

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, NORTHERN CAPE CLOSURE PLAN

FILE REF NO: NC 30/1/2/2/10075 MR – NC-00315-MR/102

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EXECUTIVE SUMMARY

Greenmined Environmental (Pty) Ltd is the consultants responsible for the Section 102 amendment application submitted by De Aar Stone Crushers Empower (Pty) Ltd over a portion of Erf RE/153 and Erf RE/725, and in support of this, an Annual- and Final Rehabilitation, Decommissioning and Mine Closure Plan (*in alius verbis* Closure Plan) was compiled.

The purpose of this document is to provide site management with an Annual Rehabilitation Plan as well as the Final Rehabilitation, Decommissioning and Closure Plan, compiled in terms of the NEMA Amendment Act, 2014 (Act No. 25 of 2014) read with the Regulations pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production Operations, 2015 (GN 1228, Financial Provision Regulations 2015 (as amended)). The closure plan includes the following aspects:

1. Annual rehabilitation as reflected in the annual rehabilitation plan;
2. Final rehabilitation, decommissioning and closure of the mining operations at the end of the life of operations as reflected in the final rehabilitation, decommissioning and mine closure plan;
3. Remediation of latent or residual environmental impacts which may become known in the future, as reflected in the environmental risk assessment report.

Annual Rehabilitation Plan:

Upon approval of the Section 102 amendment application and receipt of the EA, the Right Holder will annually report on the planned rehabilitation actions.

Rehabilitation, Decommissioning and Mine Closure Plan:

Upon approval of the Section 102 application, the mining area will be 30.1036 ha in extent. The Rehabilitation, Decommissioning and Mine Closure Plan details the closure objectives, -actions, relinquishment criteria, monitoring, auditing, and reporting commitments for the earmarked area. It is proposed that upon closure of the mining area all infrastructure, equipment, plant, and other items used during the mining period (and not required by the landowner) will be removed. The unexcavated area will be landscaped to rehabilitate the disturbance and will subsequently revert to municipal use. The excavation will be rendered safe and left as a landscape feature.

Environmental Risk Assessment Report:

At this stage no latent risks that will potentially arise during the closure phase of the mining area were identified. By reason of the fact that no latent risks regarding the management of the mining area were identified no additional monitoring, auditing or reporting requirements are required at this stage.

TABLE OF CONTENTS

1.	INTRODUCTION.....	9
1.1	BACKGROUND INFORMATION.....	9
1.2	PROJECT PROPOSAL.....	10
1.3	OBJECTIVES OF THE CLOSURE PLAN.....	11
2.	DETAILS OF THE AUTHOR.....	12
3.	LEGAL BACKGROUND AND BEST PRACTICES.....	13
3.1	THE CONSTITUTION OF SOUTH AFRICA, 1996 (ACT NO. 108 OF 1996).....	13
3.2	THE MINERALS AND PETROLEUM RESOURCES ACT, 2002 (ACT NO. 28 OF 2002) [MPRDA].....	14
3.2.1	Regulation 527 of the MPRDA, 2002.....	15
3.3	THE NATIONAL WATER ACT, 1998 (ACT NO. 36 OF 1998) [NWA].....	15
3.4	THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO 107 OF 1998) [NEMA].....	16
3.4.1	Regulation 1228 of NEMA, 1998.....	17
3.5	THE NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 2008 (ACT NO 57 OF 2008) [NEM:WA].....	18
3.5.1	Waste Classification and Management Regulations, 2013 (GNR 634).....	18
3.6	FURTHER ACTS RELEVANT TO MINE REHABILITATION.....	19
3.7	BEST PRACTICE AND INTERNATIONAL GUIDELINES.....	19
4.	ENVIRONMENTAL AND PROJECT CONTEXT.....	20
4.1	APPROVED OPERATIONAL ACTIVITIES.....	20
4.1.1	Site Infrastructure.....	21
4.1.2	Water Use.....	21
4.1.3	Waste Management.....	21
4.2	SECTION 102 APPLICATION.....	22
4.1.4	Operational Phase.....	22
4.3	REGIONAL SETTING AND LAND USE.....	22
4.4	TOPOGRAPHY.....	23
4.5	VISUAL CHARACTERISTICS.....	24
4.6	AIR AND NOISE QUALITY.....	24
4.7	GEOLOGY AND SOIL.....	25
4.8	HYDROLOGY.....	26
4.9	TERRESTRIAL BIODIVERSITY, CONSERVATION AREAS, GROUNDCOVER AND FAUNA.....	29
4.10	CULTURAL AND HERITAGE ENVIRONMENT.....	29
5.	ANNUAL REHABILITATION PLAN.....	30
5.1	IMPLEMENTATION AND REVIEW TIMEFRAMES.....	30

5.2	MONITORING RESULTS	30
5.2.1	Control of Invasive Alien Vegetation	30
5.2.2	Noise Monitoring.....	30
5.2.3	Dust Monitoring	31
5.2.4	Waste Monitoring.....	31
5.3	SHORTCOMINGS IDENTIFIED	31
5.4	REHABILITATION ACTIVITIES FOR FORTHCOMING 12 MONTHS	31
5.5	REVIEW OF PREVIOUS YEAR'S REHABILITATION ACTIVITIES	31
5.6	COSTING.....	31
6.	REHABILITATION, DECOMMISSIONING AND MINE CLOSURE PLAN.....	32
6.1	CLOSURE STRATEGY GUIDED BY ENVIRONMENTAL RISK ASSESSMENT.....	33
6.2	DESIGN PRINCIPLES.....	33
6.2.1	Land Forming	Error! Bookmark not defined.
6.2.2	Rehabilitation of Offices, Vehicle Yard and Storage Areas.....	34
6.2.3	Rehabilitation of Processing Areas	34
6.2.4	Revegetation	35
6.2.5	Residual Impact after Closure	35
6.3	POST-MINING LAND USE.....	35
6.4	CLOSURE ACTIONS	35
6.4.1	Rehabilitation of Offices, Vehicle Yard and Storage Areas.....	36
6.4.2	Rehabilitation of Processing Areas	36
6.4.3	Land Forming	36
6.4.4	Final Rehabilitation	37
6.4.5	Revegetation of Rehabilitated Areas.....	37
6.4.6	Maintenance and Monitoring	37
6.4.7	Success Criteria and Monitoring	37
6.4.8	Impact Specific Procedures.....	38
6.5	CLOSURE SCHEDULE.....	42
6.6	IMPLEMENTATION AND RESPONSIBILITY OF CLOSURE PLAN	43
6.6.1	Site Management Responsibility List	44
6.6.2	Management of Information and Data.....	44
6.7	IDENTIFIED GAPS IN THE PLAN.....	44
6.8	RELINQUISHMENT CRITERIA FOR CLOSURE ACTIVITIES	44
6.9	CLOSURE COST ESTIMATE	47
6.10	MOTIVATION FOR AMENDMENTS MADE TO THE FINAL REHABILITATION, DECOMMISSIONING AND MINE CLOSURE PLAN	47
7.	MONITORING, AUDITING AND REPORTING	47
7.1	Schedule of reporting requirements	49

8.	ENVIRONMENTAL RISK ASSESSMENT REPORT	53
8.1	ASSESSMENT PROCESS USED TO IDENTIFY AND QUANTIFY LATENT RISKS	53
8.1.1	Methodology	53
8.1.2	Description of Latent Risks	61
8.1.3	Results and Finding of Risk Assessment	61
8.1.4	Changes to the Risk Assessment Results	61
8.2	MANAGEMENT ACTIVITIES	61
8.3	COST ESTIMATE	61
8.4	MONITORING, AUDITING AND REPORTING REQUIREMENTS	61
9.	CONCLUSION	62
10.	SIGNATURE OF AUTHOR	62
11.	UNDERTAKING BY RIGHT HOLDER	63
12.	REFERENCES	64

LIST OF FIGURES

<i>Figure 1: Satellite view of the approved mining right area (yellow polygon) (image obtained from Google Earth)</i>	<i>10</i>
<i>Figure 2: : Satellite view of the Section 102 application area (image obtained from Google Earth).</i>	<i>11</i>
<i>Figure 4: Elevation profile of the proposed expansion area (Image obtained from Google Earth).</i>	<i>24</i>
<i>Figure 26: DFFE screening tool output for aquatic biodiversity (image obtained from DFFE screening tool report).</i>	<i>26</i>
<i>Figure 5: 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).....</i>	<i>28</i>

LIST OF TABLES

Table 1: GPS Coordinates of the approved mining right area	10
Table 2: GPS Coordinates of the proposed expansion area.	11
Table 3: Summary of the relevant rehabilitation sections of the MPRDA, 2002	14
Table 4: Requirements of Government Notice 527	15
Table 5: NWA, 1998 applicable sections	16
Table 6: NEMA, 1998 applicable sections	16
Table 8: Summary of the impact specific procedures	39
Table 9: Closure schedule.	42
Table 10: Relinquishment criteria for closure activities.....	46
Table 11: Monitoring, auditing, and reporting requirements.	48
Table 12: Reporting requirements.	49
Table 13: Monitoring plan and compliance assessment.....	50
Table 14: Rating of severity used in the assessment of potential latent risks.	56
Table 15: Rating of duration used in the assessment of potential latent risks.....	57
Table 16: Rating of extent / spatial scale used in the assessment of potential latent risks.	57
Table 17: Example of calculating overall consequence in the assessment of potential latent risks.....	57
Table 18: Rating of frequency used in the assessment of potential latent risks.....	58
Table 19: Rating of probability used in the assessment of potential latent risks.	59
Table 20: Example of calculating overall likelihood in the assessment of potential latent risks.	59
Table 21: Determination of overall environmental significance in the assessment of potential latent risks.	59
Table 22: Description of environmental significance and related action required in the assessment of potential latent risks.	60

LIST OF DEFINITIONS

Abandonment: The act of abandoning and relinquishment of a mining claim or intention to mine, a voluntary surrender of the claim or mine to the next party.

Appropriately qualified: A person who has training in the skills appropriate to the type of work to be done, and experience of the type of mine and of the size, complexity and safety classification of the deposit or the environmental conditions (or both) pertaining to the specific project.

Closure Plan: Annual Rehabilitation and Final Rehabilitation, Decommission and Closure Plan.

Biodiversity: Biodiversity is an abbreviation of "biological diversity". It means the variety of living things – the different plants, animals and microorganisms, the genes they contain and the ecosystems of which they are a part.

Closure: The act of reinstating a redundant mine which is acceptable for final mine closure.

Context of an environmental impact: The overall environmental setting in which an environmental impact occurs. It includes all "natural" components and characteristics (or both) and all "human and social" components and characteristics (or both). It has both spatial and time dimensions.

Design: The documented result of a systematic process during which all relevant factors and criteria are considered. The design includes the design report, the working drawings and the operations manual.

Environmental impact: Any change in the state of a component of the environment, whether adverse or beneficial, that wholly or partially results from activities, projects or developments.

Environmental integrity: The reliability of performance of the environmental impact management measures associated with the facility, with respect to the environmental performance objectives.

Environmental management programme: A programme contemplated in the Mineral and Petroleum Resources Development Act, 2002 submitted to and approved by the Director: Mineral Development and detailing the plan to be adopted and implemented by a mine for managing the environmental effects of the operations of the mine.

Environmental objectives: Those objectives that represent the desired state of environmental components that have been adopted for the mine.

Intensity of an environmental impact: The severity of the consequences of an environmental impact, as judged by suitably qualified persons.

Manager of a mine (general manager): Any competent person appointed in terms of the Mine Health and Safety Act, 1996 (Act 29 of 1996), to be responsible for the control, management and direction of a mine.

Rehabilitated land: Is defined as land that has previously been mined through or areas, which have been disturbed by the mining process. These areas have been sloped, covered with topsoil (where possible), fertilized (if needed), seeded and can support a sustained long-term vegetation cover.

Redundant: No longer required for mining operation.

Reliability: The probability that a specified event will not occur in a specified time (usually expressed as a ratio, when measured in quantitative terms).

Risk: The probability that a specified event, such as failure, will occur in a specified time.

Scheduled closure: Planned closure of the mine

Significant environmental impact: An impact in respect of which consultation (with the relevant authorities and other interested and affected parties) on the context and intensity of its effects provides reasonable grounds for mitigating measures to be included in the environmental management programme. Significance is determined by the integration of the context and intensity of the effects of the impact, and the likelihood that the impact will occur.

Topsoil: means the layer of soil covering the earth which –

- (a) provides a suitable environment for the germination of seed;
- (b) allows for penetration of water; and
- (c) Is a source of microorganisms, plant nutrients and in some cases seed.

Unscheduled closure: The closure cost associated with immediate closure and provision.

LIST OF ABBREVIATIONS

BAR	Basic Assessment Report
DMRE	Department of Mineral Resources and Energy
DWS	Department of Water and Sanitation
EIA	Environmental Impact Assessment
EPA	Environmental Performance Assessment
EMPR	Environmental Management Program
I&AP's	Interested and Affected Parties
MPRDA	Mineral and Petroleum Resources Act, 2002 (Act No 28 of 2002)
NWA	National Water Act, 1998 (Act No. 36 of 1998)

NEMA National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEM:WA National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
S102 Section 102 Amendment Application in terms of the MPRDA
WCMR Waste Classification and Management Regulations
WWF World Wildlife Fund

1. INTRODUCTION

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 R388 and has been in operation since the 1960’s. In 2025, the Right Holder applied for consent of the Minister to (amongst others) expand the mining footprint with 133.1830 ha in terms of Section 102 of the Minerals and Petroleum Resources Development Act, 2002 (Act No 28 of 2002).

Greenmined Environmental (Pty) Ltd (“Greenmined”) is the consultants responsible for the Section 102 amendment application, and in support of this application, an Annual- and Final Rehabilitation, Decommissioning and Mine Closure Plan (*in aliis verbis* Closure Plan) was accordingly drafted. This report (the Closure Plan) stipulates the rehabilitation methods to be followed in the restoration of DASC Quarry. The report was compiled in line with Government Notice 940 of the National Environmental Management Act, 1998 [NEMA] (Act No. 107 of 1998) together with Regulation 62 of the Minerals and Petroleum Resources Development Act, 2002 [MPRDA] (Act No. 28 of 2002). The information used in this report was sourced during the EIA process.

The purpose of this document is to provide site management with an Annual Rehabilitation Plan as well as the Final Rehabilitation, Decommissioning and Closure Plan, compiled in terms of the NEMA Amendment Act, 2014 (Act No. 25 of 2014) read with the Regulations pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production Operations, 2015 (GN 1228, Financial Provision Regulations 2015)(as amended).

1.1 BACKGROUND INFORMATION

De Aar Stone Crushers is an aggregate mining site which has been in operation since the 1960’s and is situated ±5.8 km south of De Aar central along R388. The mining activities were approved over Portion 49 and 50 of Farm De Aar No 180.

The Department of Mineral Resources and Energy (DMRE) approved the application, and the mining right (MR) commenced on 24 February 2020 and is valid until 24 February 2035. The approved mining area is 16.1634 ha and falls within the GPS coordinates listed in the following Table.

Table 1: 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 °	24.002224 °
B	30°42'40.34"	24°0'27.89"	-30.711206 °	24.007746 °
C	30°42'42.11"	24°0'51.57"	-30.711698 °	24.014325 °
D	30°42'56.57"	24°0'49.53"	-30.715714 °	24.013759 °
E	30°42'52.00"	24°0'3.17"	-30.714441 °	24.000880 °

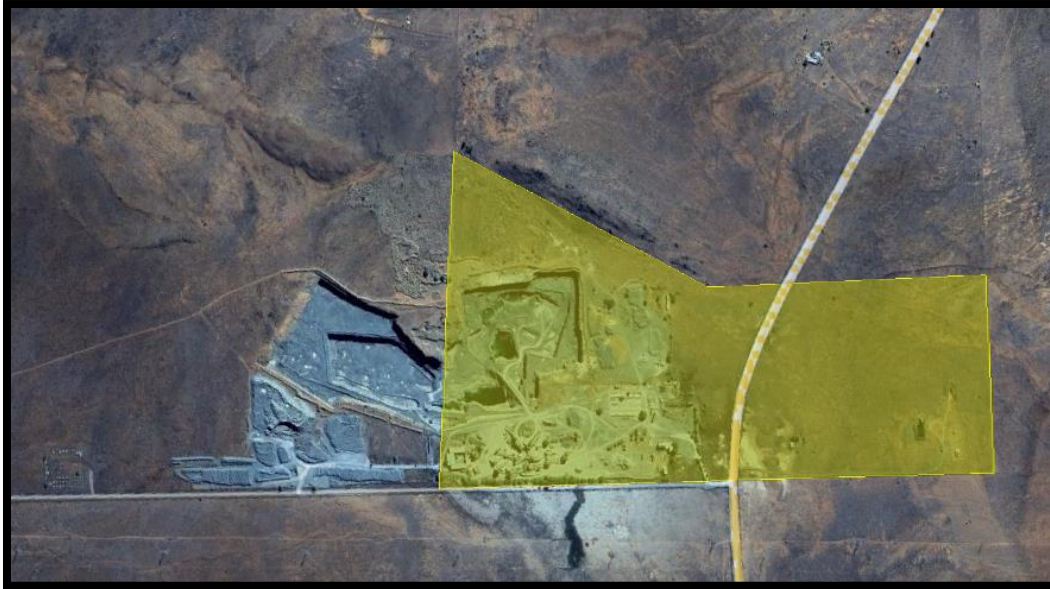


Figure 1: Satellite view of the approved mining right area (yellow polygon) (image obtained from Google Earth)

1.2 PROJECT PROPOSAL

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 with 133.1830 ha within the GPS coordinates as listed in the following table and depicted in the subsequent figure.

Table 2: 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"	-30.707422°	23.987311°
B	30°42'28.06"	24°00'08.01"	-30.707794°	24.002225°
C	30°42'40.34"	24°00'27.88"	-30.711206°	24.007744°
D	30°42'54.32"	24°00'26.74"	-30.715089°	24.007428°
E	30°42'46.65"	23°59'09.18"	-30.712958°	23.985883°
F	30°42'41.58"	23°59'10.18"	-30.711550°	23.986161°
G	30°42'41.67"	23°59'10.75"	-30.711575°	23.986319°
H	30°42'41.75"	23°59'11.33"	-30.711597°	23.986481°



Figure 2: Satellite view of the Section 102 application area (image obtained from Google Earth).

1.3 OBJECTIVES OF THE CLOSURE PLAN

The purpose of the Closure Plan is to describe the rehabilitation processes that need to take place so the mine reaches its full environmental potential upon closure.

The primary objective, at the end of the mine's life, is to obtain a closure certificate in as short a period as possible whilst still complying with the requirements of the Minerals and Petroleum Resources Development Act (Act No. 28 of 2002) [MPRDA]. To realise this, the following main objectives must be achieved:

- ❖ Remove all temporary infrastructure and waste from the site as per the requirements of the EMPR and of the Provincial Department Mineral Resources and Energy.
- ❖ Shape and contour all disturbed areas in compliance with the EMPR.
- ❖ Ensure that permanent changes in topography (due to mining) are sustainable and do not cause erosion or the damming of surface water.

- ❖ Make all excavations safe.
- ❖ Use the topsoil effectively to promote the re-establishment of vegetation.
- ❖ Ensure that all rehabilitated areas are stable and self-sustaining in terms of vegetation cover.
- ❖ Eradicate all weeds/invader plant species by intensive management of the mine site.

2. DETAILS OF THE AUTHOR

De Aar Stone Crushers Empower (Pty) Ltd appointed Greenmined Environmental to prepare the final rehabilitation, decommissioning and mine closure plan. 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 (see CV and proof of experience attached as Appendix J to the BAR & EMPR).

Name of the Practitioner: Ms Zoë Norval (Environmental Consultant)

Tel No: 021 851 2673

E-mail address: zoe@greenmined.co.za

Declaration of Independence:

I, Zoë Norval, in my capacity as environmental control officer declare that–

- ❖ I act as independent environmental control officer in this compliance audit;
- ❖ I will perform the work relating to the audit in an objective manner, even if the results and findings are not favourable to the holder of the authorisation;
- ❖ I have expertise in conducting environmental compliance audits, including knowledge of the Act and regulations that have relevance to the activity;
- ❖ I will adhere to and comply with all responsibilities as indicated in the National Environmental Management Act and Environmental Impact Assessment Regulations.
- ❖ I do not have and will not have any vested interest in the activity other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2014.



Zoë Norval

Date: 28 July 2025

3. LEGAL BACKGROUND AND BEST PRACTICES

This section provides an overview of the legislative requirements applicable to the project, including the acts, guidelines and policies considered in the compilation of the Closure Plan.

3.1 THE CONSTITUTION OF SOUTH AFRICA, 1996 (ACT NO. 108 OF 1996)

The legislative motivation for this project is underpinned by The Constitution of South Africa, 1996 (Act No. 108 of 1996), which states that:

The State must, in compliance with Section 7(2) of the Constitution, respect, protect, promote and fulfil the rights enshrined in the Bill of Rights, which is the cornerstone of democracy in South Africa. Section 24 of the Constitution:

24. Environment

-Everyone has the right-

- (a) To an environment that is not harmful to their health or well-being; and*
- (b) To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that-*
 - (i) Prevent pollution and ecological degradation;*
 - (ii) Promote conservation; and*
 - (iii) Secure ecologically sustainable development and use of natural resources while promoting a justifiable economic and social development.*

This constitutional provision requires that activities which may significantly affect the environment must be assessed and authorised in accordance with applicable legislation to ensure environmental protection and sustainable development.

Section 24 of the Constitution of South Africa requires that all activities that may significantly affect the environment and require authorisation by law must be assessed prior to approval. In addition, it provides for the Minister of Environmental Affairs or the relevant provincial Ministers to identify:

- ❖ New activities that require approval;
- ❖ Areas within which activities require approval; and
- ❖ Existing activities that should be assessed and reported on.

Section 28(1) of the Constitution of South Africa states that:

“Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring”.

If such pollution or degradation cannot be prevented, then appropriate measures must be taken to minimise or rectify such pollution or degradation. These measures may include:

- ❖ Assessing the impact on the environment.
- ❖ Informing and educating employees about the environmental risks of their work and ways of minimising these risks;
- ❖ Ceasing, modifying or controlling actions which cause pollution/degradation;
- ❖ Containing pollutants or preventing movement of pollutants;
- ❖ Eliminating the source of pollution or degradation; and
- ❖ Remedying the effects of the pollution or degradation.

3.2 THE MINERALS AND PETROLEUM RESOURCES ACT, 2002 (ACT NO. 28 OF 2002) [MPRDA]

The table below summarises the relevant sections in terms of the MPRDA, 2002.

Table 3: Summary of the relevant rehabilitation sections of the MPRDA, 2002

AREA OF CONCERN	SECTION	LEGAL REQUIREMENTS
Environmental Management	Section 37	<i>Requires that the principles set out in section 2 of NEMA must apply to all prospecting and mining operations, and that the generally accepted principles of sustainable development must be applied by integrating social, economic and environmental factors during the planning and implementation phases of mining projects.</i>
	Section 38	<i>Requires the applicant to manage all environmental impacts in accordance with his or her environmental management plan (EMP) or the approved EMPR.</i>
	Section 39	<i>Deals with the requirements of an EMP/EMPR, whichever is applicable.</i>
Financial Provision	Section 41	<i>Financial provision needs to be provided and annually assess the environmental liability.</i>
Closure Certificate	Section 43	<i>Holder of a mining right is responsible for all environmental liabilities as may be identified in the EMP, application needs to be made to the regional manager for the closure certificate.</i>
Removal of Infrastructure	Section 44	<i>When the mining operation comes to an end the mine may not remove buildings, structures or objects which may not be demolished or removed in terms of any other law.</i>

3.2.1 Regulation 527 of the MPRDA, 2002

Government Notice No. R.527, as published in the Government Gazette, 23 April 2004 (GG No. 26275, Volume 466) of MPRDA stipulate that the following closure objectives must form part of the EMPR:

- ❖ Identify the key objectives for closure of the operation to guide the project design;
- ❖ Development and management of environmental impacts;
- ❖ Provide future land use objectives for the site; and
- ❖ Provide proposed closure costs.

Table 4: Requirements of Government Notice 527

AREA OF CONCERN	REGULATION	LEGAL REQUIREMENTS
The need to prevent and alleviate pollution arising from mining activities.	Regulation 42(1)	<i>Section 42(1) of the MPRDA stipulates that the closure process must start at the commencement of a mining operation and continue throughout the entire life of the mine. Furthermore, future closure and land use objectives must be included in the EMP Section 42(1) d stipulates that any environmental damage or residual impacts that are identified during the Environmental Risk Assessment (ERA) phase must be acceptable to all Interested and Affected Parties (I&AP's) in line with Section 24(a) of the National Constitution.</i>
Mine Closure	Regulation 43	<i>A closure plan contemplated in Section 43(3)(d) of the Act, forms part of the EMPR or EMP, as the case may be, and must include – a summary of the results of progressive rehabilitation undertaken.</i>
Part III of R 527 deals with environmental regulations for mineral development, petroleum exploration and production.	Regulation 56	<i>In accordance with applicable legislative requirements for mine closure, the holder of a prospecting right, mining right, retention permit or mining permit must ensure that –The land is rehabilitated, as far as is practicable, to its natural state, or to a predetermined and agreed standard or land use which conforms with the concepts of suitable development.</i>

3.3 THE NATIONAL WATER ACT, 1998 (ACT NO. 36 OF 1998) [NWA]

The National Water Act, 1998 (Act No. 36 of 1998) (NWA) aims to provide management of the national water resources to achieve sustainable use of water for the benefit of all water users. This requires that the quality of water resources is protected as well as integrated management of water resources with the delegation of powers to institutions at the regional or catchment level. The purpose of the NWA is

to ensure that the nation’s water resources are protected, used, developed, conserved, managed and controlled in ways, which take into account:

- ❖ Meeting the basic human needs of present and future generations;
- ❖ Promoting equitable access to water;
- ❖ Redressing the results of past racial discrimination;
- ❖ Promoting the efficient, sustainable and beneficial use of water in the public interest;
- ❖ Facilitating social and economic development;
- ❖ Providing for growing demand for water use;
- ❖ Protecting aquatic and associated ecosystems and their biological diversity;
- ❖ Reducing and preventing pollution and degradation of water resources;
- ❖ Meeting international obligations; and
- ❖ Managing floods and droughts.

The following sections of the NWA, 1998 are relevant.

Table 5: NWA, 1998 applicable sections

AREA OF CONCERN	SECTION	LEGAL REQUIREMENTS
Prevention and remedying effects of pollution.	Section 19	<i>Any situation exist or which may cause or is likely to cause pollution of a water resource, must take all reasonable measures to prevent any such pollution from occurring, continuing or recurring.</i>
Control of emergency incidents.	Section 20	<i>Incidences of pollution needs to be reported the Department and the relevant catchment agency</i>
General principles: Water uses	Section 21	<i>The water uses listed that requires water use authorisation.</i>

3.4 THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO 107 OF 1998) [NEMA]

The National Environmental Management Act (NEMA) strives to regulate national environmental management policy and is focussed primarily on co-operative governance, public participation and sustainable development. NEMA makes provisions for co-operative environmental governance by establishing principles for decision making on matters affecting the environment, institutions that will promote co-operative governance and procedures for co-ordinating environmental functions exercised by organs of state and to provide for matters connected therewith.

The following sections are relevant.

Table 6: NEMA, 1998 applicable sections

AREA OF CONCERN	SECTION	LEGAL REQUIREMENTS
Principles that may significantly affect the environment.	Section 28	<i>General duty of care on every person who causes, has caused or may cause significant pollution or degradation of the environment to take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment.</i>
Control of emergency incidents.	Section 30	<i>Incidences of pollution needs to be reported the Department.</i>
Environmental Management Plan.	Section 34	<p><i>A draft EMP must include –</i></p> <p><i>information on any proposed management or mitigation measures that will be taken to address the environmental impacts that have been identified in a report contemplated by these Regulations, including environmental impacts or objectives in respect of –</i></p> <p><i>(iv) rehabilitation of the environment;</i></p> <p><i>as far as reasonably practicable, measures to rehabilitate the environment affected by the undertaking of any listed activity or specified activity to its natural or predetermined state or to a land use which conforms to the generally acceptable principle of sustainable development, including where appropriate, concurrent or progressive rehabilitation measures.</i></p>

3.4.1 Regulation 1228 of NEMA, 1998

NEMA, GNR 1228 GG 41236, known as the NEMA Financial Provision Regulations, 2015 (as amended), was promulgated in November 2015, and in terms of these regulations holders of a mining right are allowed a transitional period of 39 months (19 February 2019) from the date of promulgation to comply. The compliance date was extended to February 2024.

As mentioned earlier the right holder must annually update the annual rehabilitation, final rehabilitation and remediation of latent environmental impacts and ensure it is compliant with the Financial Provision Regulations of 2015 (as amended). The reports need to be conducted in the format that was supplied in the regulations as per Appendix 5 and Appendix 6.

3.5 THE NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 2008 (ACT NO 57 OF 2008)

[NEM:WA]

The rehabilitation measures must be aligned with the objections of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (NEM: WA) which includes:

- (a) To protect health, well-being and the environment by providing reasonable measures for—
 - (i) Minimising the consumption of natural resources;
 - (ii) Avoiding and minimising the generation of waste;
 - (iii) Reducing, re-using, recycling and recovering waste;
 - (iv) Treating and safely disposing of waste as a last resort;
 - (v) Preventing pollution and ecological degradation;
 - (vi) Securing ecologically sustainable development while promoting justifiable economic and social development;
 - (vii) Promoting and ensuring the effective delivery of waste services;
 - (viii) Remediating land where contamination presents, or may present, a significant risk of harm to health or the environment; and
 - (ix) Achieving integrated waste management reporting and planning;
- (b) To ensure that people are aware of the impact of waste on their health, well-being and the environment;
- (c) To provide for compliance with the measures; and
- (d) Generally, to give effect to Section 24 of the Constitution in order to secure an environment that is not harmful to health and well-being

3.5.1 Waste Classification and Management Regulations, 2013 (GNR 634)

Waste Classification and Management Regulations (WCMR) promulgated under the National Environmental Management: Waste Act, 2008 (NEM:WA) (effective 2013) provides mechanisms to:

- ❖ Facilitate the implementation of the waste hierarchy to move away from landfill;
- ❖ Reuse, recovery and treatment;
- ❖ Separate waste classification from the management of waste;
- ❖ Divert waste from landfill and into utilisation where possible; and
- ❖ Provide measures to monitor the progress

The Waste Classification and Management Regulations ultimately enables the improved and more efficient classification and management of waste; provide for safe and appropriate handling, storage, recovery, reuse, recycling, treatment and disposal of waste and will also

enable accurate and relevant reporting on waste generation and management. All waste generators, excluding domestic generators, must ensure that the waste they generate is classified within 180 days of its generation.

All wastes that were classified in terms of the “Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste in terms of the Department of Water Affairs” (2nd Edition, 1998; Department of Water Affairs and Forestry) or alternative classifications that were approved prior to the WCMR taking effect, must be re-classified and assessed within three years from the commencement of these Regulations.

Reference is made to the NEM:WA, part 8 of Chapter 4 regarding contaminated land:

All owners of land that is significantly contaminated become obliged to report that contamination is occurring. Part 8 of Chapter 4 is concerned with the remediation of contaminated land. This new legal regime for identifying contaminated land, determining its status and the risk that it poses, and regulating the remediation process is introduced. This law imposes significant legal obligation on the owners of land and on those who cause contamination, with potentially serious financial consequences. Part 8 applies where the pollution only manifest sometime after the contamination occurred and also where the action of a person (for example, the excavation of land pursuant to a development) results in a change to pre-existing contamination. Along with the notice bringing Part 8 into effect, norms and standards for the remediation of contaminated land and soil quality (list certain contaminants and specify soil screening values for human health and environmental protection). This act also has several important implications for the sale of and, sellers who know that their lands is contaminated can no longer keep silent and this is classified as an offence.

3.6 FURTHER ACTS RELEVANT TO MINE REHABILITATION

- ❖ The Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983).
- ❖ The South African Mineral Resource Committee (SAMREC) Code. Of particular importance in this regard is the determination of whether the mine has made an adequate provision for environmental rehabilitation in terms of Section 41 of the MPRDA.

3.7 BEST PRACTICE AND INTERNATIONAL GUIDELINES

Mine closure is an international challenge. South Africa has produced various well-known and reputable guidelines on matters directly linked and or associated with mine closure. Such was the need for guidelines to manage mine closure provisions in a consistent manner provided for by the DMRE (2005).

These guidelines are the only official mine closure guideline as contemplated in Regulation 54(1) in the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002). Of particular importance is that this guideline document governs the closure cost assessment process in South Africa and is applied by the DMRE through its respective regional managers in each province.

The Chamber of Mines (CoM) (2007) issued a guideline for the rehabilitation of mined land. This document is a result of scientific knowledge experts. It is an on the ground reference document which provides written guidelines on the best rehabilitation techniques. Of value is how the document distinguishes between the financing, the planning and the licensing components of a typical mining program.

The World Wildlife Fund (WWF) in 2012 published a discussion document named the “Financial provision for the rehabilitation and closure in South African Mining: Discussion Document on Challenges and recommended improvements”. The document focuses on the adequacy of financial provisions and pulls a very strong link between insufficient financial allocations and that of derelict and abandoned mines in South Africa. The document further emphasizes the importance of establishing a dependency between the EMPR/EMP and financial provision which is updated and adequate

A released guideline from the Government of Western Australia (GWA 2011) provides insight to the importance of mine closure. The guidelines (GWA 2011) state that planning for mine closure is a critical component of environmental management in the mining industry. Notably is that this industry leading practice also requires that planning for mine closure should start before mining commence and should continue throughout the life of the mine until final closure and relinquishment. This approach enables better environmental outcomes. It is also good business practice, as it should avoid the need for costly remedial earthworks late in the project lifecycle.

4. ENVIRONMENTAL AND PROJECT CONTEXT

4.1 APPROVED OPERATIONAL ACTIVITIES

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 1960s. 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 mainly in the Northern Cape.

4.1.1 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 to the east. A railway line and overhead powerlines passes along the western border of the proposed expansion area, as well as a large gravel road along the eastern and southern border.

4.1.2 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).

4.1.3 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.

4.2 SECTION 102 APPLICATION

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 via 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 with a 100m 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.

4.1.4 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 away from the two drainage lines. No excavations will enter these buffer zones and an application for a General Authorization for a section 21(c), impeding or diverting the flow of a watercourse and (i), altering the bed, banks, course, or characteristics of a watercourse, 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.

4.3 REGIONAL SETTING AND LAND USE

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 (DBAR 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..

4.4 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 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 3: Elevation profile of the proposed expansion area (Image obtained from Google Earth).

4.5 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. From the viewshed 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.

4.6 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.

4.7 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.

4.8 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.

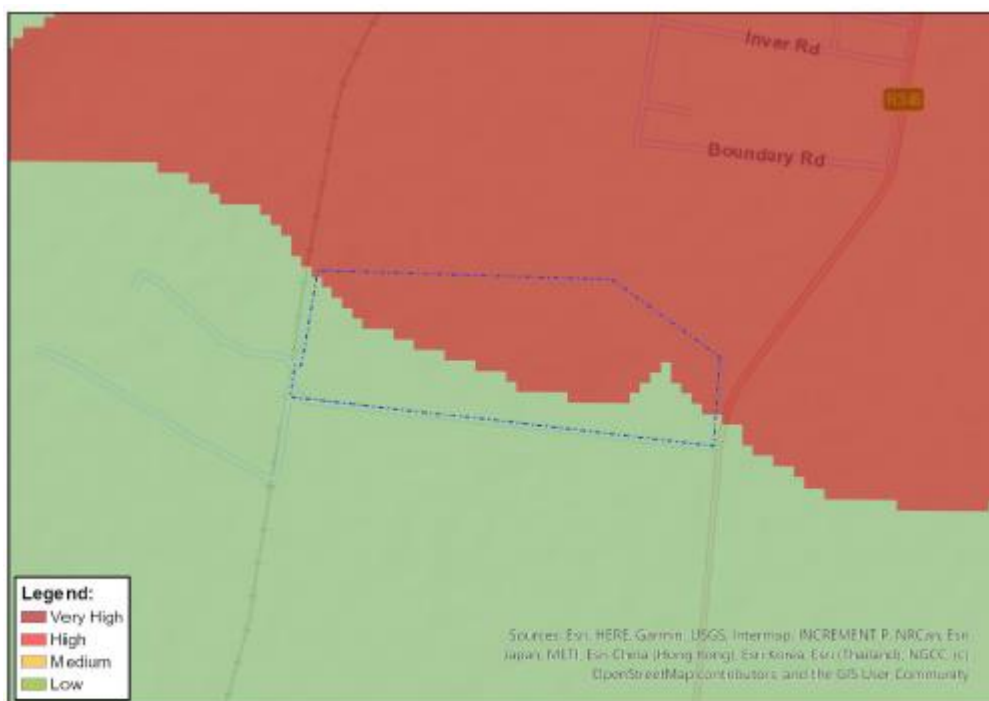


Figure 4: DFFE screening tool output for aquatic biodiversity (image obtained from DFFE screening tool report).

According to the Ecological and Wetland Assessment (DBAR 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 of DBAR 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 of DBAR 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 of DBAR Appendix K). Both of these drainage lines are clearly natural drainage systems (Appendix A: Map 3 of DBAR 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 of DBAR 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 of DBAR 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 5: 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 of DBAR 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 of DBAR 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 DBAR Appendix K.

4.9 TERRESTRIAL BIODIVERSITY, CONSERVATION AREAS, GROUNDCOVER AND FAUNA

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.

4.10 CULTURAL AND HERITAGE ENVIRONMENT

No sites of cultural or archaeological interest occur in the study area.

5. ANNUAL REHABILITATION PLAN

Appendix 3 to the Financial Provision Regulations, 2015 (as amended) states that the objective of the annual rehabilitation plan is to:

- a) review concurrent rehabilitation and remediation activities already implemented;
- b) establish rehabilitation and remediation goals and outcomes for the forthcoming 12 months, which contribute to the gradual achievement of the post-mining land use, closure vision and objectives identified in the holder's final rehabilitation, decommissioning and mine closure plan;
- c) establish a plan, schedule and budget for rehabilitation for the forthcoming 12 months;
- d) identify and address shortcomings experienced in the preceding 12 months of rehabilitation; and
- e) evaluate and update the cost of rehabilitation for the 12-month period and for closure, for purposes of supplementing the financial provision guarantee or other financial provision instrument.

5.1 IMPLEMENTATION AND REVIEW TIMEFRAMES

The annual rehabilitation plan will be applicable for a 12-month period commencing from the date of approval thereof by the Department of Mineral Resources and Energy. The document will be reviewed during the 11th month of the operative period to ensure the timely submission of the subsequent annual review.

5.2 MONITORING RESULTS

5.2.1 Control of Invasive Alien Vegetation

The right holder will continuously monitor the mining footprint for the invasion of alien vegetation in accordance with the Invader Plant Species Management Plan of the site (Appendix G of the BAR & EMPR). This practice will continue through-out the site establishment-, operational-, and decommissioning phases of the project.

5.2.2 Noise Monitoring

It is recommended that a qualified occupational hygienist will quarterly monitor and report on the personal noise exposure of the employees working at the mine. Monitoring will be in accordance with SANS 10083:2004 (Edition 5) sampling method as well as NEM:AQA 2004, SANS 10103:2008.

Silencers will be fitted to all project related vehicles, and vehicles will be in a road worthy condition as stipulated in terms of the National Road Traffic Act, 1996. Noise mufflers will be fitted to generators, and the type, duration and timing of each blast will be planned with due cognizance of other land users and structures in the vicinity.

5.2.3 Dust Monitoring

Site management must ensure that the dust generating activities at the site comply with the National Dust Control Regulations, GN No R827 promulgated in terms of NEM:AQA, 2004 and ASTM D1739 (SANS 1137:2012). Dust levels will be controlled through the management processes stipulated in the BAR & EMPR. Dust monitoring of fallout dust levels is monitored by SHE Management, and the results are compared with the dust fall rate determined in the Department of Labor Accredited laboratories.

5.2.4 Waste Monitoring

Site management will be responsible to monitor the generation of all types of waste at the mining area, including general-, hazardous- and liquid waste. Solid (general) waste, generated during the operational phase, will be contained in sealable refuse bins that will be placed at the office area until the waste is transported to a recognised general waste landfill site.

Hazardous waste (such as spills) will be cleaned up immediately (within two hours of the occurrence) and the contaminated soil will be contained in designated hazardous waste containers that will be kept in a bunded area with impermeable surface until it is removed from site by a registered hazardous waste handling contractor to an approved facility.

5.3 SHORTCOMINGS IDENTIFIED

This report presents the updated Annual Rehabilitation Plan in terms of the Financial Provision Regulations, 2015 (as amended) to be submitted to DMRE for approval. No shortcomings have been identified in the preceding 12 months.

5.4 REHABILITATION ACTIVITIES FOR FORTHCOMING 12 MONTHS

Although this Closure Plan must still be approved as part of the Section 102 amendment application to expand the footprint of the mine, the MR Holder did not identify any rehabilitation (of the operational area) that will be done in the forthcoming 12-month period.

5.5 REVIEW OF PREVIOUS YEAR'S REHABILITATION ACTIVITIES

DASC Quarry did not do progressive rehabilitation during the last 12 months and therefore no activities can be reviewed.

5.6 COSTING

To be determined once annual rehabilitation objectives are established.

6. REHABILITATION, DECOMMISSIONING AND MINE CLOSURE PLAN

The objective of the final rehabilitation, decommissioning and mine closure plan (according to MPRDA) is to identify a post-mining land use that is feasible through:

- a) providing the vision, objectives, targets and criteria for final rehabilitation, decommissioning and closure of the project;
- b) outlining the design principles for closure;
- c) explaining the risk assessment approach and outcomes and link closure activities to risk rehabilitation;
- d) detailing the closure actions that clearly indicate the measures that will be taken to mitigate and/or manage identified risks and describes the nature of residual risks that will need to be monitored and managed post closure;
- e) committing to a schedule, budget, roles, and responsibilities for final rehabilitation, decommissioning and closure of each relevant activity or item of infrastructure;
- f) identifying knowledge gaps and how these will be addressed and filled;
- g) detailing the full closure costs for the life of project at increasing levels of accuracy as the project develops and approaches closure in line with the final land use proposed; and
- h) outlining monitoring, auditing, and reporting requirements.

(Financial Provision Regulations, 2015 Appendix 4)

The following objectives are leading closure indicators, which need to be applied across all the domains, and read in conjunction with the principles, which embody the strategic objectives. The closure plan must address all the areas associated with closing the operations, of which rehabilitation and re-vegetation forms part of a component. The first step in developing the overall mine closure strategy is to identify potential post mining land use options and establish key objectives for closure to be incorporated in the project design.

The preferred post mining land use for this mine is to restore the unexcavated areas to municipal use while the excavation will remain as a landscape feature. In this context, the primary objectives for the closure of the mining operations are:

- ❖ 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.

6.1 CLOSURE STRATEGY GUIDED BY ENVIRONMENTAL RISK ASSESSMENT

The objective of the closure plan is to minimize adverse environmental impacts associated with the quarrying activities whilst maximising the future utilisation of the property. The idea, therefore, is to leave the mined out quarry pit in a condition that reduces all negative impacts associated with a mined area. Significant aspects to be borne in mind in this regard is visibility of the mining scar, revegetation of the mining footprint, stability, and environmental risk in an old mine environment. The depression and immediate area of the working must also be free of weeds and alien vegetation.

The proposed quarrying and rehabilitation procedures was formulated to optimise the extraction of raw material while creating stable quarry sides that will not present an unreasonable safety risk once mine closure was approved. Mining operations will be conducted in stages, corresponding to the creation of precision blasted quarry sides and benches towards the base of the working.

The decommissioning phase and closure of the quarry will in addition to precision blasted quarry faces involve removal of all debris and rehabilitation of areas not rehabilitated during the operational phases of the project. This will comprise the scarification of compacted areas, reshaping of areas, topsoiling and regeneration of all prepared surfaces. The crusher and screening plants will be disassembled and all other infrastructural development such as haulage roads and stockpile areas will be rehabilitated.

6.2 DESIGN PRINCIPLES

Upon closure of the Quarry the Right Holder will contract the expertise of a rock engineer to guide the final design of the quarry pit. The rock engineer will be directed by the following rehabilitation objectives.

6.2.1 Rehabilitation of the Excavated Area:

- ❖ Quarrying and rehabilitation operations, in the long term, must be aimed at creating a final work face secured at safe angles that can be revegetated, where practical, to reduce the visual impact associated with bedrock mining.
- ❖ All final quarry slopes will be profiled to suitable angles (not steeper than 85°) as negotiated with the DMRE in accordance with the rehabilitation requirements being imposed on similar quarries in the region.
- ❖ The cliff section must not exceed 10 m in height and the bench section may not be narrower than 8 m (or as indicated by the rock engineer at the time of closure).

- ❖ The mine must strive to achieve the following final land surface objectives:
 - ◆ An upper face precision blasted to a gradient of 1:3 down to a depth of about 6 m below surface.
 - ◆ A precision blasted face to a gradient of not steeper than 85° in 10 m high cliff sections.
 - ◆ 8 m wide bench levels between 10 m cliff face down to the floor of the quarry.
 - ◆ Post-quarrying landscape may not be prone to erosion at an unacceptable rate.

6.2.2 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.

6.2.3 Rehabilitation of Offices, Vehicle Yard and Storage Areas

- ❖ On completion of mining the above areas shall be cleared of any contaminated soil, which must be dumped at a licenced hazardous waste disposal facility.
- ❖ All buildings, structures or objects on the vehicle maintenance yard and secured storage areas shall be dealt with in accordance with Section 44 of the MPRDA.
- ❖ The buildings and roads at the property will most likely be retained for future use by the landowner and will therefore not be demolished unless required by the municipality.
- ❖ The surface shall be ripped or ploughed to a depth of at least 200 mm and the topsoil previously stored adjacent to the site shall be spread evenly to its original depth over the whole area.
- ❖ The site shall be seeded with a vegetation mix adapted to reflect the local grassy vegetation.
- ❖ 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 arising from the mining operation be corrected and the area be seeded with a mix to his/her specifications.

6.2.4 Rehabilitation of Processing Areas

- ❖ On completion of mining, the surface of the processing areas (especially 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, and the previously stored topsoil will be returned to its original depth over the area.

- ❖ The area shall be seeded with local indigenous seed mix. Fertilisers should be avoided as far as possible to avoid nutrient loading of the nearby drainage channel.

6.2.5 Revegetation

- ❖ Disturbed surfaces will be profiled so that re-laid topsoil / overburden can be keyed into position to minimise erosion.
- ❖ All prepared surfaces must be seeded with a suitable grass species to provide an initial ground cover and stabilise the soil surface.

6.2.6 Residual Impact 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.

6.3 POST-MINING LAND USE

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 minor landscape feature that will be rendered safe upon final site closure. The benches will be top-dressed with topsoil and vegetated with an appropriate indigenous grass mix and the area will be returned to previous land use. If the disturbed areas are successfully rehabilitated no long-term management burden will be left behind.

6.4 CLOSURE ACTIONS

The closure goals and objectives are to ensure that post-use rehabilitation achieves a stable and functioning landform consistent with the surrounding landscape, other environmental values and agreed land use.

The following closure actions will be applicable to the study area:

- ❖ Removal of unwanted infrastructure;
- ❖ Benching and sloping of the quarry pit;
- ❖ Removal of stockpiled material and reinstatement of the processing area;

- ❖ Vegetating the area using an appropriate grass mix.

6.4.1 Rehabilitation of Offices, Vehicle Yard and Storage Areas

In summary the closure requirements will entail:

- ❖ Clear the above areas of any/all contaminated soil (remove to a licenced waste disposal facility).
- ❖ Deal with all buildings, structures or objects on the vehicle maintenance yard and secured storage areas in accordance with Section 44 of the MPRDA.
- ❖ 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.
- ❖ Rip/plough the surface to a depth of at least 200 mm and spread the previously stockpiled topsoil evenly to its original depth over the whole area.
- ❖ Seed the area with a vegetation mix adapted to reflect the local grassy vegetation.

6.4.2 Rehabilitation of Processing Areas

In summary the closure requirements will entail:

- ❖ Scarify the surface of the processing area (especially if compacted due to hauling and dumping operations) to a depth of at least 200 mm and grade the area to an even surface condition.
- ❖ Return the previously stored topsoil to its original depth over the area.
- ❖ Seed the area with a local indigenous seed mix. Avoid fertilisers as far as possible to prevent nutrient loading of the nearby drainage channel.

6.4.3 Land Forming

In summary the closure requirements will entail:

- ❖ Blast an upper face to a gradient of 1:3 down to a depth of ± 6 m below surface.
- ❖ Create a precision blasted face to a gradient of not steeper than 85° in 10 m high cliff sections.
- ❖ Create 8 m side bench levels between each 10 m cliff face down to the floor of the quarry (or as indicated by the rock engineer at the time of closure).
- ❖ Ensure rehabilitated quarry area is not prone to erosion.
- ❖ Fence/wall the rehabilitated quarry pit to prevent unauthorized access.
- ❖ Reshape sand excavation area and dress with topsoil to support nature vegetation regrowth.

6.4.4 Final Rehabilitation

In summary the closure requirements will apply:

- ❖ Remove all infrastructure, equipment, plant and other items used during the mining period.
- ❖ Remove all waste materials entirely from the mining area and dispose of at a recognised landfill facility. Not to be buried or burned on the site.
- ❖ Clear the mining area of all weeds and/or alien plants regarded as Category 1a or b invasive species in terms of the National Environmental Management Act, 2004 (Act No 10 of 2004) and the Alien and Invasive Species list, 2014.
- ❖ Rehabilitation must be completed within a period specified by the Regional Manager.

6.4.5 Revegetation of Rehabilitated Areas

Following the establishment of basal cover, the introduction of species representative of the vegetation type in occurrence should proceed;

- ❖ Any deployment of these species should pursue over periods of natural succession. This would be the establishment of Pioneer species (like grasses and herbs), then Secondary species (like small shrubs and low trees) and finally that of Climax species (like larger shrubs and large trees). The ecologist is to advise on the usefulness of having a sample period to assess different substrate mediums for tree species to grow in;
- ❖ Hereafter it is aimed that the re-establishment of an ecologically viable system will be achieved.

6.4.6 Maintenance and Monitoring

Rehabilitated areas need to be monitored and managed after the initial rehabilitation. The mines primary tool for maintenance of the rehabilitated area will be monitoring of the reinstated areas until the closure certificate is issued. If areas are identified that are considered unsatisfactory then maintenance may include, but not be limited to:

- ❖ Replanting failed or unsatisfactory areas;
- ❖ Repairing any erosion problems; and
- ❖ Pest and weed control.

6.4.7 Success Criteria and Monitoring

To assess when the rehabilitation and re-vegetation process is complete, the mine will develop a set of completion criteria. These criteria will be reviewed by senior management before being submitted to the regulatory authorities (DMRE) for approval and sign off.

The approved set of completion criteria will be used as a basis for assessing the closure of the mining operations, with the mine required to comply with the specified criteria before the land management can be relinquished. The completion criteria will be reviewed every two years with the closure plan and updated to include findings of the mine rehabilitation research and development program as well as additional requirements of the regulatory authorities.

When selecting completion criteria, consideration must be given to the climatic conditions in the area. Using simple percentage species and percentage cover may not be appropriate, as this is dependent on when the samples are taken. If the baseline was established during a wet year and the assessment undertaken during drought, the criteria will not be met. The rehabilitated and re-vegetated areas will be monitored to determine the progress of the programme. Monitoring is likely to be a combination of methods and may include photographic monitoring, transects and standard plot areas.

6.4.8 Impact Specific Procedures

The table below provides a summary of the impact specific procedures associated with the closure of the mine.

Table 7: Summary of the impact specific procedures

CLOSURE MANAGEMENT OBJECTIVES	SPECIFIC PERFORMANCE CRITERIA	ACTION REQUIRED
SOCIO-ECONOMIC		
<ul style="list-style-type: none"> ❖ The retrenchment process will be followed as per requirements of the applicable legal process; and ❖ All existing social investments will be phased out over an agreed period with beneficiaries. 	<ul style="list-style-type: none"> ❖ Progressive rehabilitation must be implemented if possible as mining progress. 	<ul style="list-style-type: none"> ❖ Any commitments made to I&AP'S will be attended to the relevant I&AP's satisfaction as agreed upon between the I&AP'S and the mine.
TOPOGRAPHY AND EROSION CONTROL		
<ul style="list-style-type: none"> ❖ The area will have contours constructed to prevent soil erosion. 	<ul style="list-style-type: none"> ❖ All slopes which may incur erosion will be profiled in such a way that a preferential down drain can be installed; ❖ Erosion control measures such as contour banks and cut off berms should be constructed, and soil vegetated in rehabilitated areas. On gentle slopes, water will be encouraged to flow off the rehabilitated surface as surface flow, as quickly as possible without causing erosion. 	<ul style="list-style-type: none"> ❖ Should it be noted that designs are not being followed, rehabilitation activities will cease, and corrective measures will be taken to ensure design specifications are achieved. Specialists will be consulted if necessary; ❖ Any erosion will also be addressed utilising contour berms, gabion structures if necessary or a specialist will be consulted if necessary. Any eroded soils will be lifted and returned to the affected area; ❖ Any deficiencies will be corrected by placing material in these areas as per the closure plan; ❖ Any compacted soils will be ripped or disked and re-vegetated with indigenous flora. Vegetation will then be monitored in these areas; ❖ All recommendations made by the specialists will be implemented where deemed appropriate; ❖ An alien invasive management program will be implemented for the control and eradication of alien invasive species on site. This plan will give preference to mechanical control methods. Any chemicals utilised will be used responsibly. Where required DWS will be

CLOSURE MANAGEMENT OBJECTIVES	SPECIFIC PERFORMANCE CRITERIA	ACTION REQUIRED
		consulted with regards to the use of certain chemicals.
ECOLOGY		
<ul style="list-style-type: none"> ❖ The rehabilitated area will be protected from surface disturbance to allow vegetation to establish and stabilise. 	<ul style="list-style-type: none"> ❖ Vegetation in rehabilitated areas will have equivalent values as surrounding natural ecosystems; ❖ The rehabilitated ecosystem will have equivalent functions and resilience as the target ecosystem; ❖ Soil properties will be appropriate to support the target ecosystem; ❖ The rehabilitated areas will provide appropriate habitat for fauna. 	<ul style="list-style-type: none"> ❖ Should it be noted that designs are not being followed, rehabilitation activities will be amended to ensure corrective measures will be taken to ensure design specifications are achieved. Specialists will be consulted if necessary; ❖ An alien invasive management programme will be implemented for the control and eradication of alien invasive species on site. This plan will give preference to mechanical control methods. Any chemicals utilised must be used responsibly.
LAND USE		
<ul style="list-style-type: none"> ❖ To ensure that rehabilitation is done to such an extent that land use potential is regained for agricultural use and associated zoning. 	<ul style="list-style-type: none"> ❖ Only after the levelled areas have been inspected and approved by the Mine Manager/Site Manager will topsoil be placed to a depth of 0.3 m. The topsoil layer must be as even as possible, i.e. it must be smooth, and the depth must remain consistent throughout; ❖ Once the topsoil has been replaced, vehicle movement will be restricted to prevent compaction of the topsoil; ❖ Rehabilitated areas will be vegetated within the same growing season (at the end of the rainy season). A suitable seedbed will be prepared to enhance the penetration and absorption of water, thereby giving the seed the best possible chance to germinate. The seeding depth should be very shallow to provide better germination. For most grass species seeding depth is approximately 5-15 mm; ❖ Rehabilitated areas will be re-vegetated with local indigenous flora as far as possible; and 	<ul style="list-style-type: none"> ❖ N/A

CLOSURE MANAGEMENT OBJECTIVES	SPECIFIC PERFORMANCE CRITERIA	ACTION REQUIRED
	❖ Once the seed mixture has been sown, the land must be rolled to ensure consolidation around the seeds and effective moisture retention.	

6.5 CLOSURE SCHEDULE

At this stage it is proposed that the rehabilitation of the mining area will take approximately twelve months to complete.

Control of weeds and alien invasive plant species is an important aspect after topsoil replacement and seeding has been completed in an area. Site management will implement an alien invasive plant management plan during the 12-month aftercare period to address germination of problem plants in the area. Final rehabilitation shall be completed within the period specified by the Regional Manager.

According to the MPRDA Section 43 (4) refers to the issues of a closure certificate and stipulates the following:

“Section 43(4) Issuing of a closure certificate -

(4) 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.

Table 8: Closure schedule.

CLOSURE SCHEDULE	
DECOMMISSIONING / CLOSURE ACTION	TIMEFRAME
QUARRY PIT AREA	
<p>Quarry Pit:</p> <ul style="list-style-type: none"> ❖ Blast an upper face to a gradient of 1:3 down to a depth of ±6 m below surface. ❖ Create a precision blasted face to a gradient of not steeper than 85° in 10 m high cliff sections. ❖ Create 8 m side bench levels between each 10 m cliff face down to the floor of the quarry (or as advised by the rock engineer). ❖ Ensure rehabilitated quarry area is not prone to erosion. ❖ Fence/wall the rehabilitated excavation to restrict unauthorised access. 	Week 1 – 25
VEHICLE YARD & SECURED STORAGE AREA & PROCESSING AREAS	

CLOSURE SCHEDULE	
DECOMMISSIONING / CLOSURE ACTION	TIMEFRAME
<p>Offices, Vehicle Yard and Storage Areas:</p> <ul style="list-style-type: none"> ❖ Clear the above areas of any/all contaminated soil (remove to a licenced waste disposal facility). ❖ Deal with all buildings, structures or objects on the vehicle maintenance yard and secured storage areas in accordance with Section 44 of the MPRDA. ❖ 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. ❖ Rip/plough the surface to a depth of at least 200 mm and spread the previously stockpiled topsoil evenly to its original depth over the whole area. ❖ Seed the area with a vegetation mix adapted to reflect the local grassy vegetation. 	Week 26 – 38
<p>Processing Areas:</p> <ul style="list-style-type: none"> ❖ Remove all remaining stockpiled material. ❖ Remove the processing plant. 	Week 39 – 44
<p>Supporting infrastructure:</p> <ul style="list-style-type: none"> ❖ Scarify the surface of the processing area (especially if compacted due to hauling and dumping operations) to a depth of at least 200 mm and grade the area to an even surface condition; ❖ Return the previously stored topsoil to its original depth over the area; ❖ Seed the area with a local indigenous seed mix. Avoid fertilisers as far as possible to prevent nutrient loading of the nearby drainage channel. 	Week 45 – 52
MAINTENANCE AND AFTER CARE	
<ul style="list-style-type: none"> ❖ Erosion Monitoring ❖ Weeds and Invader Plant Control 	12 months duration after final closure of the mining area

6.6 IMPLEMENTATION AND RESPONSIBILITY OF CLOSURE PLAN

Implementation of the closure plan is ultimately the responsibility of the mining right holder. Upon commencement of the closure phase daily compliance monitoring will be the responsibility of the site manager. The site manager will be responsible for ensuring compliance with the guidelines as stipulated in the EMPR as well as the prevention and/or rectification of environmental incidents. The applicant will appoint an

Environmental Control Officer to oversee compliance of the rehabilitation/closure activities.

6.6.1 Site Management Responsibility List

- ❖ Inspect area for erosion, pooling and/or compaction;
- ❖ Floral surveys need to be conducted to monitor cover abundance, plant succession and community structure;
- ❖ Monitor any ecologically sensitive species should it be observed on site.

6.6.2 Management of Information and Data

The Closure Plan must include a description of the management strategies, and all information and data relevant to mine closures. These records are valuable during all phases of mining to provide:

- ❖ A history of closure and implementation at the site;
- ❖ A history of past developments;
- ❖ Information for incorporation into state and national natural resource databases; and
- ❖ The potential for improved future land use planning and/or site development.

6.7 IDENTIFIED GAPS IN THE PLAN

The assumptions made in this plan, which relate to the closure objectives and associated impact on the receiving environment, stem from site specific information gathered by the project team. No gaps in the Rehabilitation, Decommissioning and Mine Closure Plan could be identified.

6.8 RELINQUISHMENT CRITERIA FOR CLOSURE ACTIVITIES

The specific rehabilitation outcomes against which the effectiveness of rehabilitation must be measured are:

- ❖ that the topography has been sufficiently rehabilitated without unsafe excavation edges;
- ❖ that topsoil has been spread on the surface;
- ❖ that there is a potential rooting depth of at least 30 cm, of non-compacted soil material, which is suitable for root growth, across the mining area;
- ❖ that there is no visible erosion across the area, or down-slope of it because of mining, and that no part of the area has been left unacceptably vulnerable to erosion;
- ❖ that a successful cover crop has been established across the area.

In addition to the above, the following relinquishment criteria are proposed for the closure activities of DASC Quarry.

Table 9: Relinquishment criteria for closure activities.

RELINQUISHMENT CRITERIA FOR CLOSURE ACTIVITIES			
CATEGORY	RELINQUISHMENT CRITERIA	INDICATORS	REPORTING REQUIREMENTS
Slope stability and safety	The site is safe for use by humans and animals for the foreseeable future.	Code of practice to combat rock fall and slope instability related accidents in surface mines.	Appropriate risk assessment undertaken, and control measures are in place that will continue to meet agreed requirements.
Decommissioning of all structures and haul roads	No visible man-made structures should remain. Haul roads should be removed and sloped to blend in with the natural landscape, if the landowner request it.	Close-out inspection by site management upon end of decommissioning phase.	Photographic evidence that infrastructure has been removed.
Soil erosion	Implementation of erosion control measures or the establishment of vegetation in denuded areas.	Engineered structures to control water flow	Proof in final closure report that required structures are in place and functional.
Vegetation	Seeding of a cover crop after topsoiling.	Biodiversity monitoring	Monitoring report
Invader plant management	Continuous management of invader plants until the establishment of the first cover crop.	Biodiversity monitoring	Monitoring report
Land Use	Land capability and productivity like that which existed prior to mining.	Land capability and productivity	Comparison to equivalent areas.

6.9 CLOSURE COST ESTIMATE

Financial provision (Regulation 54 of the MPRDA, 2002) is the amount needed for the rehabilitation of damage caused by the operation, both at sudden closure during the normal operation of the project and at final, planned closure. This amount reflects what it will cost the Department to rehabilitate the area disturbed in case of liquidation or abscondence. Financial provision for environmental rehabilitation and closure requirements of mining operations forms an integral part of the MPRDA. Section 41 of the MPRDA and Regulations 53 and 54 promulgated in terms of the MPRDA deal with financial provision for mine rehabilitation and closure.

Based on the extent of the current disturbance and by utilizing the Department of Mineral Resources and Energy guideline document for calculating financial provision the proposed dolerite mine needs to provide a financial provision value of R5 282 675.67 (calculated July 2025). Refer to Part B(1)(f)(i)(e) *Calculate and state the quantum of the financial provision required to manage and rehabilitate the environment in accordance with the applicable guideline* of the 2025 BAR & EMPR for an explanation as to how the financial provision amount was calculated.

6.10 MOTIVATION FOR AMENDMENTS MADE TO THE FINAL REHABILITATION, DECOMMISSIONING AND MINE CLOSURE PLAN

The Final Rehabilitation, Decommissioning and Mine Closure Plan of the DASC Quarry was amended to include the proposed expansion area and update the plan to comply with the latest rehabilitation objectives.

7. MONITORING, AUDITING AND REPORTING

In compliance with applicable legislation the mining right holder will conduct monitoring of the mining activities for the duration of the decommissioning phases. The compliance of the site will be audited, and reporting will be done to the relevant authorities. The table below stipulates the actions to be followed in this regard.

Table 10: Monitoring, auditing, and reporting requirements.

MONITORING, AUDITING AND REPORTING REQUIREMENTS			
AUDIT	RESPONSIBLE PERSON	FREQUENCY OF AUDIT	CLOSE OUT APPROACH
LEGISLATED AUDITING AND REPORTING			
Environmental Auditing	<u>Internal Review</u>		
	Site manager to ensure compliance with Environmental Authorization, Environmental Management Programme and Closure Plan.	Daily compliance monitoring.	Any non-conformance must immediately be addressed by site management and weekly reported on.
	<u>External Auditing</u>		
	Environmental Practitioner Assessment	Annual auditing and reporting to the Department of Mineral Resources and Energy	Depending on the significance of the findings site management has a maximum of four weeks to address and close out auditing results.
Financial Provision Review	Independent Consultant Competent	Annual review of the financial provision and reporting of the findings to the Department of Mineral Resources and Energy.	Should the review of the financial provision indicate a shortfall the holder of the right will increase the financial provision to meet the audited financial provision within 90 days from the date of approval received from DMRE.
Health and Safety Auditing	Health and Safety Manager	Monthly auditing of health and safety aspects on-site. Monthly reporting to the Mine Health and Safety division of the Department of Mineral Resources and Energy.	Depending on the significance of the findings site management has a maximum of 48 hours to address and close out auditing results.
MONITORING			

MONITORING, AUDITING AND REPORTING REQUIREMENTS			
AUDIT	RESPONSIBLE PERSON	FREQUENCY OF AUDIT	CLOSE OUT APPROACH
Blast Monitoring	Blaster	Monitoring done during each blasting event.	Should the study indicate results of concern, the blast design of the following blast needs to be adapted to prevent a reoccurrence. Any damage that results because of the blast needs to be repaired or compensated for by the mining right holder.
Fallout Dust Monitoring	Dust Monitoring Consultant	Monthly Fallout Dust Monitoring	Site management has a maximum of two weeks to develop and implement a dust management plan.
Invader Plant Monitoring	Independent Consultant	Annual Monitoring	Site management has a maximum of two weeks to review and implement the invader plant control plan should Category 1a & b plants in terms of the National Environmental Management: Biodiversity Act, 2004 (Act 15 of 1973) and the Alien and Invasive Species Regulations, 2014 (amended 2016) germinate on-site.
Noise Monitoring	Occupational Hygienist	Quarterly Noise Monitoring	Site management has a maximum of one week to designate additional noise zones where applicable. Hearing protection equipment must always be available to employees.

7.1 Schedule of reporting requirements

The following table stipulates the reporting requirements and how document updating will be handled.

Table 11: Reporting requirements.

REPORTING REQUIREMENTS			
AUDIT	LEGISLATION	REPORTING REQUIREMENTS	UPDATE DISCLOSURE
Environmental Auditing	NEMA; EIA Regulations, 2014 (as amended)	Reporting on the environmental compliance of the mining area will be in accordance with Regulation 34 of the NEMA EIA Regulations, 2014 (as amended). The environmental audit report will contain the information set out in Appendix 7 of the said Regulation.	The environmental audit report will indicate the ability of the EMPR and Closure Plan to adequately manage the activity. Should the reports not be sufficient, amendment will be proposed.
Financial Provision Review	NEMA Amendment Act, 2014 (Act No 25 of 2014) Financial Provision Regulations, 2015 (as amended)	Reporting on the financial provision for closure of the mining area will be in accordance with Section 24P of the NEMA Amendment Act, 2014 (Act No 25 of 2014) read with the Financial Provision Regulations 2015 (as amended).	The auditor will annually report on the adequacy of the financial provision and any adjustments that need to be made to the financial provision.
Health and Safety Auditing	Occupational Health and Safety Act, 1993 Mine Health and Safety Act, 1996	Reporting on the health and safety compliance of the mining area will be in accordance with the Mine Health and Safety Act, 1996.	The safety manager will annually update the Code of Practices applicable to the site.

7.1.1 Monitoring Plan and Compliance Assessment

The following list presents the monitoring programmes to be implemented on site for the duration of the decommissioning phase:

Table 12: Monitoring plan and compliance assessment.

MONITORING PROGRAMMES	
MONITORING UNIT	FREQUENCY
DUST MONITORING	
<p>Fallout Dust Monitoring:</p> <p>Fallout dust monitoring is an effective method to identify priority control areas that result in excessive dust emissions. Fallout dust, also known as precipitating dust, is monitored to identify the fine dust particles that are liberated and can travel from the site to another location.</p>	Monthly until final closure of the site

MONITORING PROGRAMMES	
MONITORING UNIT	FREQUENCY
<p>The site already has 4 fallout dust units in place that will be used to monitor the dust levels during the decommissioning phase. The dust units are emptied monthly, and the collected matter weighed to determine the dustfall rate averaged over 30 days.</p>	
<p>Gravimetric Dust Monitoring:</p> <p>Gravimetric sampling of dust is the internationally acceptable method to determine respirable dust concentrations of a site. This monitoring is implemented to determine the level of exposure employees are subjected to during each shift as prolonged exposure to atmospheric dust can give rise to several lung disorders or diseases. Personal and/or static monitoring is done by a qualified Occupational Hygienist in accordance with the guidelines for gravimetric sampling published under the auspices of the Department of Mineral Resources and Energy – Guidelines for the Compilation of a Mandatory Code of Practice – No. 1 Personal Exposure to Airborne Pollutants.</p>	<p>Quarterly until final closure of the site</p>
NOISE MONITORING	
<p>Personal Noise Monitoring:</p> <p>Personal noise exposure monitoring is done to determine the noise levels employees are exposed to during an eight-hour shift. Excessive noise exposure can lead to hearing loss and therefore continuous monitoring and demarcation of noise zones are of the utmost importance. This monitoring is conducted by a qualified Occupational Hygienist who must submit his findings on Form 21.9(2)(e) prescribed by the Department of Mineral Resources and Energy in terms of the National Environmental Management: Air Quality Act, 2004 (Act No 39. of 2004).</p>	<p>Quarterly until final closure of the site</p>
SOIL EROSION MONITORING	
<p>Soil Erosion:</p> <p>The definition for erosion is defined in the Conservation of Agricultural Resources Act, 1983 (Act No 43 of 1983) as the loss of soil through the action of water, wind, or other agents including the subsidence of soil. Soil erosion monitoring must be implemented by site management to prevent the loss of exposed soil because of the mining activities. If the replaced topsoil stay exposed, it is especially vulnerable to soil erosion. It is therefore proposed that a cover crop be planted if vegetation does not establish within the first six months of topsoil spreading.</p>	<p>Weekly monitoring for the first 6 months or until the first cover crop has established</p>
WEEDS AND INVADER PLANT MONITORING	

MONITORING PROGRAMMES	
MONITORING UNIT	FREQUENCY
<p><i>Management of Weed or Invader Plants:</i></p> <p>All species listed in terms of the Alien and Invader Species (AIS) regulations published in terms of section 97(1) of NEM:BA as amended 2016, are deemed to be declared invasive species, and should be managed accordingly. When identifying weeds that need to be eradicated from the site the plants listed in the AIS regulations are used as guideline. Control of weeds and alien invasive plant species is an important aspect after topsoil replacement and seeding has been done in an area. Site management must implement an alien invasive plant management plan during the 12-months aftercare period to address germination of problem plants in the area.</p>	<p>Monthly monitoring for the duration of the decommissioning phase.</p>
STORM WATER MONITORING	
<p><i>Storm Water Monitoring:</i></p> <p>The risk of erosion or loss of topsoil due to uncontrolled storm water flowing through the decommissioning area can be reduced through proper monitoring and implementation of effective storm water infrastructure. Monitoring needs to continue during the 12 months aftercare period.</p>	<p>Monthly monitoring for the duration of the decommissioning phase.</p>
HEALTH AND SAFETY MONITORING	
<p><i>Management of Health and Safety Risks</i></p> <p>All operations must comply with the Occupational Health and Safety Act, 1993 (Act No 85 of 1993) as well as the Mine Health and Safety Act, 1996 (Act No 29 of 1996).</p>	<p>Daily monitoring for the duration of the decommissioning phase.</p>

8. ENVIRONMENTAL RISK ASSESSMENT REPORT

The objective of the environmental risk assessment report is to:

- a) ensure timeous risk reduction through appropriate interventions;
- b) identify and quantify the potential latent environmental risks related to post closure;
- c) detail the approach to managing the risks;
- d) quantify the potential liabilities associated with the management of the risks; and
- e) outline monitoring, auditing, and reporting requirements.

(Financial Provision Regulations, 2015 Appendix 4)

8.1 ASSESSMENT PROCESS USED TO IDENTIFY AND QUANTIFY LATENT RISKS

8.1.1 Methodology

The methodology for the assessment of the potential latent risks entailed the use of the following:

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 risk.
- ❖ 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 risk magnitude and risk significance. Risk magnitude is the measurable change (i.e. intensity, duration and likelihood). Risk significance is the value placed on the change by different affected parties (i.e. level of acceptability)

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 following Table will be used to obtain an overall rating for severity, taking into consideration the various criteria.

Table 13: Rating of severity used in the assessment of potential latent risks.

Type of criteria	Rating				
	1	2	3	4	5
Quantitative	0-20%	21-40%	41-60%	61-80%	81-100%
Qualitative	Insignificant / Non-harmful	Small / Potentially harmful	Significant/ Harmful	Great/ Very harmful	Disastrous / Extremely harmful
Social/ Community response	Acceptable / I&AP satisfied	Slightly tolerable / Possible objections	Intolerable/ Sporadic complaints	Unacceptable / Widespread complaints	Totally unacceptable / Possible legal action
Irreversibility	Very low cost to mitigate/ High potential to mitigate impacts to level of insignificance/ Easily reversible	Low cost to mitigate	Substantial cost to mitigate/ Potential to mitigate impacts/ Potential to reverse impact	High cost to mitigate	Prohibitive cost to mitigate/ Little or no mechanism to mitigate impact. Irreversible
Biophysical (Air quality, water quantity and quality, waste production, fauna and flora)	Insignificant change / deterioration or disturbance	Moderate change / deterioration or disturbance	Significant change / deterioration or disturbance	Very significant change / deterioration or disturbance	Disastrous change / deterioration or disturbance

Determination of Duration

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

Table 14: Rating of duration used in the assessment of potential latent risks.

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 15: Rating of extent / spatial scale used in the assessment of potential latent risks.

RATING	DESCRIPTION
1	Immediate, fully contained area
2	Surrounding area
3	Within Business Unit area of responsibility
4	Within the farm/neighboring 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 16: Example of calculating overall consequence in the assessment of potential latent risks.

CONSEQUENCE	RATING
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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 17: Rating of frequency used in the assessment of potential latent risks.

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 18: Rating of probability used in the assessment of potential latent risks.

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 19: Example of calculating overall likelihood in the assessment of potential latent risks.

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 significance of the risk, which is a number that will then fall into a range of **Insignificant risk**, **Uncertain risk** or **Significant Risk**, as shown in the table below.

Determination of Overall Environmental Significance

Table 20: Determination of overall environmental significance in the assessment of potential latent risks.

SIGNIFICANCE OR RISK	INSIGNIFICANT RISK (CC)	UNCERTAIN RISK (BB)	POTENTIAL SIGNIFICANT RISK (AA)
Overall Consequence X Overall Likelihood	1 - 4.9	5 - 9.9	10 – 19.9

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 21: Description of environmental significance and related action required in the assessment of potential latent risks.

SIGNIFICANCE	AN INSIGNIFICANT RISK (CC)	UNCERTAIN RISK (BB)	A POTENTIAL SIGNIFICANT RISK (AA)
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 substantial in relation to other impacts. Pose a risk to the company. Unacceptable
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	Improve management measures to reduce risk.

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

A potential Risk (aa) Risks of a substantial order. Mitigation and / or remedial activity would be feasible but difficult, expensive, time-consuming or some combination of these.

An uncertain risk (bb) Risk would be negligible. Almost no mitigation and or remedial activity would be needed, and any minor steps, which might be needed, would be easy, cheap and simple.

An insignificant risk (cc) There would be very small to no risk.

8.1.2 Description of Latent Risks

At this stage no latent risks that will potentially arise during closure phase of the mining area were identified.

8.1.3 Results and Finding of Risk Assessment

Not applicable as no latent risks were identified.

8.1.4 Changes to the Risk Assessment Results

N/A

8.2 MANAGEMENT ACTIVITIES

No additional management activities are necessary as no latent risks were identified.

8.3 COST ESTIMATE

Not applicable as no latent risks were identified.

8.4 MONITORING, AUDITING AND REPORTING REQUIREMENTS


By reason of the fact that no latent risks regarding the management of the quarry were identified no additional monitoring, auditing or reporting requirements are required at this stage.

9. CONCLUSION

This Closure Plan needs to be followed together with the EMPR and its amendments when it is decided that the end of mining has been reached. This document gives the necessary information when planning the rehabilitation of the mine together with the cost associated with the rehabilitation.

De Aar Stone Crushers Empower (Pty) Ltd commits itself to providing all the necessary resources to ensure that the rehabilitation of the mine is done in such a way that will be acceptable to all parties involved.

10. SIGNATURE OF AUTHOR

NAME	SIGNATURE	DATE
Zoë Norval		28 July 2025

11. UNDERTAKING BY RIGHT HOLDER

I, Jon Sauer Lambrechts....., the undersigned and duly authorised thereto byDe Aar Stone Crushers Empower (Pty) Ltd..... undertake that De Aar Stone Crushers Empower (Pty) Ltd will comply with the provisions of the MPRDA and its Regulations as set out in Government Gazette no. 26275 (23 April 2004), as well as NEMA.

I have studied and understand the contents of this document and duly undertake to adhere to the conditions as set out therein, unless specifically or otherwise agreed to in writing.

Signed at De Aar..... on this 30 day of July.....2025.....

JS LAMBRECHTS

Name: Jon Sauer Lambrechts

Designation:
member

12. REFERENCES

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- ❖ Department of Water Affairs and Forestry (DWAF) (2007b) Best Practice Guideline A4: Pollution control dams. The Government Printer, Pretoria