THABA STONE QUARRY

PORTION 2 AND THE REMAINING EXTENT OF THE FARM UITKOMST NO 558, THABA 'NCHU DISTRICT, FREE STATE PROVINCE

CLOSURE PLAN

DEPARTMENTAL REFERENCE NUMBER:

FS 30/5/1/2/2/195 MR

MAY 2025

PREPARED FOR:

Thaba Stone (Pty) Ltd
P.O. Box 25428
Langenhoven Park
Bloemfontein
9330
Contact Person: Mr E Agresti
Tel: 083 639 6749
E-mail: enzo@ngcgroup.co.za

PREPARED BY:

Greenmined Environmental (Pty) Ltd
Unit MO1, No 107 AECI Site
Baker Square, Paardevlei
De Beers Avenue
Somerset West
7130
Contact Person: Ms C Fouché
Tel: 021 851 2673
Cell: 082 811 8514
E-mail: Christine.f@greenmined.co.za

EXECUTIVE SUMMARY

Greenmined Environmental (Pty) Ltd is the consultants responsible for the EMPR amendment application, and considering this, an Annual- and Final Rehabilitation, Decommissioning and Mine Closure Plan (*in aliis verbis* Closure Plan) was accordingly drafted in support of the said EMPR.

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, November 2015 (GN 1228, Financial Provision Regulations 2015 (as amended). The amendment of the closure plan entails a review of 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

The MR Holder will annually report on the planned annual rehabilitation actions.

Rehabilitation, Decommissioning and Mine Closure Plan

The decommissioning phase will entail the reinstatement of the processing area by removing the stockpiled material, site infrastructure/equipment no longer needed by the landowner and landscaping the disturbed footprints. Due to the impracticality of importing large volumes of fill to restore the excavations to its original topography, the rehabilitation option is to develop the quarry and borrow pits into landscape features. This will entail creating a series of irregular benches along the quarry faces, the top edges of each face being blasted away to form scree slopes on the benches below, thereby reducing the overall face angle. The perimeters of the borrow pits will be sloped to an acceptable angle. The benches and borrow pit perimeters will be top-dressed with topsoil and vegetated with an appropriate grass mix if vegetation does not naturally establish in the area within six months of the replacement of the topsoil.

Environmental Risk Assessment Report

The floor of the quarry may reveal fluctuating water levels after rehabilitation. Considering this, it is important to adequately block access to the excavation (soil berm / oversize rock in entrance) to prevent unauthorized access to humans (especially children) and domestic animals upon closure of the mine.

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 levelled, covered with topsoil, fertilized, 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

CoM	Chamber of Mines
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)
MR Holder	Thaba Stone (Pty) Ltd
NWA	National Water Act, 1998 (Act No. 36 of 1998)
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEM:AQA	National Environmental Management Air Quality Act, 2004 (Act No 39 of 2004)
NEM:BA	National Environmental Management Biodiversity Act, 2004 (Act No 10 of 2004)
NEM:WA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
SAMREC	South African Mineral Resource Committee
WCMR	Waste Classification and Management Regulations
WWF	World Wildlife Fund

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1. INTRODUCTION

Thaba Stone (Pty) Ltd holds a mining right (DMRE Ref No: FS 30/5/1/2/2/195 MR) to mine aggregate from an 80.9896 ha area that extends over Portion 2 and the Remaining Extent of the farm Uitkomst No 558 in the Thaba 'Nchu District of the Free State. The mining right is valid until 19 May 2040 upon which it can be renewed.

The 2008 EMPR for Thaba Stone Quarry predates the NEMA EIA Regulations, 2014 (as amended) and does not fully comply with Appendix 4 of GNR 982. Thaba Stone Quarry has since made various changes and/or improvements on site, and the 2024 environmental performance assessment / environmental audit report (EPA) therefore recommended that the environmental management programme (EMPR) should be amended/updated to adequately manage and/or mitigate the environmental impacts associated with the activity as well as ensure compliance with the requirements of Appendix 4 of GNR 982 (as amended).

Greenmined Environmental (Pty) Ltd ("Greenmined") is the consultants responsible for the amendment of the EMPR, and considering this, an Annual- and Final Rehabilitation, Decommissioning and Mine Closure Plan (*in aliis verbis* Closure Plan) was accordingly drafted to accompany the EMPR amendment. This report (the Closure Plan) stipulates the rehabilitation methods to be followed in the restoration of the earmarked mining footprint. 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, November 2015 (GN 1228), Financial Provision Regulations 2015 (as amended).

1.1 PROJECT DESCRIPTION

Thaba Stone Quarry mines material from the hard rock quarry in the north-western corner of the mining area, as well as weathered dolerite from the borrow pit in the south-eastern corner (see following figure). The aggregate produced at the quarry is mainly sold to the road construction, building, and ready-mix industries.

The Quarry periodically operates 24-hours, 7-days a week especially when material is needed for road related projects. Blasting is only done on weekdays between 08:00 and 17:00. The day time shift entails the following main activities:

- Drilling and blasting;
- Excavations, loading and hauling material to the processing plant;
- Crushing, screening and stockpiling of material;
- Dispatch; and
- Maintenance and cleaning of the plant.

During the night shift activities are limited to the following:

- Excavations, loading and hauling of material to the processing plant; and
- Crushing, screening and stockpiling of material.

Also refer to *4.3 Operational Phase* for a more comprehensive description of the mine operations.

1.2 OBJECTIVE OF THE CLOSURE PLAN

The purpose of the Closure Plan is to describe the rehabilitation processes that need to take place to ensure that 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

Thaba Stone (Pty) Ltd appointed Greenmined Environmental (Pty) Ltd to prepare the annual rehabilitation plan. Ms. Christine Fouché is the responsible consultant for the project and holds a Diploma in Nature Conservation and a B.Sc. in Botany and Zoology (Full CV is attached as Appendix G of the Amended EMPR).

Name of the Practitioner: Ms Christine Fouché (Senior Environmental Specialist)
Tel No: 021 851 2673
Cell No: 082 811 8514
E-mail address: christine.f@greenmined.co.za

Declaration of Independence:

I, Christine Fouché, in my capacity as environmental assessment practitioner declare that–

- I act as independent environmental officer in this matter;
- I will perform the work relating to this matter 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 related projects, 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 (as amended).

Christine Fouché Date: 27 May 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.

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 1: Summary of the relevant rehabilitation sections of the MPRDA, 2002

AREA OF CONCERN	SECTION	LEGAL REQUIREMENTS
Environmental Management	Section 37	*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.*
	Section 38	*Requires the applicant to manage all environmental impacts in accordance with his or her environmental management plan (EMP) or the approved EMPR.*
	Section 39	*Deals with the requirements of an EMP/EMPR, whichever is applicable.*
Financial Provision	Section 41	*Financial provision needs to be provided and annually assess the environmental liability.*
Closure Certificate	Section 43	*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.*
Removal of Infrastructure	Section 44	*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.*

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 2: 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)	*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.*
Mine Closure	Regulation 43	*A closure plan contemplated in Section 43(3)(d) of the Act, forms part of the EMPR or EMP and must include – a summary of the results of progressive rehabilitation undertaken.*
Part III of R 527 deals with environmental regulations for mineral development, petroleum exploration and production.	Regulation 56	*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.*

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 3: NWA, 1998 applicable sections

AREA OF CONCERN	SECTION	LEGAL REQUIREMENTS
Prevention and remedying effects of pollution.	Section 19	*Any situation exists 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.*
Control of emergency incidents.	Section 20	*Incidences of pollution needs to be reported the Department and the relevant catchment agency*
General principles: Water uses	Section 21	*An application in this regard is pending with the DWS.*

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 4: NEMA, 1998 applicable sections

AREA OF CONCERN	SECTION	LEGAL REQUIREMENTS
Principles that may significantly affect the environment.	Section 28	*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.*
Control of emergency incidents.	Section 30	*Incidences of pollution needs to be reported the Department.*
Environmental Management Plan.	Section 34	*A draft EMP must include –*

AREA OF CONCERN	SECTION	LEGAL REQUIREMENTS
		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 – *(iv) rehabilitation of the environment;* *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.*

3.4.1 Regulation 1228 of NEMA, 1998

NEMA, GNR 1228 GG 41236, known as the NEMA Financial Provision Regulations, 2015 (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 19 September 2023.

As mentioned earlier the MR 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. 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 brining 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

Recently 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 PROJECT LOCATION

Table 5: Location of the activity.

Farm Name	Portion 2 and the Remaining Extent of the farm Uitkomst No 558
Mining Area (Ha)	80.9896 ha
Magisterial District	Thaba 'Nchu District Mangaung Metropolitan Municipality
Distance and direction from the nearest town	Thaba Stone Quarry is located ±2.5 km east of Thaba 'Nchu and ±18 km west of Tweespruit. Access to the quarry is directly of the N8 that passes the site to the south.
21 digit Surveyor General Code for each farm portion	F03200000000055800000 F03200000000055800002

Site Coordinates	A1 29°12’54.36” S	26°52’21.28” E
	B1 29°13’18.75” S	26°52’57.21” E
	A 29°13’26.93” S	26°53’09.21” E
	F1 29°13’31.84” S	26°53’07.89” E
	C1 29°13’28.00” S	26°52’54.22” E
	D1 29°13’26.02” S	26°52’45.28” E
	G1 29°13’25.09” S	26°52’42.44” E
	H1 29°13’38.93” S	26°52’35.80” E
	I1 29°13’35.77” S	26°52’23.55” E
	J1 29°13’20.05” S	26°52’31.15” E
	E1 29°13’12.15” S	26°52’13.11” E

Figure 1: Satellite view of the layout of the Thaba Stone Quarry (image obtained from Google Earth).

4.2 SITE ESTABLISHMENT PHASE

Thaba Stone Quarry has been in continuous operation since the granting of its Mining Right in 2012. As such, the site has already undergone full establishment in accordance with the applicable regulatory requirements. Consequently, the site establishment phase is no longer applicable to this operation.

4.3 OPERATIONAL PHASE

As mentioned earlier, Thaba Stone Quarry mines material from the hard rock quarry in the north-western corner of the mining area, as well as weathered dolerite from the borrow pit in the south-eastern corner.

4.3.1 Hard Rock Quarry

The MR Holder implements the opencast mining method where the topsoil (if any) is stripped and stockpiled separately before the excavation is expanded. Rock breaking is done initially by drilling and blasting using crawler mounted rigs and emulsion type bulk explosives. The broken rock is sorted and loaded onto articulated dump trucks that haul the material to the primary crushing plant, where various products are further conveyed to secondary-, tertiary- and quaternary crushing and screening processes to result in the desired products. The material is stockpiled until transported to clients.

4.3.2 Borrow Pit

Gravel and weathered dolerite is removed with earthmoving equipment, loaded onto trucks and transported to the stockpile area from where it is sold to clients. No blasting is needed at the borrow pit.

4.3.3 Ready-Mix Plant

In addition to the mining of aggregate by the MR Holder, a third-party operator runs a ready-mix plant located behind the site offices within the mining footprint. The plant acquires aggregate from the mine to manufacture ready-mix concrete that is sold and transported to clients.

4.3.4 Historic Excavations

The area south of the hard rock quarry (Historic Excavation 1 in Figure 1) was excavated in the past, however, is presently used for the stockpiling of materials.

Another historic excavation (Historic Excavation 2 in Figure 1) is present in the southern corner of the mining area where mining ceased due to the pits proximity to the nearby power line (±10 m). The pit is used as spoil site for inert material in an attempt to reinstate the excavation and level/slope the disturbance.

4.3.5 Site Infrastructure

Thaba Stone Quarry has well established buildings and infrastructure on site, albeit compact and specialised. The following main areas are defined at the mine as indicated in the following figure:

1. Historic Excavation 1 used as Stockpile Area;
2. Parking Area;
3. Workshop and Storage Areas;
4. Stockpile Area;
5. Stockpile Area;
6. Office Building and Weigh Bridge;
7. Ready-Mix Plant;
8. Access and Internal Gravel Roads.

Figure 2: Satellite view of the various operational areas at Thaba Stone Quarry (image obtained from Google Earth).

The larger mining footprint is fenced while the hard rock excavation is defined by perimeter soil berms. Access to the mine is possible from the N8 National Road passing the mine to the south.

The crushing plant indicated on the above Google Earth image has since the satellite image was taken been demolished and removed from site. The mining contractor of the MR Holder will henceforth use mobile crushers that will crush and screen the mined material inside the quarry pit.

4.3.6 Water Use

The potable water of the Quarry is bought and transported to site, while process water is extracted from the sump in the quarry pit. Presently (2025) the site does not wash any material, and water is therefore mainly used for dust suppression at the mine. The mine does not extract water from any of the boreholes or farm dams.

4.3.7 Electricity Use

Gensets and solar panels are used to power the mining infrastructure.

4.3.8 Servicing and Maintenance

A workshop was established on site (Figure 2) where minor servicing and emergency repairs of project related equipment/machinery takes place. Fuel is stored in a 23 000 l tank with build in drip tray. As mentioned earlier a genset powers the infrastructure. Chemicals are stored in the designated storage containers in accordance with the product specific material safety data sheets.

4.3.9 Waste Management

The mine generates limited amounts of general- and hazardous waste. The MR 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, and those that must be removed from the site. General waste (that cannot be reused on site) is removed to the Thaba ‘Nchu landfill site. Hazardous waste is removed from site by qualified hazardous waste handling contractors.

The ablutions of the mine drains into a closed-system septic tank that is serviced by a registered liquid waste removal service provider when needed.

4.3.10 Labour Component

Presently (May 2025), Thaba Stone Quarry has a permanent labour component of only two employees. Sub-contractors are periodically employed for contract crushing/mining, who then bring their own personnel. The permanent employees of Thaba Stone were hired from the surrounding community and are daily transported to site. No employees (permanent and/or sub-contractor) reside on site.

4.4 TOPOGRAPHY

The greater area is characterized by an undulating topography, with the Thaba 'Nchu Mountain to the south of the property. Historic mining impacted the topography of the farm even before 2008. The topography of the farm is relatively flat with an increase in elevation towards the north-western corner where the hard rock quarry is located.

Also refer to Section F of the Amended EMPR.

4.5 VISUAL CHARACTERISTICS

The visual character of the surrounding areas resemble that of a rural area and mainly comprises of open grassland used for grazing. The N8 National Road, travelling between Bloemfontein (west) and Tweespruit (east), passes the mining area to the south, and the western part of the farm Uitkomst use to border onto the Thaba 'Nchu golf course. The remaining areas are surrounded by commercial farms.

The hard rock quarry, mining related buildings, and processing infrastructure are visible from the N8 road, but the borrow pits (current and historic) are screened from public view. Thaba Stone Quarry has been operational for the past 13 years, with mining on the farm Uitkomst dating back even further. The mining related impact on the visual features of the area has therefore become part of the landscape and *status quo*.

4.6 AIR QUALITY AND NOISE AMBIANCE

The background air quality and noise ambiance of the surrounding area is relatively good due to low industrial activity in the immediate area. The town of Thaba 'Nchu, bordering the property to the west, has an impact on the natural air quality through especially emissions caused by cooking/heating fires. Other factors contributing to air pollution stem from periodic veld fires and vehicle emissions along the N8 that also affects the noise levels of the area.

Thaba Stone Quarry has been contributing to the air quality and noise ambiance of the area through the following:

- Dust generated by mining related vehicles on unsurfaced roads;
- Dust generated during topsoil and overburden removal and the loading of material onto trucks and tipping into the plant;
- Blasting at the hard rock quarry;
- Crushing and screening at the processing area;
- Transport of material from the mine.

The nearest receptor to the mine is the landowner who stays ±800 m south-east of the nearest stockpile area and ±970 m from the hard rock quarry. The landowner supports the Quarry operations, and no air or noise related complaints were raised to date.

4.7 GEOLOGY

The geology of the area is characterised by sedimentary mudstones and sandstone mainly of the Adelaide Subgroup (Beaufort Group, Karoo Supergroup), giving rise to vertic, melanic and red soils (typical forms are Arcadia, Bonheim, Kroonstad, Valsrivier and Rensburg). The area is typical of the Dc land type (dominating the landscape). The less common intrusive dolerites of the Jurassic Karoo Dolerite Suite support dry clayey soils typical of the Ea land type.

The hard rock quarry continues to mine material from one of the intrusive dolerite dykes of the farm, while weathered dolerite is mined at the borrow pits.

4.8 HYDROLOGY

The mining area is situated in the upper catchment of the Koranaspruit within the Riet-Modder sub-water management area that forms part of the Upper Orange Water Management Area (ID 12). There are no surface water resources (such as dams, streams and/or rivers) within the mining footprint. Water accumulates in the sump of the hard rock quarry from where it is extracted and used for dust suppression purposes on the mine. No boreholes occur within the mining footprint, nor does the mining operations make use of groundwater.

4.9 TERRESTRIAL BIODIVERSITY AND GROUNDCOVER

According to Mucina and Rutherford (2012) the natural vegetation type of the study area is classified as the Central Free State Grassland (Gh 6). The vegetation and landscape features of the Central Free State Grassland (Gh 6) vegetation type is characterised by undulating plains supporting short grassland, in natural condition dominated by *Themeda triandra* while *Eragrostis curvula* and *E. chloromelas* become dominant in degraded habitats. Dwarf karoo bushes establish in severely degraded clayey bottomlands. Overgrazed and trampled low-lying areas with heavy clayey soils are prone to *Vachellia karroo* encroachment (Mucina & Rutherford, 2012).

The vegetation type is classified as Vulnerable and according to Mucina and Rutherford (2012) only small portions have statutory conservation status (Willem Pretorius, Rustfontein

and Koppies Dam Nature Reserves) as well as some protection in private nature reserve. A conservation target of 24% was set for the vegetation type.

Expansion of the hard rock quarry and/or borrow pit does periodically require the removal of the natural vegetation cover. No endangered and or protected plant species has thus far been identified within the mining footprint that needs special protection and/or management practices. The MR Holder removes the vegetation cover with the topsoil (where available) that is stockpiled separately to be used during the rehabilitation phase.

Also refer to Section F of the Amended EMPR.

4.10 CULTURAL AND HERITAGE ENVIRONMENT

The 2008 EMPR records that, during the mining right application process, it was confirmed that no graves or items of archaeological or cultural significance are present within the mining footprint. Furthermore, no artefacts or areas of archaeological or palaeontological concern have been identified during the past 13 years of mining operations.

4.11 LAND USE

The farm Uitkomst No 558 is mainly used for livestock grazing in combination with the mining activities on the property. The carrying capacity in the area is 6 ha per large stock unit. As mentioned earlier, the surrounding farms are also used for commercial purposes with Thaba 'Nchu bordering the farm Uitkomst No 558 to the west. Bodulo Lodge was established ±350 m east of the furthest corner of the mining area.

Also refer to Section F of the Amended EMPR.

5. ANNUAL REHABILITATION PLAN

Appendix 3 to the Financial Provision Regulations, 2015 states that the objectives of the annual rehabilitation plan are 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 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 OF 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 timeous submission of the subsequent annual review.

5.2 MONITORING RESULTS

5.2.1 Control of Invasive Alien Vegetation

The MR Holder continuously monitors the mining footprint for alien invasive plant species in accordance with the Invader Plant Species Management Plan of the site (Appendix E of the Amended EMPR). The most common invader plant species that occur in the disturbed areas include (but not limited to) the following:

ꕥ *Argemone mexicana*	Mexican Poppy	NEM:BA Category 1b
ꕥ *Cirsium vulgare*	Scotch Thistle	NEM:BA Category 1b
ꕥ *Datura stramonium*	Common Thorn Apple	NEM:BA Category 1b
ꕥ *Nicotiana glauca*	Wild Tobacco	NEM:BA Category 1b
ꕥ *Xanthium spinosum*	Spiny Cocklebur	NEM:BA Category 1b

The monitoring and management of invader plant species will continue throughout the operational-, and decommissioning phases of the project.

5.2.2 Noise Monitoring

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

Silencers are fitted to all project related vehicles, and the vehicles are kept in road worthy condition as stipulated in terms of the National Road Traffic Act, 1996. Noise mufflers are fitted to generators (where applicable), and the type, duration and timing of each blast is planned with due cognizance of other land users in the vicinity.

5.2.3 Dust Monitoring

The above mentioned occupational hygienist also reports on the gravimetric dust levels of the site. 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 are controlled through the management processes stipulated in the EMPR.

5.2.4 Waste Monitoring

Site management is 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, is contained in refuse bins with lids that are accessible throughout the operational areas. When the bins reach capacity, the waste is transported to the Thaba ‘Nchu landfill site.

The ablutions of the mine drains into a closed-system septic tank that is serviced by a registered liquid waste removal service provider when needed. Hazardous waste is contained in dedicated bins/drums and removed from site by qualified hazardous waste handling contractors.

5.3 SHORTCOMINGS IDENTIFIED

Currently, no shortcomings were identified that require amendment of the Annual Rehabilitation Plan in terms of the Financial Provision Regulations, 2015 to be submitted to DMRE for approval. Site management must take note that rehabilitated areas must be

managed as no-go areas to allow the re-establishment of the cover crop. Rehabilitation is only deemed successful once the cover crop is well established.

5.4 REHABILITATION ACTIVITIES FOR THE FORTHCOMING 12 MONTHS

Since 2022, progressive rehabilitation has not been undertaken by the MR Holder, as mining activities intensified from early 2024 and the quarry pit was subsequently expanded. The historic borrow pit located to the south of the mining area is currently being utilised as a spoil site for the deposition of unwanted material. Once the backfilling is complete, the material will be covered with topsoil and the area will be re-vegetated. Backfilling operations are expected to continue over the next 12 months.

The progress of rehabilitation activities will be documented and reported as part of the annual review of the financial provision and closure plan, in accordance with applicable legislative requirements.

5.5 REVIEW OF THE PREVIOUS YEAR'S REHABILITATION ACTIONS

Presently there are no rehabilitation actions that can be reviewed as the MR Holder did not do progressive rehabilitation since 2022 due to the footprint of the quarry pit being extended.

5.6 COSTING

As no progressive rehabilitation was identified for the forthcoming 12-month period no costs are applicable.

6. REHABILITATION, DECOMMISSIONING AND MINE CLOSURE PLAN

The objective of the final rehabilitation, decommissioning and mine closure plan (according to the 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 (as described above);
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; 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 as 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 the mine is to restore the natural vegetation (where possible) and allow the continued use of the surrounding area for livestock grazing. In this context, the primary objectives for the closure of the mining operations are:

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

6.1 CLOSURE STRATEGY GUIDED BY THE ENVIRONMENTAL RISK ASSESSMENT

The overall objective of the closure plan is to minimize adverse environmental impacts associated with the mining activity whilst maximising the future utilisation of the property. The idea, therefore, is to leave the mined areas in a condition that reduces all negative impacts associated with the activity. Significant aspects to be borne in mind in this regard is visibility of the mining scar, re-vegetation of the mining footprint, stability, and environmental risk in an old mine environment. The rehabilitated and immediate surroundings must also be free of weeds and alien vegetation.

The rehabilitation procedures was formulated to optimise the extraction of the raw material while creating stable quarry sides and borrow pits that will not present an unreasonable safety risk once the mine was closured. 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- and borrow pits will also 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. All temporary infrastructure/equipment will be dissembled, and all other infrastructural development such as haulage roads and stockpile areas will be rehabilitated.

6.2 DESIGN PRINCIPLES

6.2.1 Excavations

Upon closure of the mine, the Applicant will contract the expertise of a rock engineer to guide the final design of especially the hard rock quarry. The rock engineer will be directed by the following:

- The quarry pit must be developed into a landscape feature, by creating a series of irregular benches along the quarry faces. The top edges of each face being blasted away to form scree slopes on the benches below, thereby reducing the overall face angle (<85˚).
- Presently, it is proposed that the benches must be ±12 m high x 3 m wide. However, site management must be directed by the rock engineer regarding the final layout of the benches.

- The benches of the hard rock quarry must be top-dressed with topsoil and vegetated with an appropriate grass mix if vegetation does not naturally establish in the area within six months of the replacement of the topsoil.
- The borrow pits may, at the end of the pits life, be used as a spoil site for inert rubble and soil.
- The disturbance at the borrow pits must be shaped to an acceptable slope with previously stockpiled overburden (if any) and topsoil, upon which the rehabilitated area must be seeded with a grassmix of indigenous species to promote the reestablishment of the vegetation cover.

6.2.2 Processing Area

The processing area (including mobile crusher and all stockpile areas) will be reinstated and the footprint landscaped as listed below.

- Coarse natural material used for the construction of ramps must be removed and dumped into the excavations.
- Stockpiles must be removed during the decommissioning phase, the area ripped, and the topsoil returned to its original depth to provide a growth medium.
- On completion of operations, all structures or objects shall be dealt with in accordance with section 44 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002):
  - Where sites have been rendered devoid of vegetation/grass or where soils have been compacted owing to traffic, the surface shall be scarified or ripped.
  - The site shall be seeded with a vegetation seed mix adapted to reflect the local indigenous flora.
- Photographs of the processing area, before and during the mining operation and after rehabilitation, shall be taken at selected fixed points and kept on record for the information of the DMRE Regional Manager.
- On completion of mining operations, the surface of these areas, if compacted due to hauling and dumping operations, shall be scarified to a depth of at least 200 mm and graded to an even surface condition. Where applicable/possible topsoil needs to be returned to its original depth over the area.
- The area shall then be fertilized if necessary to allow vegetation to establish rapidly. The site shall be seeded with a local, adapted indigenous seed mix.

6.2.3 Offices, Workshops and Storage Areas

The buildings (such as the offices, ablutions, and storage areas) and roads of the mine will most likely be retained for future use by the landowner and will therefore not be demolished unless required by the landowner.

6.3 POST-MINING LAND USE

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

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 MR Holder will comply with the minimum closure objectives as prescribed by the DMRE and detailed below:

6.4.1 Rehabilitation of the Excavated Area

- The excavated area must serve as a final depositing area for the placement of overburden. Rocks and coarse material removed from the excavation must be dumped into the excavation.
- No waste may be permitted to be deposited in the excavations.
- Once overburden, rocks and coarse natural materials has been added to the excavation and it was profiled with acceptable contours and erosion control measures, the topsoil previously stored must be returned to its original depth over the area.
- The area must be fertilized if necessary to allow vegetation to establish rapidly. The site shall be seeded with a local or adapted indigenous seed mix to propagate the locally or regionally occurring flora, should natural vegetation not re-establish within 6 months from closure of the site.
- If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining operation be corrected and the area be seeded with a vegetation seed mix to his or her specification.

6.4.2 Rehabilitation of Processing Area

- Coarse natural material used for the construction of ramps must be removed and dumped into the excavations.
- Stockpiles must be removed during the decommissioning phase, the area ripped, and the topsoil returned to its original depth to provide a growth medium.
- On completion of operations, all structures or objects shall be dealt with in accordance with section 44 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002):
  - Where sites have been rendered devoid of vegetation/grass or where soils have been compacted owing to traffic, the surface shall be scarified or ripped.
  - The site shall be seeded with a vegetation seed mix adapted to reflect the local indigenous flora.
- Photographs of the processing area, before and during the mining operation and after rehabilitation, shall be taken at selected fixed points and kept on record for the information of the DMRE Regional Manager.
- On completion of mining operations, the surface of these areas, if compacted due to hauling and dumping operations, shall be scarified to a depth of at least 200 mm and graded to an even surface condition. Where applicable/possible topsoil needs to be returned to its original depth over the area.
- The area shall then be fertilized if necessary to allow vegetation to establish rapidly. The site shall be seeded with a local, adapted indigenous seed mix.
- If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the DMRE Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining operation be corrected and the area be seeded with a seed mix to his or her specification.

6.4.3 Final rehabilitation:

- Rehabilitation of the surface area shall entail landscaping, levelling, top dressing, land preparation, seeding (if required), maintenance, and clearing of invasive plant species.
- All equipment, plant, and other items used during the mining period must be removed from the site (section 44 of the MPRDA).

- Waste material of any description, including receptacles, scrap, rubble and tyres, must be removed entirely from the mining area and disposed of at a recognized landfill facility. It will not be permitted to be buried or burned on the site.
- The management of invasive plant species must be done in a sporadic manner during the life of the mining activities. Species regarded as Category 1a and 1b invasive species in terms of NEM:BA (National Environmental Management: Biodiversity Act 10 of 2004 and regulations applicable thereto) need to be eradicated from the site.
- Final rehabilitation must be completed within a period specified by the Regional Manager (DMRE).

6.4.4 Revegetation of Rehabilitated Areas

All reinstated areas must be revegetated to establish a stable grass layer that will tie-in with the end-use of the site. The use of a commercial seed mix is recommended, and for dryland areas, the seed mix should be less than half the standard sowing rate and include annuals (e.g. wheat or rye) and perennials e.g. Couch Grass (*Cynodon dactylon*). The seed mix can be augmented by Love Grass (*Eragrostis curvula*) and Red Grass (*Themeda triandra*).

6.4.5 Maintenance and Monitoring

Rehabilitated areas need to be monitored and managed after the initial rehabilitation. The mine's 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.

6.4.6 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.

6.4.7 Impact Specific Procedures

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

Table 6: Summary of the impact specific procedures

CLOSURE MANAGEMENT OBJECTIVES	SPECIFIC PERFORMANCE CRITERIA	ACTION REQUIRED
SOCIO-ECONOMIC		
➢ 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.	➢ Progressive rehabilitation must be implemented if possible as mining progress.	➢ 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		
➢ The area will have contours constructed to prevent soil erosion.	➢ 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.	➢ 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 pooling will be addressed by filling depression and / or grading areas and re-vegetating such sites; ➢ 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 consulted with regards to the use of certain chemicals

CLOSURE MANAGEMENT OBJECTIVES	SPECIFIC PERFORMANCE CRITERIA	ACTION REQUIRED
ECOLOGY		
➢ The rehabilitated area will be protected from surface disturbance to allow vegetation to establish and stabilise.	➢ 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.	➢ 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		
➢ To ensure that rehabilitation is done to such an extent that land use potential is regained for agricultural use and associated zoning.	➢ Only after the shaped areas have been inspected and approved by the Mine Manager/Site Manager will topsoil be placed to a depth of 300 mm. 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 ➢ Once the seed mixture has been sown, the land must be rolled to ensure consolidation around the seeds and effective moisture retention.	➢ N/A

6.5 CLOSURE SCHEDULE

At this stage it is proposed that the final rehabilitation of the mining area will take approximately six months to complete. Rehabilitation will, however, not be considered complete until the first cover crop is well established and therefore the rehabilitation phase will extend over at least a twelve-month period.

Control of invasive plant species is an important aspect after topsoil replacement and seeding has been completed in an area. Site management will implement an invasive plant species management plan during the 12-month aftercare period to address germination of problem plants in the area. Final rehabilitation shall be completed within a 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 7: Closure schedule

CLOSURE SCHEDULE	
DECOMMISSIONING / CLOSURE ACTION	**TIMEFRAME**
EXCAVATION	
➢ Create irregular benches along the quarry faces; ➢ Shape the sides of the borrow pits; ➢ Dump excess rocks and coarse material into the quarry/borrow pits; ➢ Place overburden and topsoil over benches/borrow pit berms; ➢ Bench plant the shaped areas; ➢ Dispose all waste off-site.	Month 1 - 4
PROCESSING AREA	
➢ Dump coarse natural material used for ramps into the excavations; ➢ Remove all product stockpiles; ➢ Identify all structures for demolishment or removal; ➢ Remove all identified structures/equipment from the footprint; ➢ Rip any compacted area;	Month 4 - 6

CLOSURE SCHEDULE	
DECOMMISSIONING / CLOSURE ACTION	**TIMEFRAME**
➢ Landscape and level the area to prevent any depressions and allow for agricultural activities; ➢ Replace the stockpiled topsoil over the shaped area; ➢ Seed reinstated area or arrange for planting of relevant cover crop.	
MAINTENANCE AND AFTER CARE	
➢ 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 MR 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 MR Holder 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 completed rehabilitation must be measured are:

1. that the topography has been sufficiently rehabilitated without unsafe excavation edges;
2. that topsoil has been spread on the surface;
3. 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;
4. that there is no visible erosion across the area, or down-slope of it as a result of mining, and that no part of the area has been left unacceptably vulnerable to erosion;
5. that a successful cover crop has been established across the area.

In addition to the above, the following relinquishment criteria is proposed for the closure activities of the mining area:

Table 8: Relinquishment criteria

RELINQUISHMENT CRITERIA FOR CLOSURE ACTIVITIES			
CATEGORY	**RELINQUISHMENT CRITERIA**	**INDICATORS**	**REPORTING REQUIREMENTS**
Removal of all unwanted equipment.	No visible man-made structures, that are not required by the landowner, should remain.	Closeout 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.

Refer to Appendix F of the Amended EMPR for the most recent (2024) review of the mine's closure cost estimate. (*Note, this document is not a public document, and therefore not attached to the draft EMPR*).

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

The Final Rehabilitation, Decommissioning and Mine Closure Plan of Thaba Stone was revised and renewed in support of the EMPR amendment to be submitted to the DMRE for approval.

7. MONITORING, AUDITING AND REPORTING

In compliance with applicable legislation, the MR Holder will conduct monitoring of the rehabilitation activities for the duration of the decommissioning and closure phase. 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. Monitoring, auditing, and reporting needs to be conducted until mine closure has been approved by the DMRE and the closure certificate obtained.

Table 9: 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	**Internal Review**		
	Site manager to ensure compliance with Environmental Management Programme and Closure Plan.	Daily compliance monitoring.	Any non-conformance must immediately be addressed by site management and weekly reported on.
	External Auditing		
	External Environmental Consultant	Annual auditing and reporting to the DMRE.	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	Financial Provision Review	Annual review of the financial provision, and reporting of the findings to the DMRE.	Should the review of the financial provision indicate a shortfall the holder of the right would increase the financial provision to meet the audited financial provision within 90 days from the date of the signature.
MONITORING			
Dust Monitoring	Site Management	Daily Dust Monitoring	Site management has a maximum of two weeks to develop and implement a dust management plan should the dust levels increase, and such a plan is required by DMRE or the municipality.
Invader Plant Monitoring	Site Management	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.

MONITORING, AUDITING AND REPORTING REQUIREMENTS			
AUDIT	**RESPONSIBLE PERSON**	**FREQUENCY OF AUDIT**	**CLOSE OUT APPROACH**
Noise Monitoring	Noise Monitoring Specialist	Quarterly Noise Monitoring	Site management has a maximum of one week to designate additional noise zone where applicable. Hearing protection equipment must always be available to employees.

7.1 SCHEDULE FOR REPORTING REQUIREMENTS

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

Table 10: 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. 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	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.	The auditor will 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.

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) quantity 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 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 to 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 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 affect 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 11: Monitoring Programmes

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 12: 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 13: 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/neighbouring farm area
5	Regional, National, International

Determination of Overall Consequence

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

Table 14: Example of calculating overall consequence in the assessment of potential latent risks

Consequence	Rating
Severity	Example 4
Duration	Example 2

Consequence	Rating
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 15: 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 16: 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

Rating	Description
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 17: 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.

Table 18: Determination of overall 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 19: Description of environmental significance and related action required in the assessment of potential latent risks

Significance	An insignificant risk (cc)	A 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

Once adequately rehabilitated, the hard rock quarry will nevertheless behave as a sump and collect surface run-off after wet periods. The floor of the quarry may, therefore, reveal fluctuating water levels depending on rainfall patterns. Considering this, it is important to adequately block access to the excavation (soil berm / oversize rock in entrance) to prevent unauthorized access to humans (especially children) and domestic animals upon closure of the mine.

8.1.3 Results and Finding of Risk Assessment

Potential Impact: Safety risk posed by stagnant water in the hard rock quarry

Rating Prior To Mitigation: Potential Significant Risk

			Consequence			Likelihood	**Significance**
Severity	Duration	Extend		Probability	Frequency		
3	5	1	3	5	5	5	**15**

8.1.4 Changes to the Risk Assessment Results

It is proposed that access to the excavation must be blocked (soil berm / oversize rock in entrance) to prevent unauthorized access to humans (especially children) and domestic animals upon closure of the mine. Should this mitigation measure/management practice be implemented the significance of the risk can be reduced to an Insignificant risk.

Potential Impact: Safety risk posed by stagnant water in the hard rock quarry

Rating After Mitigation: Insignificant Risk

			Consequence			Likelihood	**Significance**
Severity	Duration	Extend		Probability	Frequency		
2	5	1	2.6	2	1	1.5	**3.9**

8.2 MANAGEMENT ACTIVITIES

Apart from restricting entrance into the pit, the following additional management activities may be considered to prevent stagnant water from becoming a safety risk:

- Design and maintain diversion channels, berms, and drains to redirect stormwater away from the quarry pit.
- Ensure that stormwater drains are kept cleared of sediment and debris.
- Erect clear warning signage near areas where water may accumulate temporarily.

8.3 COST ESTIMATE

If the entrance to the hard rock quarry is blocked during the decommissioning phase, as part of the rehabilitation of the mining area, no additional costs will be incurred as the MR

Holder's own machinery will be employed and the oversize rock/unwanted soil from the mining area will be used.

8.4 MONITORING, AUDITING AND REPORTING REQUIREMENTS

The efficiency of the blockage/berm at the entrance to the quarry pit must be monitored for a 12-month duration after final closure of the mining area, and improvements must be implemented should shortcomings be identified.

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.

Thaba Stone (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
Christine Fouché	*Christine Fouché*	27 May 2025

11. UNDERTAKING BY MINING RIGHT HOLDER

I, ……., the undersigned and duly authorised thereto by ..... ……. that Thaba Stone (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 …….. on this ……day of ……2025……

FINAL DOCUMENT TO BE SIGNED

_____

Name:

Designation:

12. REFERENCES

- Chamber of Mines of South Africa, 1981. Guidelines for the rehabilitation of land disturbed by surface product mining in South Africa, Johannesburg
- Department of Water Affairs and Forestry, 2003. Draft: A practical procedure for the identification and delineation of wetlands andarian areas, Pretoria
- Department of Environmental Affairs and Tourism: Integrated Environmental Management Information Series: Impacts Significance
- Department of Water Affairs and Forestry (DWAF) (2007b) Best Practice Guideline A4: Pollution control dams. The Government Printer, Pretoria