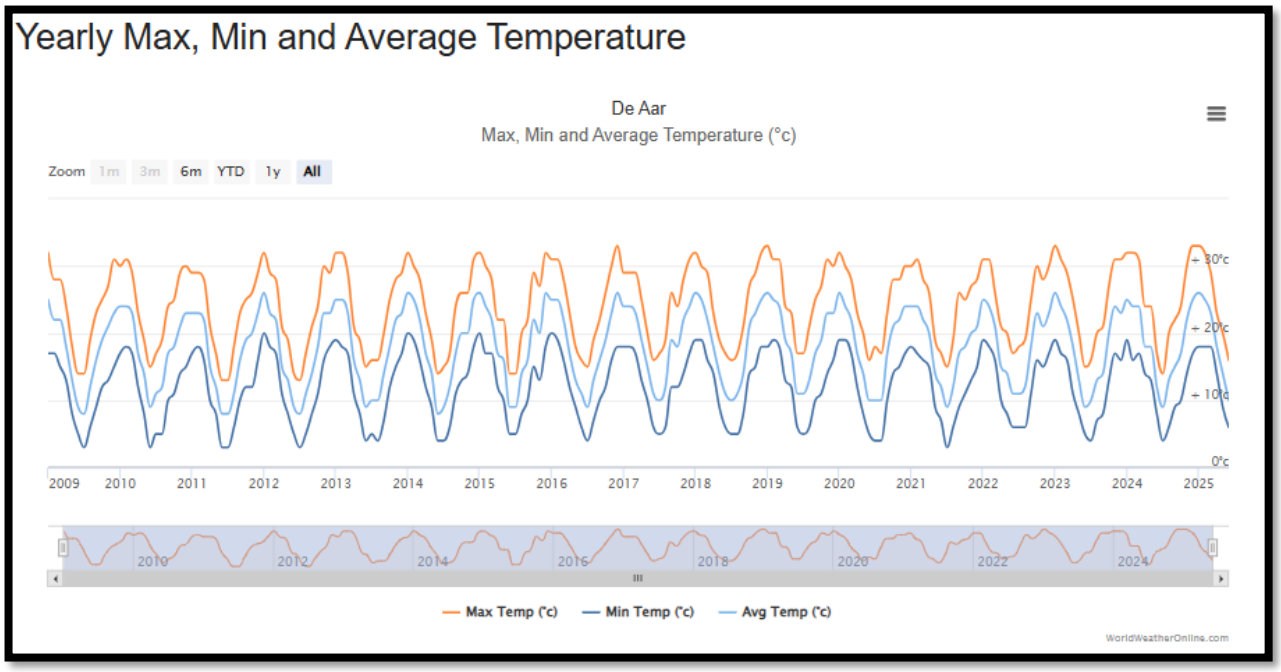


Figure 5: Chart showing the maximum, minimum, and average temperatures of the De Aar region over a period of 16 years (chart obtained from http://www.worldweatheronline.com)

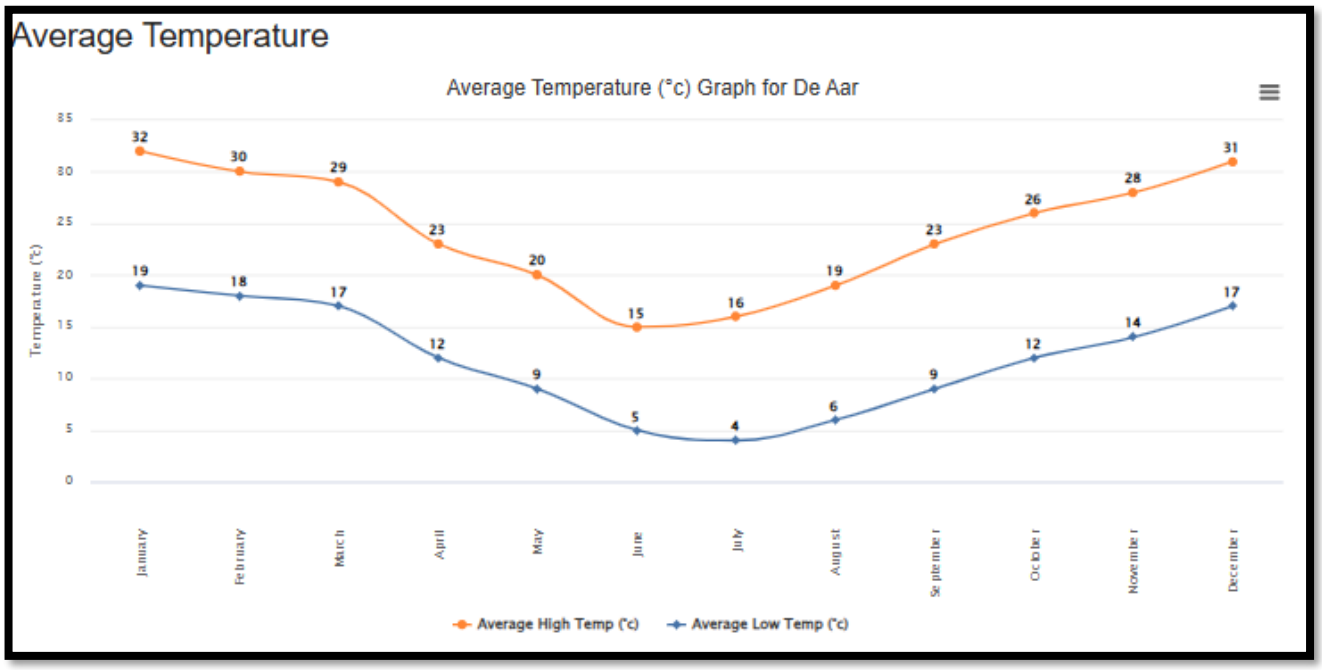


Figure 6: Chart showing the monthly average temperature of the De Aar region (chart obtained from http://www.worldweatheronline.com)

According to World Weather Online, the average rainfall of De Aar gets is 12.07mm of rain and approximately 2 rainy days in a month with a humidity is close to 45%. The area received the lowest rainfall during August 2024 and the highest in April 2025 (for the selected period).

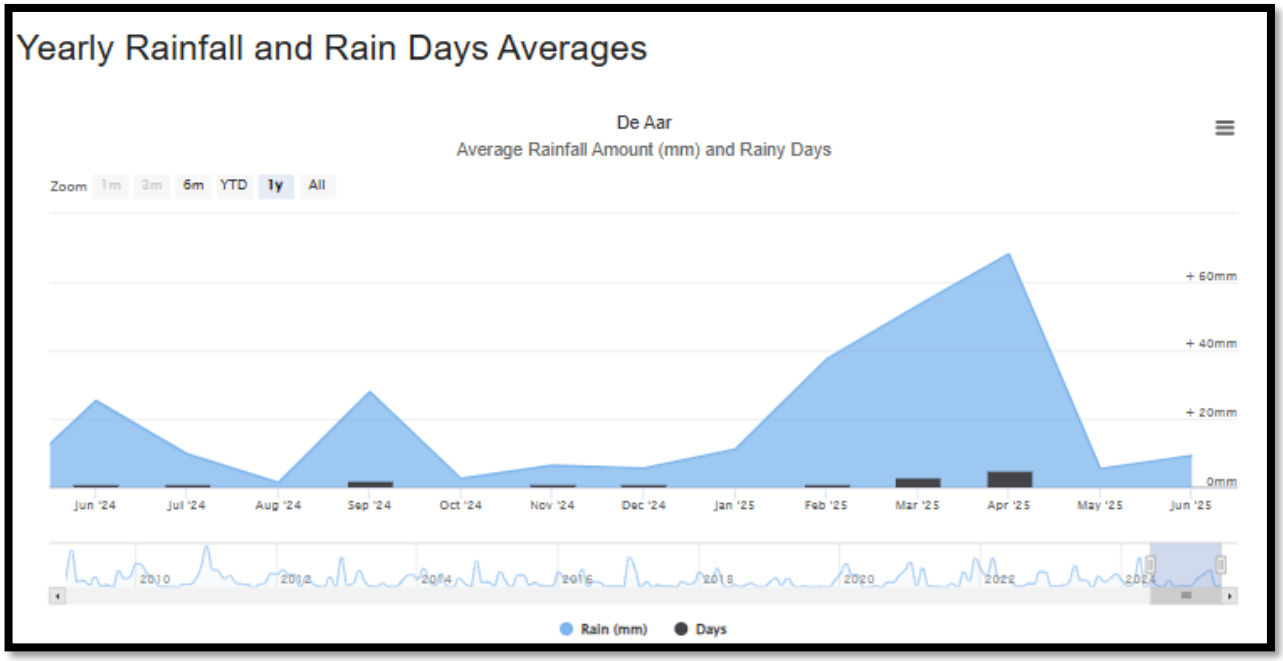


Figure 7: Chart showing the rainfall and rainy days for the De Aar region (chart obtained from http://www.worldweatheronline.com)

The prevailing wind direction in the De Aar region is from the southwest. This is based on historical weather data which indicates that winds most often blow in a southwesterly direction. In fact, typical gusts reach about 40 km/h from that direction The following figure indicates the annual wind speed and wind gusts averages for the period between June 2024 and June 2025.

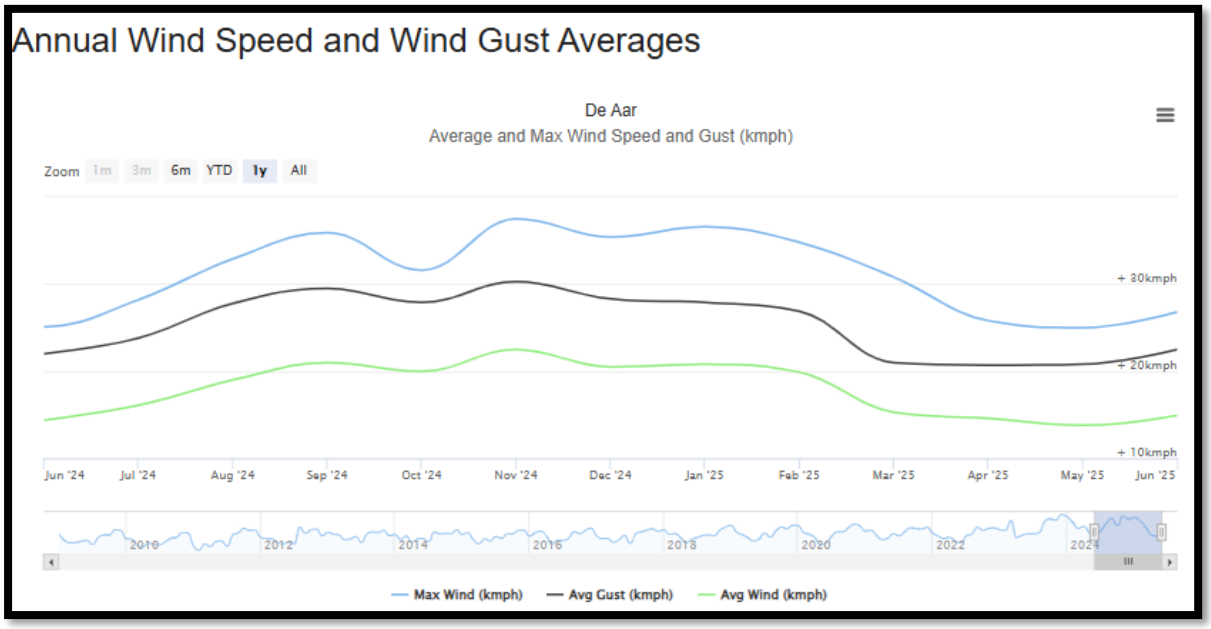


Figure 8: Annual wind speed and wind gust averages of the De Aar region between June 2024 and June 2025 (image obtained from http://www.worldweatheronline.com).

TOPOGRAPHY

The De Aar Stone Crushers mining area is situated on the semi-arid plateau of the Great Karoo in South Africa, at an average elevation of approximately 1,257 m above sea level. The topography is characterized by gently undulating terrain with minor elevation variations between 1,217 m and 1,378 m, offering a relatively flat and accessible surface for quarry operations. The area consists of sandstone and mudstone formations of the Karoo Supergroup, intruded by aggregate sills, which create durable rock outcrops ideal for aggregate extraction. The site has minimal drainage features and slopes gently westward, with surrounding land used for grazing and light industrial activities. This stable, open terrain supports efficient mining and infrastructure development.

The following figure shows the topography of the greater study area highlighting the lowered river channel and surroundings cutting through the elevated ridges.

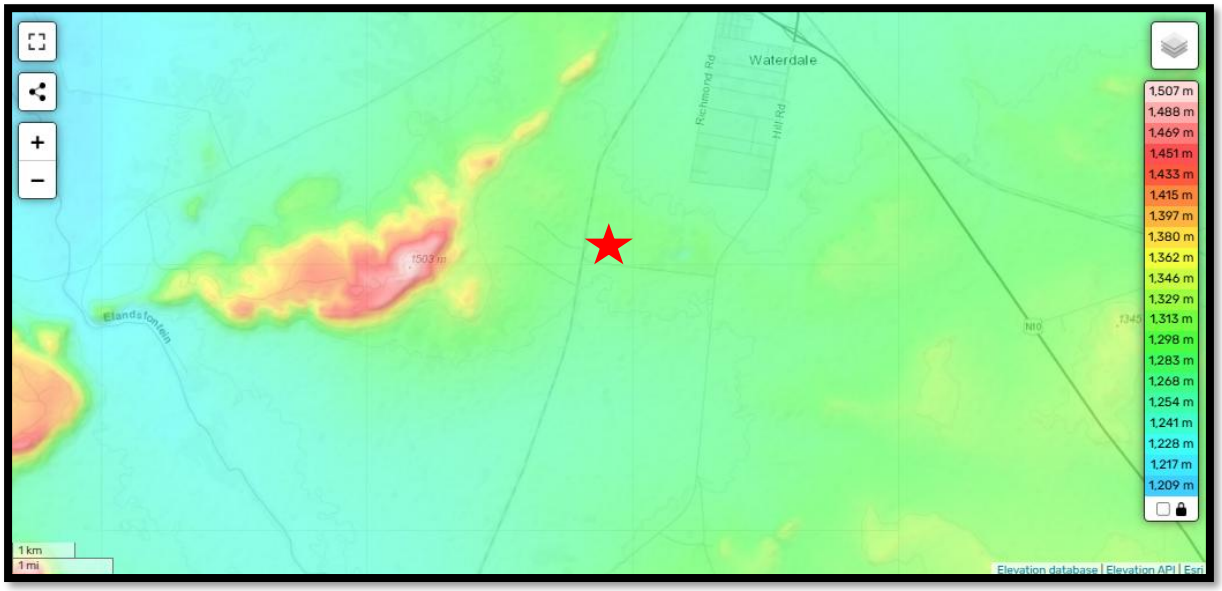


Figure 9:Map showing the topography of the greater De Aar area where the red star indicates the Quarry (image obtained from http://www.en-za.topographic-map.com/maps/gwpq/South-Africa/).

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

VISUAL CHARACTERISTICS

According to the 2015 EMPR, the mining site and its associated infrastructure are mostly obscured from view when traveling along the R388 road from the north, due to a low ridge in that direction. Approaching from the south, however, parts of the site such as the processing facility and material stockpiles become visible. From the west, conveyor belts at the processing plant can be seen. Among the various structures within the mining area, the cement storage facility stood out as one of the tallest.

In terms of site operations, material used by the crushers is sourced from the open pit, which only becomes visible when near the quarry itself. The property's highest point is a large manmade topsoil stockpile, formed around the quarry as mining continued. This stockpiled material is located to the west of the property, behind the office area. The office buildings and other constructed features are in good condition.

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

AIR AND NOISE QUALITY

The air quality and noise ambiance of the study area was historically representative of a mining environment. Traffic along the R388 also contribute to the air and noise quality of the area. The quarry has been contributing to the air and noise quality of the area through the following:

- Dust generated by wind over un-vegetated and denuded areas;
- Dust generated by vehicles and unsurfaced roads;
- Dust generated during topsoil and overburden removal and the loading of material onto trucks and tipping into the plant;
- Crushing and screening at the processing plant.

Fallout dust levels, at the Quarry, are monitored by an appropriately qualified service provider and dust suppression measures are implemented to prevent/minimise the nuisance to the surrounding area.

Noise at the Quarry is generated by blasting, loading operations, crushing, and screening and vehicular traffic. The quarry appoints an occupation hygienist to monitor the noise levels and report on it to the DMPR.

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

GEOLOGY AND SOIL

(Information obtained from the Mining Work Programme, 2021)

The Northern Upper Karoo is dominated by shale of the Volksrust Formation and to a lesser extent the Prince Albert Formation (both of the Ecca Group, Karoo Supergroup) as well as Dwyka Group diamictites from the underlying geology. Jurassic Karoo Dolerite sills and sheets interrupt the shales here and there. Wide stretches of land is covered by superficial deposits including calcrete of the Kalahari Group. Karoo Dolerite is also present in the area and is characterised by hard igneous rock intruding sedimentary layers occuring as sills or dykes.

HYDROLOGY

(Information extracted from the Atlas of Freshwater Ecosystem Priority Areas in South Africa, Water Research Council, 2011 & Technical Report on the National Freshwater Ecosystem Priority Areas Project, Water Research Council, 2011)

Historic Data

According to the 2015 EMPR, the mining area lies within a sub-quaternary catchment area where the river systems are generally in good ecological condition. These water systems did not serve as significant fish sanctuaries, and the surrounding wetlands were not designated as Freshwater Ecosystem Priority Areas (FEPAs). Instead, they were classified as Z3 wetland systems, which had less than 25% natural land cover.

The rivers within and around De Aar had maintained their FEPA status, which was essential for conserving freshwater ecosystems and safeguarding water resources for human use. As a result, any development activities near these rivers needed to be managed carefully to avoid harming the ecological balance.

Present Day (2025) Data

The proposed mining area falls within the D62C quaternary catchment which falls within the upper reaches of the Orange Tributaries Sub Water Management Area that is situated in the Lower Orange Water Management Area which is managed by the Department of Water and Sanitation (DWS).

Table 9: Aquatic characteristics of the greater study area

Water Management Area	Lower Orange
Sub Water Management Area	Orange Tributaries
Quaternary catchment	D62C
FEPA Status	Upstream and FEPA

According to the SANBI National Freshwater Ecosystem Priority Areas (NFEPA) Map, the study area overlaps with an Upstream and FEPA sub quaternary catchment as presented below. According to the *Technical Report for the National Freshwater Ecosystem Priority Areas Project* (Water Research Commission, 2011), Upstream Management Areas are sub-quaternary catchments in which human activities need to be managed to prevent degradation

of downstream river FEPA's and Fish Support Areas. Upstream Management Areas are like Ecological Support Areas (ESA).

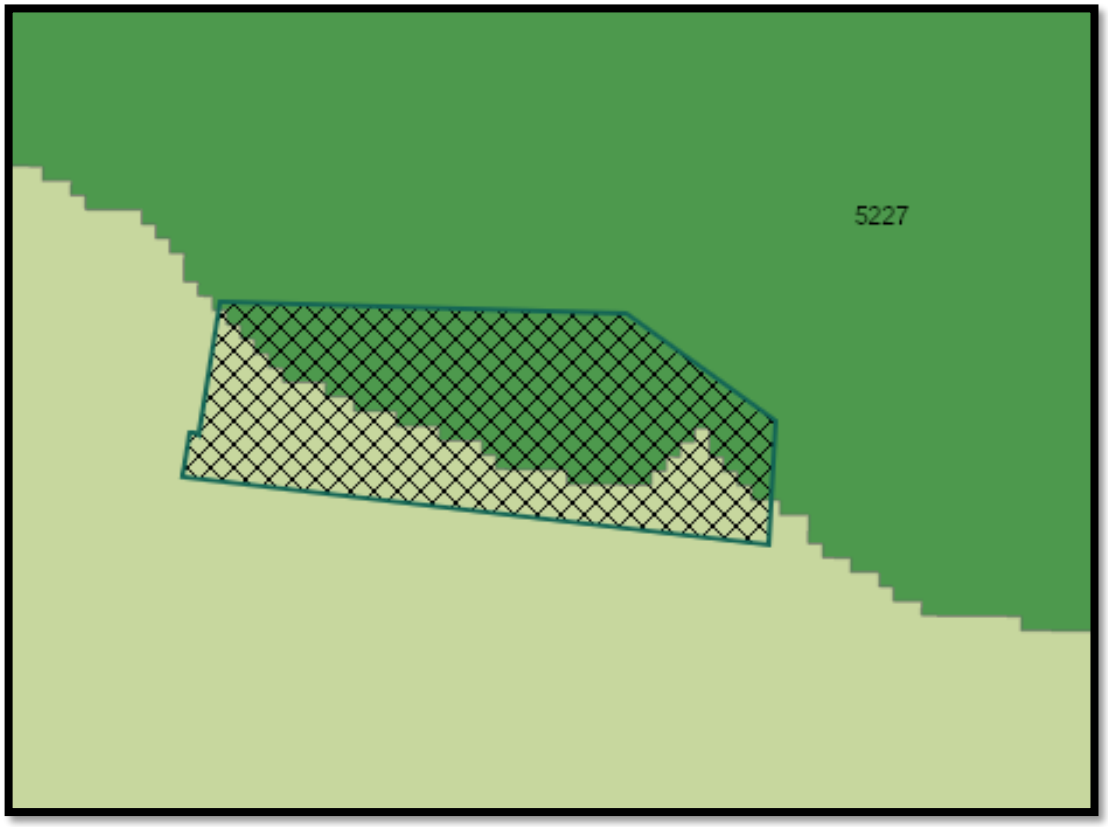


Figure 10: NFEPA BGIS Map Viewer showing the Upstream (pale green background) and FEPA (dark green background) sub quaternary catchment in relation to DASC quarry (light blue polygon). (Image obtained from the BGIS Map Viewer – National Wetlands and NFEPA).

The said SANBI sensitivity map further identifies a few wetland clusters near the study area (see following figure). The definition of a wetland cluster is a group of wetlands within 1 km of each other that are embedded in a relatively natural landscape. This allows for important ecological processes such as migration of frogs and insects between wetlands. However, in many areas of the country, wetland clusters no longer exist because the surrounding land has become too fragmented by human impacts. The goal of NFEPA is to ensure that at least 20% of the wetland cluster area identified for each wetland vegetation group is managed in a way that supports dispersal between wetlands within the cluster, ideally associated with a natural or near-natural condition. The primary aim is to support migration of wetland-dependant plant and animal populations through the landscape matrix. A secondary benefit may be that this target improves the regulatory ecosystem services that wetlands provide.

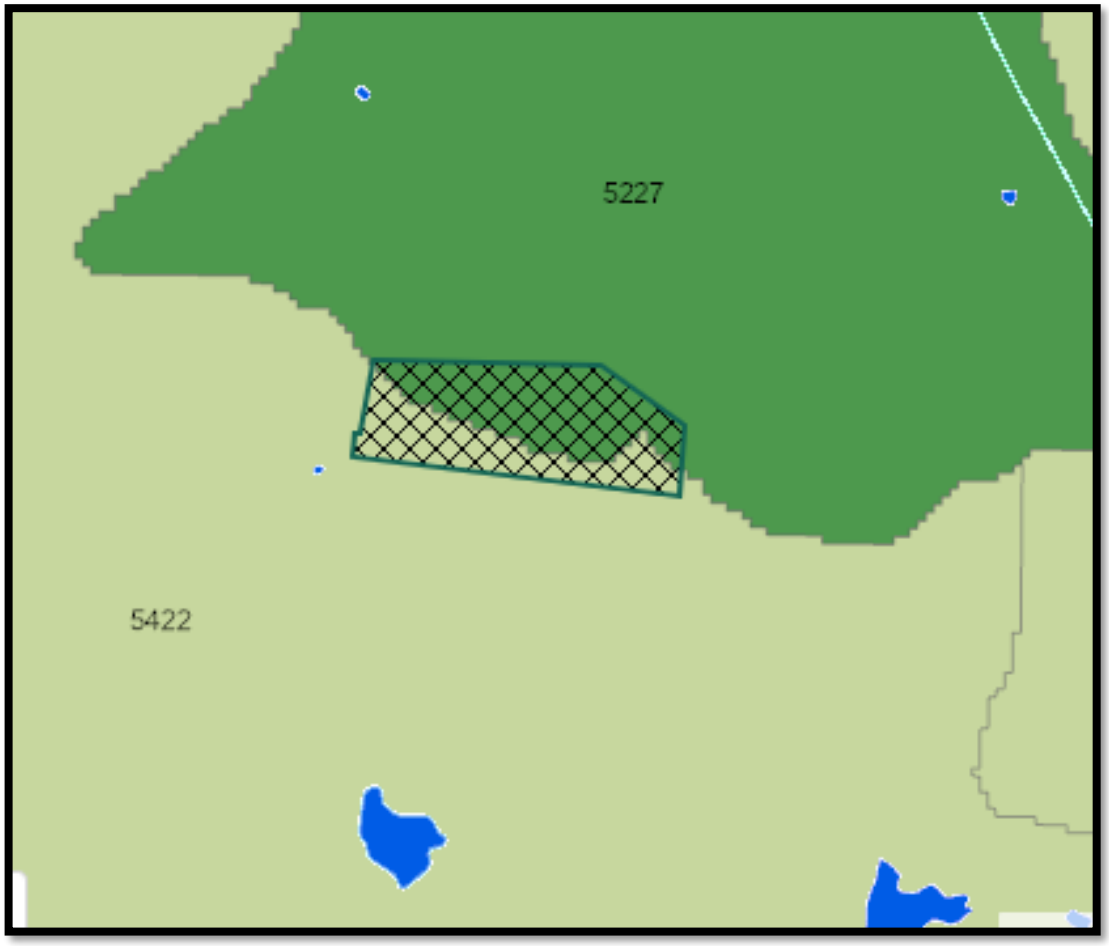


Figure 11: NFEPA BGIS Map Viewer showing the Wetland Cluster (dark blue polygon) in relation to the study area (light blue polygon). (Image obtained from the BGIS Map Viewer – National Wetlands and NFEPA).

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

BIOLOGICAL ENVIRONMENT

MINING AND BIODIVERSITY

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

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

The Mining and Biodiversity Guideline's definition for areas of highest biodiversity importance stipulates that: "*these areas are viewed as necessary to*

ensure protection of biodiversity, environmental sustainability, and human well-being". The guidelines note that environmental screening, the EIA and specialists should focus on confirming the presence and significance of biodiversity features and provide a site-specific basis on which to apply the mitigation hierarchy to inform regulatory decision-making. However, as shown in the figure below, the extension area does not overlap with an area of highest biodiversity importance or highest risk for mining.

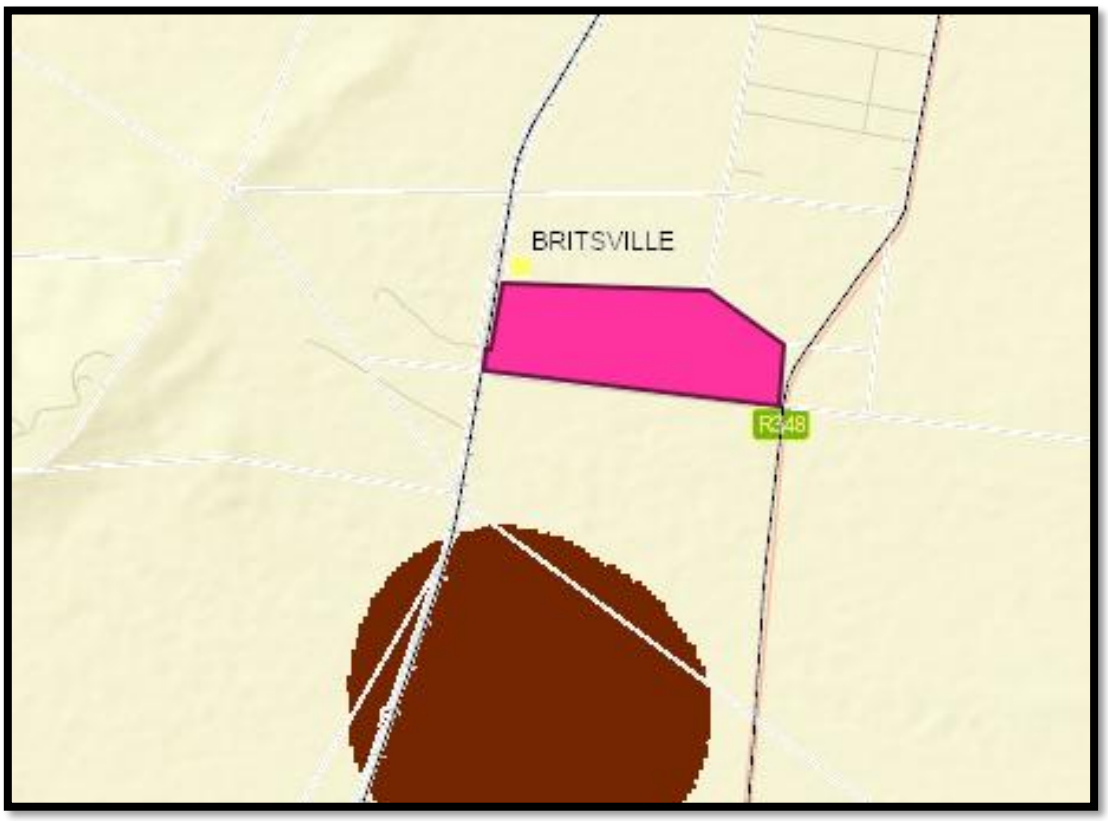


Figure 12: The Mining Guidelines map shows that the mining footprint (pink polygon) does not extend across an area of highest biodiversity importance with a highest risk for mining (dark brown). (Image obtained from the BGIS Map Viewer: Mining Guidelines).

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

BIODIVERSITY CONSERVATION AREAS

According to the 2016 Northen Cape Critical Biodiversity Areas, the extension area overlaps with a Critical Biodiversity Areas 1 (CBA1) 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."*

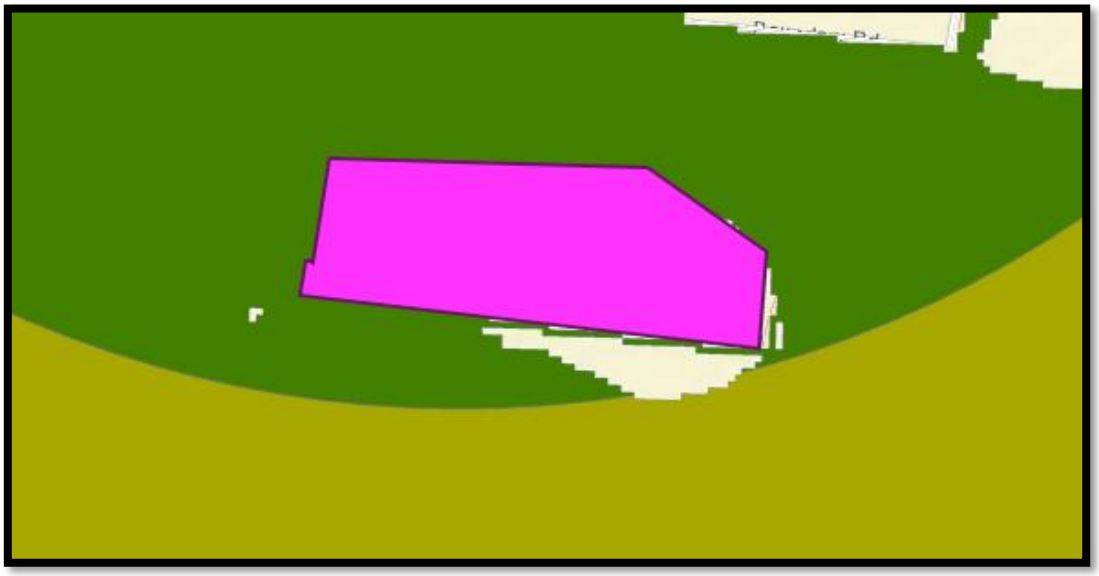


Figure 13: 2016 Northen Cape Critical Biodiversity Areas showing the position of the mining footprint (pink polygon) within the Critical Biodiversity Areas 1 (dark green shading). (Image obtained from BGIS Map Viewer – 2016 Northen Cape Critical Biodiversity Areas).

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

GROUNDCOVER

According to Mucina and Rutherford (2012) the natural vegetation type of the study area is classified as Northern Upper Karoo (NKu3), as indicated in the following figure.

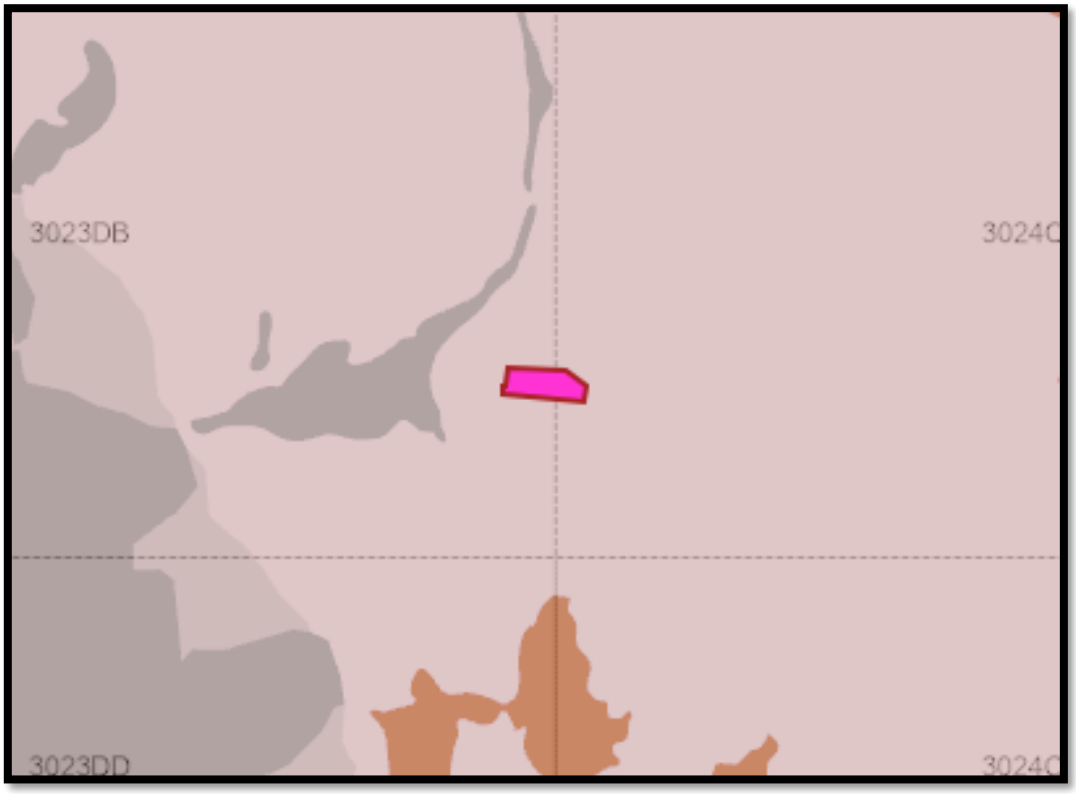


Figure 14: BGIS National Vegetation Map showing the vegetation type of the study area, where the light purple shaded area indicates the Northern Upper Karoo (NKu3), and the pink polygon indicates the mine. (Image obtained from the BGIS Map Viewers website).

Northern Upper Karoo (NKu3):

The vegetation and landscape features of the Northern Upper Karoo (NKu3) vegetation type is characterised by shrublands dominated by dwarf karoo shrubs, grasses and *Acacia mellifera* subsp. *detinens* and some other low trees (especially on sandy soils in the northern parts and vicinity of the Orange River). Flat to gently sloping, with isolated hills of Upper Karoo Hardeveld in the south and Vaalbos Rocky Shrubland in the northeast and with many interspersed pans (Mucina & Rutherford, 2012).

Some of the important taxa found in this vegetation type include (amongst others) the following *Acacia mellifera subsp. deti¬nens, Boscia albitrunca. Tall Shrubs: Lycium cinereum (d), L. horridum, L. oxycarpum, L. schizocalyx, Rhigozum trichotomum. Low Shrubs: Chrysocoma ciliata (d), Gnidia polycephala (d), Pentzia calcarea (d), P. globosa (d), P. incana (d), P. spinescens (d), Rosenia humilis (d), Amphiglossa triflora, Aptosimum marlothii, A. spinescens, Asparagus glaucus, Barleria rigida, Berkheya annectens, Eriocephalus ericoides subsp. ericoides, E. glandulosus, E. spinescens, Euryops asparagoides. Felicia muricata, Helichrysum lucilioides, Hermannia spinosa, Leucas capensis,*

Limeum aethiopicum, Melolobium candicans, Microloma armatum, Osteospermum leptolobum, O. spinescens, Pegolettia retrofracta, Pentzia lanata, Phyllanthus maderaspatensis, Plinthus karooicus, Pteronia glauca, P. sordida, Selago geniculata, S. saxatilis, Tetragonia arbuscula, Zygophyllum lichtensteinianum. Succulent Shrubs: Hertia pallens, Salsola calluna, S. glabrescens, S. rabieana, S. tuberculata, Zygophyllum flexuosum. Semiparasitic Shrub: Thesium hystrix (d), Herbs: Chamaesyce inaequilatera, Convolvulus sagittatus, Dicoma ca¬pensis, Gazania krebsiana, Hermannia comosa, Indigofera alternans, Lessertia pauciflora, Radyera urens, Sesamum capense, Sutera pinnatifida, Tribulus terrestris, Vahlia capensis. Succulent Herb: Psilocaulon coriarium. Geophytic Herb: Moraea pallida.Graminoids: Aristida adscensionis (d), A. congesta (d), A. diffusa (d), Enneapogon desvauxii (d), Eragrostis lehmanniana (d), E. obtusa (d), E. truncata (d), Sporobolus fimbriatus (d), Stipagrostis obtusa (d), Eragrostis bicolor, E. porosa, Fingerhuthia africana, Heteropogon contortus, Stipagrostis ciliata, Themeda triandra, Tragus berteronianus, T. koelerioides, T. racemosus.

The vegetation type is classified as Least Threatened and according to Mucina and Rutherford (2012) none conserved in statutory conservation areas. About 4% has been cleared for cultivation (the highest proportion of any type in the Nama-Karoo) or irreversibly transformed by building of dams (Houwater, Kalkfontein and Smart Syndicate Dams). Areas of human settlements are increasing in the northeastern part of this vegetation type (Hoffman et al. 1999). Erosion is moderate (46.2%), very low (32%) and low (20%). *Prosopis glandulosa*, regarded as one of the 12 agriculturally most important invasive alien plants in South Africa, is widely distributed in this vegetation type (Hoffman et al. 1999). Prosopis occurs in generally isolated patches, with densities ranging from very scattered to medium (associated with the lower Vaal River drainage system and the confluence with the Orange River) to localised closed woodland on the western border of the unit with Bushmanland Basin Shrubland.

2018 SANBI Vegetation Map:

According to the latest vegetation map provided for South Africa (SANBI, 2018), the project site is still situated within the Northern Upper Karoo.

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

FAUNA

The study area is significantly transformed and enclosed within an area that has experienced mining activities for more than 60 years. Any animal species that may occur in the region, therefore, would most probably have migrated as disturbance levels increased.

The 2015 EMPR of the mine noted the following regarding faunal assemblages:

Numerous reptile species are found around the De Aar area, such as the Greater Padloper (*Homopus femoralis*), Helmeted Terrapin (*Pelomedusa subrufa*), Cape Cobra (*Naja nivea*), and the Eastern tiger snake (*Telescopus semiannulatus*). This region is also home to amphibians like the Giant Bullfrog (*Pyxicephalus adspersus*), Bubbling Kasina (*Kassina senegalensis*), and the Common Platanna (*Xenopus laevis*).

De Aar is located within the Platberg-Karoo Conservancy, which is identified as a critical bird habitat, partly due to the presence of two globally endangered species—the Lesser Kestrel (*Falco naumanni)* and the Blue Crane (*Anthropoides paradiseus*). In addition, four bird species of national conservation concern, including the Kori Bustard (*Ardeotis kori*) and Ludwig's Bustard (*Neotis ludwigii*), inhabit the conservancy. Other notable near-threatened birds found in the region include the Blue Korhaan (*Eupodotis caerulescens*) and the Secretary Bird (*Sagittarius serpentarius*). These species collectively contribute to the area's rich avian biodiversity, as noted by Koch and Kalibbal (2011).

In the far western section of the site, ground squirrels have been spotted, while in the north-western area, Aardvark (*Orycteropus afer*) burrows have been observed. The quarry cliffs serve as nesting grounds for common starlings (*Sturnus vulgaris*), and house sparrows are commonly seen around the office and workshop surroundings.

The Screening Report (2025) lists the following specie that may (amongst others) be present or enter the site at various intervals:

- *Aves-Neotis ludwigii* (EN) (Bird - Ludwig's bustard)

HUMAN ENVIRONMENT:

CULTURAL AND HERITAGE ENVIRONMENT

The South African Heritage Resources Agency (SAHRA) compiled the Palaeontological (fossil) Sensitivity Map (PSM) to guide developers, heritage officers and practitioners in screening palaeontologically sensitive areas at the onset of a project. When the footprint of the mining area is placed on the PSM, it shows the study area to extend over and area of Insignificant/Zero (grey) concern as presented in the figure below.

LEGEND:

Red: Very High
Field assessment & protocol for finds required.

Orange: High
Desktop study required & field assessment is likely.

Green: Moderate
Desktop study is required.

Blue: Low
No palaeontological studies required, a protocol for finds is required

Grey: Insignificant/zero
No palaeontological studies is required

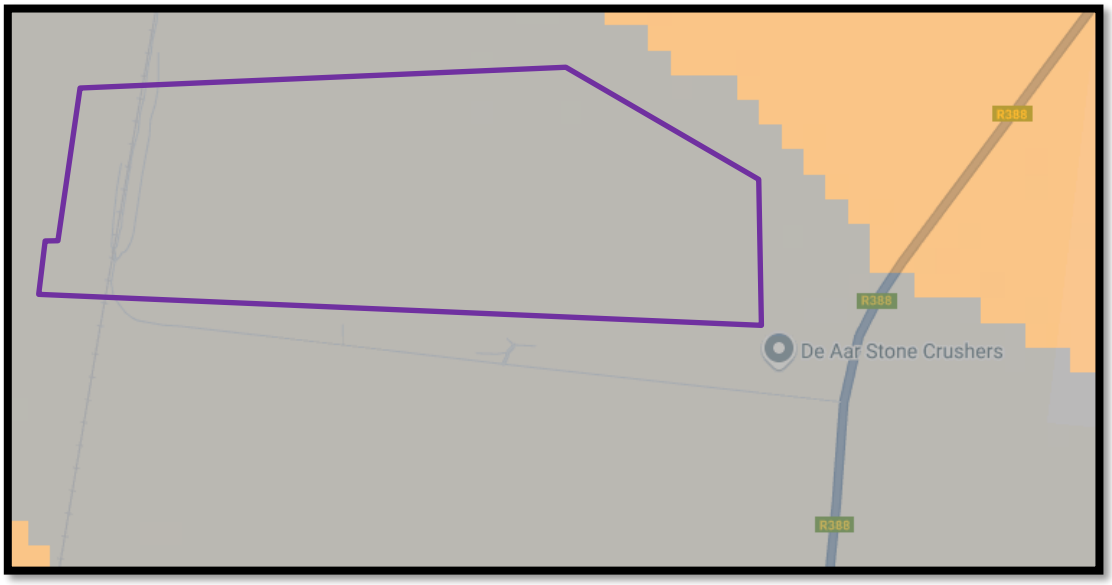


Figure 15: The SAHRA palaeontological sensitivity map shows the mining footprint (purple polygon) extends over an area of insignificant (grey) concern.

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

SOCIO-ECONOMIC ENVIRONMENT

(Information extracted from the Pixley Ka Seme Final 5th Generation IDP, 2022 - 2027)

Emthanjeni Local Municipality is a category B municipality consisting of three towns: De Aar, Britstown and Hanover.

It is situated in the Pixley ka Seme District Municipality and is the seat of this district. De Aar is situated in the Northern Cape Province and represents 3.7% of the total population in the province.

Emthanjeni represents approximately 22, 7% of the district's population. The Pixley ka Seme District has an approximate population of 220 830 people (IHS Markit Review 2019) representing 16, 26% of the Northern Cape population with

its 1 145 861 residents. The Northern Cape represent 2, 21% of the National population (51,770,560). The Municipality is situated approximately 300km south west of Kimberley, 440 km south east of

Upington, 300 km north east of Beaufort-West and 300 km south west of Bloemfontein. The land area comprises 11% of the district land area and 3% of the province.

Hanover lies approximately 65 km east of De Aar on N1 main north to south route and Britstown is situated about 55 km west of De Aar on the N12 route. Both these main routes link Johannesburg and Cape Town. The towns of Emthanjeni lie in an extensive stock farming area with the emphasis on sheep, mutton and wool farming, especially Merino's. Emthanjeni Municipality, specifically De Aar, is the seat of Pixley ka Seme District Municipality which hosts all Government Departments. Emthanjeni Municipality covers an area of approximately.

It is the main economic hub of the district with the three main towns of De Aar, Britstown and Hanover. De Aar is best known for its central location as a railway gateway which joins Johannesburg, Cape Town, Port Elizabeth and Namibia. Below map indicating locality of Emthanjeni Municipality in the Northern Cape:

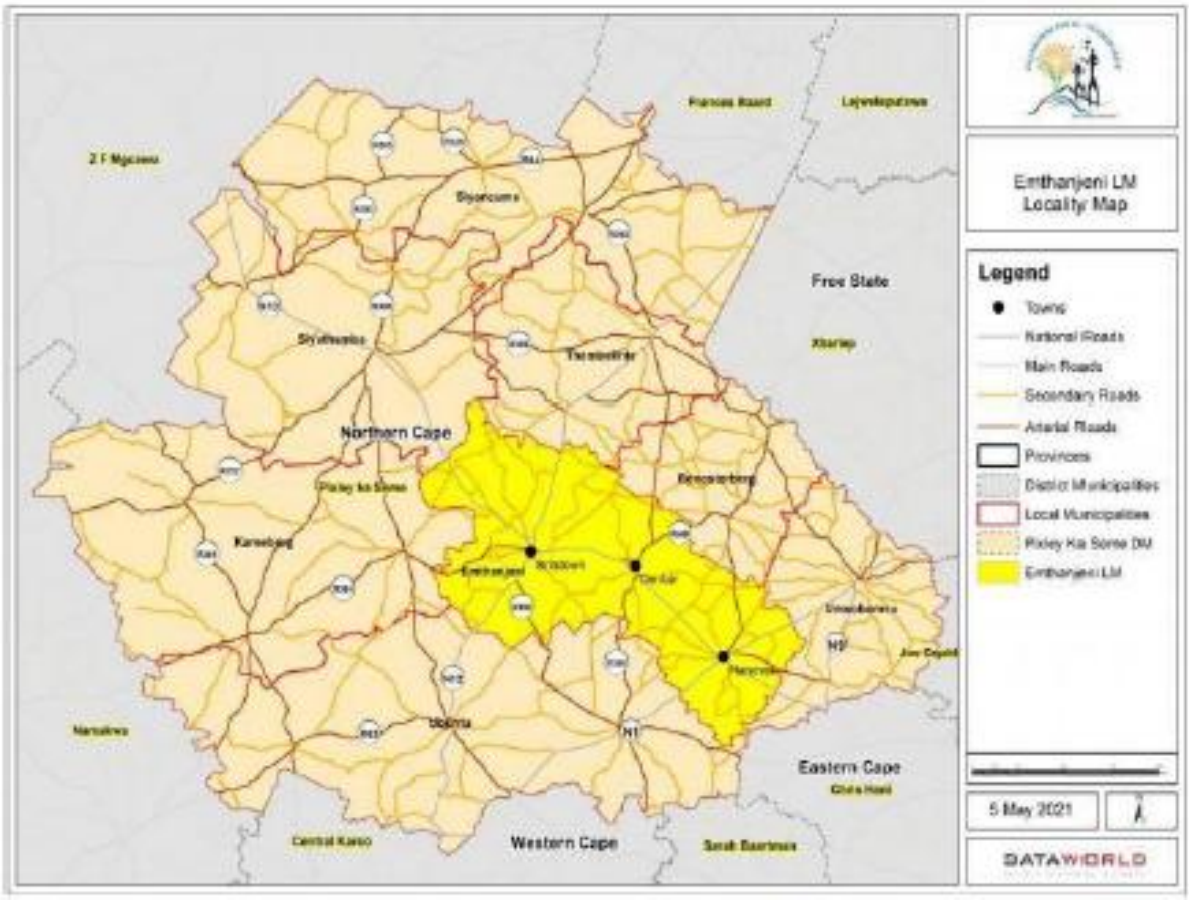


Figure 16: Maps showing Pixley Ka Seme District Municipality in relation to Emthanjeni Local Municipality

Distances from major centres in South Africa:

- Johannesburg: 750km
- Pretoria: 810km
- Cape Town: 748km
- Bloemfontein: 315km
- Port Elizabeth: 502km
- Kimberley: 315km

The towns have the following residential areas:

Town	Residential Areas				
De Aar	De Aar-West	De Aar East	Nonzwakazi	Malaycamp	Barcelona
	Waterdal				
Britstown	Jansenville	Mziwabantu	Britstown (town)	Proteaville	
Hanover	Kwezi	Nompumelelo	Joe Slovo park	Tornadovill	Hanover (town)

The Municipality previously were structured into seven (7) Wards but due to Demarcation changes which affected our municipality, an additional ward was created meaning in this financial year the municipality will be having eight (8) Wards after the Election of 03 August 2016: Table 4 is the reflection of old demarcation of wards and Table 5 is the new municipal demarcation after this local government election of 03 August 2016.

Ward	Areas
1	Louisville, Montana, Kareeville, Sunrise
2	Leeuwenshof, Residensia, New bright, Happy Valley, Extension 20, Klein Kareeville, Extension 7
3	Nonzwakazi, Portion of Waterdal
4	Barcelona, Macarena, Malay camp, Portion of Nonzwakazi
5	Waterdal, Town Area
6	Kwezi, Nompumelelo, Joe Slovo Park, Tornadoville, Hanover(town)
7	Jansenville, Mziwabantu, Britstown(town), Proteaville

Ward	Areas

1	Montana, Kareeville, Sunrise
2	Macarena, Residensia, New bright, Happy Valley, Extension 20, Klein Kareeville, Extension 7
3	Nonzwakazi, (From street 11, 10,20 until street 3,15, 16, Izinyoka including left side of street 2)
4	Barcelona, Leeuwenshof, Malay camp, Portion of Nonzwakazi (Only street 12 ,18)
5	Remaining part of town, Louisville
6	Kwezi, Nompumelelo, Joe Slovo Park, Tornadoville, Hanover(town)
7	Jansenville, Mziwabantu, Britstown(town), Proteaville
8	Right side of Street 2, 1. 13, 14, 17, Waterdal and Town portion up until Van Zyl street

The Major Towns of Emthanjeni

De Aar

De Aar means “the artery”, and in many senses this town is the lifeblood of the Karoo. It is the head office of the Emthanjeni and Pixley Ka Seme District Municipalities; home to many artists; there is an important weather station that can be toured by visitors, and it has the second most important railway junction in the country. The significance of the railway line is that it is central to Gauteng, Cape Town, Port Elizabeth and Namibia.

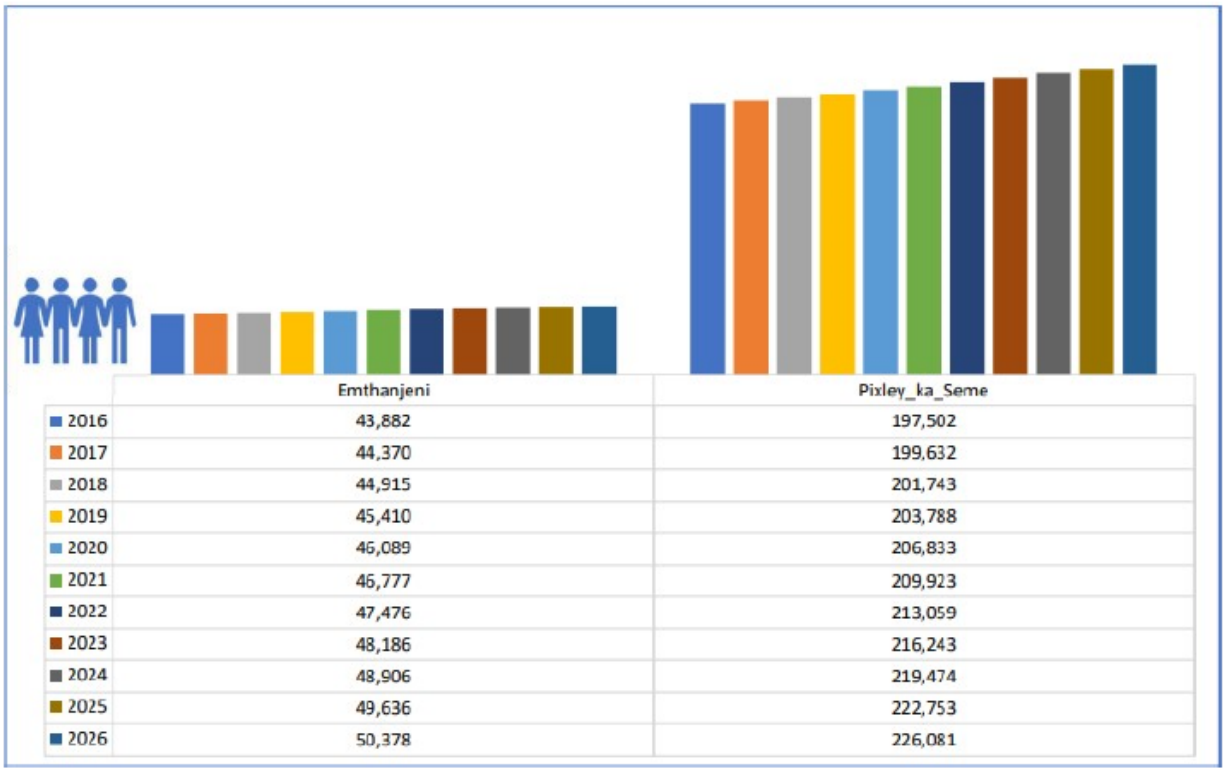
There are about 110km of railway lines, including 29 rail-tracks in De Aar precincts. However, “De Aar” founded in 1904, was so named because of the many water-bearing arteries that occur underground. Unlike many other Karoo towns, it did not start around the Dutch Reformed Church, but in fact started around the railway line.

This town used to be known around railway activities which at some stage faded and by now some activities are coming back as way of revitalization of the railway.

De Aar has the largest abattoir in the Southern Hemisphere and supplies all the major centres throughout the entire country with the famous “Karoo” lamb and mutton. Apart from meat production, the sheep farms around De Aar are also major suppliers of wool. All the water used in the town comes from boreholes – which is why the town is known for its large number of wind pumps. The town is easily accessible by tarred road and two airfields serve it – one is an all-weather runway that can accommodate any type of aircraft and it is only 52km away from the national bus route.

- **Population Profile**

The population is the number of individuals who live within a specified area. The Emthanjeni Municipality had a population size of 46,586 people in 2022. The total population for the Pixley_ka_Seme Municipality is estimated to increase to 50 378 by 2026, growing at an average annual rate of 0.45 %. The growth rate of the municipal area is greater to that of the district between 2016 and 2019 (0.41 %). The figure below depicts the actual population numbers up until 2019, as well as forecasted values for the subsequent years.



	Emthanjeni	Pixley_ka_Seme
2016	43,882	197,502
2017	44,370	199,632
2018	44,915	201,743
2019	45,410	203,788
2020	46,089	206,833
2021	46,777	209,923
2022	47,476	213,059
2023	48,186	216,243
2024	48,906	219,474
2025	49,636	222,753
2026	50,378	226,081

Figure 17: Figure depicting the actual population numbers up until 2019, as well as forecasted values for the subsequent years.

Table 10: Population by race per ward (Source: Census 2011)

Ward	Black African	Coloured	Indian/Asian	White	Other	Total
Ward 1	281	4790	62	18	23	**5174**
Ward 2	635	7222	56	10	73	**7996**
Ward 3	5001	247	14	142	14	**5418**
Ward 4	2706	2583	20	10	35	**5353**
Ward 5	1337	2348	34	2302	30	**6050**
Ward 6	2660	2955	27	496	39	**6178**
Ward 7	1440	4292	23	410	24	**6188**
Total Population						**42356**

- **Gender Profile**

In 2011 the Emthanjeni population showed that females represent 21 634 (51%) and males 42 356 (49%).

Table 11: Population Composition by Gender

Population – Gender	2011	2022
Females	21 634 (51%)	24,211
Males	20 722 (49%)	22,375
Total	**42 356**	**46,586**

Table 12: Population Composition by Gender per Ward (Source: Census 2011)

Ward	Male	%	Female	%
Ward 1	2451	47	2723	53
Ward 2	3931	49	4065	51
Ward 3	2495	46	2923	54
Ward 4	2633	49	2720	51
Ward 5	3018	50	3032	50
Ward 6	3117	50	3061	50
Ward 7	3078	50	3110	50
Total Population	**20723**	**49**	**21634**	**51**

- **Economic Profile**

De Aar is the main town of Pixley ka Seme serving a total of 24 other towns. Emthanjeni has in recent time seen the influx of investment in Renewable energy projects and is a potential industrial growth point with ample industrial sites, reasonable prices and tariffs, affordable labour and the necessary infrastructure. De Aar is therefore the ideal place to establish industries, a fact which can be borne out by various major industries which have already established themselves here. The central location and excellent rail and road links have resulted in several chain stores opening branches.

The Emthanjeni area is increasingly becoming the centre for supplying the whole country with the famous “Karoo” mutton with its unique flavour and quality. Emthanjeni has several abattoirs in De Aar: one solely for sheep with a capacity of 1000 carcasses per day, supplying meat to the other provinces. The second abattoir has a capacity for 550 sheep carcasses and, in addition to beef, supplies meat far beyond our region, even as far afield as Durban. The third abattoir specialises in venison for export.

All the courier services operating nationally serve the towns comprising Emthanjeni municipal area.There is also a synoptic weather station in De Aar gathering climatic data and literally putting De Aar on the world map. The towns of Emthanjeni Municipality boast a pleasant country atmosphere, doing full justice to the motto of the Upper Karoo Region “where tranquillity is only surpassed by the hospitality”, and Emthanjeni Local Municipality being the “Karoo Destination of Choice”.

Sheep, wool and mutton are the main farming activities in Britstown while hunting of small game (springbuck) is also very popular. The Smart Syndicate Irrigation Scheme situated 25 kilometres west of Britstown provides water to Lucerne and wheat farmers. There is a museum in the former Anglican Church next to the Municipal offices. Hanover is also well endowed with qualified construction industry artisans. Like the other towns in this region, wool is exported to Port Elizabeth without being processed. It is noted with great concern the opportunities for local people in relation to the second economy not being optimised, and the role the municipality needs to play to empower SMME’s and co-operatives. This should enable the second economy initiatives to become active contributors to the economy of Emthanjeni as well as the entire district.

Agriculture forms the backbone of Emthanjeni economy and accounts for the largest labour/ employment contributor to date. Despite the harsh climate and poor carrying capacity of the veldt, it still offers opportunities for growth and employment creation. The Manufacturing sector shows potential of growth through the introduction of Renewable energy projects in De Aar and surrounding areas. The Municipality is dependent upon the following economic activities:

Key Economic activities

Primary Sector	Secondary	Tertiary
Agriculture: 4% Agriculture forms the backbone of Emthanjeni economy and accounts for the largest labour/ employment contributor to date. The towns of Emthanjeni lie in an extensive stock farming area with the emphasis on sheep, mutton and wool farming, especially Merino's. - Sheep, wool and mutton are the main farming activities in Britstown while hunting of small game (Springbuck) is also very popular.	**Manufacturing: 2%** - Stone crushers specialize in the manufacturing of sand, bricks, cements and rocks. - Abattoir for meat processing. Apart from meat production, the sheep farms around De Aar are also major suppliers of wool.	**Community Services: 29%** - The services sector consists of the various government institutions, NGOs, CBO's and NPO's that resides within the Emthanjeni area. **Finance:15%** - It also serves as the regional service centre for medical and banking services for example ABSA, FNB, STANDARD BANK and CAPITEC. **Trade: 13%** - Emthanjeni host a number of retail stores for goods and services such as Checkers, Shoprite, Mr Price, Foschini, Truworths, Sheet Street, etc. and serve as the regional retail centre for Pixley ka Seme district.
	Construction: 4% - The local uptake and accrual are low if one takes the extensive renewable energy in the area into consideration.	**Transport: 26%** - Rail Infrastructure - Emthanjeni, and especially De Aar, is renowned for its central location on the main railway line between Johannesburg, Cape Town, Port Elizabeth and Namibia.
		Electricity: 7% - Renewable energy – this sector shows potential of growth through the introduction of renewable energy projects in De Aar and surrounding areas. Some of the renewable energy projects is already connected to the grid which mean they are supplying solar

Key Economic Activities	Description
Services Sector (Community)	The services sector consists of the various government institutions, NGOs, CBO's and NPO's that resides within our area of jurisdiction. Banking: ABSA, FNB, Standard Bank and Capitec
Manufacturing	Stone crushers who specialize in the manufacturing of sand, bricks, cements and rocks. Renewable energy generation. A second stone crusher is about to operate for competition and supply outside towns.
	Rocla, Green Akker, Abattoir for meat processing
Retail	Purchasing of goods and services
	Checkers, Shoprite, Mr Price, Ackermans, Sheet Street, Fashion Express, Foschini, Total Sport, KFC, Built It, Cash Build, etc.

Agriculture	Game Farming
	Sheep, goat, pig and cattle farming
Transport	Rail Infrastructure
	Road Infrastructure
Tourism	To market Emthanjeni as a tourism destination
	Speed up restoration of existing attractions.

- **Education Levels**

In the Emthanjeni municipal area there are 16 schools of which 13 are no-fee schools. According to Census 2011 7.5% have completed primary school, 34.6% have some secondary education, 23.7% have completed matric and 6.5% have some form of higher education. Of those aged 20 years and older 10.2% have no form of schooling. It is clear from statistics that people have achieved higher educational standards in the past 10 years.

Table 13: Education Levels per Town (Source Census 2011)

Education	Mziwabantu	Britstown	Rural Area	De Aar	Nonzwakazi	Hanover	Grand Total
Grade 0	45	192	48	726	246	195	**1452**
Grade 1	54	174	66	831	195	219	**1539**
Grade 2	57	129	90	792	183	180	**1431**
Grade 3	54	147	96	852	237	201	**1587**
Grade 4	63	186	111	912	288	234	**1794**
Grade 5	45	204	156	954	231	195	**1785**
Grade 6	72	234	141	1086	267	231	**2031**
Grade 7	99	321	168	1401	357	249	**2595**
Grade 8	111	348	135	1764	507	360	**3225**
Grade 9	114	252	114	1485	342	249	**2556**
Grade 10	102	252	87	2145	462	324	**3372**
Grade 11	96	180	57	1206	489	261	**2289**
Grade 12	126	408	252	3957	1185	471	**6399**
Grand Total	**1038**	**3027**	**1521**	**18111**	**4989**	**3369**	**32055**

Table 14: Higher Education Levels per Town (Source Census 2011)

Tertiary Education	Mziwabantu	Britstown	Rural Areas	De Aar	Nonzwakazi	Hanover	Grand Total
Certificate	0		6	93	27	12	**141**
Higher Diploma	3	24	39	255	21	18	**360**
Bachelor's Degree	3	18	42	174	18	9	**264**
Honours degree	0	0	21	63	6	6	**96**
Higher Degree Masters / PhD	3	3	15	39	3	3	**66**
Grand Total	**9**	**48**	**123**	**624**	**75**	**48**	**927**

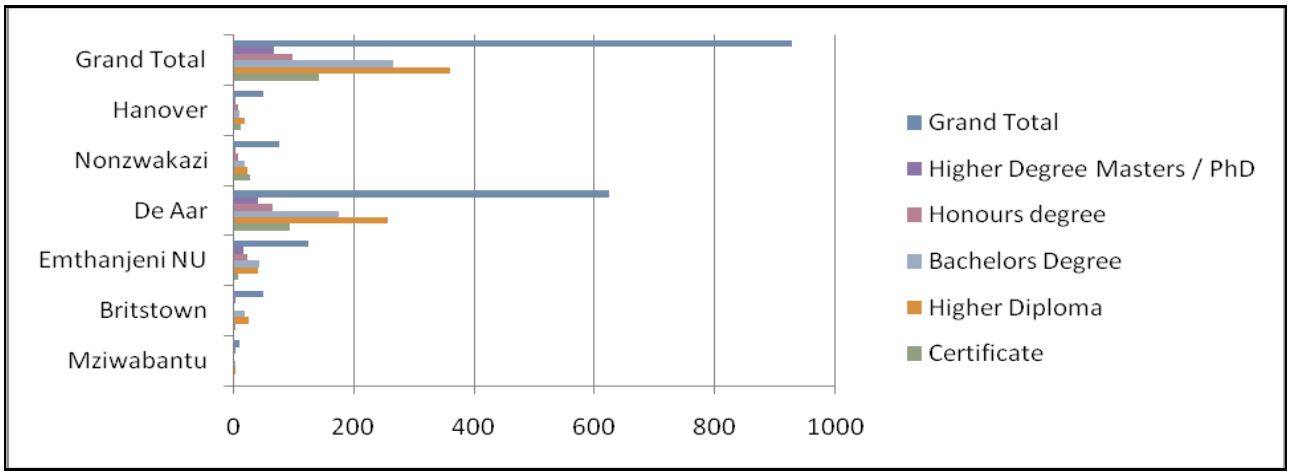


Figure 18:Tertiary Education per Town (Source Census 2011)

- **GDPR Per Capita**

The GDPR per capita illustrates the economic output per person and is often used as a measure for the standard of living.

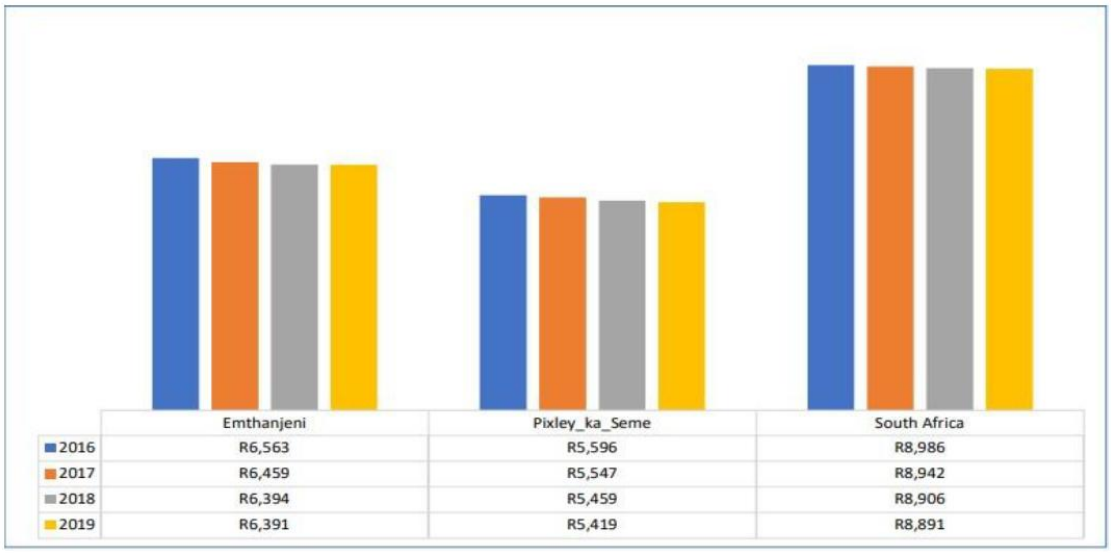


Figure 19:GDPR per Capita, 2016-2019 (Source: Quantec, 2020))

- **Household Income**

The table below depicts the average monthly income (in current prices) of the households within the Emthanjeni Municipality as well as the average monthly income in the Pixley_ka_Seme District and that of South Africa. The table further shows the annual household income growth between 2016 and 2019.

Table 15: Average Monthly Household Incorme (Source: Quantec 2020)

	Average household income (2019)	Average household income (2016-2019)
Emthanjeni	R118	2.17%
Pixley_ka_Seme	R430	2.36%
South Africa	R166,641	1.83%

Households in the Emthanjeni Municipality earned less than the district average. The average disposable monthly household income increased by an average annual rate of 2.2 % between 2016 and 2019. The average monthly household income growth in the Emthanjeni Municipality, was higher than the average household growth in South Africa over the period 2016 to 2019.

BASIC SERVICE DELIVERY

Access to Services

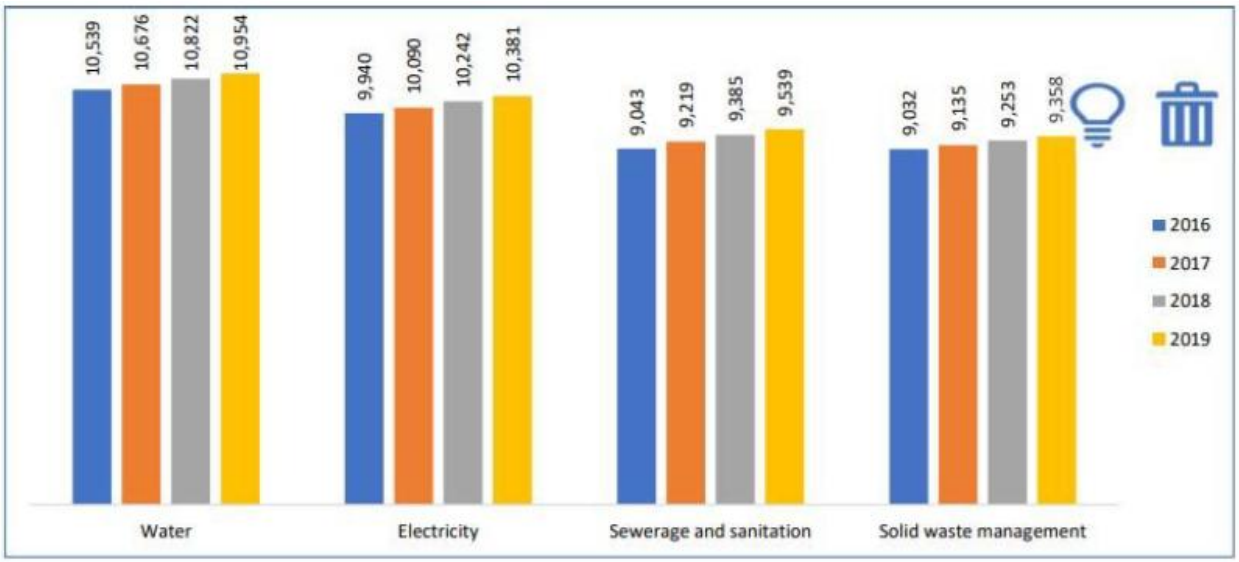


Figure 20:The figure indicates the number of services consumers in the Emthanjeni Municipality between 2016 to 2018.

Water consumers have increased over the reference period in the Emthanjeni Municipality. Between 2016 and 2019, electricity consumers have increased. Electricity is also provided directly by Eskom, which impacts the number of consumers reliant on municipalities for services. Sewerage and sanitation services have increased.

The figure below illustrates the proportion of households that have access to services in 2019.

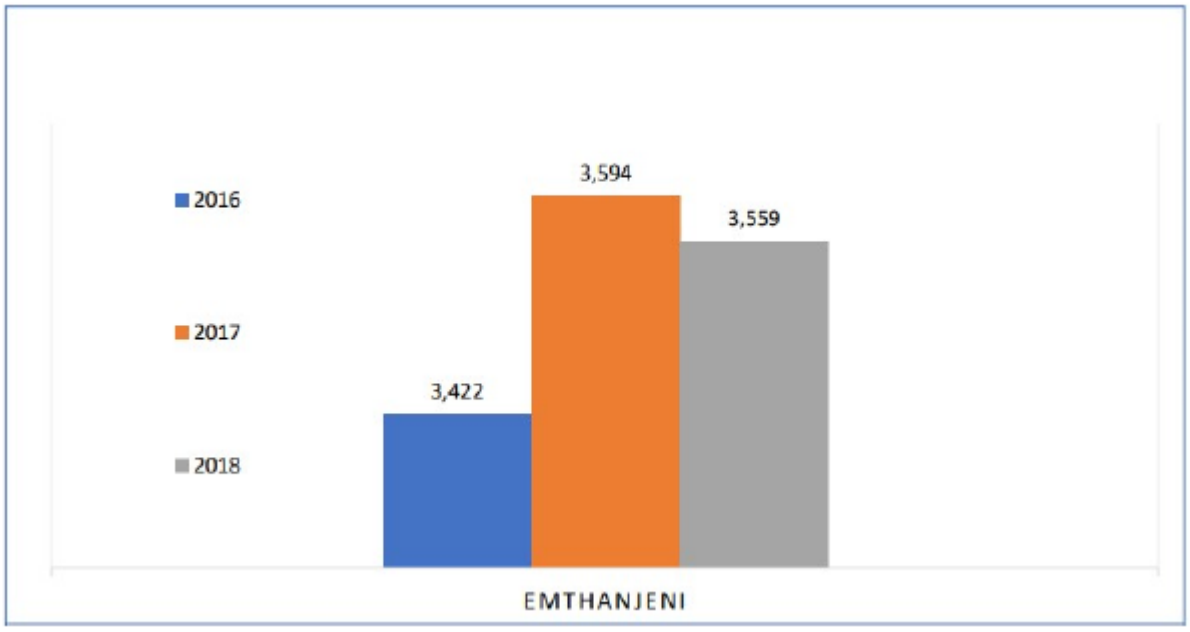
Flush toilets connected to the sewerage %			Weekly refusal removal %			Piped water inside dwelling %			Electricity for lighting %		
2011	2016	2022	2011	2016	2022	2011	2016	2022	2011	2016	2022
79.6	85.2	97.6	83.3	79.8	92.1	59.8	53.2	65.7	92.6	95.4	96.5

Access to Water			
Financial year	Number/Proportion of households with access to water points*	Proportion of households with access to piped water	Number /Proportion of households receiving 6 kl free#
2019/20	189	8 009	8 192
2020/21	189	8 083	8 272

- *Means access to 25 litres of potable water per day supplied within 200m of a household and with a minimum flow of 10 litres per minute*
- *6,000 litres of potable water supplied per formal connection per month*

- **Housing**

The figure below indicates the distribution of households who reside in formal, traditional and informal dwellings, figure 27 presents the proportion of households which reside in subsidized housing in the Emthanjeni Municipality. In 2019, most households resided in formal dwellings.



Between 2016 and 2018, the proportion of households residing in subsidized housing increased from 3 422 to 3559 subsidized households. In 2019, 95.3 % of the population living within the Emthanjeni Municipality resided in formal dwellings, with 3.8 % of households living in informal dwellings. The proportion of people living in subsidized dwellings has been increasing. According to Census 2022, 95.2% of the population living within Emthanjeni Municipality resided in formal dwelling, with 4.3% of households living in informal dwellings.

In 2019, 98.9 % of households had access to water, 93.8 % of households had access to electricity, 86 % of households had access to sanitation services and 84.4 % had access to waste removal services. According to Census 2022, 65.7%

of households had access to pipe water in side dwelling and 84.1% of households had access to electricity.

- **Employment**

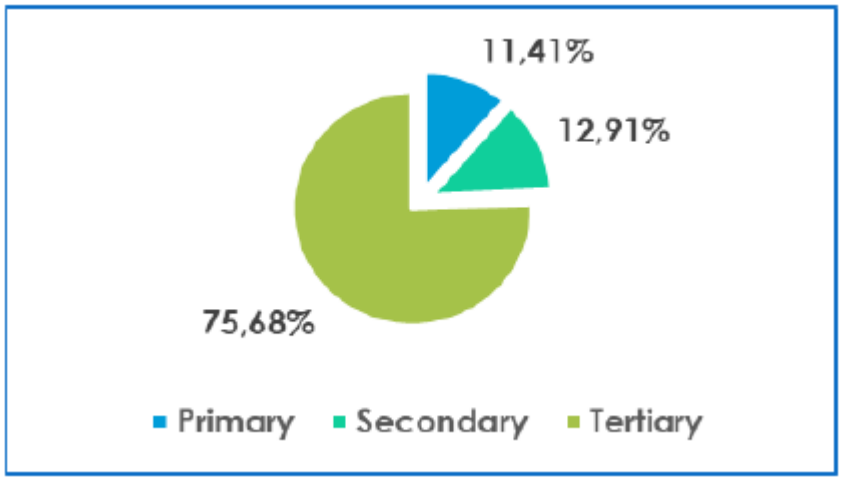


Figure 21:The figureshows the composition of jobs in the Emthanjeni Municipality, according to primary, secondary and tertiary sector employment.

In 2019, those employed in the primary sector amounted to 11.41 % of the working population, 12.91 % in the secondary sector and 75.68 % were employed in the tertiary sector in the Emthanjeni Municipality.

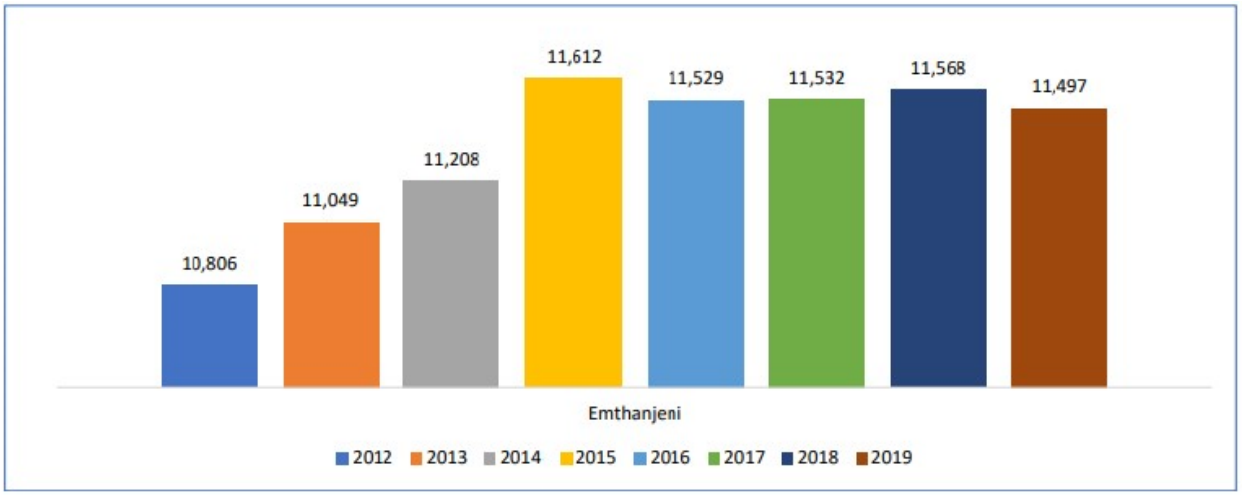


Figure 22:The figure provides the number of jobs within the Emthanjeni Municipality over the period 2012 to 2016.

In 2019, the Emthanjeni Municipal area employed 11 497 people, equating to 71 less than the previous year.However, Emthanjeni shed - 32 jobs over the period 2016 to 2019.

The table below outlines the unemployment rate, the labour force participation rate and the labour absorption rate of the Emthanjeni Municipality compared to that of South Africa in 2019. According to Statistics SA's narrow definition, the unemployment rate is the proportion of the labour force who are unemployed. The labour force participation rate shows the proportion of the working-age population (15 to 64) who are economically active, while the labour absorption rate indicates the proportion of working-age people who are employed.

	Unemployment rate	Labour participation rate	Labour absorption rate
Emthanjeni	27.13%	56.1%	41.37%
South Africa	26.36%	57.41%	42.68%

- **Unemployment**

The Emthanjeni Municipality has an unemployment rate of 27.13 % which is greater than that of the district. Furthermore, 56.1 % of working-age people are economically active and 41.37 % of working-age people are employed.The rate of unemployment within the area of Emthanjeni Municipality is extremely high and according to the Stats SA the levels are as follows:

SECTOR	Number of jobs 2018	Percentage share	Average employment growth 2016-2019	Employment growth 2019
Agriculture, forestry & fishing	1,305	11.4%	-73	2
Mining & quarrying	7	0.1%	-2	-1
Manufacturing	535	4.7%	14	50
Electricity, gas & water	65	0.6%	-7	-3
Construction	884	7.7%	-39	-96
Wholesale & retail trade, catering & accommodation	2,159	18.8%	-2	-20
Transport, storage & communication	524	4.6%	-2	5
Finance, insurance, real estate & business services	1,381	12.0%	54	-18
General government	2,896	25.2%	28	55
Community, social & personal services	1,741	15.1%	-3	-45
Total	11,497	100.0%	-32	-71

(b) Description of the current land uses.

Portion 49, 54 and a portion of Portion 50 of The Farm De Aar No 180, is surrounded by other farms. The land use on the farm and surrounding areas are mainly for

agricultural purposes. Additional workers required will be sourced from the local community. The aggregate from the mining area will be used for construction, road infrastructure, and related civil works in the immediate vicinity. The activity will therefore have a positive impact on the surrounding environment as it will aid infrastructure development of the area.

Natural area – As indicated in the Ecological and Wetland Assessment (Appendix K), the footprint of the existing mining area is completely transformed from the natural condition, while the immediate surroundings, as well as the proposed expansion area, still consist of natural vegetation though with some disturbances also present. These modifications and disturbances also include:

- The mining operations area itself is completely transformed from the natural condition and any remaining vegetation consists of pioneer species and exotic weeds.
- Several internal dirt tracks contribute toward localised transformation.
- A railway line and overhead powerlines along the western border, as well as a large gravel road along the eastern and southern border, form artificial barriers, which will affect surface runoff patterns and faunal movement.
- Overgrazing and trampling by domestic livestock are evident, resulting in some disturbance of natural areas.

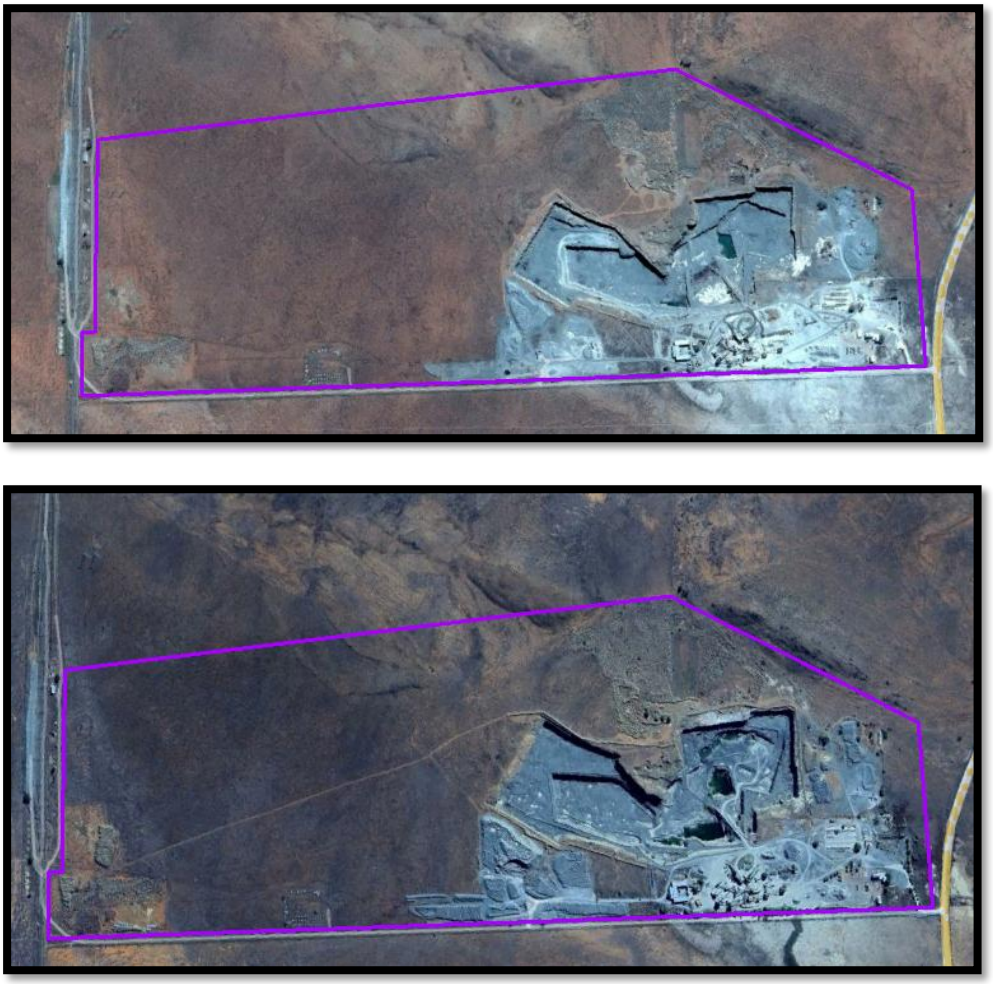


Figure 23: Satellite view of the study area in 2016 (top pane) and again in 2023 (bottom pane) where mining activities can clearly be seen (eastern part of the quarry)(images obtained from Google Earth).

The main land use of the surrounding properties is agricultural. The following table provides a description of the land uses and/or prominent features that currently occur within a 500 m radius of the proposed site:

Table 16: Land uses and/or prominent features that occur within 500 m radius of the study area.

LAND USE CHARACTER	YES	NO	DESCRIPTION
Natural area	**YES**	-	The study area is surrounded by natural areas used for agricultural ~~(small holding)~~ purposes.
Low density residential	-	**NO**	
Medium density residential	-	**NO**	
High density residential	-	**NO**	
Informal residential	-	**NO**	
Retail commercial & warehousing	-	**NO**	
Light industrial	-	**NO**	
Medium industrial	-	**NO**	
Heavy industrial	-	**NO**	
Power station	-	**NO**	
High voltage power line	**YES**	-	

LAND USE CHARACTER	YES	NO	DESCRIPTION
Office/consulting room	-	**NO**	
Military or police base / station / compound	-	**NO**	
Spoil heap or slimes dam	-	**NO**	
Quarry, gravel or borrow pit	-	**NO**	
Dam or reservoir	**YES**	-	An artificial dam approximately 440m from the proposed expansion.
Hospital/medical centre	-	**NO**	
School/ crèche	-	**NO**	
Tertiary education facility		**NO**	
Church	-	**NO**	
Old age home	-	**NO**	
Sewage treatment plant	-	**NO**	
Train station or shunting yard	-	**NO**	
Railway line	**YES**	-	
Major road (4 lanes or more)	**-**	**NO**	
Airport	-	**NO**	.
Harbour	-	**NO**	
Sport facilities	-	**NO**	
Golf course	-	**NO**	
Polo fields	-	**NO**	
Filling station	-	**NO**	
Landfill or waste treatment site	-	**NO**	
Plantation	-	**NO**	
Agriculture	**-**	**NO**	The proposed expansion area is inactive but still forms part of an agricultural active farm.
River, stream or wetland	**YES**		Two drainage lines overlaps with the proposed expansion area.
Nature conservation area	-	**NO**	
Mountain, hill or ridge	-	**NO**	
Museum	-	**NO**	
Historical building	-	**NO**	
Protected Area	-	**NO**	
Graveyard		**NO**	
Archaeological site	-	**NO**	
Other land uses (describe)	-	**NO**	

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

SPECIFIC ENVIRONMENTAL FEATURES

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

SITE SPECIFIC TOPOGRAPHY

The Quarry footprint is generally characterised by a relatively flat and accessible surface for quarry operations. However, the sloping gradient from the western part of the study area decreases in elevation toward the eastern part due to the quarry pit. As

shown in the following figure, the topography of the proposed expansion area gradually slopes from the highest point (1292 mamsl) along the quarry pit towards the eastern part near the R388. The route indicated below shows an average slope of 3.4% over 2 km, with a maximum elevation gain of 47.8 m (or -44.7 m elevation loss).

Figure 24: Elevation profile of the proposed expansion area (Image obtained from Google Earth).

SITE SPECIFIC VISUAL CHARACTERISTICS

The proposed expansion will be visible within close proximity (±1 km radius) of the footprint. However, as one moves away the visibility of the area greatly lessens. The figure below shows the viewshed analysis for the footprint within a ±10 km radius. The green shaded areas show the positions from where the mining area will be visible. From this analysis it is proposed that the visual impact of the proposed expansion will be of low significance. Should the Applicant successfully rehabilitate the mining area (upon closure), no residual visual impact is expected upon closure of the mine.

As mentioned earlier, material used by the crushers is sourced from an open pit, which only becomes visible when near the quarry itself. The property's highest point is a large manmade topsoil stockpile, formed around the quarry as mining continued. This stockpiled material is located to the west of the property, behind the office area.

The office buildings and other constructed features are in good condition. There is some scrap material scattered across the veld to the northwest of the quarry. Although

this accumulation has developed over time and may seem untidy up close, it remains mostly hidden from external viewpoints beyond the boundaries of the mining area.

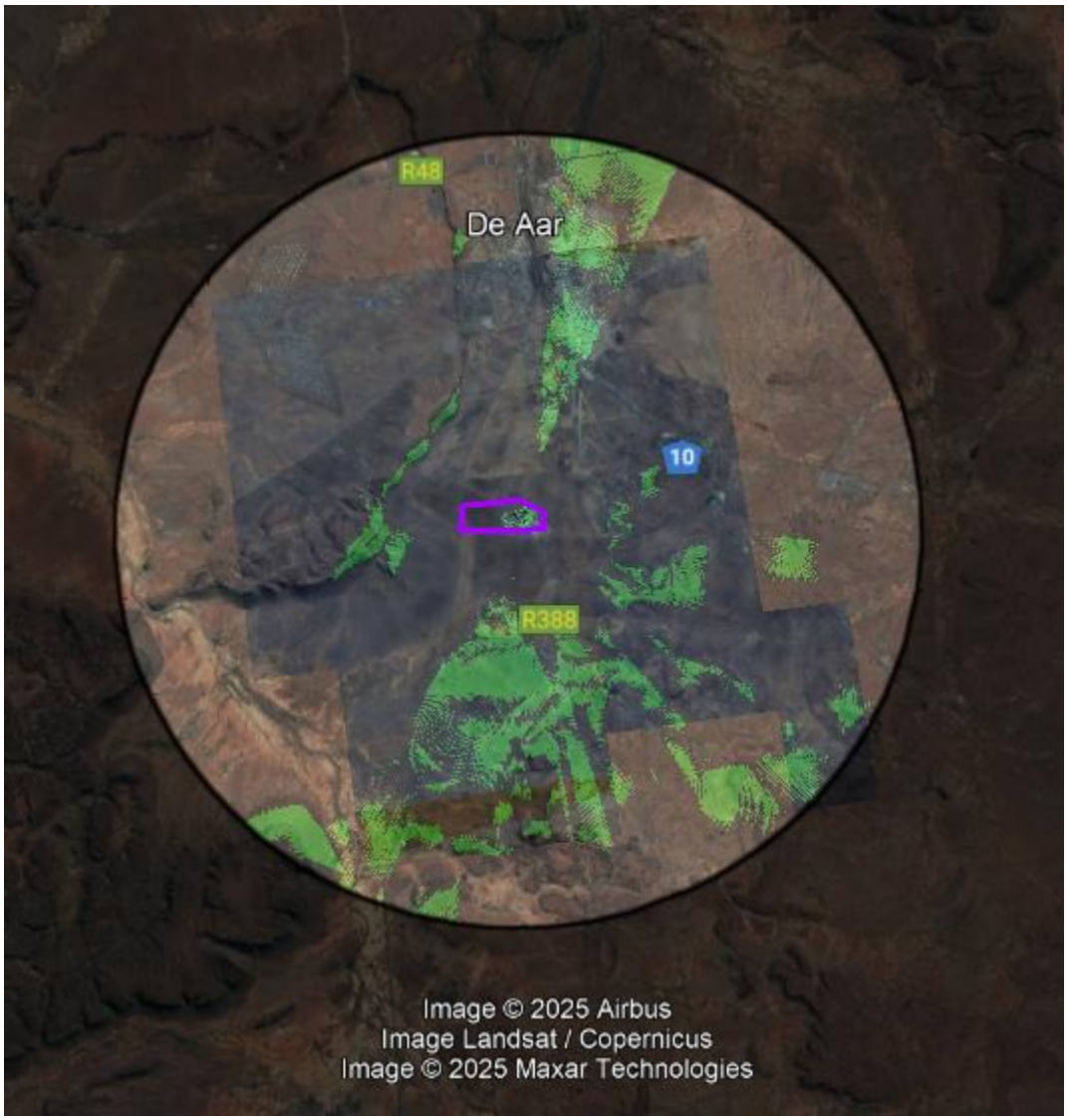


Figure 25: Viewshed analysis of the proposed expansion area (purple polygon) at point A16. (Image obtained from Google Earth).

SITE SPECIFIC AIR AND NOISE QUALITY

Emission into the atmosphere is controlled by the National Environmental Management: Air Quality Act, 2004 (as amended). The proposed expansion of the mining footprint does not trigger an application in terms of the said Act, as emissions to be generated because of these activities mainly entail dust from blasting, transport of material, and the crushing and screening activities. The site is located in a rural area, with the mining operations positioned over 1 km away from the nearest smallholdings to the north. As a result, any noise produced during operations does not impact nearby farms. Additionally, operational activities that may generate noise are restricted to

daylight hours only. The mining site is also situated 7 km from the town of De Aar, ensuring that residents experience no disturbance from the site's activities.

Considering this, the proposed air and noise emissions of the expansion area will be comparable to the current emissions of the Quarry, if not better due to the proposed southern direction moving away from the residents.

SITE SPECIFIC GEOLOGY AND SOIL

(*Information extracted from the 2015 EMPR*.)

The Northern Upper Karoo region is largely composed of shale formations, primarily from the Volksrust Formation and, to a lesser extent, the Prince Albert Formation—both part of the Ecca Group within the Karoo Supergroup. Underlying this geology are diamictite deposits belonging to the Dwyka Group. Intrusions of Jurassic-aged Karoo Dolerite, in the form of sills and sheets, occur intermittently within these shale layers. Broad areas are also overlain by surface deposits, including calcrete associated with the Kalahari Group (Mucina & Rutherford, 2006).

One of the notable geological layers present is the Abramskraal Formation (Pa), consisting of fluvial systems characterized by channel sandstones, narrow mudflake conglomerates, and extensive floodplain mudstones. These are often interbedded with pedogenic calcrete, playa and pond sediments, as well as sporadic reworked volcanic ash layers (Johnson et al., as cited in Groenewald, 2012).

The presence of Karoo Dolerite (Jd) is also a distinguishing feature in this area. This intrusive igneous rock, harder and more weather-resistant than the surrounding sedimentary layers, typically occurs as sills and dykes. These doleritic formations contribute to topographic highs, while the softer sedimentary rocks and alluvium are generally found in valleys and drainage zones. The alluvium originates from the weathering of adjacent geological materials and consists of varying proportions of clay, silt, sand, and gravel (Groenewald, 2012).

Soils in this region range from shallow to deep profiles, often displaying red-yellow hues, apedal structure, and good drainage. These include Glenrosa and Mispah soil forms (Mucina & Rutherford, 2006). Around De Aar, the soil depth is typically less than 450 mm—a trait common to areas affected by mining. In the northwestern section of the property, soils tend to be deeper, likely due to long-term soil migration. These deeper soils are more structured and richer in clay than those found at higher elevations. The Coega soil form has been identified on site (refer to Figure 3).

At higher altitudes, red apedal soils with a high base status are commonly found over dolerite or calcareous substrates. These well-drained soils predominate near the crusher plant and are mostly lithic—meaning they are shallow due to proximity to bedrock. Here, Coega soils typically exhibit a red apedal A-horizon resting on hard carbonate layers. While some areas show deeper soil pockets, the lithic nature remains consistent.

SITE SPECIFIC HYDROLOGY

DFFE National Web Based Environmental Screening Tool:

The Screening Tool, developed by the Department of Environmental Affairs ("DEA"), now Department Forestry and Fisheries of Environment, (DFFE), is a geospatial web-enabled application that aims to provide readily available information, known as 'spatial datasets', which enables applicants for Environmental Authorisation to screen their proposed site for environmental sensitivities.

According to the Screening Report (June 2025) the red shaded areas (in the following figure) indicate a FEPA Sub catchment that corresponds with the position of the Brak River. The remaining area is deemed of low sensitivity in terms of aquatic biodiversity.

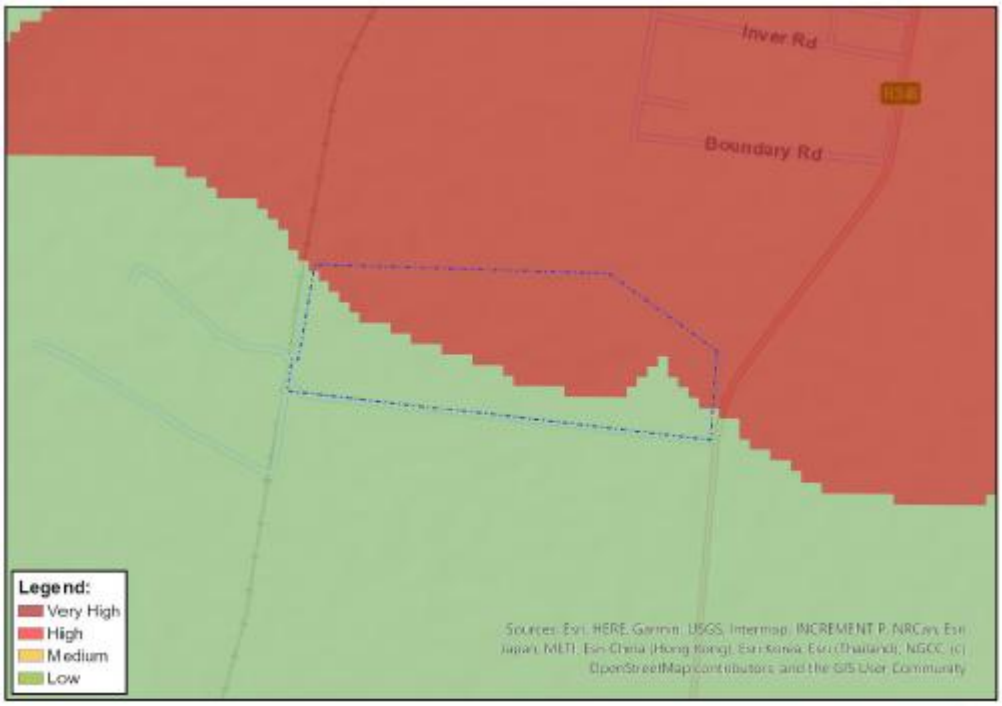


Figure 26: DFFE screening tool output for aquatic biodiversity (image obtained from DFFE screening tool report).

According to the Ecological and Wetland Assessment (Appendix K), the surface water of the surrounding area contains two small drainage lines, being tributaries of the

Elands Spruit and large Brak River systems. These river systems are not situated near the site, though do form part of the catchment of this system and the two small drainage lines form tributaries of the Elands Spruit and Brak River and a residual impact in terms of the system is therefore still likely, should mining operations affect these small drainage lines on the site. The main focus of the assessment will therefore be on the two small drainage lines, likely to be affected by the mining operations.

One of these drainage lines is situated immediately to the southwest of the site and borders on proposed mining activities (Appendix A: Map 3 the Ecological and Wetland Assessment (Appendix K)). The entire length of the drainage line is approximately 3.5 km, originating along the large hill to the west and flowing into the Elands Spruit approximately 6 km downstream of the site. The drainage line is however already affected by several impacts, and is being crossed by the existing railway line, which results in obstruction to its flow and concentrated flow patterns where culverts are situated within the drainage line. The drainage line also flows past the southwestern corner of the proposed mining expansion, which is therefore not anticipated to greatly increase the impact on it, as it is not situated on the site itself and will therefore only be affected by indirect impacts associated with mining activities. The drainage line itself is quite small with a poorly defined channel, characterised by diffuse surface flow, though significant riparian vegetation is present. The drainage line is clearly ephemeral in terms of flow and will drain by means of flash floods only after heavy rainfall events.

The second drainage line originates and is situated in the northern portion of the proposed mining expansion area (Appendix A: Map 3 the Ecological and Wetland Assessment (Appendix K)). The drainage line originates along the low ridges on the site, draining northwards, where it dissipates into the lower lying plains. It does however still form a part of the catchment and drainage pattern of the Brak River and will therefore still play a role in terms of the surface drainage of the area. The drainage line is still largely intact and without significant modification, though being situated on the site itself, may likely be affected by the proposed expansion of mining operations. The drainage line can however easily be excluded from mining activities, limiting any impacts on it. The drainage line is quite small, but with a narrow, prominent channel which drains to the north. The drainage line is clearly ephemeral in terms of flow and will drain by means of flash floods only after heavy rainfall events.

Delineation of both of the small drainage lines likely to be affected by the mining expansion was done by a combination of topography (land form and drainage pattern) and riparian vegetation with limited soil sampling (Appendix C the Ecological and

Wetland Assessment (Appendix K)). Both of these drainage lines are clearly natural drainage systems (Appendix A: Map 3 the Ecological and Wetland Assessment (Appendix K)). They are however completely devoid of any wetland condition, both in terms of soils and vegetation. Though the drainage lines do not contain any natural wetland conditions, they contain clear riparian conditions, containing a defined though very small channel and an abundance of riparian vegetation, which confirms that they must be regarded as natural watercourses. The proposed mining expansion will therefore have to ensure that both drainage lines are not affected by any storm water inflow from the site and are excluded from any mining activities.

A Risk Assessment for the proposed mining area expansion which will affect the two drainage lines respectively, has been undertaken according to the Department of Water & Sanitation's requirements for risk assessment and the provisional Risk Assessment Matrix for Section 21(c) & (i) water use (Appendix E the Ecological and Wetland Assessment (Appendix K)). Activities likely to be associated with the mining operations and which will likely affect the two drainage lines are largely associated with mining in close proximity to these systems.

The proposed mining operations should completely exclude both these drainage lines and treat these systems as no-go areas (Appendix A: Map 3 the Ecological and Wetland Assessment (Appendix K)). Despite being excluded from mining operations, the following residual risks are still anticipated to occur:

- Should these drainage lines be excluded from mining activities, impacts on them should remain limited.
- Residual impacts are however still possible, but can be kept to a minimum, provided that adequate storm water management is implemented.
- The drainage lines are likely to be affected by residual impacts caused by the mining operations, largely as a result of increased sediment load. This can be managed through adequate mitigation, including storm water management measures and provided that adequate rehabilitation is undertaken, these operations should not have a long-term impact on them.
- Should these drainage lines be excluded from mining operations and adequate storm water management implemented, the anticipated risk should remain Low.

Figure 27: Satellite imagery providing a good indication of the position of these two drainage lines and also confirm that they are part of the natural drainage pattern of the area.(image obtained from google earth)

The following mitigation should be implemented to prevent or decrease the anticipated impacts on the two small drainage lines likely to be affected by the mining operations (Appendix A: Map 3 the Ecological and Wetland Assessment (Appendix K)):

- The drainage line to the south west of the site, as well as the drainage line originating in the northern portion of the site, should be completely excluded from mining operations, should be designated no-go areas and no mining activities, including construction or operational activities, vehicle movement, laydown areas, vegetation clearing or any other associated activities should occur in or near these watercourses. (Appendix A: Map 3 the Ecological and Wetland Assessment (Appendix K)). Given the nature of the mining operations this should be easily attainable.
- Adequate storm water management measures should be implemented and should include diverting storm- and floodwater around operational and excavation areas and preventing sediment and silt from entering the two delineated drainage lines.

Low Risks: Acceptable as is or consider requirement for mitigation. Impact to watercourses and resource quality small and easily mitigated.

Mitigation as recommended should be implemented as far as possible.

For the complete risk assessment please refer to Appendix D of the Ecological and Wetland Assessment (Appendix K).

SITE SPECIFIC TERRESTRIAL BIODIVERSITY, CONSERVATION AREAS, GROUNDCOVER AND FAUNA

According to the Ecological and Wetland Assessment (Appendix K), the existing mining operations considerably decrease the conservation value of the area. However, the remaining natural areas are still considered to be in a relatively good condition, dominated by natural vegetation, with a moderate habitat and species diversity and containing several protected plant species. Other elements of significant conservation value include two small drainage lines on and adjacent to the site (Appendix A: Map 3 the Ecological and Wetland Assessment (Appendix K)).

The expansion of the existing mining right area is situated immediately to the south of the small town of De Aar (Appendix A: Map 1 the Ecological and Wetland Assessment (Appendix K)). The existing mining operations have a footprint of approximately 50 hectares, which will now be increased to approximately 100 hectares, essentially doubling the current footprint. The footprint of the current mining area is therefore already transformed, while the proposed expansion area will consist of surrounding natural areas, which contain varying degrees of disturbance associated with the proximity of the mining area and associated activities. The site forms part of an arid region and consequently watercourses are limited to ephemeral systems. The surroundings do not contain any prominent watercourses, though smaller drainage lines are situated on and around the site and form part of the catchment of the Brak- and Elands River systems, forming the main drainage systems in this region. The proposed expansion of the mining area will also have to take into account its effect on this drainage system and implement comprehensive mitigation in order to minimise its impact on both the drainage lines and the downstream system (Appendix A: Map 3 the Ecological and Wetland Assessment (Appendix K)).

According to Mucina & Rutherford (2006) and utilising current mapping resources (National Biodiversity Assessment 2018) the site falls within Northern Upper Karoo (NKu 3). This vegetation type contains a varied topography with undulating plains, ridges, hills and uneven, rocky terrain, incised by a high number of small watercourses. This vegetation type is currently listed as being of Least Concern (LC) under the National List of Threatened Ecosystems (Notice 1477 of 2009) (National Environmental Management Biodiversity Act, 2004) (Appendix A: Map 1 the Ecological and Wetland Assessment (Appendix K)). The vegetation type is not under sufficient

development pressures to be considered a threatened ecosystem. This will also decrease the conservation value of remaining natural vegetation.

The Northern Cape Critical Biodiversity Areas Plan (2024) has recently been published and has identified areas which are essential to meeting conservation targets for specific vegetation types, i.e., Critical Biodiversity Areas. The site and surroundings are considered as transformed, mostly associated with existing mining areas, and Other Natural Areas (ONA) (Appendix A: Map 2 the Ecological and Wetland Assessment (Appendix K)). The site is therefore not considered as essential to meeting conservation targets for the area and therefore has a fairly low default conservation value. The area to the west of the site is however considered a Critical Biodiversity Area 2 (CBA 2), with the reason being given that it provides habitat to Endangered Ludwig's Bustard (*Neotis ludwigii*), a large, terrestrial bird species occurring in this arid region. The area designated as suitable habitat, is separated from the proposed site by a railway line and overhead powerlines, which are also likely to confine the birds to suitable areas to the west of the site, while the powerlines and mining activities will limit the occurrence of this species on the site itself.

The footprint of the existing mining operations has been completely transformed from the natural conditions. This has also been confirmed by the current survey, as well as the National Biodiversity Assessment (2018) (Appendix A: Map 1 the Ecological and Wetland Assessment (Appendix K)). The existing mining operations are therefore largely irrelevant to this assessment. The areas identified for the proposed expansion of the MR to the west do however still consist of natural vegetation, though some disturbance was still noted in these areas. The area is dominated by undulating plains, with low ridges containing several small drainage lines transecting it. This results in a moderate diversity of habitat which includes low ridges, rocky and sandy habitats and drainage lines supporting a low but dense riparian vegetation layer. As a result of the moderate habitat diversity, the area also contains a moderate species diversity, which includes scant dwarf karroid shrubs, grasses, succulents and a denser riparian vegetation dominated by low shrubs and herbaceous species.

As mentioned earlier, the existing mining area is completely transformed, while surrounding areas consist of natural vegetation which is still in a fairly good condition (Appendix A: Map 1 the Ecological and Wetland Assessment (Appendix K)). Signs of disturbance are present but are indicative of only low levels of disturbance. The species diversity is moderate, although the area does also contain a significant number of protected plant species which will contribute towards its conservation value

(Appendix B the Ecological and Wetland Assessment (Appendix K)). The areas of expansion therefore still contain elements of significant conservation value, which include protected plant species and drainage lines adjacent to and on the site (Appendix A: Map 3 the Ecological and Wetland Assessment (Appendix K)). Significant mitigation will therefore have to be implemented.

Mitigation as indicated in the previous paragraph should include the following (Appendix A: Map 1 – 3 the Ecological and Wetland Assessment (Appendix K)):

- Numerous protected plant species have been identified in the proposed expansion areas (Appendix B the Ecological and Wetland Assessment (Appendix K)). Where clearing of vegetation is required and the development will affect any of these species, the necessary permits will have to be obtained. Most of these species are fairly common, widespread and abundant and, with the necessary permits, can simply be removed. However, several are uncommon, localised species and at least a fair portion of affected plants should be transplanted to adjacent areas where they will remain unaffected. These species include *Colchicum sp., Colchicum orienticapense, Freesia andersoniae, Babiana hypogaea, Brunsvigia radulosa, Euphorbia caterviflora and Hereroa concava*.

Tracks and signs of mammals are still abundant on and around the site. It is however considered highly likely that the mammal population has been affected by the ongoing mining operations on the site. As a result, it is considered unlikely that species of conservational importance will occur on and around the site. The mammal population is therefore anticipated to be dominated by generalist species which are better adapted to these disturbed areas, associated with mining activities. In addition, mammal species which are rare and endangered are often habitat specific and sensitive to habitat change. It is therefore considered unlikely that such species would occur on the site. Extensive natural areas to the east, south and west of the site should provide adequate habitat and the mammal population will still be largely natural there. It is also considered likely that the area will also contain several other mammal species, but these were not observed on the site.

The mammal survey of the site was conducted by means of active searching and recording any tracks or signs of mammals and actual observations of mammals. It is also considered likely that the area will also contain several other mammal species, but these were not observed on the site. From the survey the following actual observations of mammals were recorded:

- Spoor of a small antelope, most likely Steenbok (*Raphicerus campestris*) was observed on the site. This is a small antelope, that is common in natural areas and not dependent on pristine habitat.
- Porcupine (*Hystrix africaeaustralis*) are common on the site and visible through scat, spoor, quills and excavations. It is a very common species anticipated to occur in this region.
- Common Molerat (*Cryptomys hottentottus*) are abundant on the site. This is a common species, well adapted to disturbed environments.

These species identified on the site indicate a significant mammal population still remains, although dominated by widespread and generalist species. Given the disturbance and proximity of mining areas and human activities, it is also considered unlikely that species of high conservation value would still remain.

Mammal species likely to occur on the site have been determined by means of FitzPatrick Institute of African Ornithology (2021).

Table 17: Red Listed mammals previously recorded in the surrounding region (Child et al 2016).

Scientific name	Common name	Status
Pelea capreolus	Vaal Rhebok	**Near Threatened**
Equus quagga	Plains Zebra	**Near Threatened**
Hyaena brunnea	Brown Hyena	**Near Threatened**
Parotomys littledalei	Littledale's Whistling Rat	**Near Threatened**
Felis nigripes	Black-footed Cat	**Vulnerable**

The survey and available literature (Table 18) have indicated that the mammal population in the area will consist largely of widespread, generalist species. There is however still some likelihood that species of conservation value may occur in the surroundings. Especially smaller mammals (*Black-footed Cat*) and far roaming mammals (*Brown Hyena*) are still likely to be present. However, these species are shy, reclusive and avoid urban areas. They are also dependent on habitat in good condition and are therefore highly unlikely to occur on and around the site.

A further note should be made of Ludwig's Bustard (*Leonotis ludwigii*), which is a large terrestrial bird of high conservation value. Remaining natural vegetation on the site does seem to be suitable for this species, which is also confirmed to occur in areas to the west of the site. However, given the ongoing mining operations on the site and the proximity of surrounding powerlines, the likelihood of the species occurring on the site is decreased. Therefore, habitat remains suitable, though only a moderate likelihood is anticipated for the species actually occurring on the site.

The impact that the proposed development will have, is mainly concerned with the loss of habitat and fragmentation of available habitat due to the development. Transformation of the natural vegetation on the site will result in a decrease in the population size as available habitat decreases. However, extensive natural areas still occur in the surrounding area and any mammals on the site are likely to vacate the site into these adjacent areas, should development take place. The extent of the proposed development is also small and the associated impact that it would have on mammals would accordingly also be relatively low. Furthermore, the likelihood that any species of high conservation value would be affected is low and consequently, the overall impact on the mammal population is anticipated to remain low.

In order to ensure no direct impact on the mammals on the site occurs, the hunting, capturing or trapping of mammals on the site should be strictly prohibited during operation of the mining development.

Table 18: Likely mammal species in the region (Mammalmap 2023).

Order	Scientific name	Common name	Status
Bovidae	*Antidorcas marsupialis*	Springbok	Least Concern
	Damaliscus pygargus phillipsi	Blesbok	Least Concern
	Oryx gazella	Gemsbok	Least Concern
	Pelea capreolus	Vaal Rhebok	Near Threatened
	Raphicerus campestris	Steenbok	Least Concern
Canidae	*Canis mesomelas*	Black-backed Jackal	Least Concern
	Otocyon megalotis	Bat-eared Fox	Least Concern
Cercopithecidae	*Papio ursinus*	Chacma Baboon	Least Concern
Equidae	*Equus quagga*	Plains Zebra	Near Threatened
Felidae	*Caracal caracal*	Caracal	Least Concern
	Felis nigripes	Black-footed Cat	Vulnerable
	Felis silvestris	Wildcat	Least Concern
Herpestidae	*Cynictis penicillata*	Yellow Mongoose	Least Concern
	Herpestes pulverulentus	Cape Gray Mongoose	Least Concern
	Suricata suricatta	Meerkat	Least Concern
Hyaenidae	*Hyaena brunnea*	Brown Hyena	Near Threatened
	Proteles cristata	Aardwolf	Least Concern
Leporidae	*Lepus saxatilis*	Scrub Hare	Least Concern
	Pronolagus rupestris	Smith's Red Rock Hare	Least Concern
Macroscelididae	*Elephantulus edwardii*	Cape Elephant Shrew	Least Concern
	Elephantulus rupestris	Western Rock Elephant Shrew	Least Concern
	Macroscelides proboscideus	Short-eared Elephant Shrew	Least Concern
Muridae	*Aethomys granti*	Grant's Rock Mouse	Least Concern
	Aethomys namaquensis	Namaqua Rock Mouse	Least Concern
	Otomys unisulcatus	Karoo Bush Rat	Least Concern
	Parotomys littledalei	Littledale's Whistling Rat	Near Threatened
	Rhabdomys pumilio	Xeric Four-striped Grass Rat	Least Concern
Mustelidae	*Ictonyx striatus*	Striped Polecat	Least Concern
Orycteropodidae	*Orycteropus afer*	Aardvark	Least Concern
Procaviidae	*Procavia capensis capensis*	Cape Rock Hyrax	Least Concern
Sciuridae	*Sciurus carolinensis*	Eastern Grey Squirrel	Least Concern
	Xerus inauris	South African Ground Squirrel	Least Concern
Soricidae	*Crocidura sp.*	Shrews	
Viverridae	*Genetta genetta*	Common Genet	Least Concern

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

Figure 28: Tracks and signs of mammals identified on and around the site include, clockwise from top left; scat and quill of Porcupine (Hystrix africaeaustralis), soil mounds of Common Molerat (Cryptomys hottentottus) and spoor of Steenbok (Raphicerus campestris)

SITE SPECIFIC CULTURAL AND HERITAGE ENVIRONMENT

Following the earlier discussion regarding the Cultural and Heritage Environment, the DFFE screening report also shows the proposed expansion area to be of low archaeological significance.

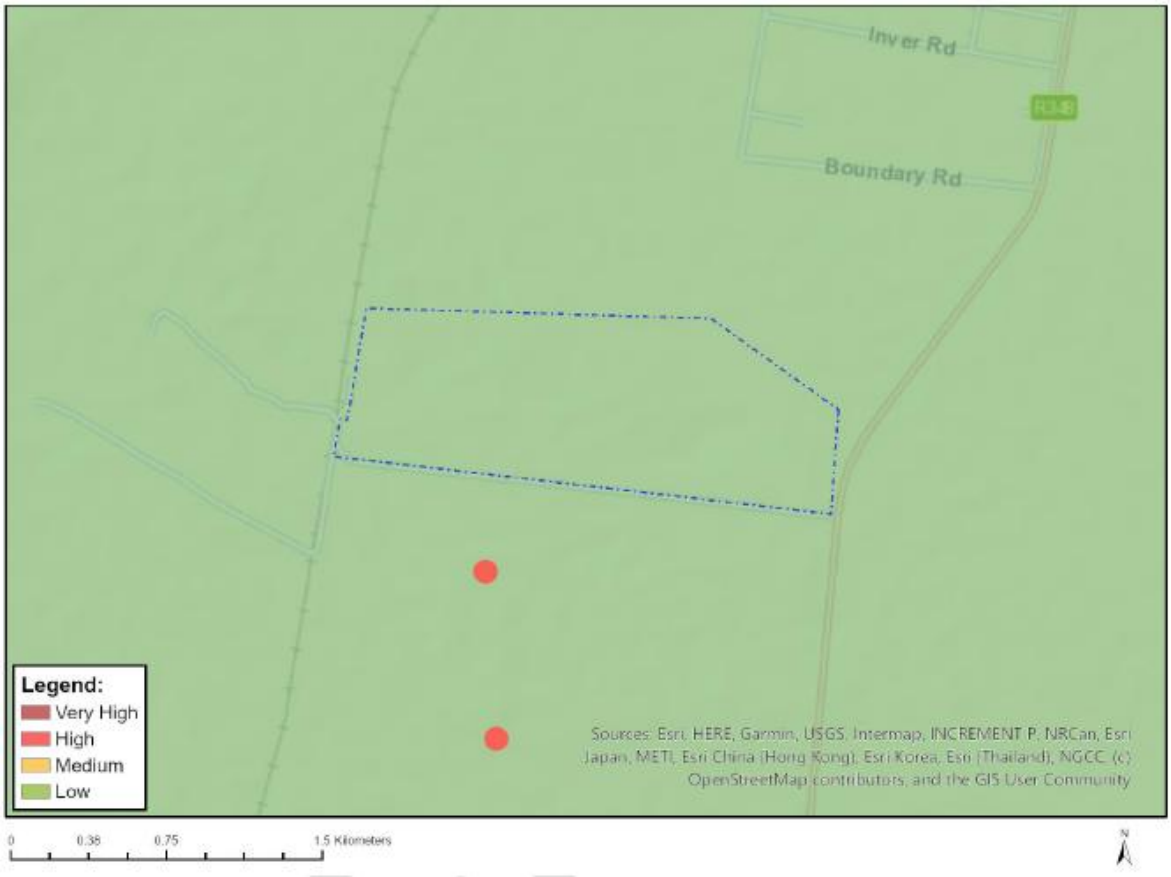


Figure 29: DFFE screening tool output for archaeology (image obtained from DFFE screening tool report).

Due to the historic disturbed nature of the area, the potential of the proposed expansion area affecting any archaeological and/or palaeontological artefacts or environments is deemed to be of very low possibility.

SITE SPECIFIC INFRASTRUCTURE

No additional infrastructure will be developed in the proposed expansion area that could be affected by the proposed activity. If approved, the area will be fenced off to control access and prevent sprawling.

(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.

EXPANSION ACTIVITIES:

STRIPPING AND STOCKPILING OF TOPSOIL AND/OR OVERBURDEN

Visual intrusion because of the expansion activities

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low-Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Partial**				
2	5	1	2.6	5	2	3.5	**9.1**				

Dust nuisance due to the movement of the soil

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	3	2	2.6	4	4	4	**10.4**				

Noise nuisance caused by earthmoving machinery

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	5	1	3	4	5	4.5	**13.5**				

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

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low - Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	4	1	2.6	4	3	3.5	**9.1**				

Loss of vegetation cover due to the extraction of sand

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low - Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	5	1	3	5	1	3	**9**				

Potential impact on faunal species

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low - Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	5	1	3	3	1	2	**6**				

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

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low - Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	5	2	3.3	4	2	3	**9.9**				

Potential increase in runoff from denuded areas and associated accelerated erosion

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low - Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
2	5	1	2.6	4	3	3.5	**9.1**				

OPERATIONAL AND EXPANSION ACTIVITIES:

DRILLING AND BLASTING

Alteration of the existing topography

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low - Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	5	1	3	3	1	2	**6**				

Health and safety risk posed by blasting activities

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low - Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
5	5	1	3.6	4	2	3	**10.8**				

Dust nuisance caused by blasting activities

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium - High			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
4	5	2	3.6	4	3	3.5	**12.6**				

Noise nuisance caused by blasting activities

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
4	5	2	3.6	4	3	3.5	**12.6**				

Flyrock falling beyond the mining area

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
4	5	2	3.6	3	3	3	**10.8**				

OPERATIONAL AND EXPANSION ACTIVITIES:

EXCAVATION, PROCESSING, LOADING AND HAULING OF AGGREGATE

Alteration of the existing topography

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium - High			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
4	5	1	3.3	5	5	5	**16.5**				

Dust nuisance caused by earthmoving machinery

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	3	2	2.6	4	4	4	**10.4**				

Noise nuisance because of the mining activities

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	3	2	2.6	4	4	4	**10.4**				

Unsafe working environment for employees

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low - Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
5	5	1	3.6	3	1	2	**7.2**				

Flooding of the excavation due to heavy rain

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low-Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Partial**				
3	5	1	3	4	2	3	**9**				

Soil contamination from hydrocarbon spills and/or littering

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low - Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	4	1	2.6	4	3	3.5	**9.1**				

Runoff from mining area potentially impacting the two drainage lines and/or surface water

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**			**Degree of Mitigation: None**					
4	4	4	4	4	2	3	**12**				

Infestation of the mining area with invader plant species

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium - High			**Site Layout Alternative 1**			**Degree of Mitigation: None**					
3	5	2	3.3	5	5	5	**16.5**				

Overloading of trucks having an impact on the public roads

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**			**Degree of Mitigation: None**					
4	4	5	4.3	3	3	3	**12.9**				

Continued employment opportunities (Positive Impact)

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: High			**Site Layout Alternative 1**			**Degree of Mitigation: None**					
5	5	5	5	5	5	5	**25**				

Continued provision of building material to the region (Positive Impact)

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: High			**Site Layout Alternative 1**			**Degree of Mitigation: None**					
4	5	5	4.6	5	5	5	**23**				

Continued social support to local community (Positive Impact)

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: High (+)			**Site Layout Alternative 1**			**Degree of Mitigation: None**					
5	5	5	5	5	5	5	**25**				

OPERATIONAL AND EXPANSION ACTIVITIES:

SLOPING AND LANDSCAPING DURING REHABILITATION

Health and safety risk posed by unrehabilitated quarry excavations

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: High			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
5	5	2	4	5	5	5	**20**				

Erosion of returned topsoil after rehabilitation

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low - Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	5	1	3	4	2	3	**9**				

Infestation of the reinstated area with invader plant species

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium - High			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
3	5	2	3.3	5	5	5	**16.5**				

Potential impact associated with litter/hydrocarbon spills left at the mining area

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
4	5	1	3.3	4	5	4.5	**14.9**				

OPERATIONAL AND EXPANSION ACTIVITIES:

CUMULATIVE IMPACTS

Flooding of the quarry excavation upon closure poses a safety risk to people and livestock

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: High			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
5	5	2	4	5	5	5	**20**				

Impact on downstream users should mining affect the water quality of the Elands Spruit and large Brak River systems.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: High			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
4	5	4	4.6	4	5	4.5	**20.7**				

Impact on overall species and ecosystem diversity

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low - Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
4	5	2	3.3	3	1	2	**9.9**				

Impacts to ecological connectivity and/or ecological disturbance impacts

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low - Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
4	5	2	3.3	3	1	2	**9.9**				

Cumulative visual impact when the Quarry footprint is expanded

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
2	5	2	3	5	5	5	**15**				

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

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

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

DEFINITIONS AND CONCEPTS:

Environmental significance:

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

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

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

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

Impact

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

Consequence

The intermediate or 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:

Environmental Significance = Overall Consequence X Overall Likelihood

Determination of Overall Consequence

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

Determination of Severity / Intensity

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

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

Table 19: 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

Type of criteria	Rating				
	1	2	3	4	5
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 20: 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 21: 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 22: 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 23: 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 24: 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 25: 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 26: Determination of overall environmental significance.

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

Qualitative description or magnitude of Environmental Significance

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

Table 27: 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 of 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)

A. need to expand their current mining right area from ±62.88 ha to ±133.18 ha over a partially undisturbed- and disturbed areas within the coordinates as presented in this document.

B. mining of the area without the need to establish permanent infrastructure and/or buildings in the expansion area. The specific design of the quarry pit will be in consultation with a qualified mine planner/engineer;

C. mining of the expansion area through drilling, blasting, and excavation with earthmoving machinery. No complex technology is required;

D. incorporation of the proposed activity into the ongoing operations of DASC Quarry. No additional electricity is needed to allow the continuation of the proposed activity, no servicing of mining equipment will be required within the expansion area, the R388 and the existing internal roads will provide access to the quarry. The project does consider mitigating impacts such as dust generation, noise handling, waste management, and rehabilitation.

E. the expansion seeks to include the extraction of sand as a listed mineral resource, to be mined using front-end loaders in the south-west corner of the proposed extension.

Should the mitigation measures and monitoring programs proposed in this document be implemented on site, no fatal flaws could be identified that were deemed as severe as to prevent the activity continuing.

Also refer to:

- Part A(1)(f) Need and desirability of the proposed activities;
- Part A(1)(g) Motivation for the overall preferred site, activity, and technology alternatives; and
- Part A(1)(l)(iii) Summary of the positive and negative impacts and risks of the proposed activity and identified alternatives.

POSITIVE AND NEGATIVE IMPACTS ASSOCIATED THE PROPOSAL

POTENTIAL POSITIVE IMPACTS		
ACTIVITY	**IMPACT**	**SIGNIFICANCE**
❖ Operational and Expansion Activities: Excavation, processing, loading and hauling of aggregate.	❖ Continued employment opportunities (+) ❖ Continued provision of building material to the region (+) ❖ Continued social support to local community (+)	❖ High (+) ❖ High (+) ❖ High (+)
Also refer to: ⁎ Part A(1)(f) Need and desirability of the proposed activities; and ⁎ Part A(1)(g) Motivation for the overall preferred site, activity, and technology alternatives.		

POTENTIAL NEGATIVE IMPACTS			
ACTIVITY	**POTENTIAL IMPACT**	**SIGNIFICANCE (BEFORE MITIGATION**	**SIGNIFICANCE (AFTER MITIGATION)**
❖ Expansion Activities: Stripping and stockpiling of topsoil and/or overburden. ❖ Operational and Expansion Activities: Cumulative impacts	❖ Visual intrusion because of the activities. ❖ Cumulative visual impact when the Quarry footprint is expanded.	❖ Low-Medium ❖ Medium	❖ Low ❖ Low
❖ Expansion Activities: Stripping and stockpiling of topsoil and/or overburden. ❖ Operational and Expansion Activities: Drilling and blasting. ❖ Operational and Expansion Activities: Excavation, processing, loading and hauling of aggregate. ❖ Operational and Expansion Activities: Cumulative impacts.	❖ Dust nuisance due to the movement of the soil. ❖ Dust nuisance caused by blasting activities. ❖ Dust nuisance caused by earthmoving machinery.	❖ Medium ❖ Medium ❖ Medium	❖ Low ❖ Medium ❖ Low
❖ Expansion Activities: Stripping and stockpiling of topsoil and/or overburden. ❖ Operational and Expansion Activities: Drilling and blasting. ❖ Operational and Expansion Activities: Excavation, processing, loading and hauling of aggregate. ❖ Operational and Expansion Activities: Cumulative impacts.	❖ Noise nuisance caused by earthmoving machinery. ❖ Noise nuisance caused by blasting activities. ❖ Noise nuisance because of the mining activities.	❖ Medium ❖ Medium ❖ Medium	❖ Low ❖ Medium ❖ Low-Medium
❖ Expansion Activities: Stripping and stockpiling of topsoil and/or overburden.	❖ Potential contamination from footprint area and surface runoff because of hydrocarbon spillages.	❖ Medium ❖ Low-Medium	❖ Low ❖ Low

POTENTIAL NEGATIVE IMPACTS			
ACTIVITY	**POTENTIAL IMPACT**	**SIGNIFICANCE (BEFORE MITIGATION**	**SIGNIFICANCE (AFTER MITIGATION)**
❖ Operational and Expansion Activities: Excavation, processing, loading and hauling of aggregate. ❖ Operational and Expansion Activities: Sloping and landscaping during rehabilitation.	❖ Soil contamination from hydrocarbon spills and/or littering. ❖ Potential impact associated with litter/hydrocarbon spills left at the mining area.	❖ Medium	❖ Low
❖ Expansion Activities: Stripping and stockpiling of topsoil and/or overburden. ❖ Operational and Expansion Activities: Cumulative impacts	❖ Loss of vegetation cover and riparian vegetation. ❖ Impact on overall species and ecosystem diversity. ❖ Impact on ecological connectivity and/or ecological disturbance impacts.	❖ Low-Medium ❖ Low-Medium ❖ Low-Medium	❖ Low-Medium ❖ Low ❖ Low
❖ Expansion Activities: Stripping and stockpiling of topsoil and/or overburden.	❖ Potential impact on faunal species.	❖ Low-Medium	❖ Low
❖ Expansion Activities: Stripping and stockpiling of topsoil and/or overburden. ❖ Operational and Expansion Activities: Excavation, processing, loading and hauling of aggregate. ❖ Operational and Expansion Activities: Sloping and landscaping during rehabilitation.	❖ Infestation of the topsoil heaps and mining area with invader plant species. ❖ Infestation of the mining area with invader plant species. ❖ Infestation of the reinstated area with invader plant species.	❖ Low-Medium ❖ Medium-High ❖ Medium-High	❖ Low ❖ Low ❖ Low
❖ Expansion Activities: Stripping and stockpiling of topsoil and/or overburden. ❖ Operational and Expansion Activities: Excavation, processing, loading and hauling of aggregate. ❖ Operational and Expansion Activities: Sloping and	❖ Potential increase in runoff from denuded areas and associated erosion. ❖ Flooding of the excavation due to heavy rain ❖ Runoff from mining area potentially impacting the two drainage lines and/or surface water.	❖ Low-Medium ❖ Low-Medium ❖ Medium	❖ Low ❖ Low ❖ Low-Medium

POTENTIAL NEGATIVE IMPACTS			
ACTIVITY	**POTENTIAL IMPACT**	**SIGNIFICANCE (BEFORE MITIGATION**	**SIGNIFICANCE (AFTER MITIGATION)**
landscaping during rehabilitation. ❖ Operational and Expansion Activities: Cumulative impacts	❖ Erosion of returned topsoil after rehabilitation. ❖ Impact on downstream users should mining affect the water quality of the Elands Spruit and large Brak River systems.	❖ Low-Medium ❖ High	❖ Low ❖ Low
❖ Operational and Expansion Activities: Drilling and blasting. ❖ Operational and Expansion Activities: Excavation, processing, loading and hauling of aggregate.	❖ Alteration of the existing topography. ❖ Alteration of the existing topography.	❖ Low - Medium ❖ Medium-High	❖ Low ❖ Low-Medium
❖ Operational and Expansion Activities: Drilling and blasting. ❖ Operational and Expansion Activities: Excavation, processing, loading and hauling of aggregate. ❖ Operational and Expansion Activities: Sloping and landscaping during rehabilitation. ❖ Operational and Expansion Activities: Cumulative impacts.	❖ Health and safety risk posed by blasting activities. ❖ Unsafe working environment for employees. ❖ Health and safety risk posed by unrehabilitated quarry excavations. ❖ Flooding of the quarry excavation upon closure poses a safety risk to people and livestock	❖ Medium ❖ Low-Medium ❖ High ❖ High	❖ Low ❖ Low ❖ Low ❖ Low -Medium
❖ Operational and Expansion Activities: Drilling and blasting.	❖ Flyrock falling beyond the mining area.	❖ Medium	❖ Low
❖ Operational and Expansion Activities: Excavation, processing, loading and hauling of aggregate.	❖ Overloading of trucks having an impact on the public roads.	❖ Medium	❖ Low

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

(With regard to the issues and concerns raised by affected parties provide a list of the issues raised and an assessment/discussion of the mitigation or site layout alternatives available to accommodate or address their

concerns, together with an assessment of the impacts or risks associated with the mitigation or alternatives considered)

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

TOPOGRAPHY

Rehabilitating/Landscaping of the Quarry and Sand Excavation Area:

- The excavated area must serve as a final depositing area for the placement of overburden.
- Rocks and coarse material removed from the excavation must be dumped into the excavation.
- Coarse natural material used for the construction of ramps must be removed and dumped into the excavations.
- Stockpiles must be removed during the decommissioning phase, the area ripped, and the topsoil returned to its original depth to provide a growth medium.
- No waste may be permitted to be deposited in the excavations.
- Once overburden, rocks and coarse natural materials have been added to the excavation and it was profiled with acceptable contours and erosion control measures, the topsoil previously stored must be returned to its original depth over the area. Subsoil should be used as backfilling and not as top dressing.
- 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 six months from closure of the site.
- If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining operation be corrected and the area be seeded with a vegetation seed mix to his or her specification.

VISUAL CHARACTERISTICS

Visual Mitigation:

- 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.
- The Right Holder must limit vegetation removal, and stripping of topsoil may only be done immediately prior to the mining/use of a specific area.
- All excavation and mining related activities must be contained within the approved mining footprint.

- Upon closure the site must be rehabilitated to ensure that the visual impact on the aesthetic value of the area is reduced to the minimum.
- All buildings, equipment and/or infrastructure that will remain on the property after closure, must be left in a good and functional condition, and the landowner must accept responsibility for these structures in writing.

AIR AND NOISE QUALITY

Fugitive Dust Emission Mitigation Measures:

- The liberation of dust into the surrounding environment must be effectively controlled using, inter alia, straw, water spraying and/or environmentally friendly dust-allaying agents that contains no PCB's (e.g. DAS products).
- Water sprayers must be fitted to the processing plant, and the plant may not operate if these sprayers are out of order.
- The site manager must daily assess the efficiency of all dust suppression equipment.
- Excess dust and fines must at least weekly be removed from the processing area.
- Speed on the haul roads must be limited to 40 km/h to prevent the generation of excess dust.
- Areas devoid of vegetation, which could act as a dust source, must be minimized and vegetation removal may only be done immediately prior to mining.
- Weather conditions must be taken into consideration upon commencement of daily operations. Limiting operations during very windy periods would reduce airborne dust and resulting impacts.
- All dust generating activities shall comply with the National Dust Control Regulations, GN No R827 promulgated in terms of NEM:AQA (Act 39 of 2004) and ASTM D1739 (SANS 1137:2012).
- Monthly fallout-dust monitoring must be implemented at the site for the duration of the activities and the results must be compliant with the standards of the National Dust Control Regulations, 2013 (as amended).
- Best practice measures shall be implemented during the stripping of topsoil, excavation, and transporting of material from site to minimize potential dust impacts.

Noise Handling:

- The Right Holder must ensure that employees and staff conduct themselves in an acceptable manner while on site.
- No loud music may be permitted at the work areas.

- All project vehicles must be equipped with silencers and maintained in a road worthy condition in terms of the National Road Traffic Act, 1996 (Act No 93 of 1996).
- The type, duration and timing of the blasting procedures must be planned with due cognizance of other land users and structures in the vicinity. Surrounding landowners must be notified in writing prior to each blast.
- A qualified occupational hygienist must be contracted to quarterly monitor and report on the personal noise exposure of the employees working at the mine. The monitoring must be done in accordance with the SANS 10083:2004 (Edition 5) sampling method as well as NEM:AQA, 2004, SANS 10103:2008.
- Best practice measures shall be implemented to minimize potential noise impacts.

GEOLOGY AND SOIL

Topsoil/Soil Management:

- The upper 300 mm of the soil must be stripped and stockpiled before mining.
- Topsoil is a valuable and essential resource for rehabilitation, and it must therefore be managed carefully to conserve and maintain it throughout the stockpiling and rehabilitation processes.
- Topsoil stripping, stockpiling, and re-spreading must be done in a systematic way. The mining plan must be such that topsoil is stockpiled for the minimum possible time.
- The topsoil must be placed on a levelled area, within the mining footprint. No topsoil may be stockpiled in undisturbed areas. All topsoil heaps must be signposted.
- Topsoil stockpiles must be protected against losses by water- and wind erosion. Stockpiles must be positioned so as not to be vulnerable to erosion by wind and water. The establishment of plants (indigenous grass) on the stockpiles will help to prevent erosion.
- Topsoil heaps may not exceed 2 m in height and are not to be sloped more than 1:2 to avoid collapse.
- The temporary topsoil stockpiles must be kept free of invasive plant species.
- Topsoil heaps to be stored longer than a period of 3 months needs to be vegetated with an indigenous grass seed mix if vegetation does not naturally germinate within the first growth season.
- Storm- and runoff water must be diverted around the topsoil and overburden stockpile areas to prevent erosion.
- The stockpiled topsoil must be evenly spread, to a depth of 300 mm, over the rehabilitated area upon closure of the site.

- The Right Holder must strive to re-instate topsoil at a time of year when vegetation cover can be established as quickly as possible afterwards, so that erosion of returned topsoil by both rain and wind, before vegetation is established, is minimized. The best time of year is at the end of the rainy season, when there is moisture in the soil for vegetation establishment and the risk of heavy rainfall events is minimal.
- An indigenous grass layer must be planted and established immediately after spreading of topsoil, to stabilize the soil and protect it from erosion. It is important that rehabilitation be taken up to the point of stabilization. Rehabilitation cannot be considered complete until the first grass layer is well established.
- Run-off water must be controlled via temporary berms, where necessary, on the slopes to ensure that accumulation of run-off does not cause down-slope erosion.
- The rehabilitated area must be monitored for erosion, and appropriately stabilized if any erosion occurs for at least 12 months after reinstatement.

HYDROLOGY

Erosion Control and Storm Water Management:

- A storm water management plan must be implemented for the duration of the mining activities.
- Clearing of vegetation must be limited to the mining footprint and associated infrastructure. No clearing outside of the minimum required footprint to take place.
- Vegetation clearing activities must be put on hold when heavy rains are expected.
- Stormwater must be diverted around the topsoil heaps and mining areas to prevent erosion.
- Stockpiles must be protected from erosion, stored on flat areas where possible, and be surrounded by appropriate berms.
- When mining within steep slopes, it must be ensured that adequate slope protection is provided.
- No dirty water emanating from the quarry shall be discharged into the natural environment or any watercourse. All stormwater runoff that falls in the mining area must be channelled to the quarry sump.
- Roads and other disturbed areas within the project area must be regularly monitored for erosion and problem areas must receive follow-up monitoring to assess the success of the remediation.
- Any erosion problems within the mining area because of the mining activities observed must be rectified immediately (within 48 hours) and monitored thereafter to ensure that it does not re-occur.

- Mining must be conducted only in accordance with the Best Practice Guideline for small scale mining that relates to storm water management, erosion and sediment control and waste management, developed by the Department of Water and Sanitation (DWS), and any other conditions which that Department may impose:
  - Clean water (e.g. rainwater) must be kept clean and be routed to a natural watercourse by a system separate from the dirty water system. You must prevent clean water from running or spilling into dirty water systems.
  - Dirty water must be collected and contained in a system separate from the clean water system.
  - Dirty water must be prevented from spilling or seeping into clean water systems.
  - A storm water management plan must apply for the entire life cycle of the mining activity and over different hydrological cycles (rainfall patterns).
  - The statutory requirements of various regulatory agencies and the interests of stakeholders must be considered and incorporated into a storm water management plan.
- All erosion and sediment control measures must be monitored (weekly) for the life of the operation and repaired immediately when damaged. The erosion and sediment control structures may only be removed once vegetation cover has successfully recolonised the affected areas.
- After heavy rainfall events, site management must check the site for erosion damage and rehabilitate this damage immediately. Erosion rills and gullies must be filled-in with appropriate material and/or silt fences until vegetation has recolonised the rehabilitated area.
- Regular monitoring of water quality, water levels, and flow conditions should be mandatory throughout the project's lifespan.

Mitigation measures of Drainage lines:

- The following mitigation should be implemented to prevent or decrease the anticipated impacts on the two small drainage lines likely to be affected by the mining operations (Appendix A: Map 3 the Ecological and Wetland Assessment (Appendix K)):

- The drainage line to the south west of the site, as well as the drainage line originating in the northern portion of the site, should be completely excluded from mining operations, should be designated no-go areas and no mining activities, including construction or operational activities, vehicle movement, laydown areas, vegetation clearing or any other associated activities should occur in or near these watercourses. (Appendix A: Map 3 the Ecological and Wetland Assessment (Appendix K)). Given the nature of the mining operations this should be easily attainable.

- Adequate storm water management measures should be implemented and should include diverting storm- and floodwater around operational and excavation areas and preventing sediment and silt from entering the two delineated drainage lines.
- The necessary authorisations must be acquired from the Department of Water and Sanitation (DWS) for mining activities within 100 metres of any of the delineated watercourses around the site (Appendix A: Map 3 the Ecological and Wetland Assessment (Appendix K)).
- The specialist has delineated a 44-meter buffer zone that must be clearly demarcated around both drainage lines.

TERRESTRIAL BIODIVERSITY, CONSERVATION AREAS AND GROUNDCOVER

Management of Vegetation Removal:

- The mining boundaries must be clearly demarcated, and all operations must be contained to the approved mining area. The area outside the mining boundaries must be declared a no-go area, and all staff must be educated accordingly.
- The Right Holder must be committed to a conservation approach and the actual footprint of disturbance must be kept to a minimum.
- A pre-commencement environmental induction for all site staff must be provided to ensure that basic environmental principles are adhered to. This includes awareness of littering, appropriate handling of pollution and chemical spills, avoiding fire hazards, minimising wildlife interactions, remaining within demarcated areas, etc.
- The species listed in Appendix B of the Ecological and Wetland Assessment (Appendix K) contains numerous protected species which have significant conservation value and will require mitigation.
- Prior to any clearing of vegetation for mining activities a walkthrough of the affected area should be undertaken and should include identification and marking of all protected plants on the site.
- The following plant species, which may be present on site, require a removal permit prior to any disturbance: *Colchicum orienticapense, Freesia andersoniae, Babiana hypogaea, Brunsvigia radulosa, Ruschia intricata, Euphorbia catveriflora, Hereroa concava and Mestoklema*
- The follow plant species (if present) should be transplanted to adjacent areas where they will remain unaffected. These species include *Colchicum sp., Colchicum orienticapense, Freesia andersoniae, Babiana hypogaea, Brunsvigia radulosa, Euphorbia caterviflora and Hereroa concava.*

- Grubbing is not permitted as a method of clearing vegetation. Any trees needing clearing must be cut down using chain saws and hauled from the site using appropriate machinery where practically possible.
- Cleared vegetation to be retained may not be burned but can be mulched and stockpiled. Ideally the heaps can be covered with stockpiled topsoil and the material be retained for future site rehabilitation purposes.
- The ECO must provide supervision and oversight of vegetation clearing activities and other activities which may cause damage to the environment, especially during the site establishment phase, when most of the vegetation clearing is taking place.
- All vehicles must remain on demarcated roads and no unnecessary driving in the veld outside these areas may be allowed.
- No fires must be allowed on-site.
- Spoil heaps and topsoil stockpiles must be provided with a vegetation cover of indigenous grasses.

Management of Invasive Plant Species:

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

FAUNA

Protection of Fauna:

- The site manager must ensure no fauna is caught, killed, harmed, sold, or played with.

- Any fauna directly threatened by the operational activities must be removed to a safe location by the ECO or other suitably qualified person.
- Open excavations may act as pitfall traps to mammals, reptiles and amphibians and trenches should be monitored daily for trapped animals which should be removed promptly.
- In the event of poisonous snakes or other dangerous animals encountered on the site, an experienced and certified snake handler or zoologist must remove these animals from the site and re-locate them to a suitable area.
- All personnel must undergo environmental induction regarding fauna management and in particular awareness about not harming or collecting species such as snakes, tortoises and owls which are often persecuted out of superstition. Workers must be instructed to report any animals that may be trapped in the working area.
- No snares may be set, or nests raided for eggs or young.
- No litter, food or other foreign material may be thrown or left around the site. Such items must daily be removed to the site offices.

CULTURAL AND HERITAGE ENVIRONMENT

Archaeological, Heritage and Palaeontological Aspects:

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

EXISTING INFRASTRUCTURE

Access Road Mitigation:

- Vehicular movement must be restricted to the roads and crisscrossing of tracks through undisturbed areas must be prohibited.
- Rutting and erosion of the access and internal roads caused as a direct result of the mining activities must be repaired by the Applicant.
- Overloading of the trucks must be prevented, and proof of load weights must be filed for auditing purposes.

GENERAL

Waste Management:

- Regular vehicle maintenance, repairs and services may only take place at the workshop and service area. If emergency repairs are needed on equipment not able to move to the workshop, drip trays must be present. All waste products must be disposed of in a closed container/bin to be removed from the emergency service area (same day) to the workshop to ensure proper disposal. This waste must be treated as hazardous waste and must be disposed of at a registered hazardous waste handling facility, alternatively collected by a registered hazardous waste handling contractor. The safe disposal certificates must be filed for auditing purposes.
- If a diesel bowser is used on site, it must always be equipped with a drip tray and/or parked in a bunded area with impermeable surface. Drip trays must be used during each refuelling event. The nozzle of the bowser needs to rest in a sleeve to prevent dripping after refuelling.
- Site management must ensure drip trays are cleaned after each use. No dirty drip trays may be used on site. The dirty rags used to clean the drip trays must be disposed as hazardous waste into a designated bin at the workshop, where it is incorporated into the hazardous waste removal system.
- Equipment/tools/vehicles placed in the salvage yard must be drained of all hydrocarbons before placement. The salvage yard must be kept clean and unwanted materials must be removed from the mine as regular as possible.
- An oil spill kit must be available at the mine, and the employees must be trained in the emergency procedures to follow when a spill occurs as well as the application of the spill kit.
- Spills must be cleaned up immediately, within two hours of occurrence, to the satisfaction of the Regional Manager (DMPR) by removing the spillage together with the polluted soil and containing it in a designated hazardous waste bin until it is disposed of at a recognised facility. Proof must be filed.

- When small volumes of wastewater are generated during the life of the project the following is applicable:
  - Water containing waste must not be discharged into the natural environment.
  - Measures to contain the wastewater and safely dispose thereof must be implemented.
- It is important that any significant spillage of chemicals, fuels etc. during the lifespan of the activities is reported to the Department of Water and Sanitation and other relevant authorities.
- All decommissioned/rehabilitated areas must be cleared of all waste at the end of the project.

Management of Health and Safety Risks:

- It must be ensured that the mining area is properly fenced off to prevent incursion by livestock and unauthorised humans.
- Workers must have access to the correct personal protection equipment (PPE) as required by law.
- Sanitary facilities must be located within 100 m from any point of work.
- All operations must comply with the Mine Health and Safety Act, 1996 (Act No 29 of 1996).
- The type, duration and timing of the blasting procedures must be planned with due cognizance of other land users and structures in the vicinity.
- The surrounding landowners must be informed in writing ahead of each blasting event.
- The compliance of ground vibration and airblast levels must be monitored to USBM standards with each blasting event.
- A vibro recorder must be used to record all blasts.
- Audible warning of a pending blast must be given at least 3 minutes in advance of the blast.
- Measures to limit flyrock must be taken. All flyrock (of diameter 150 mm and larger) which falls beyond the working area, together with the rock spill must be collected and removed.
- Upon closure the excavation must be fenced/walled in to restrict access. The pit may not be used for swimming and/or watering of stock without prior approval of the municipality and DWS.

ix) Motivation where no alternative sites were considered.

As mentioned in Part A(1)(h)(i) *Details of the development footprint alternatives considered*, the proposed project constitute the preferred and only viable development option as the:

- proposed expansion footprint was based on the position of the current mining footprint, the available geological data and the position of the two drainage lines. No further location/site alternatives are possible for this application.

- nature of the operation does not allow alternative activities. Considering the existing mining method of the quarry and the available infrastructure on site, there is no alternative other than to excavate, load and haul the aggregate material to the processing plant of the mine.

- design and layout of the proposed footprint were based on the *status quo*. The design will be based on the most profitable extraction of the available aggregate from the approved footprint in accordance with the requirements of all relevant legislation such as (but not limited to) the Mine Health and Safety Act.

- project does not require other complex technology to allow the expansion of the quarry pit.

- operational aspect of the activity is based on the current activities of the mine.

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

Please refer to Part A(1)(g) *Motivation for the overall preferred site, activities, and technology alternative*, as well as Part A(1)(h)(ix) *Motivation where no alternative sites were considered*.

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

The preferred site-, activities- and technology alternative regarding this application entails the:

A. need to expand their current mining right area from ±62.88 ha to ±133.18 ha over a partially undisturbed- and disturbed areas within the coordinates as presented in this document.

B. mining of the area without the need to establish permanent infrastructure and/or buildings in the expansion area. The specific design of the quarry pit will be in consultation with a qualified mine planner/engineer;

C. mining of the expansion area through drilling, blasting, and excavation with earthmoving machinery. No complex technology is required;

D. incorporation of the proposed activity into the ongoing operations of DASC Quarry. No additional electricity is needed to allow the continuation of the proposed activity, no servicing of mining equipment will be required within the expansion area, the R388 and

the existing internal roads will provide access to the quarry. The project does consider mitigating impacts such as dust generation, noise handling, waste management, and rehabilitation.

E. the expansion seeks to include the extraction of sand as a listed mineral resource, to be mined using front-end loaders in the south-west corner of the proposed extension.

F. The no-go alternative was not deemed a viable option as:

- this alternative will prevent the Right Holder from expanding the quarry pit;
- the expansion of the pit will directly affect the lifespan of the Quarry, as the life of mine is calculated at ±10 years should the expansion be approved. An increased life of mine will provide the employees with peace of mind regarding downscaling and retrenchments linked to mine closure, as well as socio-economic benefits and growth development opportunities. Given the high levels of unemployment and poverty in the Pixley Ka Seme District the loss of such opportunities is considered significant.

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

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.

EXPANSION ACTIVITIES:

STRIPPING AND STOCKPILING OF TOPSOIL AND/OR OVERBURDEN

Visual intrusion because of the expansion activities

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low			**Site Layout Alternative 1**				**Degree of Mitigation: Partial**				
1	4	1	2	3	5	4	**8**				

Dust nuisance due to the movement of the soil

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	1	1	1.3	2	2	2	**2.6**				

Noise nuisance caused by earthmoving machinery

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
1	3	2	2	2	2	2	**4**				

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

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
1	1	1	1	2	2	2	**2**				

Loss of vegetation cover due to the extraction of sand

							Significance				
			Consequence			Likelihood					

							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent		Probability	Frequency		1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low - Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Partial**				
1	4	1	2	4	5	4.5	**9**				

Potential impact on faunal species

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
1	1	1	1	2	2	2	**2**				

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

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
1	1	1	1	2	2	2	**2**				

Potential increase in runoff from denuded areas and associated accelerated erosion

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
1	1	1	1	2	2	2	**2**				

OPERATIONAL AND EXPANSION ACTIVITIES:

DRILLING AND BLASTING

Alteration of the existing topography

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low			**Site Layout Alternative 1**				**Degree of Mitigation: Partial**				
2	5	1	2.6	2	1	1.5	**3.9**				

Health and safety risk posed by blasting activities

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
1	1	1	1	2	2	2	**2**				

Dust nuisance caused by blasting activities

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Partial**				
3	5	2	3.3	4	3	3.5	**11.5**				

Noise nuisance caused by blasting activities

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Partial**				
3	5	2	3.3	4	3	3.5	**11.5**				

Flyrock falling beyond the mining area

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
1	1	1	1	2	2	2	**2**				

OPERATIONAL AND EXPANSION ACTIVITIES:

EXCAVATION, PROCESSING, LOADING, AND HAULING OF AGGREGATE

Alteration of the existing topography

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low-medium			**Site Layout Alternative 1**				**Degree of Mitigation: Partial**				
2	5	1	2.6	4	2	3	**7.8**				

Dust nuisance caused by earthmoving machinery

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
1	1	1	1	2	2	2	**2**				

Noise nuisance because of the mining activities

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low - Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Partial**				
2	3	2	2.3	4	4	4	**9.2**				

Unsafe working environment for employees

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
3	1	1	1.6	2	1	1.5	**2.4**				

Soil contamination from hydrocarbon spills and/or littering

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	1	1	1.3	3	3	3	**3.9**				

Flooding of the excavation due to heavy rain

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low - Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Partial**				
2	2	1	1.6	4	2	3	**4.8**				

Runoff from mining area potentially impacting the two drainage lines and/or surface water

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low - Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	2	3	2.3	3	2	2.5	**5.7**				

Infestation of the mining area with invader plant species

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	2	1	1.6	4	2	3	**4.8**				

Overloading of trucks having an impact on the public roads

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	2	1	1.6	4	2	3	**4.8**				

Continued employment opportunities (Positive Impact)

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: High			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
5	5	5	5	5	5	5	**25**				

Continued provision of building material to the region (Positive Impact)

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: High			**Site Layout Alternative 1**				**Degree of Mitigation: None**				
4	5	5	4.6	5	5	5	**23**				

Continued social support to local community (Positive Impact)

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: High			**Site Layout Alternative 1**			**Degree of Mitigation: None**					
5	5	5	5	5	5	5	**25**				

SLOPING AND LANDSCAPING DURING REHABILITATION:

Health and safety risk posed by unrehabilitated quarry excavations

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low			**Site Layout Alternative 1**			**Degree of Mitigation: Full**					
2	1	1	1.3	2	1	1.5	**1.9**				

Erosion of returned topsoil after rehabilitation

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low			**Site Layout Alternative 1**			**Degree of Mitigation: Full**					
2	1	1	1.3	2	1	1.5	**1.9**				

Infestation of the reinstated area with invader plant species

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low			**Site Layout Alternative 1**			**Degree of Mitigation: Full**					
2	1	1	1.3	3	2	2.5	**3.3**				

Potential impact associated with litter left at the mining area

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low			**Site Layout Alternative 1**			**Degree of Mitigation: Full**					
2	1	1	1.3	2	1	1.5	**1.9**				

<u>OPERATIONAL AND EXPANSION ACTIVITIES:</u>

CUMULATIVE IMPACTS

Flooding of the quarry excavation upon closure poses a safety risk to people and livestock

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low - Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Partial**				
2	5	1	2.6	3	1	2	**5.2**				

Impact on downstream users should mining affect the water quality of the Elands Spruit and large Brak River systems.

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
1	1	4	2	2	2	2	**4**				

Impact on overall species and ecosystem diversity

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	5	2	3	2	1	1.5	**4.5**				

Impacts to ecological connectivity and/or ecological disturbance impacts

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low			**Site Layout Alternative 1**				**Degree of Mitigation: Full**				
2	5	1	2.6	2	1	1.5	**3.9**				

Cumulative visual impact when the Quarry footprint is expanded

							Significance				
							Low	Low-Medium	Medium	Medium-High	High
Severity	Duration	Extent	Consequence	Probability	Frequency	Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Rating: Low - Medium			**Site Layout Alternative 1**				**Degree of Mitigation: Partial**				
2	4	2	2.6	2	2	2	**5.2**				

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 28: Assessment of each identified potentially significant impact and risk

ACTIVITY 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.)	POTENTIAL IMPACT (E.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, air pollution, etc…etc…etc.)	ASPECTS AFFECTED	PHASE In which impact is anticipated. (E.g. Construction, commissioning, operational Decommissioning closure, post closure.)	SIGNIFICANCE If not mitigated.	MITIGATION TYPE (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.	SIGNIFICANCE If not mitigated.
❖ <u>Expansion Activities</u>: Stripping and stockpiling of topsoil and/or overburden. ❖ <u>Operational and Expansion Activities</u>: Cumulative impacts	❖ Visual intrusion because of the activities. ❖ Cumulative visual impact when the Quarry footprint is expanded.	The visual impact may affect the aesthetics of the landscape.	Site Establishment & Operational Phase	❖ Low-Medium ❖ Medium	<u>Control:</u> Implementing proper housekeeping and progressive rehabilitation.	❖ Low ❖ Low

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
❖ Expansion Activities: Stripping and stockpiling of topsoil and/or overburden. ❖ Operational and Expansion Activities: Drilling and blasting. ❖ Operational and Expansion Activities: Excavation, processing, loading and hauling of aggregate. ❖ Operational and Expansion Activities: Cumulative impacts.	❖ Dust nuisance due to the movement of the soil. ❖ Dust nuisance caused by blasting activities. ❖ Dust nuisance caused by earthmoving machinery.	Increased dust generation will impact on the air quality of the receiving environment.	Site Establishment-, Operational- and Decommissioning Phase	❖ Medium ❖ Medium ❖ Medium	Control: Dust suppression methods and proper housekeeping.	❖ Low ❖ Medium ❖ Low
❖ Expansion Activities: Stripping and stockpiling of topsoil and/or overburden. ❖ Operational and Expansion Activities: Drilling and blasting. ❖ Operational and Expansion Activities: Excavation, processing,	❖ Noise nuisance caused by earthmoving machinery. ❖ Noise nuisance caused by blasting activities. ❖ Noise nuisance because of the mining activities.	Should noise levels become excessive it may have an impact on the noise ambiance of the receiving environment.	Site Establishment-, Operational Phase	❖ Medium ❖ Medium ❖ Medium	Control: Noise suppression methods and proper housekeeping.	❖ Low ❖ Medium ❖ Low-Medium

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
loading and hauling of aggregate. ❖ Operational and Expansion Activities: Cumulative impacts.						
❖ Expansion Activities: Stripping and stockpiling of topsoil and/or overburden. ❖ Operational and Expansion Activities: Excavation, processing, loading and hauling of aggregate. ❖ Operational and Expansion Activities: Sloping and landscaping during rehabilitation.	❖ Potential contamination from footprint area and surface runoff because of hydrocarbon spillages. ❖ Soil contamination from hydrocarbon spills and/or littering. ❖ Potential impact associated with litter/hydrocarbon spills left at the mining area.	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	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan.	❖ Low ❖ Low ❖ Low
❖ Expansion Activities: Stripping and stockpiling of topsoil and/or overburden. ❖ Operational and Expansion Activities: Cumulative impacts	❖ Loss of vegetation cover due to the extraction of sand. ❖ Impact on overall species and ecosystem diversity. ❖ Impact on ecological connectivity and/or	This will impact on the biodiversity of the receiving environment.	Site Establishment & Operational Phase	❖ Low-Medium ❖ Low-Medium ❖ Low-Medium	Control: Implementing proper housekeeping and the mitigation measures.	❖ Low-Medium ❖ Low ❖ Low

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
	ecological disturbance impacts.					
❖ Expansion Activities: Stripping and stockpiling of topsoil and/or overburden.	❖ Potential impact on faunal species.	This will impact on the biodiversity of the receiving environment.	Site Establishment & Operational Phase	❖ Low-Medium	Control: Implementing proper housekeeping and the mitigation measures.	❖ Low
❖ Expansion Activities: Stripping and stockpiling of topsoil and/or overburden. ❖ Operational and Expansion Activities: Excavation, processing, loading and hauling of aggregate. ❖ Operational and Expansion Activities: Sloping and landscaping during rehabilitation.	❖ Infestation of the topsoil heaps and mining area with invader plant species. ❖ Infestation of the mining area with invader plant species. ❖ Infestation of the reinstated area with invader plant species.	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 ❖ Medium-High	Control & Remedy: Implementation of an invasive plant species management plan.	❖ Low ❖ Low ❖ Low
❖ Expansion Activities: Stripping and stockpiling of topsoil and/or overburden. ❖ Operational and Expansion Activities: Excavation, processing,	❖ Potential increase in runoff from denuded areas and associated erosion. ❖ Flooding of the excavation due to heavy rain	This could impact the hydrology of the receiving environment and cause erosion.	Site Establishment, & Operational Phase.	❖ Low-Medium ❖ Low-Medium	Control: Implementing the SWMP.	❖ Low ❖ Low

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
loading and hauling of aggregate. ❖ Operational and Expansion Activities: Sloping and landscaping during rehabilitation. ❖ Operational and Expansion Activities: Cumulative impacts	❖ Runoff from mining area potentially impacting the two drainage lines and/or surface water. ❖ Erosion of returned topsoil after rehabilitation. ❖ Impact on downstream users should mining affect the water quality of the Elands Spruit and large Brak River systems.			❖ Medium ❖ Low-Medium ❖ High		❖ Low-Medium ❖ Low ❖ Low
❖ Operational and Expansion Activities: Excavation, processing, loading and hauling of aggregate.	❖ Continued employment opportunities (+) ❖ Continued provision of building material to the region (+) ❖ Continued social support to local community (+)	These impacts will affect the socio-economic status of the area positively.	Site Establishment, and Operational Phase	❖ High (+) ❖ High (+) ❖ High (+)	Not applicable.	❖ High (+) ❖ High (+) ❖ High (+)
❖ Operational and Expansion Activities: Drilling and blasting. ❖ Operational and Expansion Activities: Excavation, processing,	❖ Alteration of the existing topography. ❖ Alteration of the existing topography.	This impact may affect the land use opportunities of the property.	Site Establishment, Operational and Decommissioning Phase	❖ Low-Medium ❖ Medium-High	Should the proposed project be approved, the operation will change the land use options of the property. The impact could be controlled to a certain extend through	❖ Low ❖ Low-Medium

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
loading and hauling of aggregate.					progressive rehabilitation.	
❖ Operational and Expansion Activities: Drilling and blasting. ❖ Operational and Expansion Activities: Excavation, processing, loading and hauling of aggregate. ❖ Operational and Expansion Activities: Sloping and landscaping during rehabilitation. ❖ Operational and Expansion Activities: Cumulative impacts.	❖ Health and safety risk posed by blasting activities. ❖ Unsafe working environment for employees. ❖ Health and safety risk posed by unrehabilitated quarry excavations. ❖ Flooding of the quarry excavation upon closure poses a safety risk to people and livestock.	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 ❖ High ❖ High	Stop & Control: Adherance to the blasting rules and regulations, demarcation of the mining area and proper housekeeping.	❖ Low ❖ Low-Medium ❖ Low ❖ Low-Medium
❖ Operational and Expansion Activities: Drilling and blasting.	❖ Flyrock falling beyond the mining area.	Damage to infrastructure will incur costs for the Right Holder and complaints from the landowner and/or community.	Operational Phase	❖ Medium	Stop & Control: Adherance to the blasting rules and regulations, demarcation of the mining area and proper housekeeping.	❖ Low

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
❖ Operational and Expansion Activities: Excavation, processing, loading and hauling of aggregate.	❖ Overloading of trucks having an impact on the public roads.	Impacting the condition of public roads may incur public complaints and additional costs to the MR Holder.	Operational Phase	❖ Medium	Operational and Expansion Activities: Excavation, processing, loading and hauling of aggregate.	❖ Low

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

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 29: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.
	• Where mining operations occur, it is important that comprehensive rehabilitation and monitoring of the rehabilitation take place.	All the recommendations proposed by the specialist were incorporated into this document	Part A(1)(h)(iv)(c) Description of specific environmental features and infrastructure on the site.

Terrestrial Impact Assessment including Ecological and Wetland Assessment (Appendix K) Proposed expansion of DASC mine near De Aar, Northern Cape	• Correct topsoil and seedbank management will be paramount to rehabilitation. Where disturbance or excavation will occur, the upper 30 cm, or topsoil, should be removed, together with the vegetation, and stored on the site. The topsoil, together with the seedbank and any vegetation material, should then be placed on top of the rehabilitated soil surface. Subsoil should be used as backfilling and not as top dressing. Only removed topsoil should be utilised to rehabilitate the disturbed surface. The rehabilitated borrow pit should be incorporated into the surrounding landscape as far as possible. • The following mitigation should be implemented to prevent or decrease the anticipated impacts on the two small drainage lines likely to be affected by the mining operations (Appendix A: Map 3 the Ecological and Wetland Assessment (Appendix K)): • The drainage line to the south west of the site, as well as the drainage line originating in the northern portion of the site, should be completely excluded from mining operations, should be designated no-go areas and no mining activities, including construction or		Part A (1)(h)(vii) The possible mitigation measures that could be applied and the level of risk. Part A(1)(m)(vii) Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr Part B (1)(d)(iv) Impacts to be mitigated in their respective phases. Part B (1)(k) Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon, including

	operational activities, vehicle movement, laydown areas, vegetation clearing or any other associated activities should occur in or near these watercourses. (Appendix A: Map 3 the Ecological and Wetland Assessment (Appendix K)). Given the nature of the mining operations this should be easily attainable. • Adequate storm water management measures should be implemented and should include diverting storm- and floodwater around operational and excavation areas and preventing sediment and silt from entering the two delineated drainage lines. • Adequate monitoring of weed establishment and their continued eradication must be maintained (Appendix B the Ecological and Wetland Assessment (Appendix K)). Where category 1 and 2 weeds occur, they require removal by the property owner according to the Conservation of Agricultural Resources Act, No. 43 of 1983 and National Environmental Management: Biodiversity Act, No. 10 of 2004. • The area proposed for the mining expansion contains numerous protected species which have significant conservation value and will require mitigation (Appendix B):		

	• Prior to any clearing of vegetation for mining activities a walkthrough of the affected area should be undertaken and should include identification and marking of all protected plants on the site. • Species occurring on the site that may be affected by the development include *Colchicum orienticapense, Freesia andersoniae, Babiana hypogaea, Brunsvigia radulosa, Ruschia intricata, Euphorbia catveriflora, Hereroa concava and Mestoklema tuberosum*. Where clearing of vegetation is required and the development will affect any of these species, the necessary permits will have to be obtained. • Where the development will affect any of these, the necessary permits will have to be obtained. • Most of these species are fairly common, widespread and abundant and, with the necessary permits, can simply be removed. • However, several are uncommon, localised species and at least a fair portion of affected plants should be transplanted to adjacent areas where they will remain unaffected. These species include *Colchicum sp., Colchicum orienticapense, Freesia andersoniae, Babiana hypogaea, Brunsvigia radulosa, Euphorbia*		

	caterviflora and Hereroa concava. These geophytic and succulent species are easily transplanted with a high success rate. • Protected plants occurring on the site are listed as such under the Northern Cape Nature Conservation Act No. 9 of 2009. • Mining activities may affect the mammal population and care should therefore be taken to ensure none of the faunal species on site are harmed. The hunting, capturing or harming in any way of mammals on the site should not be allowed. • Open excavations may act as pitfall traps to mammals, reptiles and amphibians and trenches should be monitored daily for trapped animals which should be removed promptly. • In the event of poisonous snakes or other dangerous animals encountered on the site, an experienced and certified snake handler or zoologist must remove these animals from the site and re-locate them to a suitable area. • No littering must be allowed and all litter must be removed from the site. • Monitoring of mining and compliance with recommended mitigation measures must take place.		

	• The necessary authorisations must be acquired from the Department of Water and Sanitation (DWS) for mining activities within 100 metres of any of the delineated watercourses around the site (Appendix A: Map 3 the Ecological and Wetland Assessment (Appendix K)).		

I) Environmental impact statement

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

The key findings of the environmental impact assessment entail the following:

Project Proposal:

- De Aar Stone Crushers Empower (Pty) Ltd, applied for a Section 102 amendment application in terms of the MPRDA, 2002 to expand the mining footprint;
- The Right Holder intends to deepen and expand the quarry pit perimeter, maintaining a 44m buffer zone of the two drainage lines and seeks to include the extraction of sand as a listed mineral resource, to be mined using front-end loaders in the south-west corner of the proposed extension.
- The mining method of the quarry pit will remain unchanged, and no additional infrastructure needs to be established in the expansion area.
- Upon closure the quarry pit will be developed into a landscape feature. This will entail creating a series of irregular benches along the quarry faces, the top edges of each face being blasted away to form scree slopes on the benches below, thereby reducing the overall face angle. The benches will be top-dressed with topsoil and vegetated with an appropriate indigenous grass mix if vegetation does not naturally establish in the area within six months of the replacement of the topsoil.

Topography:

- Should the mining of the expansion area be allowed, the remaining landscape (between the quarry put and the south-west corner of the proposed expansion) will remain unchanged as the motivation for the expansion is to include the western part of the quarry pit, increase the quarry pit perimeter and include the mining of sand to the current mining right. The current topography of the quarry pit can only be mitigated to a certain extent through bench mining and rehabilitation. Upon closure, the excavation will be made safe but will remain as a landscape feature as backfilling the excavation is not possible/practical.

Visual Characteristics:

- The viewshed analysis shows that the potential visual impact of the proposed activity will be of very low concern, and therefore the visual impact is deemed to be of low-medium significance.

Air and Noise Quality:

- The expansion activities do not fall under the regulatory thresholds of the Air Quality Act, as emissions mainly include dust from blasting, transport, and processing. Located in a rural setting, over 1 km from the nearest residences and 7 km from De Aar, the quarry's noise and dust impact is minimal. Operations occur only during daylight hours, which, combined with the site's remote location, ensures negligible air and noise pollution effects on nearby communities.
- Considering this, the proposed air and noise emissions of the expansion area will be comparable to the current emissions of the Quarry

Hydrology:

- According to the Ecological and Wetland Assessment (Append J), the area hosts two ephemeral drainage lines that form tributaries to the Elands Spruit and Brak River systems. While these drainage features show no wetland conditions, they possess significant riparian vegetation and function as natural watercourses. One drainage line lies southwest of the site and has already been impacted by existing infrastructure. The other lies within the northern expansion area and remains mostly intact. Both should be designated as no-go zones for mining, with stormwater management systems implemented to divert runoff and prevent sedimentation. With proper mitigation, residual hydrological impacts are expected to remain low.

Terrestrial Biodiversity, Conservation Areas, and Groundcover:

- Despite the existing quarry reducing the area's conservation value, surrounding natural regions still support moderate biodiversity, including protected plant species and riparian habitats. The vegetation type is Northern Upper Karoo, currently listed as Least Concern. According to the Ecological and Wetland Assessment (Append J), the proposed expansion does not overlap with any Critical Biodiversity Area but is adjacent to habitat suitable for the endangered Ludwig's Bustard. The area supports various common mammal species like Steenbok, Porcupine, and Common Molerat, indicating a healthy, though generalist, fauna. With adequate mitigation—including plant relocation, habitat conservation, and exclusion of watercourses—the impact on biodiversity can be maintained at a low level.

Cultural and Heritage Environment:

- Due to the historic disturbed nature of the area, the potential of the proposed expansion area affecting any archaeological and/or palaeontological artefacts or environments is deemed to be of very low possibility.

Existing Infrastructure:

- No infrastructure exists in the proposed expansion area that could be affected by the proposed activity. If approved, the area will be fenced off to control access and prevent sprawling.

ii) Final Site Map

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

See the map indicating site activities attached as Appendix C.

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

The positive impacts of the proposed activity entails:

- The proposed expansion of the mining area will include the part of the excavation that historically extended across the mine boundary.

- The life of mine is calculated at ±10 years should the expansion be approved. An increase in the life of mine will provide the employees with peace of mind regarding downscaling and retrenchments linked to mine closure, as well as socio-economic benefits and growth development opportunities.

The following table shows the potential negative impacts associated with the proposed activity that were deemed to have a Low-Medium or higher significance/risk after mitigation:

POTENTIAL IMPACT	SIGNIFICANCE (AFTER MITIGATION)
❖ Loss of vegetation cover due to the extraction of sand	❖ Low-Medium
❖ Dust nuisance caused by blasting activities	❖ Medium
❖ Noise nuisance caused by blasting activities	❖ Medium
❖ Alteration of the existing topography	❖ Low-Medium
❖ Noise nuisance because of the mining activities	❖ Low-Medium
❖ Runoff from mining area potentially impacting the two drainage lines and/or surface water	❖ Low-Medium
❖ Flooding of the quarry excavation upon closure poses a safety risk to people and livestock	❖ Low-Medium
❖ Cumulative visual impact when the Quarry footprint is expanded	❖ Low - Medium

m) Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr;

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

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

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
TOPOGRAPHY Landscaping of the Excavation Area	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	❖ Use the excavated area for the final depositing of overburden. ❖ Dump rocks and coarse material removed from the excavation into the excavation. ❖ Remove coarse natural material used for the construction of ramps and dump it into the excavations. ❖ Remove stockpiles during the decommissioning phase, rip the area and return the topsoil to its original depth to provide a growth medium. ❖ Do not permit any waste to be deposited into the excavations. ❖ Return the previously stored topsoil to its original depth, once overburden, rocks and coarse natural materials have been added to the excavation and it was profiled with acceptable contours and erosion control measures. Subsoil should be used as backfilling and not as top dressing. ❖ Seed the site with a local or adapted indigenous seed mix to propagate the locally or regionally occurring flora, should natural vegetation not re-establish within six months from closure of the site. ❖ If required by the Regional Manager (DMPR) the soil must be analysed and any deleterious effects on the soil arising from the mining operation must be corrected and the area be seeded with a vegetation seed mix to his/her specification.	❖ Effectively restoring the mined area to allow the return of land to the municipality.
VISUAL CHARACTERISTICS Visual mitigation	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.	❖ Ensure that the site has a neat appearance and is always kept in good condition. ❖ Store mining equipment neatly in dedicated areas when not in use.	❖ Minimise the impact of the mining operations on the visual characteristics of the receiving

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
	Compliance to be monitored by the Environmental Control Officer.	❖ Limit vegetation removal, and only do stripping of topsoil immediately prior to the mining/use of a specific area. ❖ Contain the excavation within the approved footprint of the permitted area. ❖ Upon closure, rehabilitate the site and reduce the residual visual impacts to the minimum. ❖ Leave all buildings, equipment and/or infrastructure that will remain on the property after closure in a good and functional condition and obtain written transfer of liability of the structures to the landowner.	environment during the operational phase and minimise the residual impact after closure.
AIR AND NOISE QUALITY Dust Mitigation	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 Specialist to monitor and report on all air emissions.	❖ Control the liberation of dust into the surrounding environment using; inter alia, water spraying and/or other dust-allaying agents. ❖ Fit water sprayers to the processing plant and stop operations if the sprayers are out of order. ❖ Ensure continuous assessment of all dust suppression equipment to confirm its effectiveness in addressing dust suppression. ❖ Remove excess dust and fines at least weekly from the processing area. ❖ Limit speed on the haul roads to 20 km/h to prevent the generation of excess dust. ❖ Minimise areas devoid of vegetation, and only remove vegetation immediately prior to mining. ❖ Consider weather conditions upon commencement of daily operations. Limit operations during very windy periods to reduce airborne dust and resulting impacts. ❖ Ensure dust generating activities comply with the National Dust Control Regulations, GN No R827 promulgated in terms of NEM:AQA, 2004 and ASTM D1739 (SANS 1137:2012). ❖ Implement best practice measures during the stripping of topsoil, excavation, and transporting of material from site to minimize potential dust impacts.	❖ Dust prevention measures are applied to minimise the impact.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
		❖ Implement monthly fallout-dust monitoring at the site for the duration of the activities and the results must be compliant with the standards of the National Dust Control Regulations, 2013 (as amended).	
AIR AND NOISE QUALITY Noise Mitigation	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	❖ Ensure that employees and staff conduct themselves in an acceptable manner while on site. ❖ No loud music may be permitted at the mining area. ❖ Ensure that all project related vehicles are equipped with silencers and maintained in a road worthy condition in terms of the National Road Traffic Act, 1996. ❖ Plan the type, duration, and timing of the blasting procedures with due cognizance of other land users and structures in the vicinity. Notify the surrounding landowners in writing prior to each blasting occasion. ❖ Contract a qualified occupational hygienist to quarterly monitor and report on the personal noise exposure of the employees working at the mine. Monitoring must be in accordance with SANS 10083:2004 (Edition 5) sampling method as well as NEM:AQA 2004, SANS 10103:2008. ❖ Implement best practice measures to minimise potential noise impacts.	❖ Prevent unnecessary noise to the environment by ensuring that noise from development activity is mitigated.
GEOLOGY AND SOIL Topsoil/Soil Management	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	❖ Strip and stockpile the upper 300 mm of the soil before mining. ❖ Carefully manage and conserve the topsoil throughout the stockpiling and rehabilitation process. ❖ Ensure topsoil stripping, stockpiling, and re-spreading is done in a systematic way. Plan mining in such a way that topsoil is stockpiled for the minimum possible time. ❖ Place the topsoil on a levelled area, within the mining footprint. Do not stockpile topsoil in undisturbed areas. ❖ Protect topsoil stockpiles against losses by water- and wind erosion. Position stockpiles so it is not vulnerable to erosion by wind and water.	❖ Adequate fertile topsoil is available to rehabilitate the mined area.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
		The establishment of plants (indigenous grass) on the stockpiles will help to prevent erosion. ❖ Ensure that topsoil heaps do not exceed 2 m and not sloped more than 1:2 to avoid collapse. ❖ Keep temporary topsoil stockpiles free of invasive plant species. ❖ Vegetate the topsoil heaps to be stored longer than 3 months with an indigenous grass seed mix if vegetation does not naturally germinate within the first growth season. ❖ Divert storm- and runoff water around the on-site stockpile area to prevent erosion. ❖ Spread the topsoil evenly, to a depth of 300 mm, over the rehabilitated area upon closure of the site. ❖ Strive to re-instate topsoil at a time of the year when vegetation cover can be established as quickly as possible afterwards, to that erosion of returned topsoil is minimized. The best time of year is at the end of the rainy season. ❖ Plant an indigenous grass layer immediately after spreading topsoil to stabilise the soil and protect it from erosion. Rehabilitation extends until the first grass layer is well established. ❖ Control run-off water with temporary banks, where necessary, to prevent accumulation of run-off causing down-slope erosion. ❖ Monitor the rehabilitated area for erosion, and appropriately stabilize if erosion do occur, for at least 12 months after reinstatement.	
HYDROLOGY Erosion Control and Storm Water Management	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	❖ Implement a storm water management plan for the duration of the mining activities. ❖ Limit clearing of vegetation to the mining footprint and associated infrastructure. Ensure no clearing takes place outside the minimum required footprint. ❖ Divert stormwater around the topsoil heaps and mining areas to prevent erosion.	❖ Impact on the environment caused by stormwater discharge is avoided and erosion is managed.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
		❖ Protect stockpiles from erosion and store it on flat areas surrounded by appropriate berms where possible. ❖ Ensure that adequate slope protection is provided when mining within steep slopes. ❖ Do not discharge dirty water emanating from the quarry into the natural environment or any watercourse. Channel all runoff into the quarry sump. ❖ Regularly monitor roads and other disturbed areas within the project for erosion and ensure problem areas receive follow-up monitoring to assess the success of the remediation. ❖ Rectify erosion problems within the mining area because of the mining activities immediately (within 48 hours) and monitored thereafter to ensure that it does not re-occur. ❖ Use silt/sediment traps/barriers where there is a danger of topsoil or material stockpiles eroding and entering downstream drainage lines and other sensitive areas. Regularly maintain and clear the sediment/silt barriers to ensure effective drainage of the areas. ❖ Conduct activity in terms of the Best Practice Guidelines for small-scale mining as developed by DWS. ❖ Monitor all erosion and sediment control measures weekly for the life of the operation and repaired immediately when damaged. Only remove the erosion and sediment control structures once vegetation cover has successfully recolonised the affected areas. ❖ After heavy rainfall events, check the site for erosion damage and rehabilitate this damage immediately. Fill in erosion rills and gullies with appropriate material and/or silt fences until vegetation has recolonised the rehabilitated area. ❖ Regular monitoring of water quality, water levels, and flow conditions should be mandatory throughout the project's lifespan.	

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
HYDROLOGY Mitigating the potential impact on the drainage lines	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	The following mitigation measures were provided by the specialist: ❖ The drainage line to the south west of the site, as well as the drainage line originating in the northern portion of the site, should be completely excluded from mining operations, should be designated no-go areas and no mining activities, including construction or operational activities, vehicle movement, laydown areas, vegetation clearing or any other associated activities should occur in or near these watercourses. (Appendix A: Map 3 the Ecological and Wetland Assessment (Appendix K)). ❖ Demarcate the drainage lines with a 44 meter buffer zone. ❖ Adequate storm water management measures should be implemented and should include diverting storm- and floodwater around operational and excavation areas and preventing sediment and silt from entering the two delineated drainage lines.	❖ The mining activities have no impact on the nearby wetland system.
TERRESTRIAL BIODIVERSITY, CONSERVATION AREAS AND GROUNDCOVER Management of vegetation removal.	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 mining boundaries and contain all operations to the approved mining area. Declare the area outside the mining boundaries a no-go area and educate all staff accordingly. ❖ Commit to a conservation approach and keep the actual footprint of disturbance to a minimum. ❖ Arrange a pre-commencement environmental induction for all staff on site to ensure that basic environmental principles are adhered to. This must include awareness of no littering, appropriate handling of pollution and chemical spills, avoiding fire hazards, minimising wildlife interactions, remaining within demarcated areas, etc.	❖ Vegetation clearing is restricted to the authorised development footprint of the mine.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
		❖ Prior to any clearing of vegetation for mining activities, arrange a walkthrough of the affected and demarcate if the following protected plant species are found on site: ❖ Colchicum orienticapense, Freesia andersoniae, Babiana hypogaea, Brunsvigia radulosa, Ruschia intricata, Euphorbia catveriflora, Hereroa concava and Mestoklema ❖ A translocation permit can be done on the following species: *Colchicum sp., Colchicum orienticapense, Freesia andersoniae, Babiana hypogaea, Brunsvigia radulosa, Euphorbia caterviflora and Hereroa concava.* ❖ Do not allow grubbing as a method of clearing vegetation. Cut any trees that need to be cleared using chain saws and hauled it from the site using appropriate machinery where practically possible. ❖ Do not burn cleared vegetation to be retained, but rather mulch and stockpiled it. Ideally cover the heaps with stockpiled topsoil and retain the material for future site rehabilitation. ❖ Arrange that the ECO provide supervision and oversight of vegetation clearing activities and other activities which may cause damage to the environment, especially during the site establishment phase, when most of the vegetation clearing is taking place. ❖ Ensure all vehicles remain on demarcated roads and prevent unnecessary driving in the veld outside these areas. ❖ Do not allow fires on-site. ❖ Provide spoil heaps and topsoil stockpiles with a vegetation cover of indigenous grasses. ❖ Obtain a plant removal permit if the following plants have to be removed: *Colchicum sp., Colchicum orienticapense, Freesia andersoniae, Babiana hypogaea, Brunsvigia radulosa, Euphorbia caterviflora and Hereroa concava*.	

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
TERRESTRIAL BIODIVERSITY, CONSERVATION AREAS AND GROUNDCOVER Management of invasive plant species.	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	❖ Implement an invasive plant species management plan to control all invasive plant species on site in terms of NEM:BA, 2004 and CARA, 1983. Do weed/alien ongoing clearing on throughout the life of the mining activities. ❖ Do not allow planting or importing of any alien species to the site for landscaping, rehabilitation, or any other purpose. ❖ Keep all stockpiles (topsoil & overburden) free of invasive plant species. ❖ Control declared invader or exotic species on the rehabilitated areas.	❖ Mining area is kept free of invasive plant species.
FAUNA Protection of fauna	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	❖ Ensure no fauna is caught, killed, harmed, sold, or played with. ❖ The ECO or other suitably qualified person must remove any fauna directly threatened by the operational activities to a safe location. ❖ Monter the open exaction on a daily basis to see if any mammals, reptiles and amphibians have fallen into the pits and remove promptly. ❖ Arrange an experienced and certified snake handler or zoologist to handle and relocation any animal perceived to be dangerous/venomous/poisonous. ❖ Arrange that all personnel undergo environmental induction regarding fauna management and in particular awareness about not harming or collecting species such as snakes, tortoises and owls which are often persecuted out of superstition. Instruct workers to report any animals that may be trapped in the working area. ❖ Ensure no snares are set or nests raided for eggs or young. ❖ Prevent litter, food or other foreign material thrown or left around the site. Daily remove such items to the site offices. ❖ Open excavations may act as pitfall traps to mammals, reptiles and amphibians and trenches should be monitored daily for trapped animals which should be removed promptly.	❖ Disturbance to fauna is minimised.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
CULTURAL AND HERITAGE ENVIRONMENT Archaeological, heritage and palaeontological aspects.	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	❖ Confine all mining to the development footprint area. ❖ Implement the following change find procedure when discoveries are made on site: ♦ If during the pre-construction phase, construction, operations or closure phases of this project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance or heritage site, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager. ♦ It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find and confirm the extent of the work stoppage in that area. ♦ The senior on-site Manager will inform the ECO of the chance find and its immediate impact on operations. The ECO will then contact a professional archaeologist for an assessment of the finds who will notify the SAHRA. ♦ Work may only continue once the go-ahead was issued by SAHRA. ❖ Contact a palaeontologist, should any suspected palaeontological material be at any time encountered.	❖ Impact to cultural/heritage resources is avoided or at least minimised.
GENERAL Waste management	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	❖ Ensure regular vehicle maintenance, repairs and services only take place at an off-site workshop and service area. Ensure drip trays are present if emergency repairs are needed on equipment not able to move to the workshop. Dispose all waste products in a closed container/bin to be removed from the emergency service area (same day) to the workshop to ensure proper disposal. Treat this as hazardous waste and dispose of it at a registered hazardous waste handling facility, alternatively arrange collection by a registered	❖ Wastes are appropriately handled and safely disposed of at recognised waste facilities.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
		hazardous waste handling contractor. File safe disposal certificates for auditing purposes. ❖ If a diesel bowser is used on site, always equip it with a drip tray and ensure that it is parked in a bunded area with impermeable surface. Use drip trays during each refuelling event. The nozzle of the bowser needs to rest in a sleeve to prevent dripping after refuelling. ❖ Ensure drip trays are cleaned after each use. Do not allow dirty drip trays to be used on site. Dispose of dirty rags used to clean the drip trays as hazardous waste into a designated bin at the workshop, where it is incorporated into the hazardous waste removal system. ❖ Drain hydrocarbons from equipment/tools/vehicles placed in the salvage yard. Keep the salvage yard clean and remove unwanted materials from the mine as regular as possible. ❖ Obtain an oil spill kit and train the employees in the emergency procedures to follow when a spill occurs as well as the application of the spill kit. ❖ Clean spills immediately, within two hours of occurrence, to the satisfaction of the Regional Manager (DMPR) by removing the spillage together with the polluted soil and containing it in a designated hazardous waste bin until it is disposed of at a registered facility. File proof. ❖ Do not discharge water containing waste into the natural environment. ❖ Implement measures to contain the wastewater and safely dispose thereof. ❖ Report any significant spillage of chemicals, fuels etc. during the lifespan of the mining activities to the Department of Water and Sanitation and other relevant authorities. ❖ Clean all decommissioned / rehabilitated areas of all waste at the end of the project.	

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTIONS	MANAGEMENT OUTCOMES
GENERAL Management of health and safety risks	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	❖ Properly fence the mining area to prevent incursion by livestock and unauthorised humans. ❖ Ensure that workers have access to the correct PPE as required by law. ❖ Locate sanitary facilities within 100 m from any point of work. ❖ Manage all operations in compliance with the Mine Health and Safety Act, 1996 (Act No 29 of 1996). ❖ Plan the type, duration, and timing of blasting with due cognizance of other land users and structures in the vicinity. ❖ Inform the surrounding landowners and communities in writing ahead of any blasting event. ❖ Monitor the compliance of ground vibration and airblast levels to USBM standards with each blasting event. ❖ Record all blasts with a vibro recorder. ❖ Give audible warning of a pending blast at least 3 minutes in advance of the blast. ❖ Limit fly rock and collect and remove flyrock and rock spill that falls beyond the working area. ❖ Fence/wall the excavation upon closure to restrict access. The pit may not be used for swimming and/or watering of stock without prior approval of the municipality and DWS.	❖ Employees work in a healthy and safe environment.
EXISTING INFRASTRUCTURE Access Road Mitigation	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	❖ Restrict vehicular movement to the existing access road to prevent crisscrossing of tracks through undisturbed areas. ❖ Repair rutting and erosion of the access road caused as a direct result of the mining activities. ❖ Prevent the overloading of the truck and file proof of load weights for auditing purposes.	❖ The access road remains in an acceptable condition during the operational phase, and upon closure, the road is returned in a better, or at least the same state as received by the Right Holder.

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 assumptions made in this document which relate to the assessment and mitigation measures proposed, stem from site specific information gathered from site inspections, desktop studies, and background information that were gathered. No uncertainty regarding the proposed project or the receiving environment could be identified.

p) Reasoned opinion as to whether the proposed activity should or should not be authorised

i) Reasons why the activity should be authorised or not.

Should the mitigation measures and monitoring programmes proposed in this document be implemented on site, no fatal flaws could be identified that were deemed as severe as to prevent the activity continuing.

ii) Conditions that must be included in the authorisation

The management objectives listed in this report under *Part A(1)(m) Proposed impact management objectives and the impact management outcomes for inclusion in the EMPR* should be considered for inclusion in the environmental authorisation.

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 2025 amount required to manage and rehabilitate the current operational activities was calculated as R3 759 309.34. The methodology used to calculate the financial provision amount was according to Section B of the working manual for the determination of the closure cost of mining area. Also refer to Part B(1)(f)(i) *Financial Provision* that explains the closure amount that will be needed should this application be successful.

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).

De Aar Stone Crushers Empower (Pty) Ltd has been managing the quarry since 2020 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 R4 437 873 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 following potential impacts were identified that may impact on socio-economic conditions of directly affected persons:

- **Visual intrusion because of the expansion of the mining area:**
  Although expansion of the mining area will have a cumulative impact on the area, the viewshed analysis showed that the area will only be visible from the direct surroundings. The alteration of the topography will be away from the bordering residential areas, and no sensitive visual receptors are present to the south of the quarry. Therefore, the potential visual impact on the receiving environment is deemed to have a Low significance after mitigation.

- **Impact on the air quality and noise ambiance of the study area:**
  The proposed expansion of the mining footprint is not expected to have a cumulative impact on the air quality and/or noise ambiance of the receiving environment as mining will gradually move into the expansion area as the current footprint becomes depleted. Considering this, the proposed air and noise emissions of the expansion area will be comparable to the current emissions of the Quarry.

- **Positive impacts of the proposed project entail (amongst others):**
  - Continued employment opportunities;
  - Continued provision of building material to the region;
  - Continued social support to local community.

Also refer to Part A(1)(f) Need and desirability of the project, and Part A(1)(g) Motivation for the overall preferred site, activities and technology alternative.

(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)

Although various alternatives, associated with the activity, were considered during the impact assessment process, none were found to be feasible as discussed in Part A(1)(h)(i) *Details of the development footprint alternatives considered*, and Part A(1)(h)(ix) *Motivation where no alternative sites were considered*.

PART B

NOTE: THE EMPR, APPLIES TO THE OPERATIONAL ACTIVITIES AS WELL AS THE EXPANSION ACTIVITIES, AND (UPON APPROVAL) REPLACES THE 2015 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 Zoë Norval and Christine Fouche from Greenmined Environmental (Pty) Ltd that acts as the EAPs on this project has been included in Part A Section 1(a) as well as Appendix J 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 Final environmental management programme is already included in PART A, section (1)(h) herein as required).

1. UPDATED DESCRIPTION OF THE OPERATIONAL MINING ACTIVITIES

Also refer to Part A(d)(ii) Description of the activities to be undertaken.

1.1 EXISTING INFRASTRUCTURE AND MANAGEMENT PRACTICES

The Quarry is accessed directly off the dirt road R388, which passes the mine along the eastern boundary. Gravel roads dominate the working areas within the Quarry boundary. All products leave the Quarry via a single entrance once the truck loads have been determined at the weighbridge.

DASC Quarry is served by an overhead Eskom powerline supplied from the Eskom reticulation. The overhead powerlines feed to the office administration complex and the crusher plant respectively.

The administrative office complex is in the southern part of the Quarry near the main entrance. The processing plant, workshop and storage areas are to the west of the admin complex, while the weighbridge is in front of the admin complex. There is no accommodation on site as no employees reside at the mine.

Waste Management

Industrial/hazardous waste that originate at the workshop (from servicing and maintenance) is stored in a designated tank and/or refuse bins within bunded areas until collected by an appropriately qualified sub-contractor that disposes of it at an appropriately qualified hazardous waste handling facility. Fuel is stored on site in the aboveground 23 000 l diesel tank that sits within a bunded area with impermeable surface. Contaminated soil is bioremediated in a designated area, and once clean reintroduced into the excavation.

Domestic waste is collected in various bins and disposed of at the municipal waste disposal site in De Aar. Recycling is encouraged on site and implemented where possible.

1.2 OPERATIONAL ACTIVITIES

Topsoil and Rehabilitation

It is considered good practice to remove topsoil prior to the excavation or development of any structure within the Quarry footprint. The topsoil is then stockpiled in a clearly marked area that is offered protection from erosive forces such as wind and surface run-off. The topsoil will be reused incrementally as faces are advanced and existing and future faces and benches are rehabilitated.

Mining Method and Mine Layout

The mining method is simple and comprises the standard blasting of material, transportation to the crusher for processing and then the stockpiling of various size fractions for commercial sale.

Blasting is outsourced to a sub-contractor with the required legal appointments and all explosives are brought to site when needed.

A step-by-step process of production at DASC Quarry is as follows:

- Clear and remove topsoil and overburden where applicable.
- Drill and blast.
- Load rock onto trucks and cart to the processing plant.

- Dump rock into feeder, crush oversize, convey to screens. Oversize conveyed to secondary crushers for further shaping, screened again and moved to stockpiles by conveyors.
- Load onto trucks and dump on permanent stockpiles in demarcated areas.
- Load onto vehicles (clients/De Aar Stone Crushers Empower) for dispatch.

Mineral Processing

Hard rock recovered from the quarry excavation is hauled to the primary crusher plant of the mine. At the primary crusher the aggregate is fed through a grizzly into the crusher. From the primary crusher the material is conveyed to the respective secondary-, tertiary- and quaternary crushing and screening processes for size separation before moving on conveyor belts to the various stockpiles.

2. PROPOSED EXPANSION FOOTPRINT

The aspects regarding the expansion footprint, covered by the final environmental management programme, were described, and included in this document in Part A, section (1)(d) and (h).

c) Composite Map

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

As mentioned under Part A, section (1)(l)(ii) this map is attached as Appendix C to this document.

d) Description of impact management objectives including management statements

i) Determination of closure objectives. (Ensure that the closure objectives are informed by the type of environment described)

The 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 mined aggregate quarry in a condition that reduces all 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 as short a time as possible whilst still complying with the requirements of the Minerals

and Petroleum Resources Development Act (Act No. 28 of 2002) [MPRDA]. To realise this, the following main objectives must be achieved:

- Remove all infrastructure that will no longer be needed by the landowner as well as all waste from the mine as per the requirements of this EMPR and of the Provincial Department of Minerals and Resources.
- Shape and contour disturbed areas in compliance with the EMPR.
- Ensure that permanent changes in topography (due to mining) are sustainable and do not cause erosion or a safety risk to the community.
- Make all excavations safe.
- Use the topsoil effectively to promote the re-establishment of vegetation.
- Ensure that all rehabilitated areas are stable and self-sustaining in terms of vegetation cover.
- Eradicate all weeds/invader plant species by intensive management of the mining area.

The site-specific closure objectives are discussed in the attached Closure Plan (Appendix H), 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 required.

Due to the impracticality of importing large volumes of fill to restore the excavation to its original topography, the rehabilitation option is to develop the quarry into a landscape feature. This will entail creating a series of irregular benches along the quarry faces, the top edges of each face being blasted away to form scree slopes on the benches below, thereby reducing the overall face angle. The benches will be 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 quarry pit;
- Removing all stockpiled material;

- Removing all mining machinery and equipment from site;
- Landscaping all disturbed areas and replacing the topsoil;
- Vegetating the reinstated area; and
- Controlling/monitoring the invasive plant species.

The Right Holder will comply with the minimum closure objectives as prescribed by the DMPR and detailed below:

- <u>Rehabilitation of the Excavated Area:</u>

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

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

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

  The 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.

- <u>Rehabilitation of the Sand Excavation Area:</u>

  Once sand extraction is complete, all mobile equipment such as front-end loaders is removed from the site. The excavation area is then reshaped to ensure safe and stable slopes, minimizing erosion and preventing ponding. Topsoil that was previously stockpiled prior to excavation, must be evenly re-spread across the site to support natural vegetation regrowth.

- <u>Rehabilitation of Plant, Offices and Service Areas:</u>

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 excavation 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.

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

The potable water required on site is bought from the municipality as needed, while process water (mainly for dust suppression) is pumped from the quarry pit. The

proposed expansion of the mining footprint will not increase the volume of water needed for the operation. When insufficient water is available in the pit, the mine sources water from the adjacent registered borehole (registration certificate attached). The extracted water is stored in a 30 000 L dam and used immediately for dust-suppression purposes.

iii) Has a water use licence been applied for?

The Right Holder is in the process of applying for a General Authorization by DWS - Reference Number: WU47465.

iv) Impacts to be mitigated in their respective phases

Table 31: Impact to be mitigated in their respective phases

ACTIVITIES (as listed in 2.11.1)	PHASE of operation in which activity will take place. State; Planning and design, Pre-Construction, Operational, Rehabilitation, Closure, Post closure	SIZE AND SCALE OF DISTURBANCE (volumes, tonnages and hectares or m^2)	MITIGATION MEASURES (describe how each of the recommendations herein will remedy the cause of pollution or degradation and migration of pollutants)	COMPLIANCE WITH STANDARDS (A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)	TIME PERIOD FOR IMPLEMENTATION Describe the time period when the measures in the environmental management programme must be implemented. Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. With regard to Rehabilitation, therefore state either – Upon cessation of the individual activity or Upon the cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.
❖ <u>Expansion Activities:</u> Stripping and stockpiling of topsoil and/or overburden. ❖ <u>Operational and expansion activities:</u>	Site Establishment & Operational Phase	133.1830 ha	**<u>Visual Mitigation:</u>** ❖ 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. ❖ The Right Holder must limit vegetation removal, and stripping of topsoil may	Management of the activities must be in accordance with the: ❖ MPRDA, 2008 ❖ NEMA, 1998	Throughout the site establishment- and operational phases.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
Cumulative impact.			only be done immediately prior to the mining/use of a specific area. ❖ All excavation and mining related activities must be contained within the approved mining footprint. ❖ Upon closure the site must be rehabilitated to ensure that the visual impact on the aesthetic value of the area is reduced to the minimum. ❖ All buildings, equipment and/or infrastructure that will remain on the property after closure, must be left in a good and functional condition, and the landowner must accept responsibility for these structures in writing.		
❖ Expansion Activities: Stripping and stockpiling of topsoil and/or overburden. ❖ Operational and expansion activities: Drilling and blasting. ❖ Operational and expansion activities:	Site Establishment and Operational Phase	133.1830 ha	**Fugitive Dust Emission Mitigation Measures:** ❖ The liberation of dust into the surrounding environment must be effectively controlled using, inter alia, straw, water spraying and/or environmentally friendly dust-allaying agents that contains no PCB's (e.g. DAS products). ❖ Water sprayers must be fitted to the processing plant, and the plant may not operate if these sprayers are out of order.	Dust generation on site must be managed in accordance with the: ❖ NEM:AQA, 2004 Regulation 6(1) ❖ National Dust Control Regulations, GN No R827 ❖ ASTM D1739 (SANS 1137:2012)	Throughout the site establishment-, operational, and decommissioning phases.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
Excavation, processing, loading and hauling of aggregate. ❖ <u>Operational and expansion activities:</u> Cumulative Impacts.			❖ The site manager must daily assess the efficiency of all dust suppression equipment. ❖ Excess dust and fines must at least weekly be removed from the processing area. ❖ Speed on the haul roads must be limited to 40 km/h to prevent the generation of excess dust. ❖ Areas devoid of vegetation, which could act as a dust source, must be minimized and vegetation removal may only be done immediately prior to mining. ❖ All dust generating activities shall comply with the National Dust Control Regulations, GN No R827 promulgated in terms of NEM:AQA (Act 39 of 2004) and ASTM D1739 (SANS 1137:2012). ❖ Monthly fallout-dust monitoring must be implemented at the site for the duration of the activities and the results must be compliant with the standards of the National Dust Control Regulations, 2013 (as amended). ❖ Best practice measures shall be implemented during the stripping of topsoil, excavation, and transporting of material from site to minimize potential dust impacts.		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
❖ Expansion Activities: Stripping and stockpiling of topsoil and/or overburden. ❖ Operational and expansion activities: Drilling and blasting. ❖ Operational and expansion activities: Excavation, processing, loading and hauling of aggregate. ❖ Operational and expansion activities: Cumulative Impacts.	Site Establishment-, Operational Phase	133.1830 ha	**Noise Handling:** ❖ The Right Holder must ensure that employees and staff conduct themselves in an acceptable manner while on site. ❖ No loud music may be permitted at the work areas. ❖ All project vehicles must be equipped with silencers and maintained in a road worthy condition in terms of the National Road Traffic Act, 1996 (Act No 93 of 1996). ❖ The type, duration and timing of the blasting procedures must be planned with due cognizance of other land users and structures in the vicinity. Surrounding landowners must be notified in writing prior to each blast. ❖ A qualified occupational hygienist must be contracted to quarterly monitor and report on the personal noise exposure of the employees working at the mine. The monitoring must be done in accordance with the SANS 10083:2004 (Edition 5) sampling method as well as NEM:AQA, 2004, SANS 10103:2008. ❖ Best practice measures shall be implemented to minimize potential noise impacts.	Noise generation on site must be managed in accordance with the: ❖ NEM:AQA, 2004 Regulation 6(1) ❖ NRTA, 1996	Throughout the site establishment-, and operational phases.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
❖ Expansion Activities: Stripping and stockpiling of topsoil and/or overburden. ❖ Operational and expansion activities: Excavation, processing, loading and hauling of aggregate. ❖ Operational and expansion activities: Sloping and landscaping during rehabilitation.	Site Establishment-, Operational-, and Decommissioning Phase	133.1830 ha	**Waste Management:** ❖ Regular vehicle maintenance, repairs and services may only take place at the workshop and service area. If emergency repairs are needed on equipment not able to move to the workshop, drip trays must be present. All waste products must be disposed of in a closed container/bin to be removed from the emergency service area (same day) to the workshop to ensure proper disposal. This waste must be treated as hazardous waste and must be disposed of at a registered hazardous waste handling facility, alternatively collected by a registered hazardous waste handling contractor. The safe disposal certificates must be filed for auditing purposes. ❖ If a diesel bowser is used on site, it must always be equipped with a drip tray and/or parked in a bunded area with impermeable surface. Drip trays must be used during each refuelling event. The nozzle of the bowser needs to rest in a sleeve to prevent dripping after refuelling. ❖ Site management must ensure drip trays are cleaned after each use. No dirty drip trays may be used on site. The dirty rags used to clean the drip trays	Project related waste must be managed in accordance with the: ❖ NWA, 1998 ❖ NEM:WA, 2008	Throughout the site establishment-, operational and decommissioning phases.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			must be disposed as hazardous waste into a designated bin at the workshop, where it is incorporated into the hazardous waste removal system. ❖ Equipment/tools/vehicles placed in the salvage yard must be drained of all hydrocarbons before placement. The salvage yard must be kept clean and unwanted materials must be removed from the mine as regular as possible. ❖ An oil spill kit must be available at the mine, and the employees must be trained in the emergency procedures to follow when a spill occurs as well as the application of the spill kit. ❖ Spills must be cleaned up immediately, within two hours of occurrence, to the satisfaction of the Regional Manager (DMPR) by removing the spillage together with the polluted soil and containing it in a designated hazardous waste bin until it is disposed of at a recognised facility. Proof must be filed. ❖ When small volumes of wastewater are generated during the life of the project the following is applicable: ♦ Water containing waste must not be discharged into the natural environment.		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			♦ Measures to contain the wastewater and safely dispose thereof must be implemented. ❖ It is important that any significant spillage of chemicals, fuels etc. during the lifespan of the activities is reported to the Department of Water and Sanitation and other relevant authorities. ❖ All decommissioned/rehabilitated areas must be cleared of all waste at the end of the project.		
❖ Expansion activities: Stripping and stockpiling of topsoil and/or overburden. ❖ Operational and expansion activities: Cumulative impact.	Site Establishment- and Operational Phase	±5ha	**Management of Vegetation Removal:** ❖ The mining boundaries must be clearly demarcated, and all operations must be contained to the approved mining area. The area outside the mining boundaries must be declared a no-go area, and all staff must be educated accordingly. ❖ No mining may take place within 44 meters of any drainage line. ❖ The Right Holder must be committed to a conservation approach and the actual footprint of disturbance must be kept to a minimum. ❖ A pre-commencement environmental induction for all site staff must be provided to ensure that basic environmental principles are adhered to. This includes awareness of littering,	Natural vegetated areas must be managed in accordance with the: ❖ NEM:BA 2004	Throughout the site establishment- and operational phases.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			appropriate handling of pollution and chemical spills, avoiding fire hazards, minimising wildlife interactions, remaining within demarcated areas, etc. ❖ The species listed in Appendix B of the Ecological and Wetland Assessment (Appendix K) contains numerous protected species which have significant conservation value and will require mitigation. ❖ Prior to any clearing of vegetation for mining activities a walkthrough of the affected area should be undertaken and should include identification and marking of all protected plants on the site. ❖ The following plant species, which may be present on site, require a removal permit prior to any disturbance: *Colchicum orienticapense, Freesia andersoniae, Babiana hypogaea, Brunsvigia radulosa, Ruschia intricata, Euphorbia catveriflora, Hereroa concava and Mestoklema* ❖ The follow plant species (if present) should be transplanted to adjacent areas where they will remain unaffected. These species include *Colchicum sp., Colchicum orienticapense, Freesia andersoniae, Babiana hypogaea, Brunsvigia*		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			radulosa, Euphorbia caterviflora and Hereroa concava. ❖ Grubbing is not permitted as a method of clearing vegetation. Any trees needing clearing must be cut down using chain saws and hauled from the site using appropriate machinery where practically possible. ❖ Cleared vegetation to be retained may not be burned but can be mulched and stockpiled. Ideally the heaps can be covered with stockpiled topsoil and the material be retained for future site rehabilitation purposes. ❖ The ECO must provide supervision and oversight of vegetation clearing activities and other activities which may cause damage to the environment, especially during the site establishment phase, when most of the vegetation clearing is taking place. ❖ All vehicles must remain on demarcated roads and no unnecessary driving in the veld outside these areas may be allowed. ❖ No fires must be allowed on-site. ❖ Spoil heaps and topsoil stockpiles must be provided with a vegetation cover of indigenous grasses.		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
❖ Expansion activities: Stripping and stockpiling of topsoil and/or overburden.	Site Establishment- and Operational Phase	133.1830 ha	**Protection of Fauna:** ❖ The site manager must ensure no fauna is caught, killed, harmed, sold, or played with. ❖ Any fauna directly threatened by the operational activities must be removed to a safe location by the ECO or other suitably qualified person. ❖ Open excavations may act as pitfall traps to mammals, reptiles and amphibians and trenches should be monitored daily for trapped animals which should be removed promptly. ❖ In the event of poisonous snakes or other dangerous animals encountered on the site, an experienced and certified snake handler or zoologist must remove these animals from the site and re-locate them to a suitable area. ❖ All personnel must undergo environmental induction regarding fauna management and in particular awareness about not harming or collecting species such as snakes, tortoises and owls which are often persecuted out of superstition. Workers must be instructed to report any animals that may be trapped in the working area.	Fauna must be managed in accordance with the: ❖ NEM:BA 2004	Throughout the site establishment- and operational phases.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			❖ No snares may be set, or nests raided for eggs or young. ❖ No litter, food or other foreign material may be thrown or left around the site. Such items must daily be removed to the site offices.		
❖ Expansion activities: Stripping and stockpiling of topsoil and/or overburden. ❖ Operational and expansion activities: Excavation, processing, loading and hauling of aggregate. ❖ Operational and expansion activities: Sloping and landscaping during rehabilitation.	Site Establishment-, Operational- and Decommissioning Phase	133.1830 ha	**Management of Invasive Plant Species:** ❖ An invasive plant species management plan (Appendix G) must be implemented at the site to ensure the management and control of all species regarded as Category 1a and 1b invasive species in terms of NEM:BA (National Environmental Management: Biodiversity Act 10 of 2004 and regulations applicable thereto). Weed/alien clearing must be done on an ongoing basis throughout the life of the activities. ❖ No planting or importing of any alien species to the site for landscaping, rehabilitation or any other purpose may be allowed. ❖ All stockpiles (topsoil & overburden) must be kept free of invasive plant species. ❖ Management must take responsibility to control declared invader or exotic species on the rehabilitated areas. The following control methods can be used:	Weeds and invader plants on site must be managed in accordance with the: ❖ CARA, 1983 ❖ NEM:BA, 2004	Throughout the site establishment-, operational- and decommissioning phases.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			♦ The plants can be uprooted, felled, or cut off and can be destroyed completely. ♦ The plants can be treated chemically by a registered pest control officer (PCO) using an herbicide recommended for use by the PCO in accordance with the directions for the use of such an herbicide.		
❖ Expansion activities: Stripping and stockpiling of topsoil and/or aggregate.	Site establishment-, Operational-, and Decommissioning Phase	±5ha	**Topsoil/Soil Management:** ❖ The upper 300 mm of the soil must be stripped and stockpiled before mining. ❖ Topsoil is a valuable and essential resource for rehabilitation, and it must therefore be managed carefully to conserve and maintain it throughout the stockpiling and rehabilitation processes. ❖ Topsoil stripping, stockpiling, and re-spreading must be done in a systematic way. The mining plan must be such that topsoil is stockpiled for the minimum possible time. ❖ The topsoil must be placed on a levelled area, within the mining footprint. No topsoil may be stockpiled in undisturbed areas. All topsoil heaps must be signposted.	Stockpiles must be managed in accordance with the: ❖ CARA, 1983	Throughout the site establishment-, operational-, and decommissioning phases.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			❖ Topsoil stockpiles must be protected against losses by water- and wind erosion. Stockpiles must be positioned so as not to be vulnerable to erosion by wind and water. The establishment of plants (indigenous grass) on the stockpiles will help to prevent erosion. ❖ Topsoil heaps may not exceed 2 m in height and are not to be sloped more than 1:2 to avoid collapse. ❖ The temporary topsoil stockpiles must be kept free of invasive plant species. ❖ Topsoil heaps to be stored longer than a period of 3 months needs to be vegetated with an indigenous grass seed mix if vegetation does not naturally germinate within the first growth season. ❖ Storm- and runoff water must be diverted around the topsoil and overburden stockpile areas to prevent erosion. ❖ The stockpiled topsoil must be evenly spread, to a depth of 300 mm, over the rehabilitated area upon closure of the site. ❖ The Right Holder must strive to re-instate topsoil at a time of year when vegetation cover can be established as quickly as possible afterwards, so that erosion of returned topsoil by both rain and wind, before vegetation is		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			established, is minimized. The best time of year is at the end of the rainy season, when there is moisture in the soil for vegetation establishment and the risk of heavy rainfall events is minimal. ❖ An indigenous grass layer must be planted and established immediately after spreading of topsoil, to stabilize the soil and protect it from erosion. It is important that rehabilitation be taken up to the point of stabilization. Rehabilitation cannot be considered complete until the first grass layer is well established. ❖ Run-off water must be controlled via temporary berms, where necessary, on the slopes to ensure that accumulation of run-off does not cause down-slope erosion. ❖ The rehabilitated area must be monitored for erosion, and appropriately stabilized if any erosion occurs for at least 12 months after reinstatement.		
❖ <u>Expansion activities:</u> Stripping and stockpiling of topsoil and/or overburden.	Operational-, and Decommissioning Phase	133.1830 ha	**<u>Erosion Control and Storm Water Management:</u>** ❖ A storm water management plan must be implemented for the duration of the mining activities.	Soil must be managed in accordance with the: ❖ CARA, 1983 ❖ Closure Plan (Appendix H) ❖ MPRDA, 2002	Throughout the site establishment-, operational- and decommissioning phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
❖ <u>Operational and expansion activities:</u> Sloping and landscaping during rehabilitation.			❖ Clearing of vegetation must be limited to the mining footprint and associated infrastructure. No clearing outside of the minimum required footprint to take place. ❖ Vegetation clearing activities must be put on hold when heavy rains are expected. ❖ Stormwater must be diverted around the topsoil heaps and mining areas to prevent erosion. ❖ Stockpiles must be protected from erosion, stored on flat areas where possible, and be surrounded by appropriate berms. ❖ When mining within steep slopes, it must be ensured that adequate slope protection is provided. ❖ No dirty water emanating from the quarry shall be discharged into the natural environment or any watercourse. All stormwater runoff that falls in the mining area must be channelled to the quarry sump. ❖ Roads and other disturbed areas within the project area must be regularly monitored for erosion and problem areas must receive follow-up monitoring to assess the success of the remediation. ❖ Any erosion problems within the mining area because of the mining activities	❖ NEM:BA, 2004 ❖ NWA, 1998 ❖ SWMP	

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			observed must be rectified immediately (within 48 hours) and monitored thereafter to ensure that it does not re-occur. ❖ Mining must be conducted only in accordance with the Best Practice Guideline for small scale mining that relates to storm water management, erosion and sediment control and waste management, developed by the Department of Water and Sanitation (DWS), and any other conditions which that Department may impose: ♦ Clean water (e.g. rainwater) must be kept clean and be routed to a natural watercourse by a system separate from the dirty water system. You must prevent clean water from running or spilling into dirty water systems. ♦ Dirty water must be collected and contained in a system separate from the clean water system. ♦ Dirty water must be prevented from spilling or seeping into clean water systems. ♦ A storm water management plan must apply for the entire life cycle of the mining activity and over different hydrological cycles (rainfall patterns).		

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			♦ The statutory requirements of various regulatory agencies and the interests of stakeholders must be considered and incorporated into a storm water management plan. ❖ All erosion and sediment control measures must be monitored (weekly) for the life of the operation and repaired immediately when damaged. The erosion and sediment control structures may only be removed once vegetation cover has successfully recolonised the affected areas. ❖ After heavy rainfall events, site management must check the site for erosion damage and rehabilitate this damage immediately. Erosion rills and gullies must be filled-in with appropriate material and/or silt fences until vegetation has recolonised the rehabilitated area.		
❖ <u>Expansion activities:</u> Stripping and stockpiling of topsoil and/or overburden. ❖ <u>Operational and expansion</u>	Operational Phase	133.1830 ha	**<u>Mitigating the potential impact on the drainage lines:</u>** ❖ The drainage line to the south west of the site, as well as the drainage line originating in the northern portion of the site, should be completely excluded from mining operations, should be designated no-go areas and no mining activities, including construction or	The drainage lines must be shielded in accordance with the: ❖ NWA, 1998 ❖ SWMP	Throughout the operational phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
activities: Excavation, processing, loading and hauling of aggregate. ❖ Operational and expansion activities: Cumulative impacts.			operational activities, vehicle movement, laydown areas, vegetation clearing or any other associated activities should occur in or near these watercourses. (Appendix A: Map 3 the Ecological and Wetland Assessment (Appendix K)). ❖ Demarcate the drainage lines with a 44 meter buffer zone. ❖ Adequate storm water management measures should be implemented and should include diverting storm- and floodwater around operational and excavation areas and preventing sediment and silt from entering the two delineated drainage lines. ❖		
❖ Operational and expansion activities: Drilling and blasting. ❖ Operational and expansion activities: Excavation, processing, loading and hauling of aggregate.	Operational-, and Decommissioning Phase	133.1830 ha	**Management of health and safety risks:** ❖ It must be ensured that the mining area is properly fenced off to prevent incursion by livestock and unauthorised humans. ❖ Workers must have access to the correct personal protection equipment (PPE) as required by law. ❖ Sanitary facilities must be located within 100 m from any point of work. ❖ All operations must comply with the Mine Health and Safety Act, 1996 (Act No 29 of 1996).	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.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
❖ Operational and expansion activities: Sloping and landscaping during rehabilitation. ❖ Operational and expansion activities: Cumulative impacts.			❖ The type, duration and timing of the blasting procedures must be planned with due cognizance of other land users and structures in the vicinity. ❖ The surrounding landowners must be informed in writing ahead of each blasting event. ❖ The compliance of ground vibration and airblast levels must be monitored to USBM standards with each blasting event. ❖ A vibro recorder must be used to record all blasts. ❖ Audible warning of a pending blast must be given at least 3 minutes in advance of the blast. ❖ Measures to limit flyrock must be taken. All flyrock (of diameter 150 mm and larger) which falls beyond the working area, together with the rock spill must be collected and removed. ❖ Upon closure the excavation must be fenced/walled in to restrict access. The pit may not be used for swimming and/or watering of stock without prior approval of the municipality and DWS.		
❖ Operational and expansion activities: Excavation, processing,	Operational Phase	133.1830 ha	**Access road Management:** ❖ Vehicular movement must be restricted to the roads and crisscrossing of tracks	The access road must be managed in accordance with the: ❖ NRTA, 1996	Throughout the operational phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
loading and hauling of aggregate.			through undisturbed areas must be prohibited. ❖ Rutting and erosion of the access and internal roads caused as a direct result of the mining activities must be repaired by the Applicant. ❖ Overloading of the trucks must be prevented, and proof of load weights must be filed for auditing purposes.		
❖ Operational and expansion activities: Excavation, processing, loading and hauling of aggregate.	Site Establishment & Operational Phase	133.1830 ha	**Archaeological, Heritage and Palaeontological Aspects:** ❖ All mining must be confined to the development footprint area. ❖ If during the pre-construction phase, construction, operations or closure phases of this project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance or heritage site, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager. ❖ It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find and confirm the extent of the work stoppage in that area.	Cultural/heritage aspects must be managed in accordance with the: ❖ NHRA, 1999	Throughout the site establishment-, and operational phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			❖ The senior on-site Manager must inform the ECO of the chance find and its immediate impact on operations. The ECO must then contact a professional archaeologist for an assessment of the finds who must notify the SAHRA. ❖ Work may only continue once the go-ahead was issued by SAHRA. ❖ Should any suspected palaeontological material be at any time encountered during mining, a palaeontologist should likewise be immediately contacted to sample and record such occurrence.		
❖ Operational and expansion activities: Drilling and blasting. ❖ Operational and expansion activities: Excavation, processing, loading and hauling of aggregate.	Operational- and Decommissioning Phase	133.1830 ha	**Rehabilitation/landscaping of the excavation area.** ❖ The excavated area must serve as a final depositing area for the placement of overburden. ❖ Rocks and coarse material removed from the excavation must be dumped into the excavation. ❖ Coarse natural material used for the construction of ramps must be removed and dumped into the excavations. ❖ Stockpiles must be removed during the decommissioning phase, the area ripped, and the topsoil returned to its original depth to provide a growth medium.	The mining area must be managed in accordance with the: ❖ MPRDA, 2002	Throughout the operational and decommissioning phase.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			❖ No waste may be permitted to be deposited in the excavations. ❖ Once overburden, rocks and coarse natural materials have been added to the excavation and it was profiled with acceptable contours and erosion control measures, the topsoil previously stored must be returned to its original depth over the area. Subsoil should be used as backfilling and not as top dressing. ❖ 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 six months from closure of the site. ❖ If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining operation be corrected and the area be seeded with a vegetation seed mix to his or her specification.		

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 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.)	POTENTIAL IMPACT (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc...etc..)	ASPECTS AFFECTED	PHASE In which impact is anticipated (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure))	MITIGATION TYPE (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.	STANDARD TO BE ACHIEVED (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
❖ Expansion Activities: Stripping and stockpiling of topsoil and/or overburden. ❖ Operational and Expansion Activities: Cumulative impacts	❖ Visual intrusion because of the activities. ❖ Cumulative visual impact when the Quarry footprint is expanded.	The visual impact may affect the aesthetics of the landscape.	Site Establishment & Operational Phase	Control: Implementing proper housekeeping and progressive rehabilitation.	Management of the activities must be in accordance with the: ❖ MPRDA, 2008 ❖ NEMA, 1998

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
❖ Expansion Activities: Stripping and stockpiling of topsoil and/or overburden. ❖ Operational and Expansion Activities: Drilling and blasting. ❖ Operational and Expansion Activities: Excavation, processing, loading and hauling of aggregate. ❖ Operational and Expansion Activities: Cumulative impacts.	❖ Dust nuisance due to the movement of the soil. ❖ Dust nuisance caused by blasting activities. ❖ Dust nuisance caused by earthmoving machinery.	Increased dust generation will impact on the air quality of the receiving environment.	Site Establishment-, Operational- and Decommissioning Phase	Control: Dust suppression methods and proper housekeeping.	Dust generation on site must be managed in accordance with the: ❖ NEM:AQA, 2004 Regulation 6(1) ❖ National Dust Control Regulations, GN No R827 ❖ ASTM D1739 (SANS 1137:2012)
❖ Expansion Activities: Stripping and stockpiling of topsoil and/or overburden. ❖ Operational and Expansion Activities: Drilling and blasting. ❖ Operational and Expansion Activities: Excavation, processing,	❖ Noise nuisance caused by earthmoving machinery. ❖ Noise nuisance caused by blasting activities. ❖ Noise nuisance because of the mining activities.	Should noise levels become excessive it may have an impact on the noise ambiance of the receiving environment.	Site Establishment-, Operational Phase	Control: Noise suppression methods and proper housekeeping.	Noise generation on site must be managed in accordance with the: ❖ NEM:AQA, 2004 Regulation 6(1) ❖ NRTA, 1996

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
loading and hauling of aggregate. ❖ Operational and Expansion Activities: Cumulative impacts.					
❖ Expansion Activities: Stripping and stockpiling of topsoil and/or overburden. ❖ Operational and Expansion Activities: Excavation, processing, loading and hauling of aggregate. ❖ Operational and Expansion Activities: Sloping and landscaping during rehabilitation.	❖ Potential contamination from footprint area and surface runoff because of hydrocarbon spillages. ❖ Soil contamination from hydrocarbon spills and/or littering. ❖ Potential impact associated with litter/hydrocarbon spills left at the mining area.	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	Control & Remedy: Proper housekeeping and implementation of an emergency response plan and waste management plan.	Project related waste must be managed in accordance with the: ❖ NWA, 1998 ❖ NEM:WA, 2008
❖ Expansion Activities: Stripping and stockpiling of topsoil and/or overburden. ❖ Operational and Expansion Activities: Cumulative impacts	❖ Loss of vegetation cover due to the extraction of sand. ❖ Impact on overall species and ecosystem diversity. ❖ Impact on ecological connectivity and/or	This will impact on the biodiversity of the receiving environment.	Site Establishment & Operational Phase	Control: Implementing proper housekeeping and the mitigation measures.	Natural vegetated areas must be managed in accordance with the: ❖ NEM:BA 2004

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
	ecological disturbance impacts.				
❖ Expansion Activities: Stripping and stockpiling of topsoil and/or overburden.	❖ Potential impact on faunal species.	This will impact on the biodiversity of the receiving environment.	Site Establishment & Operational Phase	Control: Implementing proper housekeeping and the mitigation measures.	Fauna must be managed in accordance with the: ❖ NEM:BA 2004
❖ Expansion Activities: Stripping and stockpiling of topsoil and/or overburden. ❖ Operational and Expansion Activities: Excavation, processing, loading and hauling of aggregate. ❖ Operational and Expansion Activities: Sloping and landscaping during rehabilitation.	❖ Infestation of the topsoil heaps and mining area with invader plant species. ❖ Infestation of the mining area with invader plant species. ❖ Infestation of the reinstated area with invader plant species.	Infestation of the footprint by invader plant species may affect the biodiversity of the receiving environment.	Site Establishment-, Operational, and Decommissioning Phase	Control & Remedy: Implementation of an invasive plant species management plan.	Weeds and invader plants on site must be managed in accordance with the: ❖ CARA, 1983 ❖ NEM:BA, 2004
❖ Expansion Activities: Stripping and stockpiling of topsoil and/or overburden. ❖ Operational and Expansion Activities: Excavation, processing,	❖ Potential increase in runoff from denuded areas and associated erosion. ❖ Flooding of the excavation due to heavy rain ❖ Runoff from mining area potentially surface water.	This could impact the hydrology of the receiving environment and cause erosion.	Site Establishment, & Operational Phase.	Control: Implementing the SWMP.	Soil must be managed in accordance with the: ❖ CARA, 1983 ❖ Closure Plan (Appendix H) ❖ MPRDA, 2002 ❖ NEM:BA, 2004 ❖ NWA, 1998 ❖ SWMP

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
loading and hauling of aggregate. ❖ Operational and Expansion Activities: Sloping and landscaping during rehabilitation. ❖ Operational and Expansion Activities: Cumulative impacts	❖ Erosion of returned topsoil after rehabilitation. ❖ Impact on downstream users should mining affect the water quality of the Elands Spruit and large Brak River systems.				
❖ Operational and Expansion Activities: Drilling and blasting. ❖ Operational and Expansion Activities: Excavation, processing, loading and hauling of aggregate.	❖ Alteration of the existing topography. ❖ Alteration of the existing topography.	This impact may affect the land use opportunities of the property.	Site Establishment, Operational and Decommissioning Phase	Should the proposed project be approved, the operation will change the land use options of the property. The impact could be controlled to a certain extend through progressive rehabilitation.	The mining area must be managed in accordance with the: ❖ MPRDA, 2002
❖ Operational and Expansion Activities: Drilling and blasting. ❖ Operational and Expansion Activities: Excavation, processing, loading and hauling of aggregate. ❖ Operational and Expansion Activities:	❖ Health and safety risk posed by blasting activities. ❖ Unsafe working environment for employees. ❖ Health and safety risk posed by unrehabilitated quarry excavations. ❖ Flooding of the quarry excavation upon closure	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	Stop & Control: Adherance 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

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
Sloping and landscaping during rehabilitation. ❖ Operational and Expansion Activities: Cumulative impacts.	poses a safety risk to people and livestock.				
❖ Operational and Expansion Activities: Drilling and blasting.	❖ Flyrock falling beyond the mining area.	Damage to the infrastructure will incur costs for the Right Holder and complaints from the landowner and/or community.	Operational Phase	Stop & Control: Adherance 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
❖ Operational and Expansion Activities: Excavation, processing, loading and hauling of aggregate.	❖ Overloading of trucks having an impact on the public roads.	Impacting the condition of public roads may incur public complaints and additional costs to the MR Holder.	Operational Phase	Operational and Expansion Activities: Excavation, processing, loading and hauling of aggregate.	The access road must be managed in accordance with the: ❖ NRTA, 1996

f) Impact Management Actions

(A description of impact management actions, identifying the manner in which the impact management objectives and outcomes in paragraph (c) and (d) will be achieved)

Table 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)
❖ Expansion Activities: Stripping and stockpiling of topsoil and/or overburden. ❖ Operational and Expansion Activities: Cumulative impacts	❖ Visual intrusion because of the activities. ❖ Cumulative visual impact when the Quarry footprint is expanded.	Control: Implementing proper housekeeping and progressive rehabilitation.	Throughout the site establishment- and operational phases.	Management of the activities must be in accordance with the: ❖ MPRDA, 2008 ❖ NEMA, 1998
❖ Expansion Activities: Stripping and stockpiling	❖ Dust nuisance due to the movement of the soil.	Control: Dust suppression methods and proper housekeeping.	Throughout the site establishment-, operational, and decommissioning phases.	Dust generation on site must be managed in accordance with the:

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
of topsoil and/or overburden. ❖ Operational and Expansion Activities: Drilling and blasting. ❖ Operational and Expansion Activities: Excavation, processing, loading and hauling of aggregate. ❖ Operational and Expansion Activities: Cumulative impacts.	❖ Dust nuisance caused by blasting activities. ❖ Dust nuisance caused by earthmoving machinery.			❖ NEM:AQA, 2004 Regulation 6(1) ❖ National Dust Control Regulations, GN No R827 ❖ ASTM D1739 (SANS 1137:2012)
❖ Expansion Activities: Stripping and stockpiling of topsoil and/or overburden. ❖ Operational and Expansion Activities: Drilling and blasting. ❖ Operational and Expansion Activities: Excavation, processing, loading and hauling of aggregate.	❖ Noise nuisance caused by earthmoving machinery. ❖ Noise nuisance caused by blasting activities. ❖ Noise nuisance because of the mining activities.	Control: 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) ❖ NRTA, 1996

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
❖ Operational and Expansion Activities: Cumulative impacts.				
❖ Expansion Activities: Stripping and stockpiling of topsoil and/or overburden. ❖ Operational and Expansion Activities: Excavation, processing, loading and hauling of aggregate. ❖ Operational and Expansion Activities: Sloping and landscaping during rehabilitation.	❖ Potential contamination from footprint area and surface runoff because of hydrocarbon spillages. ❖ Soil contamination from hydrocarbon spills and/or littering. ❖ Potential impact associated with litter/hydrocarbon spills left at the mining area.	Control & Remedy: 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
❖ Expansion Activities: Stripping and stockpiling of topsoil and/or overburden. ❖ Operational and Expansion Activities: Cumulative impacts	❖ Loss of vegetation cover due to the extraction of sand. ❖ Impact on overall species and ecosystem diversity. ❖ Impact on ecological connectivity and/or ecological disturbance impacts.	Control: 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

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
❖ Expansion Activities: Stripping and stockpiling of topsoil and/or overburden.	❖ Potential impact on faunal species.	Control: 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
❖ Expansion Activities: Stripping and stockpiling of topsoil and/or overburden. ❖ Operational and Expansion Activities: Excavation, processing, loading and hauling of aggregate. ❖ Operational and Expansion Activities: Sloping and landscaping during rehabilitation.	❖ Infestation of the topsoil heaps and mining area with invader plant species. ❖ Infestation of the mining area with invader plant species. ❖ Infestation of the reinstated area with invader plant species.	Control & Remedy: Implementation of an invasive plant species management plan.	Throughout the site establishment-, operational-, and decommissioning phases.	Weeds and invader plants on site must be managed in accordance with the: ❖ CARA, 1983 ❖ NEM:BA, 2004
❖ Expansion Activities: Stripping and stockpiling of topsoil and/or overburden. ❖ Operational and Expansion Activities: Excavation, processing, loading and hauling of aggregate.	❖ Potential increase in runoff from denuded areas and associated erosion. ❖ Flooding of the excavation due to heavy rain ❖ Runoff from mining area potentially impacting the two	Control: Implementing the SWMP.	Throughout the site establishment- and operational phases.	Soil must be managed in accordance with the: ❖ CARA, 1983 ❖ Closure Plan (Appendix H) ❖ MPRDA, 2002 ❖ NEM:BA, 2004 ❖ NWA, 1998 ❖ SWMP

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
❖ Operational and Expansion Activities: Sloping and landscaping during rehabilitation. ❖ Operational and Expansion Activities: Cumulative impacts	drainage lines and/or surface water ❖ Erosion of returned topsoil after rehabilitation. ❖ Alteration of hydrological and geomorphological processes. ❖ Impact on downstream users should mining affect the water quality of the Elands Spruit and large Brak River systems.			
❖ Operational and Expansion Activities: Drilling and blasting. ❖ Operational and Expansion Activities: Excavation, processing, loading and hauling of aggregate.	❖ Alteration of the existing topography. ❖ Alteration of the existing topography.	Should the proposed project be approved, the operation will change the land use options of the property. The impact could be controlled to a certain extend through progressive rehabilitation.	Throughout the site establishment, operational and decommissioning phases.	The mining area must be managed in accordance with the: ❖ MPRDA, 2002
❖ Operational and Expansion Activities: Drilling and blasting. ❖ Operational and Expansion Activities: Excavation, processing,	❖ Health and safety risk posed by blasting activities. ❖ Unsafe working environment for employees.	Stop & Control: Adherance 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

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
loading and hauling of aggregate. ❖ Operational and Expansion Activities: Sloping and landscaping during rehabilitation. ❖ Operational and Expansion Activities: Cumulative impacts.	❖ Health and safety risk posed by unrehabilitated quarry excavations. ❖ Flooding of the quarry excavation upon closure poses a safety risk to people and livestock.			
❖ Operational and Expansion Activities: Drilling and blasting.	❖ Flyrock falling beyond the mining area.	Stop & Control: Adherance 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
❖ Operational and Expansion Activities: Excavation, processing, loading and hauling of aggregate.	❖ Overloading of trucks having an impact on the public roads.	Operational and Expansion Activities: Excavation, processing, loading and hauling of aggregate.	Throughout operational phase.	The access road must be managed in accordance with the: ❖ NRTA, 1996

i) Financial Provision

(1) Determination of the amount of Financial Provision.

(a) Describe the closure objectives and the extent to which they have been aligned to the baseline environment described under the Regulation.

The decommissioning phase will entail the reinstatement of the processing area 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 excavation to its original topography, the rehabilitation option is to develop the quarry pit into a landscape feature. This will entail creating a series of irregular benches along the quarry faces, the top edges of each face being blasted away to form scree slopes on the benches below, thereby reducing the overall face angle. The benches will be 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. Once sand extraction is complete, all mobile equipment such as front-end loaders is removed from the site. The excavation area is then reshaped to ensure safe and stable slopes, minimizing erosion and preventing ponding. Topsoil that was previously stockpiled prior to excavation, must be evenly re-spread across the site to support natural vegetation regrowth. 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 Final Basic Assessment Report (FBAR), includes all the environmental objectives in 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 plan is attached as Appendix D.

(d) Explain why it can be confirmed that the rehabilitation plan is compatible with the closure objectives.

As mentioned earlier, 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 plan 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 Area:

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

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

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

  The 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 the Sand Excavation Area:

  Once sand extraction is complete, all mobile equipment such as front-end loaders is removed from the site. The excavation area is then reshaped to ensure safe and stable slopes, minimizing erosion and preventing ponding. Topsoil that was previously stockpiled prior to excavation, must be evenly re-spread across the site to support natural vegetation regrowth.

- 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	Aggregate and Sand
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 (Low Risk)
Revised risk ranking (B.14)	N/A

Environmental sensitivity of the mine area

According to Table B.4

Environmental sensitivity of the mine area	Low

Level of information

According to Step 4.2:

Level of information available	Extensive

Identify closure components

According to Table B.5 and site-specific conditions

Component No.	Main description	Applicability of closure components (Circle Yes or No)	
		Open-cast Mine	
1	Dismantling of processing plant and related structures (including overland conveyors and power lines)	**YES**	-
2(A)	Demolition of steel buildings and structures	-	**NO**
2(B)	Demolition of reinforced concrete buildings and structures	-	**NO**
3	Rehabilitation of access roads	-	**NO**
4(A)	Demolition and rehabilitation of electrified railway lines	-	**NO**
4(B)	Demolition and rehabilitation of non-electrified railway lines	**-**	**NO**
5	Demolition of housing and facilities	-	**NO**
6	Opencast rehabilitation including final voids and ramps	**YES**	-
7	Sealing of shafts, adits and inclines	-	**NO**
8(A)	Rehabilitation of overburden and spoils	-	**NO**
8(B)	Rehabilitation of processing waste deposits and evaporation ponds (basic, salt-producing)	**-**	**NO**
8(C)	Rehabilitation of processing waste deposits and evaporation ponds (acidic, metal-rich)	-	**NO**
9	Rehabilitation of subsided areas	-	**NO**
10	General surface rehabilitation, including grassing of all denuded areas	**YES**	-
11	River diversions	-	**NO**
12	Fencing	-	**NO**
13	Water management	-	**NO**
14	2 to 3 years of maintenance and aftercare	-	**NO**

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 from the DMPR Master Rates table for financial provision of 2025 was used.

Component No.	Main description	Master rate	Multiplication factor
1	Dismantling of **processing plant and related structures** (including overland conveyors and power lines)	23	1.00
2(A)	Demolition of **steel buildings and structures**	-	-
2(B)	Demolition of **reinforced concrete buildings and structures**	-	-
3	Rehabilitation of **access roads**	-	-
4(A)	Demolition and rehabilitation of **electrified railway lines**	-	-

Component No.	Main description	Master rate	Multiplication factor
4(B)	Demolition and rehabilitation of **non-electrified railway lines**	-	-
5	Demolition of **housing and facilities**	-	-
6	**Opencast rehabilitation** including final voids and ramps	338 597	0.04
7	Sealing of **shafts, adits and inclines**	-	-
8(A)	Rehabilitation of **overburden and spoils**	-	-
8(B)	Rehabilitation of **processing waste deposits and evaporation ponds (basic, salt-producing)**	-	-
8(C)	Rehabilitation of **processing waste deposits and evaporation ponds (acidic, metal-rich)**	-	-
9	Rehabilitation of **subsided areas**	-	-
10	**General surface rehabilitation**, including grassing of all denuded areas	178 817	1.00
11	**River diversions**	-	-
12	**Fencing**	-	-
13	**Water management**	-	-
14	2 to 3 years of **maintenance and aftercare**	-	-

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)

Calculation of closure costs

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

CALCULATION OF THE QUANTUM							
Mine:	De Aar Stone Crushers			**Location:**	De Aar		
Evaluators:	Zoe Norval			**Date:**	10 February 2025		
No	**Description**	**Unit**	**A Quantity**	**B Master rate**	**C Multiplication factor**	**D Weighting factor 1**	**E = A*B*C*D Amount (rands)**
			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	4 600	23	1.00	1.00	R 105,800.00
2(A)	Demolition of steel buildings and structures	m^2	0	323	1.00	1.00	R 0.00
2(B)	Demolition of reinforced concrete buildings and structures	m^2	0	476	1.00	1.00	R 0.00
3	Rehabilitation of access roads	m^2	0	58	1.00	1.00	R 0.00
4(A)	Demolition and rehabilitation of electrified railway lines	m	0	561	1.00	1.00	R 0.00
4(B)	Demolition and rehabilitations of non-electrified railway lines	m	0	306	1.00	1.00	R 0.00
5	Demolition of housing and/or administration facilities	m^2	0	646	1.00	1.00	R 0.00
6	Opencast rehabilitation including final voids and ramps	ha	33	338 597	0.04	1.00	R 446,948.04
7	Sealing of shaft, audits and inclines	m^3	0	174	1.00	1.00	R 0.00
8(A)	Rehabilitation of overburden and spoils	ha	0	225 731	1.00	1.00	R 0.00
8(B)	Rehabilitation of processing waste deposits and evaporation ponds (basic, salt-producing waste)	ha	0	281 144	1.00	1.00	R 0.00

8(C)	Rehabilitation of processing waste deposits and evaporation ponds (acidic, metal-rich waste)	ha	0	816 575	0.51	1.00	R 0.00
9	Rehabilitation of subsided areas	ha	0	189 016	1.00	1.00	R 0.00
10	General surface rehabilitation	ha	18	178 817	1.00	1.00	R 3,218,706.00
11	River diversions	ha	0	178 817	1.00	1.00	R 0.00
12	Fencing	ha	0	204	1.00	1.00	R 0.00
13	Water Management	ha	0	67 992	0.17	1.00	R 0.00
14	2 to 3 years of maintenance and aftercare	ha	0	23 797	1.00	1.00	R 0.00
15(A)	Specialists study	Sum	0	-	-	-	R 0.00
15(B)	Specialists study	Sum	0	-	-	-	R 0.00
						Sum of items 1 to 15 above	R 3,771,454.04
Multiply Sum of 1-15 by Weighting factor 2 (Step 4.4)		1.05		R188,572.70		**Sub Total 1**	R 3,960,026.74

1	Preliminary and General	6% of Subtotal 1 if Subtotal 1 R100 000 000.00	R 237,601.60
		12% of Subtotal 1 if Subtotal 1 R100 000 000.00	-
2	Contingency	10.0% of Subtotal 1	R 396,002.67
		Sub Total 2 (Subtotal 1 plus management and contingency)	R 4,593,631.02
		Sub Total 3 Vat (15%)	R 689,044.65
		GRAND TOTAL (Subtotal 3 plus VAT)	**R 5,282,675.67**

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 5,282,675.67

De Aar Stone Crushers Empower (Pty) Ltd has a financial guarantee to the value of R 4,437,873.00 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 34: Mechanisms for monitoring compliance with and performance assessment against the EMPR and reporting thereon.

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
❖ Demarcation of site with visible beacons.	❖ Maintenance of beacons	❖ Visible beacons need to be established at the boundaries of the mining area. ❖ The 44-meter buffer around the drainage lines.	Role: ❖ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ❖ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. Responsibility: ❖ Ensure beacons are in place throughout the life of the mine.	Applicable throughout site establishment-, operational-, and decommissioning phases. ❖ Daily compliance monitoring by site management. ❖ Annual compliance monitoring of site by an Environmental Control Officer.
❖ Expansion Activities: Stripping and stockpiling of topsoil and/or overburden.	Visual Characteristics: ❖ Visual intrusion because of the expansion activities.	❖ Parking- and dedicated storage areas for equipment.	Responsibility: ❖ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR.	Applicable throughout site establishment-, operational-, and decommissioning phases.

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
Operational and Expansion Activities: Cumulative impacts	❖ Cumulative visual impact when the Quarry footprint is expanded.	❖ Good housekeeping practices.	❖ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. Role: ❖ 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. ❖ The Right Holder must limit vegetation removal, and stripping of topsoil may only be done immediately prior to the mining/use of a specific area. ❖ All excavation and mining related activities must be contained within the approved mining footprint. ❖ Upon closure the site must be rehabilitated to ensure that the visual impact on the aesthetic value of the area is reduced to the minimum. ❖ All buildings, equipment and/or infrastructure that will remain on the property after closure, must be left in a good and functional condition, and the landowner must accept responsibility for these structures in writing.	❖ Daily compliance monitoring by site management. ❖ Annual compliance monitoring of site by an Environmental Control Officer.
❖ Expansion Activities: Stripping and stockpiling of topsoil and/or overburden.	Air and Noise Quality: ❖ Dust nuisance due to the movement of soil. ❖ Dust nuisance caused by blasting activities.	❖ Gravimetric- and fallout dust monitoring equipment. ❖ Dust suppression equipment such as a	Responsibility: ❖ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR.	Applicable throughout site establishment-, operational-, and decommissioning phases.

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
❖ Operational and expansion activities: Drilling and blasting. ❖ Operational and expansion activities: Excavation, processing, loading and hauling of aggregate. ❖ Operational and expansion activities: Cumulative Impacts.	❖ Dust nuisance caused by earthmoving machinery. .	water car, water dispenser and sprayers on the crusher plant. ❖ Signage that clearly reduce the speed on the access roads. ❖ Maintenance schedule to remove excess dust from the processing area. ❖ Cover crop to re-vegetate denuded areas.	❖ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. Role: ❖ The liberation of dust into the surrounding environment must be effectively controlled using, inter alia, straw, water spraying and/or environmentally friendly dust-allaying agents that contains no PCB's (e.g. DAS products). ❖ Water sprayers must be fitted to the processing plant, and the plant may not operate if these sprayers are out of order. ❖ The site manager must daily assess the efficiency of all dust suppression equipment. ❖ Excess dust and fines must at least weekly be removed from the processing area. ❖ Speed on the haul roads must be limited to 20 km/h to prevent the generation of excess dust. ❖ Areas devoid of vegetation, which could act as a dust source, must be minimized and vegetation removal may only be done immediately prior to mining. ❖ Weather conditions must be taken into consideration upon commencement of daily operations. Limiting operations during very windy periods would reduce airborne dust and resulting impacts. ❖ All dust generating activities shall comply with the National Dust Control Regulations, GN No R827	❖ Daily compliance monitoring by site management. ❖ Monthly compliance monitoring by dust monitoring service provider. ❖ Annual compliance monitoring of site by an Environmental Control Officer.

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			promulgated in terms of NEM:AQA (Act 39 of 2004) and ASTM D1739 (SANS 1137:2012). ❖ Best practice measures shall be implemented during the stripping of topsoil, excavation, and transporting of material from site to minimize potential dust impacts. ❖ Monthly fallout-dust monitoring must be implemented at the site for the duration of the activities and the results must be compliant with the standards of the National Dust Control Regulations, 2013 (as amended).	
❖ Expansion Activities: Stripping and stockpiling of topsoil and/or overburden. ❖ Operational and expansion activities: Drilling and blasting. ❖ Operational and expansion activities: Excavation, processing, loading and hauling of aggregate. ❖ Operational and expansion activities: Cumulative Impacts.	Air and Noise Quality: ❖ Noise nuisance caused by earthmoving machinery. ❖ Noise nuisance caused by blasting activities. ❖ Noise nuisance because of the mining activities.	❖ Personal noise exposure monitoring equipment. ❖ Signage indicating noise zones. ❖ Silencers fitted to all project related vehicles, and the use of vehicles that are in road worthy condition in terms of the National Road Traffic Act, 1996.	Responsibility: ❖ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ❖ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. Role: ❖ The Right Holder must ensure that employees and staff conduct themselves in an acceptable manner while on site. ❖ No loud music may be permitted at the work areas. ❖ All project vehicles must be equipped with silencers and maintained in a road worthy condition in terms of the National Road Traffic Act, 1996 (Act No 93 of 1996).	Applicable throughout site establishment-, operational-, and decommissioning phases. ❖ Daily compliance monitoring by site management. ❖ Quarterly reporting by a qualified occupation hygienist. ❖ Annual compliance monitoring of site by an Environmental Control Officer.

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			❖ The type, duration and timing of the blasting procedures must be planned with due cognizance of other land users and structures in the vicinity. Surrounding landowners must be notified in writing prior to each blast. ❖ A qualified occupational hygienist must be contracted to quarterly monitor and report on the personal noise exposure of the employees working at the mine. The monitoring must be done in accordance with the SANS 10083:2004 (Edition 5) sampling method as well as NEM:AQA, 2004, SANS 10103:2008. ❖ Best practice measures shall be implemented to minimize potential noise impacts.	
❖ <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.	<u>General – Waste Management:</u> ❖ Potential contamination of footprint area and surface runoff because of hydrocarbon spillages. ❖ Soil contamination from hydrocarbon spills and/or littering. ❖ Potential impact associated with	❖ Waste management plan. ❖ Formal waste disposal system with waste registers. ❖ Drip trays. ❖ Covered refuse bins for both hazardous- and general waste. ❖ Oil spill kit.	<u>Responsibility:</u> ❖ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ❖ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <u>Role:</u> ❖ Regular vehicle maintenance, repairs and services may only take place at the workshop and service area. If emergency repairs are needed on equipment not able to move to the workshop, drip trays must be present. All waste products must be disposed of in a closed container/bin to be removed	Applicable throughout site establishment-, operational-, and decommissioning phases. ❖ Daily compliance monitoring by site management. ❖ Annual compliance monitoring of site by an Environmental Control Officer.

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	litter/hydrocarbon spills left at the mining area.	❖ Bunded areas with impermeable surface. ❖ Stormwater management plan.	from the emergency service area (same day) to the workshop to ensure proper disposal. This waste must be treated as hazardous waste and must be disposed of at a registered hazardous waste handling facility, alternatively collected by a registered hazardous waste handling contractor. The safe disposal certificates must be filed for auditing purposes. ❖ If a diesel bowser is used on site, it must always be equipped with a drip tray and/or parked in a bunded area with impermeable surface. Drip trays must be used during each refuelling event. The nozzle of the bowser needs to rest in a sleeve to prevent dripping after refuelling. ❖ Site management must ensure drip trays are cleaned after each use. No dirty drip trays may be used on site. The dirty rags used to clean the drip trays must be disposed as hazardous waste into a designated bin at the workshop, where it is incorporated into the hazardous waste removal system. ❖ Equipment/tools/vehicles placed in the salvage yard must be drained of all hydrocarbons before placement. The salvage yard must be kept clean and unwanted materials must be removed from the mine as regular as possible. ❖ An oil spill kit must be available at the mine, and the employees must be trained in the emergency procedures to follow when a spill occurs as well as the application of the spill kit.	

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			❖ Spills must be cleaned up immediately, within two hours of occurrence, to the satisfaction of the Regional Manager (DMPR) by removing the spillage together with the polluted soil and containing it in a designated hazardous waste bin until it is disposed of at a recognised facility. Proof must be filed. ❖ When small volumes of wastewater are generated during the life of the project the following is applicable: ♦ Water containing waste must not be discharged into the natural environment. ♦ Measures to contain the wastewater and safely dispose thereof must be implemented. ❖ It is important that any significant spillage of chemicals, fuels etc. during the lifespan of the activities is reported to the Department of Water and Sanitation and other relevant authorities. ❖ All decommissioned/rehabilitated areas must be cleared of all waste at the end of the project.	
❖ <u>Expansion activities:</u> Stripping and stockpiling of topsoil and/or overburden. ❖ <u>Operational and expansion activities:</u> Cumulative impact.	<u>Terrestrial biodiversity, conservation areas and groundcover:</u> ❖ Loss of vegetation cover due to the extraction of sand.	❖ Visible beacons indicating the boundary of the mineable areas and no-go areas. ❖ 44 meter buffer zone around drainage lines.	<u>Responsibility:</u> ❖ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ❖ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <u>Role:</u>	Applicable throughout site establishment-, and operational phases. ❖ Daily compliance monitoring by site management. ❖ Annual compliance monitoring of site by an

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	❖ Impact on overall species and ecosystem diversity. ❖ Impacts to ecological connectivity and/or ecological disturbance impacts.	❖ Environmental awareness training material. ❖ Fire management plan. ❖ Alien invasive species management plan. ❖ Cover crop to seed rehabilitated areas.	❖ The mining boundaries must be clearly demarcated, and all operations must be contained to the approved mining area. The area outside the mining boundaries must be declared a no-go area, and all staff must be educated accordingly. ❖ The Right Holder must be committed to a conservation approach and the actual footprint of disturbance must be kept to a minimum. ❖ A pre-commencement environmental induction for all site staff must be provided to ensure that basic environmental principles are adhered to. This includes awareness of littering, appropriate handling of pollution and chemical spills, avoiding fire hazards, minimising wildlife interactions, remaining within demarcated areas, etc. ❖ The species listed in Appendix B of the Ecological and Wetland Assessment (Appendix K) contains numerous protected species which have significant conservation value and will require mitigation. ❖ Prior to any clearing of vegetation for mining activities a walkthrough of the affected area should be undertaken and should include identification and marking of all protected plants on the site. ❖ The following plant species, which may be present on site, require a removal permit prior to any disturbance: *Colchicum orienticapense, Freesia andersoniae, Babiana hypogaea, Brunsvigia radulosa, Ruschia intricata, Euphorbia catveriflora, Hereroa concava and Mestoklema*	Environmental Control Officer.

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			❖ The follow plant species (if present) should be transplanted to adjacent areas where they will remain unaffected. These species include *Colchicum sp., Colchicum orienticapense, Freesia andersoniae, Babiana hypogaea, Brunsvigia radulosa, Euphorbia caterviflora and Hereroa concava.* ❖ Grubbing is not permitted as a method of clearing vegetation. Any trees needing clearing must be cut down using chain saws and hauled from the site using appropriate machinery where practically possible. ❖ Cleared vegetation to be retained may not be burned but can be mulched and stockpiled. Ideally the heaps can be covered with stockpiled topsoil and the material be retained for future site rehabilitation purposes. ❖ The ECO must provide supervision and oversight of vegetation clearing activities and other activities which may cause damage to the environment, especially during the site establishment phase, when most of the vegetation clearing is taking place. ❖ All vehicles must remain on demarcated roads and no unnecessary driving in the veld outside these areas may be allowed. ❖ No fires must be allowed on-site. ❖ Spoil heaps and topsoil stockpiles must be provided with a vegetation cover of indigenous grasses.	

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❖ Expansion activities: Stripping and stockpiling of topsoil and/or overburden.	Fauna: ❖ Potential impact on faunal species.	❖ Visible beacons indicating the boundary of the mineable areas. ❖ Environmental awareness training material. ❖ Snake posters. ❖ Refuse bins with lids.	Responsibility: ❖ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ❖ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. Role: ❖ The site manager must ensure no fauna is caught, killed, harmed, sold, or played with. ❖ Any fauna directly threatened by the operational activities must be removed to a safe location by the ECO or other suitably qualified person. ❖ Open excavations may act as pitfall traps to mammals, reptiles and amphibians and trenches should be monitored daily for trapped animals which should be removed promptly. ❖ In the event of poisonous snakes or other dangerous animals encountered on the site, an experienced and certified snake handler or zoologist must remove these animals from the site and re-locate them to a suitable area. ❖ All personnel must undergo environmental induction regarding fauna management and in particular awareness about not harming or collecting species such as snakes, tortoises and owls which are often persecuted out of superstition. Workers must be	Applicable throughout site establishment-, and operational phases. ❖ Daily compliance monitoring by site management. ❖ Annual compliance monitoring of site by an Environmental Control Officer.

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			instructed to report any animals that may be trapped in the working area. ❖ No snares may be set, or nests raided for eggs or young. ❖ No litter, food or other foreign material may be thrown or left around the site. Such items must daily be removed to the site offices.	
❖ Expansion activities: Stripping and stockpiling of topsoil and/or overburden. ❖ Operational and expansion activities: Excavation, processing, loading and hauling of aggregate. ❖ Operational and expansion activities: Sloping and landscaping during rehabilitation.	Terrestrial biodiversity, conservation areas and groundcover: ❖ Infestation of the topsoil heaps and mining area with invader plant species. ❖ Infestation of the mining area with invader plant species. ❖ Infestation of the reinstated area with invader plant species.	❖ Alien invasive plant species management plan. ❖ Designated team to cut or pull-out invasive plant species that germinated on site. ❖ Contact details of a Pest Control Officer.	Responsibility: ❖ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ❖ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. Role: ❖ An invasive plant species management plan (Appendix G) must be implemented at the site to ensure the management and control of all species regarded as Category 1a and 1b invasive species in terms of NEM:BA (National Environmental Management: Biodiversity Act 10 of 2004 and regulations applicable thereto). Weed/alien clearing must be done on an ongoing basis throughout the life of the activities. ❖ No planting or importing of any alien species to the site for landscaping, rehabilitation or any other purpose may be allowed.	Applicable throughout site establishment-, operational-, and decommissioning phases. ❖ Daily compliance monitoring by site management. ❖ Annual compliance monitoring of site by an Environmental Control Officer.

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			❖ All stockpiles (topsoil & overburden) must be kept free of invasive plant species. ❖ Management must take responsibility to control declared invader or exotic species on the rehabilitated areas. The following control methods can be used: ♦ The plants can be uprooted, felled, or cut off and can be destroyed completely. ♦ The plants can be treated chemically by a registered pest control officer (PCO) using an herbicide recommended for use by the PCO in accordance with the directions for the use of such an herbicide.	
❖ <u>Expansion activities:</u> Stripping and stockpiling of topsoil and/or aggregate.	<u>Geology and Soil:</u> Topsoil/Soil Management.	❖ Earthmoving equipment to strip, stockpile and spread the topsoil. ❖ Stormwater control infrastructure. ❖ Designated team to control weeds/invader plant species that may germinate on the topsoil heaps. ❖ Cover crop to vegetate topsoil heaps (when	<u>Responsibility:</u> ❖ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ❖ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <u>Role:</u> ❖ The upper 300 mm of the soil must be stripped and stockpiled before mining. ❖ Topsoil is a valuable and essential resource for rehabilitation, and it must therefore be managed carefully to conserve and maintain it throughout the stockpiling and rehabilitation processes.	Applicable throughout site establishment-, and operational phases. ❖ Daily compliance monitoring by site management. ❖ Annual compliance monitoring of site by an Environmental Control Officer.

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		needed) and reinstated soil.	❖ Topsoil stripping, stockpiling, and re-spreading must be done in a systematic way. The mining plan must be such that topsoil is stockpiled for the minimum possible time. ❖ The topsoil must be placed on a levelled area, within the mining footprint. No topsoil may be stockpiled in undisturbed areas. All topsoil heaps must be signposted. ❖ Topsoil stockpiles must be protected against losses by water- and wind erosion. Stockpiles must be positioned so as not to be vulnerable to erosion by wind and water. The establishment of plants (indigenous grass) on the stockpiles will help to prevent erosion. ❖ Topsoil heaps may not exceed 2 m in height and are not to be sloped more than 1:2 to avoid collapse. ❖ The temporary topsoil stockpiles must be kept free of invasive plant species. ❖ Topsoil heaps to be stored longer than a period of 3 months needs to be vegetated with an indigenous grass seed mix if vegetation does not naturally germinate within the first growth season. ❖ Storm- and runoff water must be diverted around the topsoil and overburden stockpile areas to prevent erosion. ❖ The stockpiled topsoil must be evenly spread, to a depth of 300 mm, over the rehabilitated area upon closure of the site. ❖ The Right Holder must strive to re-instate topsoil at a time of year when vegetation cover can be	

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			established as quickly as possible afterwards, so that erosion of returned topsoil by both rain and wind, before vegetation is established, is minimized. The best time of year is at the end of the rainy season, when there is moisture in the soil for vegetation establishment and the risk of heavy rainfall events is minimal. ❖ An indigenous grass layer must be planted and established immediately after spreading of topsoil, to stabilize the soil and protect it from erosion. It is important that rehabilitation be taken up to the point of stabilization. Rehabilitation cannot be considered complete until the first grass layer is well established. ❖ Run-off water must be controlled via temporary berms, where necessary, on the slopes to ensure that accumulation of run-off does not cause down-slope erosion. ❖ The rehabilitated area must be monitored for erosion, and appropriately stabilized if any erosion occurs for at least 12 months after reinstatement.	
❖ <u>Expansion activities:</u> Stripping and stockpiling of topsoil and/or overburden.	<u>Hydrology:</u> ❖ Potential increase in runoff from denuded areas and associated accelerated erosion.	❖ Stormwater management plan. ❖ Storm water control structures such as berms to direct storm-	<u>Responsibility:</u> ❖ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ❖ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit.	Applicable throughout site establishment-, operational-, and decommissioning phases.

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❖ Operational and expansion activities: Sloping and landscaping during rehabilitation.	❖ Erosion of returned topsoil after rehabilitation.	and runoff water around the stockpiled topsoil area.	Role: ❖ A storm water management plan must be implemented for the duration of the mining activities. ❖ Clearing of vegetation must be limited to the mining footprint and associated infrastructure. No clearing outside of the minimum required footprint to take place. ❖ Vegetation clearing activities must be put on hold when heavy rains are expected. ❖ Stormwater must be diverted around the topsoil heaps and mining areas to prevent erosion. ❖ Stockpiles must be protected from erosion, stored on flat areas where possible, and be surrounded by appropriate berms. ❖ When mining within steep slopes, it must be ensured that adequate slope protection is provided. ❖ No dirty water emanating from the quarry shall be discharged into the natural environment or any watercourse. All stormwater runoff that falls in the mining area must be channelled to the quarry sump. ❖ Roads and other disturbed areas within the project area must be regularly monitored for erosion and problem areas must receive follow-up monitoring to assess the success of the remediation. ❖ Any erosion problems within the mining area because of the mining activities observed must be rectified immediately (within 48 hours) and	❖ Daily compliance monitoring by site management. ❖ Annual compliance monitoring of site by an Environmental Control Officer.

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			monitored thereafter to ensure that it does not re-occur. ❖ Mining must be conducted only in accordance with the Best Practice Guideline for small scale mining that relates to storm water management, erosion and sediment control and waste management, developed by the Department of Water and Sanitation (DWS), and any other conditions which that Department may impose: ♦ Clean water (e.g. rainwater) must be kept clean and be routed to a natural watercourse by a system separate from the dirty water system. You must prevent clean water from running or spilling into dirty water systems. ♦ Dirty water must be collected and contained in a system separate from the clean water system. ♦ Dirty water must be prevented from spilling or seeping into clean water systems. ♦ A storm water management plan must apply for the entire life cycle of the mining activity and over different hydrological cycles (rainfall patterns). ♦ The statutory requirements of various regulatory agencies and the interests of stakeholders must be considered and incorporated into a storm water management plan. ❖ All erosion and sediment control measures must be monitored (weekly) for the life of the operation and repaired immediately when damaged. The erosion	

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			and sediment control structures may only be removed once vegetation cover has successfully recolonised the affected areas. ❖ After heavy rainfall events, site management must check the site for erosion damage and rehabilitate this damage immediately. Erosion rills and gullies must be filled-in with appropriate material and/or silt fences until vegetation has recolonised the rehabilitated area. ❖ Regular monitoring of water quality, water levels, and flow conditions should be mandatory throughout the project's lifespan.	
❖ <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> Cumulative impacts.	<u>Hydrology:</u> ❖ Potential increase in runoff from denuded areas and associated erosion. ❖ Runoff from mining area potentially impacting the two drainage lines and/or surface water. ❖ Flooding of the excavation due to heavy rain	❖ Stormwater Management Plan. ❖ Stormwater management structures. ❖ Beacons to demarcate the work areas. ❖ 44 meter buffer zone around drainage lines. ❖ Regular monitoring of water quality, water levels, and flow conditions	<u>Responsibility:</u> ❖ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ❖ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <u>Role:</u> ❖ The drainage line to the south west of the site, as well as the drainage line originating in the northern portion of the site, should be completely excluded from mining operations, should be designated no-go areas and no mining activities, including construction or operational activities, vehicle movement, laydown areas, vegetation clearing or	Applicable throughout site establishment-, operational-, and decommissioning phases. ❖ Daily compliance monitoring by site management. ❖ Annual compliance monitoring of site by an Environmental Control Officer.

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	❖ Impact on downstream users should mining affect the water quality of Elands Spruit and large Brak River .		any other associated activities should occur in or near these watercourses. (Appendix A: Map 3 the Ecological and Wetland Assessment (Appendix K)). ❖ Demarcate the drainage lines with a 44 meter buffer zone. ❖ Adequate storm water management measures should be implemented and should include diverting storm- and floodwater around operational and excavation areas and preventing sediment and silt from entering the two delineated drainage lines.	
❖ <u>Operational and expansion activities:</u> Drilling and blasting. ❖ <u>Operational and expansion activities:</u> Excavation, processing, loading and hauling of aggregate. ❖ <u>Operational and expansion activities:</u> Sloping and landscaping during rehabilitation.	<u>General – Health and Safety Risks:</u> ❖ Health and safety risk posed by blasting activities. ❖ Unsafe working environment for employees. ❖ Health and safety risk posed by unrehabilitated quarry excavations.	❖ Stocked first aid box. ❖ Level 1 certified first aider. ❖ All appointments in terms of the Mine Health and Safety Act, 1996.	<u>Responsibility:</u> ❖ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ❖ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <u>Role:</u> ❖ It must be ensured that the mining area is properly fenced off to prevent incursion by livestock and unauthorised humans. ❖ Workers must have access to the correct personal protection equipment (PPE) as required by law.	Applicable throughout site establishment-, operational-, and decommissioning phases. ❖ Daily compliance monitoring by site management. ❖ Annual compliance monitoring of site by an Environmental Control Officer.

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
❖ Operational and expansion activities: Cumulative impacts.	❖ Flooding of the quarry excavation upon closure poses a safety risk to people and livestock.		❖ All operations must comply with the Mine Health and Safety Act, 1996 (Act No 29 of 1996). ❖ The type, duration and timing of the blasting procedures must be planned with due cognizance of other land users and structures in the vicinity. ❖ The surrounding landowners must be informed in writing ahead of each blasting event. ❖ The compliance of ground vibration and airblast levels must be monitored to USBM standards with each blasting event. ❖ A vibro recorder must be used to record all blasts. ❖ Audible warning of a pending blast must be given at least 3 minutes in advance of the blast. ❖ Measures to limit flyrock must be taken. All flyrock (of diameter 150 mm and larger) which falls beyond the working area, together with the rock spill must be collected and removed. ❖ Upon closure the excavation must be fenced/walled in to restrict access. The pit may not be used for swimming and/or watering of stock without prior approval of the municipality and DWS.	
❖ Operational and expansion activities: Drilling and blasting.	Existing Infrastructure: ❖ Flyrock falling beyond the mining area. .	❖ Beacons to demarcate the mining area. ❖ Blast monitoring plan.	Responsibility: ❖ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ❖ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit.	Applicable throughout operational phase. ❖ Daily compliance monitoring by site management. ❖ Annual compliance monitoring of site by an

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
			Role: ❖ Activities and employees must remain within the approved footprint. ❖ Flyrock that falls beyond the mining area must be collected in the first week after each blast.	Environmental Control Officer.
❖ Operational and expansion activities: Excavation, processing, loading and hauling of aggregate.	Existing Infrastructure: ❖ Overloading of trucks having an impact on the public roads.	❖ Earthmoving equipment to maintain the gravel pavement structure of the roads. ❖ Road signage to control traffic speed. ❖ Proof of load weights to prevent overloading.	Responsibility: ❖ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ❖ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. Role: ❖ Vehicular movement must be restricted to the roads and crisscrossing of tracks through undisturbed areas must be prohibited. ❖ Rutting and erosion of the access and internal roads caused as a direct result of the mining activities must be repaired by the Applicant. ❖ Overloading of the trucks must be prevented, and proof of load weights must be filed for auditing purposes.	Applicable throughout operational phase. ❖ Daily compliance monitoring by site management. ❖ Annual compliance monitoring of site by an Environmental Control Officer.

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
❖ Operational and expansion activities: Excavation, processing, loading and hauling of aggregate.	Cultural and Heritage Environment: Archaeological, Heritage and Palaeontological Aspects.	❖ Contact number of an archaeologist & palaeontologist that can be contacted when a discovery is made on site.	Responsibility: ❖ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ❖ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. Role: ❖ All mining must be confined to the development footprint area. ❖ If during the pre-construction phase, construction, operations or closure phases of this project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance or heritage site, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager. ❖ It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find and confirm the extent of the work stoppage in that area. ❖ The senior on-site Manager must inform the ECO of the chance find and its immediate impact on	Applicable throughout site establishment-, and operational phases. ❖ Daily compliance monitoring by site management. ❖ Annual compliance monitoring of site by an Environmental Control Officer.

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
			operations. The ECO must then contact a professional archaeologist for an assessment of the finds who must notify the SAHRA. ❖ Work may only continue once the go-ahead was issued by SAHRA. ❖ Should any suspected palaeontological material be at any time encountered during mining, a palaeontologist should likewise be immediately contacted to sample and record such occurrence.	
❖ <u>Operational and expansion activities:</u> Drilling and blasting. ❖ <u>Operational and expansion activities:</u> Excavation, processing, loading and hauling of aggregate.	<u>Topography:</u> ❖ Alteration of the existing topography.	❖ Earthmoving equipment to rehabilitate mined areas.	<u>Responsibility:</u> ❖ Site Manager to ensure day-to-day compliance with the guidelines as stipulated in the EMPR. ❖ Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. <u>Role:</u> ❖ The excavated area must serve as a final depositing area for the placement of overburden. ❖ Rocks and coarse material removed from the excavation must be dumped into the excavation. ❖ Coarse natural material used for the construction of ramps must be removed and dumped into the excavations. ❖ Stockpiles must be removed during the decommissioning phase, the area ripped, and the	Applicable throughout site establishment-, operational-, and decommissioning phases. ❖ Daily compliance monitoring by site management. ❖ Annual compliance monitoring of site by an Environmental Control Officer.

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
			topsoil returned to its original depth to provide a growth medium. ❖ No waste may be permitted to be deposited in the excavations. ❖ Once overburden, rocks and coarse natural materials have been added to the excavation and it was profiled with acceptable contours and erosion control measures, the topsoil previously stored must be returned to its original depth over the area. Subsoil should be used as backfilling and not as top dressing. ❖ 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 six months from closure of the site. ❖ If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining operation be corrected and the area be seeded with a vegetation seed mix to his or her specification.	

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 BAR & updated EMPR will be handed to senior management for their perusal. Issues such as activity boundaries, waste management, and water principals 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 from 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

I, Zoë Norval, (the EAP) herewith confirms

a) the correctness of the information provided in the reports [X]
b) the inclusion of comments and inputs from stakeholders and I&AP's [X]
c) the inclusion of inputs and recommendations from the specialist reports where relevant, and [X]
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 [X]

Signature of the environmental assessment practitioner:

Greenmined Environmental (Pty) Ltd

Name of Company:

11 November 2025

Date:

I, Christine Fouche, (The Reviewer)herewith confirms

e) the correctness of the information provided in the reports **X**
f) the inclusion of comments and inputs from stakeholders and I&AP's **X**
g) the inclusion of inputs and recommendations from the specialist reports where relevant, and **X**
h) 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 **X**

Signature of the environmental assessment practitioner:

Greenmined Environmental (Pty) Ltd

Name of Company:

11 November 2025

Date:

UNDERTAKING

I, Jan Sauer Lambrechts .....the undersigned and duly authorised thereto by..... *De Aar Stone Crushers Empower (Pty) Ltd*.....

Company / ~~Closed Corporation / Municipality or Council~~
(Delete whichever is not applicable)

hereby undertake to implement all the aspects contained in the BAR and EMPR / ~~EIA and EMPR~~ and accept full responsibility therefore.
(Delete whichever is not applicable)

SIGNED at .....De Aar..... this .....19..... day November 2025

FINAL DOCUMENT TO BE SIGNED BY THE RIGHT HOLDER

JS LAMBRECHTS

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

NORTHERN CAPE

Undertaking/eg

-END-

APPENDIX A

REGULATION 42 MINE PLAN

APPENDIX B

LOCALITY AND LAND USE MAP

APPENDIX C

SITE ACTIVITIES MAP & PLANT LAYOUT

APPENDIX D
REHABILITATION PLAN

APPENDIX F

SUPPORTING IMPACT ASSESSMENT

APPENDIX H
CLOSURE PLAN

APPENDIX G

ALIEN INVADER PLANT SPECIES MANAGEMENT PLAN

APPENDIX I

PHOTOGRAPHS OF THE SITE

APPENDIX J

CV AND EXPERIENCE RECORD OF EAP