



Bundu Mining (Pty) Ltd: Closure Final Rehabilitation Provision Plan - FY2024 GP10124 MR

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1 Introduction

Bundu Mining (Pty) Ltd (Bundu) is a previously operational aggregate quarry that has recently submitted a Mining Right application to recommence operations (Ref: GP 30/5/1/2/2/10124 MR). The proposed venture involves reactivating the existing quarry and expanding its footprint through opencast mining methods. Anticipated annual extraction is estimated at 240, 000 tons. The extracted material will be transported to the processing facility of Gomes Sand (Pty) Ltd, an area and operation covered under a separate mining permit (Ref: GP10396MP).

Bundu's operations are situated on Farm Uitzicht Alias Rietvalei 314JR, approximately 11 kilometers east of Hartbeespoort along the R514.

2 Terms of Reference¹

The regulations (November 2015, as amended) pertaining to the Financial Provision for Prospecting, Exploration, Mining and Production Operations in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) ("NEMA") and National Environmental management Laws Amendment Act (Act 02 of 2022) ("NEMLAA"), prescribes the determination and making of Financial Provision for existing rights/permit holders Regulation 11 of GNR.1147). Importantly, the provisions in Section 24P has been given effect through these newly promulgated regulations.

Accordingly, the following is required to satisfy the requirements for the determination of the Financial Provision and provides the basis to bring Bundu Mining's Financial Provision into alignment with the new regulations:

A detailed review and itemization of all activities and associated actual costs for the implementation of:

- ▼ Annual rehabilitation, as reflected in an Annual Rehabilitation Plan.
- ▼ Final rehabilitation, decommissioning and closure of the mining operations at the end of the life of the operations, as reflected in a Final Rehabilitation, Decommissioning and Closure Plan.
- ▼ Remediation of latent or residual environmental impacts which may become known in the future, including the pumping and treatment of extraneous water, again as reflected in an Environmental Risk Assessment Report (if applicable).

The purpose of this report is to present the first annual Final Rehabilitation Plan for the 2024 reporting period. This plan must be assessed annually to remain in keep with Bundu Mining's ongoing development and concurrent rehabilitation activities.

¹ NEMA, 1998 (Act No 107 of 1998) Regulations Pertaining to the financial provision for Prospecting, Exploration, Mining or Production Operations. – Appendix 5 – Minimum content of an Environmental Risk Assessment Report.

3 About the Author

3.1 The Company

Globesight (Pty) Ltd was established in early 2015 by Mr. Ferdi Pieterse, an environmental scientist by training and a consultant/advisor by occupation. Mr. Pieterse has 22 years' experience in the related field. Globesight acts as a vehicle through which Mr. Pieterse conducts independent specialist work for several clients in various fields, most notably the African mining industry and the African Oil & Gas industry. Noteworthy is Globesight's vision of and commitment to skills development on the continent.

The company focusses on Advisory services to the mining and oil & gas sectors – specifically vis-à-vis environmental and sustainability design, planning, authorisations (permits and licenses) and compliance.

Consulting services range from compliance assurance via specialist auditing to rehabilitation and closure planning with associated financial provision determination.

3.2 Details of the Person(s) who prepared the Plan

Ferdi Pieterse: Ferdi has more than 22 years' experience in the Environmental Management field. He has a strong background in providing environmental solutions, having completed numerous projects from concept and pre-feasibility phases to full completion and implementation phases. Ferdi has undertaken and completed projects in different sectors, including tourism, mining, manufacturing, energy and industrial. He also completed a year as an Environmental Manager in the Electricity Generation Industry (Eskom), specifically within the coal, water, and gas resource sector where the focus was mining environmental management and compliance assurance.

Ferdi's main strengths are focused within the environmental management and sustainable development spheres. Significant experience within the primary, secondary, and business economic sectors includes strategic planning and advisory, project management and coordination, client interaction and management, capacity building, providing innovative solutions, compliance assurance and reporting, liability valuations, sound advice and objectivity. Ferdi has been extensively involved in projects in Lesotho, Zambia, Angola, Kenya, Namibia, Madagascar, and Tanzania.

Ferdi is passionate about creating value and growth for people and projects on the African continent. He thrives on the challenge of integrating his experience and knowledge with new people and project teams and is naturally motivated through the adventure, exploration, learning, engagement, and travel, which is associated with the developing economies in Africa.

Refer to the Curriculum Vitae of Mr. Ferdi Pieterse in Annexure A

Pieter de Coning: Pieter, trading as EcoCivil Consulting Engineers, has a National Diploma and B-Tech degree in Civil Engineering and is registered as a Professional Civil Technologist (Pr. Tech Eng) with over 32 years' experience in various waste, mining, and civil engineering projects.

He started his career at the Department of Water Affairs and Forestry as a Civil Technician in 1991 working in the Design Services department. He joined SKCM Engineers in 1995 where he gained valuable experience in numerous fields of Civil Engineering, namely structural design (concrete and steel), water related design (dams, water reticulation, storm water), town development, waste related projects (site selection, landfill designs and licensing, feasibility studies). In 2013 he joined WorleyParsons, as a Senior Technologist specialising in environmental engineering and waste related projects but was also involved in civil engineering projects due to his wide-ranging experience. He further gained experience in petrochemical and mining fields of civil engineering as well as solar power generation. He joined GCS Engineering in August 2014 where he headed up the Engineering division until October 2018 before he started EcoCivil in November 2018. At GCS he further gained experience in the mining and waste management fields, water supply and dewatering of mines, management of clean and dirty water, pollution control, closure and rehabilitation of waste and mining facilities, as well as landfill design and feasibility studies.

Pieter also has extensive experience in cost estimation, contract documentation, contract administration, construction supervision and quality control, technical report writing, preparing design drawings and overall project management.

Countries Pieter has worked in includes South Africa, DRC, Botswana, Mozambique, Nigeria, Angola, and Swaziland.

Refer to the Curriculum Vitae of Mr. Pieter de Coning in Annexure A.

3.3 Registrations, Affiliations and Experience

The following table presents the expertise of the evaluators(s) to conduct the evaluation and to prepare the plan.

Name	Position	Project Responsibility	Qualification	Professional Registrations / Affiliations	Experience
Ferdi Pieterse	Rehabilitation and Closure Assessor	Project Director	B.Sc. (Honours) Environmental Management (RAU, now University of Johannesburg)	Member of the Environmental Law Association of South Africa	22+ Years
Pieter de Coning	Professional Civil Technologist	Cost reviewer	National Diploma in Civil Engineering B-Tech Degree in Civil Engineering	Registered Professional Civil Technologist (Pr. Tech Eng) Member of IPET Member of IWMSA, GIGSA	32+ Years

4 Limitations

The scope of this study is limited to the extraction of material from the rock quarry only. All ancillary activities such as crushing, screening, processing and stockpiling are specifically excluded.

5 Project Setting

5.1 Local Setting

Bundu operations are situated on Portions 18, 92, 94, and 95 of Farm Uitzicht Alias Rietvalei 314JR, approximately 11 kilometers east of Hartbeespoort and 15 kilometers west-northwest of Pretoria. The site falls within the jurisdiction of the City of Tshwane Metropolitan Municipality, Gauteng province. (refer Figure 1).

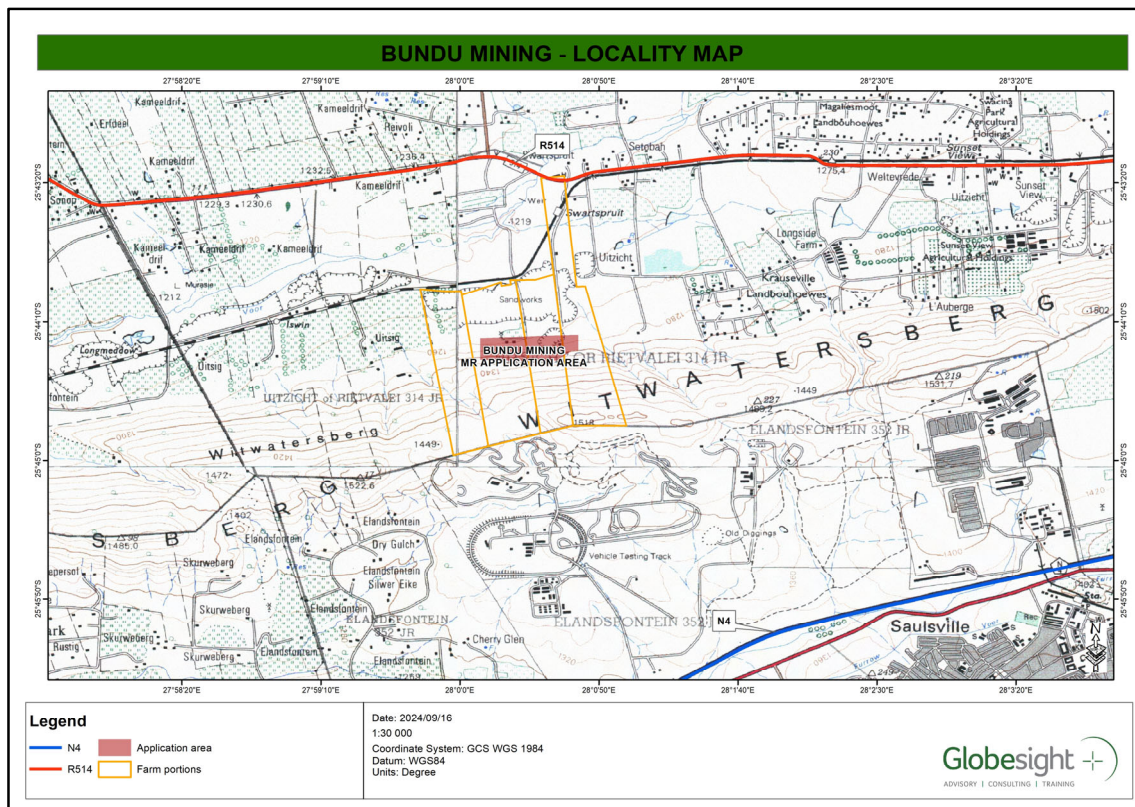


Figure 1: Locality Map – Bundu mining.

5.2 Commercial Context

The proposed operation involves reopening an existing quarry and expanding its mining activities through opencast methods. Weathered quartzite will be excavated to a depth of 20 meters and transported to a nearby processing facility where it will undergo crushing, screening, and washing to produce various aggregate and sand products. Note that the nearby processing facility and area is covered under a separate mining permit (Ref: GP10396MP and is specifically excluded from the scope of this study.

Given the surge in development activity across the Gauteng region, the primary goal of the proposed project is to supply material for the development of plaster sand in support of development projects within the area.

5.3 Environmental Context

5.3.1 Approved Environmental Management Plans, Programmes and Licenses

Bundu has applied for a Mining right to restart operations at an old aggregate quarry. The Scoping and Environmental Impact assessment process are being followed; the Final Scoping Report was submitted to the Department of Mineral Resources and Energy in April 2024.

▼ Final Scoping report, Bundu Mining (Pty) Ltd, March 2024

5.3.2 Overview of the existing biophysical environment²

Geology³

According to the 1:150 000 geology series (2526 Rustenburg & 2528 Pretoria) maps for the area (DMEA 1981); (DMEA 1988), the surface geology of the study area is characterised by quaternary sands (Qb), intrusive diabase (di), quartzite (Vdq), and sediments of the Silverton and Hekpoort formations (shale, slate, hornfels, weathered andalusite, quartzite, basalt, tuff, shale and chert) of the Pretoria Supergroup, of the Transvaal Sequence. The application area is underlain specifically by quartzite (Vdq).

Topography⁴

The site's topography exhibits a gentle slope in the northern area, where the proposed processing facilities are located. The terrain rises steeply to a ridge at 1450 mamsl, encompassing the proposed

² Final Scoping Report, Bundu Mining, April 2024

³ Final Scoping Report, Bundu Mining, April 2024

⁴ Final Scoping Report, Bundu Mining, April 2024

mining right area. Contour analysis reveals that the mining right application area is bordered to the south by a steep hilltop. Two prominent drainage lines have formed valleys through erosion, one to the east and the other to the west of the hilltop. Notably, no recognized drainage lines, streams, or rivers are present within the application area.

Climate⁵

Hartbeespoort, situated 11 kilometers west of the site, provides the closest climatic reference point. Given the absence of physical barriers between the site and Hartbeespoort, the latter's climate is considered representative.

The region is characterized by warm-to-hot summers with average temperatures of 22,4°C and cool, dry winters averaging 11°C. Rainfall predominantly occurs during summer, with annual precipitation totaling 697 mm.

Soils⁶

Soils identified in the area are shallow, gravel lithosols of the Mishpah and Glenrosa forms. In the areas that have not yet been disturbed by previous mining activities, the soils are described according to the Land Type Series, produced by the Department of Agricultural Technical Services and the Soil and Irrigation Research Institute (ARC-ISCW, 2007):

- ▼ On the ridge: IB3c – Rocky areas with miscellaneous soils.
- ▼ Base of the ridge: Ba8a – Widespread red soils that have undergone extensive to moderate leaching.

Land capability and Land-use⁷

Large portions of the direct and immediately adjacent properties are and has been in the past, used for sand mining activities. Other land uses in the area include poultry farming, lawn grass farming and a vehicle testing facility.

Biodiversity (Floral)⁸

The Bundu site falls within the grassland vegetation type called Gold Reef Mountain Bushveld and is classified as Least Concern. The site does not fall into any Listed Ecosystem, as listed in The National List of Ecosystems and therefor has low sensitivity.

⁵ Final Scoping Report, Bundu Mining, April 2024

⁶ Final Scoping Report, Bundu Mining, April 2024

⁷ Final Scoping Report, Bundu Mining, April 2024

⁸ Terrestrial Biodiversity and Plant Species Assessment, David Hoare Consulting (Pty) Ltd, 7 December 2022

The site features a natural ridge in the southern section, sloping northward. The ridge is characterized by grassy woodlands with high rock cover and a moderately diverse plant community, typical of the Magaliesberg ridge system.

The lowlands, previously affected by mining and agricultural activities, are predominantly covered in secondary grassland. This grassland is interspersed with both indigenous and exotic trees and shrubs. The area supports a variety of grass species and woody plants, including indigenous species. Several invasive species were also identified on site.

Fauna

▼ Avifaunal (Birds)⁹

A total of 276 bird species have been documented within the relevant pentad during the SABAP2 atlasing period. The presence of these species in the broader region suggests a diverse avian community that could potentially inhabit the application area. Of the 276 species, five are listed as regionally threatened. However, Species of Conservation Concern (SCC) have been recorded in very low numbers, with only two to 12 individuals of each species observed over the 15-year survey period. This aligns with the expected diversity and abundance of SCC within the area, considering the existing habitat and disturbance. While no SCC were directly observed during the field survey, Table 2 lists relevant SCC species for the proposed mining area.

Table 1: Annotated list of Species of Conservation Concern that have relevance to the proposed mining right application

Common Name	Scientific Name	Regional Conservation Status	Reporting Rate	Number of Individuals	Preferred Micro Habitat	Likelihood of occurrence
Eagle, Verreaux's	<i>Aquila verreauxii</i>	VU	2.2	3	Mountains	Probable
Falcon, Lanner	<i>Falco biarmicus</i>	VU	3.0	4	Mountains, Quarries	Probable
Stork, Abdim's	<i>Ciconia abdimii</i>	NT	1.5	2	Close to water	Unlikely
Stork, Marabou	<i>Leptoptilos crumenifer</i>	NT	2.2	3	Close to water	Unlikely
Vulture, Cape	<i>Gyps coprotheres</i>	CR	9.0	12	Mountains	Probable

⁹ Specialist Impact Assessment (Avifauna), Feathers Environmental Services, October 2023

▼ Faunal (Mammals, Amphibians and Reptiles)¹⁰

The upland areas south of our operations exhibit a healthy ecological state. The rocky mountainous terrain presents suitable habitat for a diverse range of smaller fauna, including reptiles, mammals (including bats), and birds. Desktop research identified four species as red-listed, all categorized as medium sensitivity. While the required habitat for two mammal species, *Crocidura maquassiensis* and *Dasymys robertsii*, is absent from the site, the reptile *Kinixys lobatsiana* and the invertebrate *Clonia uvaroni* were also flagged as red-listed, their potential displacement due to previous fires or habitat loss cannot be ruled out.

Hydrology¹¹

The site is situated within the Quaternary catchment A21H of the Limpopo Water Management Area. Bounded to the south by a steep hilltop, the site features two prominent drainage lines—one eastward and one westward. While the western drainage line is unlikely to be affected, the eastern drainage stream may experience limited impacts from the project. The site exhibits free drainage, with temporary pooling of surface water in depressions following rainfall events north of the site. The Swartspruit River runs west to east approximately 1km north of the site, a non-perennial stream runs south to north approximately 100m east of the site.

Hydrogeology^{12, 13}

The study area is characterised by shale, hornfels and quartzite. Intrusive ultramafic rock (Diabase) is also known to occur in the project area. The aquifer in the region is considered a low-yielding aquifer. Groundwater quality is dependent on the underlying geology and hydrogeology characteristics associated with the ground water recharge. Electrical conductivity for the underlying aquifers generally ranges from 0-70 mS/m and pH in the 6-8 range. Therefore, groundwater abstracted from the aquifer can generally be used for domestic and recreational use. Where groundwater contributes to baseflow, similar water quality is expected.

The project area experiences an average annual precipitation of approximately 690 millimeters and an average annual evaporation of approximately 1600 millimeters. The primary source of groundwater recharge in this region is rainfall. Rainwater infiltrates the ground and enters the groundwater system through the vadose zone.

¹⁰ Faunal Assessment, BioAssets, October 2023

¹¹ Hydrology Assessment for Bundu Sands, GCS, November 2023

¹² Hydrology Assessment for Bundu Sands, GCS, November 2023

¹³ Geohydrology Assessment for the Bundu Sands (Rietvalei) Mining Permit, GCS, 25 September 2024

Wetlands¹⁴

The mining activities are avoiding the established buffer zone and therefore no direct impacts to watercourses are expected from the mining activities.

Air quality¹⁵

Air quality is impacted mostly by dust generated by various land uses in the area. The biggest contributing factor is most likely dust generation from clearing and preparation of land for sand mining and agriculture. Most access roads used by public vehicles are also dirt roads.

Noise¹⁶

The national road R514, passing by the Bundu operation can be considered a major source of ambient noise. Further to that operation of machinery used for sand mining as well as agriculture machinery contribute to the noise pollution. Operation of the crusher can be considered the primary contributor to the noise, but if operated during hours when noise levels are expected to be higher it could lower the significance of crusher noise. Drilling and blasting will only present a short duration of noise impact and should not be considered as significant.

Sites of cultural heritage importance¹⁷

A cultural heritage survey done in 2021 done where sand mining is occurring, a graveyard was identified. This area has been demarcated and avoided in the planning for Bundu.

The only site identified and documented during the September 2023 study consisted of remnants of mining infrastructure and structures that may be associated with historical farming activities or earlier mining operations. The remains of these brick, cement and stones structures are likely less than 60 years of age.

Sensitive landscapes¹⁸

Except for a minor portion, all remaining natural habitat on the site is located within the Ecological Support Areas (ESA) 1 area. According to the DFFE Screening Tool report, natural habitats in this area are classified as having a Very High sensitivity for Terrestrial Biodiversity. The impact on vegetation is minimal compared to the overall extent of this vegetation type and insignificant in relation to the size of the ESA 1 area.

¹⁴ [Water Resource Study, Bundu Sands, Tate Environmental Specialist Services, April 2024](#)

¹⁵ Final Scoping Report, Bundu Mining, April 2024

¹⁶ Final Scoping Report, Bundu Mining, April 2024

¹⁷ Heritage Impact Assessment Report, APAC, September 2023

¹⁸ Terrestrial Biodiversity and Plant Species Assessment, David Hoare Consulting (Pty) Ltd, 7 December 2022

Visual aspects¹⁹

The proposed expansion of the old quarry will be visible from the north, north-west and north-east due to its position against the rise of the ridge. To the south, south-west and south-east the excavation will be screened by the ridge.

5.4 Social Context²⁰

5.4.1 Socio-economic aspects

Bundu mining is located in Ward 55 within Region 3 of the City of Tshwane. This region is bordered by the Magaliesberg Mountain range to the north and the N4 freeway to the east. Includes a small part of East Lynne and Silverton. To the southwest the region borders on the jurisdiction of Mogale City and to the west is Madibeng in Northwest Province.

Region 3 has a population of 514 195. This is approximately 18% of the total population of the City of Tshwane of 2 921 488 (Statistics SA, 2011). Approximately 39% of the population in Region 3 can be regarded as withing the low income group.

The people most likely to be affected by the proposed activity are those in the immediate surrounding communities and up to a radius of 3,5km. This includes communities of Uitzicht, Kameeldrift West, Magaliesmoot and Krauseville.

5.4.2 Interested and affected Parties

The following list indicates the Interested and affected Parties:

- ▼ Landowners and lawful land occupiers of direct and adjacent properties:
- ▼ Municipality and municipal councillors
 - Divisional Head: Environmental Management – Region 3
 - Ward 55 Councillor
- ▼ State Departments and other Competent Authorities:
 - Department of Rural Development and Land Reform (Regional Land Claims Commissioner)
 - Department of Water and Sanitation Regional Office: Gauteng
 - Department of Agriculture and Rural Development: Gauteng
 - Provincial Heritage Resources Agency: Gauteng
- ▼ Communities/ Surrounding Landowners and Occupiers.

¹⁹ Final Scoping Report, Bundu Mining, April 2024

²⁰ Department: Statistics South Africa, Census 2011

5.5 Mine Plan and Schedule

Conventional opencast methods will be utilised to access the weathered quartzite resources. Operational hours will be from 06h00 to 18h00 on weekdays, 06h00 to 12h00 on Saturdays and only maintenance activities taking place on Sundays and public holidays. Blasting is expected to occur twice a month exclusively between 12h00 and 16h00 on weekdays.

The maximum period of 30 years was applied for, as according to resources indications are that the target mineral will not be depleted for 150 years.

An approximate volume of 91 000 m³ is planned for year 1, thereafter year 2-5 a volume of approximately 364 000 m³ is estimated and 455 000 m³ for year 6-10.

The initial benches will be mined at a length of 155m from East to West. The final pit perimeter will not be reached immediately, leaving space for roads along the perimeter. The focus is to mine as deep as possible without further surface disturbance.

Figure 2 below is a cross section of the proposed 10-year mine plan.

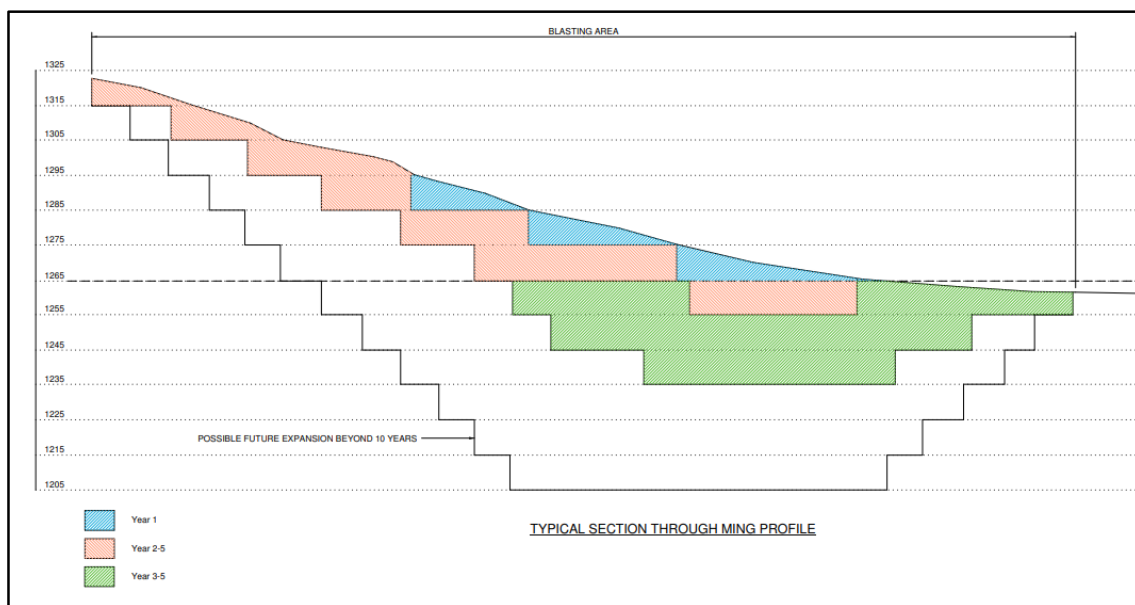


Figure 2: Cross section of proposed 10 year mine plan

Figure 3 overleaf provides a 3D Cross section of the proposed 10 year mine plan indicating the levels of excavation for Year 1, Year 2 to 5, and Year 6 to 10. The colours of the image were made transparent in order to indicate the different levels overlayed on top of each other. The existing quarry is also shown in the red/brown colour. The sides of the pit have been omitted for clarity purposes. The grey colour on top shows the original ground profile.

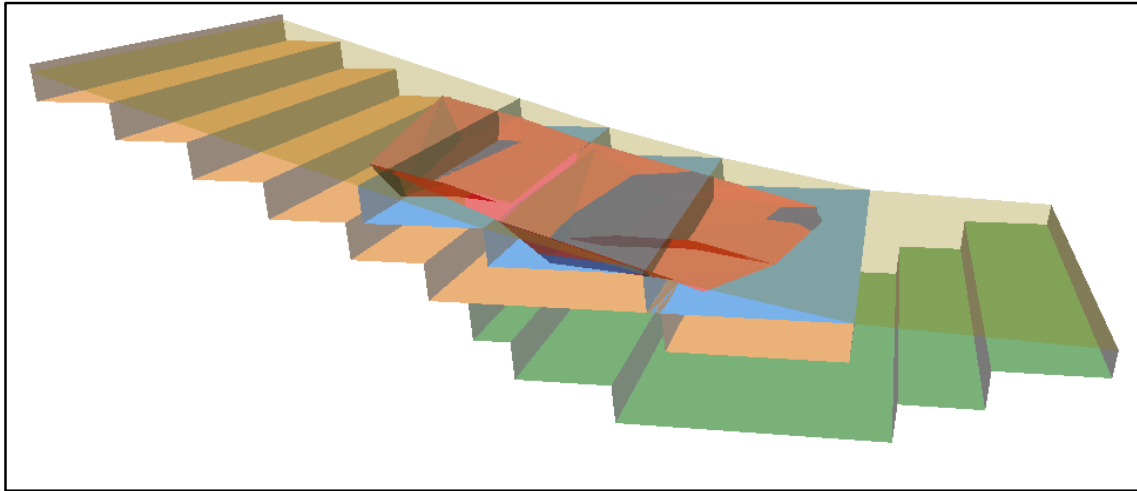


Figure 3: 3D -Cross section of the proposed 10 year plan indicating the levels of excavation for Year 1, Year 2 to 5 and Year 6 to 10

6 Risk Assessment Findings

6.1 Risk Indicators

During the scoping phase various specialist studies was undertaken to understand the environment and potential impacts that the mining might have on it. The following potential impacts are directly or indirectly linked to mine rehabilitation and closure.

6.1.1 Biodiversity (flora & fauna)^{21 & 22 & 23}

The proposed development could lead to the loss of habitat for biological life within the affected area. The quarrying process will remove the substrate necessary for plant growth during the operational phase.

However, the concurrent rehabilitation objective includes the installation of a suitable growth medium and the subsequent planting of selected grass, shrub and tree species once a mining section is complete. This has already proven to be viable through the natural erosion, material deposition and plant growth observed within the historical workings. This concurrent rehabilitation action will lead to the following being achieved:

²¹ Terrestrial Biodiversity and Plant Species Assessment, David Hoare Consulting (Pty) Ltd, 7 December 2022

²² Final Scoping Report, Bundu Mining, April 2024

²³ Faunal Assessment, BioAssets, October 2023

- ▼ Establishment of a growth medium and vegetation cover which will establish a form of habitat that can support both flora and fauna returning to the site during and post-closure.
- ▼ Systematic visual screening as the mining sections progress and vegetation is established and develops further over time.

6.1.2 Visual

The void created by the pit will be unsightly while the mine is operational and could lead to a long-term visual impact.

However, the concurrent rehabilitation objective includes the installation of a visual tree screen, as well as suitable growth medium and the subsequent planting of selected grass, shrub and tree species within the mining area once a mining section is complete. This has already proven to be viable through the natural erosion, material deposition and plant growth observed within the historical workings. This concurrent rehabilitation action will lead to the following being achieved:

- ▼ Establishment of a growth medium and vegetation cover which will establish a form of habitat that can support both flora and fauna returning to the site during and post-closure.
- ▼ Systematic visual screening as the mining sections progress and vegetation is established and develops further over time.

6.2 Conceptual Closure Strategies

This section contains conceptual closure strategies and actions as well as generally accepted rehabilitation methodology.

The main closure objective of Bundu is to rehabilitate the mining site (quarrie) in such a way to ensure that the rehabilitated area will blend in with the surrounding landscape and environment and is safe for both humans and animals. Establish a self-sustaining and stable vegetation cover to mitigate the visual impact, to control erosion and to create some habitat for animals. The rehabilitated environment also needs to be aesthetically acceptable according to the principle of Best Proven Environmental Option (BPEO). Another main objective is to manage the surface water in such a way that an acceptable water standard is achieved when a closure certificate is issued.

Bundu aim to ensure that the site is:

- ▼ Neither a danger to public health and safety nor to animal health and safety.
 - ▼ Not a source of any pollution.
 - ▼ Stable (ecological and geophysical).
 - ▼ Rehabilitated to the state that is suitable for the predetermined and agreed land use.
 - ▼ Compatible with the surrounding biophysical environment.
 - ▼ A sustainable environment.
 - ▼ Aesthetically acceptable.
-

- ▼ Not result in an economic, social or environmental liability to the local community or the state now or in the future.

Bundu aim to ensure that the physical and chemical stability of the rehabilitated mining area will be such that risk to the environment will not be increased by naturally occurring forces to such an extent that the increased risk cannot be contended with by the installed measures.

7 Rehabilitation & Closure Design Principals

7.1 Legal and Governance Framework

On 20 November 2015 in Government Gazette 39425, Notice Number GN R1147, the Minister of Environmental Affairs published the Regulations Pertaining to Financial Provision for Prospecting, Mining, Exploration and Production Operations (referred to as the Financial Provisioning Regulations, 2015), which came into effect on the date of publication in the Gazette. These Regulations replace the previous Mineral and Petroleum Resources Development Act, 2002 (MPRDA) regulations and introduce a far more onerous and detailed regulatory system in respect of financial provisions related to the extractives industry. In the National Environmental Management Laws Amendment Act (Act 02 of 2002) ("NEMLAA"), some changes were made in terms of Financial Provision for existing rights/permit holders.

Under the new Regulations, an applicant or holder of a right or permit is required to make financial provision for rehabilitation and remediation on an annual basis (termed concurrent rehabilitation), for decommissioning and closure activities at the end of the operations, and for remediation and management of latent or residual environmental impacts which may become known in the future, including the pumping and treatment of polluted or extraneous water.

Determining the financial provision requires the preparation of three separate documents:

- ▼ An annual rehabilitation plan describing measures and costs of annual rehabilitation.
- ▼ A final rehabilitation, decommissioning and mine closure plan describing measures and costs for final rehabilitation and closure.
- ▼ An environmental risk assessment report describing measures and costs for the remediation of latent or residual environmental impacts.

An applicant or holder of a permit or right must determine and make financial provision to guarantee the availability of sufficient funds for the rehabilitation and remediation of adverse environmental impacts to the satisfaction of the Minister responsible for Mineral Resources (the Minister).

The applicant or holder of a right or permit must ensure that, at any given time, the available funds equal the sum of the actual costs of implementing the plans and reports for a period of at least 10 years forthwith.

NEMLAA (Act 02 of 2002) Section 24P subsection 6 states the following:

The financial provisioning vehicles which must be used when providing the financial provision include:-

- ▼ Cash deposit into an account administered by the Minister responsible for mineral resources;
- ▼ Insurance from an institution that is registered in terms of the applicable insurance sector legislation;
- ▼ A financial guarantee from an institution that is registered in terms of the applicable financial sector legislation;
- ▼ A trust fund established for the sole purpose of subsection (4); and
- ▼ Any vehicle, including any condition applicable to such a vehicle identified by the Minister by notice in the Gazette in concurrence with the Minister of Finance and the Minister responsible for mineral resources, and including, but not limited to: -
 - A closure rehabilitation company;
 - A parent company guarantee; and
 - An affiliate company guarantee.

The general requirements of financial provision include, but are not limited to:

- ▼ The determination, review and assessment of the financial provision must be undertaken by a specialist;
- ▼ The financial provision liability may not be deferred against assets at the mine closure or the mine infrastructure salvage value;
- ▼ Where the making of or adjusting of the financial provision had been undertaken in terms of a financial guarantee, such undertaking must be accompanied by a verification of registration of the financial institution.
- ▼ Where the financial provision was undertaken by a deposit into an account administered by the Minister, if any interest is earned on the deposit, such interest must be used to defray bank charges and thereafter form part of the financial provision.
- ▼ Where the financial provision applies to the remediation of latent or residual environmental impacts which may become known in the future, upon the issuance of the Closure Certificate in terms of the MPRDA, such financial provision must be ceded to the Minister.

The holder of a right or permit must ensure that a review is undertaken in respect of the requirements for the financial provision made for annual rehabilitation, final rehabilitation and remediation of latent or residual environmental impacts.

Thereafter the holder must ensure that the adequacy of the financial provision is assessed and any adjustments to the financial provision are made accordingly. The results of the assessment must be audited by an independent auditor and submitted to the Minister for approval. The submission of the audit report must be accompanied by a declaration signed by the independent auditor reconciling the financial provision submitted for approval.

7.2 Closure Design Objectives & Targets

The following section is considered best practice in terms of mine rehabilitation planning and activities:

7.2.1 Surface Rehabilitation

Access roads, stockpile areas:

- ▼ During rehabilitation of these sites, or where vegetation is lacking or compacted, the areas would be ripped where possible and levelled to re-establish a growth medium and if necessary, appropriately fertilised to ensure the regrowth of vegetation and the soil ameliorated based on a fertilizer recommendation.
- ▼ Road construction material which may hamper regrowth of vegetation must be removed prior to rehabilitation and disposed of in an approved manner.
- ▼ Disturbed areas will be rehabilitated where possible through the establishment of a growth medium along the steep excavation faces and the establishment of vegetation. Where practical, rehabilitation will take place during the life of mining operation. On closure, almost all disturbed areas will have been rehabilitated.
- ▼ Implement storm water control systems to divert storm water and prevent erosion on the slopes.

Opencast Pits/Quarries

- ▼ Due to the nature of the excavation the slopes cannot be rehabilitated as per pre-mining conditions. It will however be partially rehabilitated with a growth medium and vegetated to screen the excavation as much as possible.
- ▼ Fences should be put around quarries to prevent access to unsafe quarries.

7.2.2 Fertilizing of areas to be rehabilitated

- ▼ A topsoil/overburden (subsoil) and organic mixture will be established at the toe of each embankment to be used as a growth medium.
- ▼ A 300mm topsoil/overburden(subsoil) and organic mixture will be installed on the platform areas once all mining has been completed.

7.2.3 Seeding of grass seed mixture and planting of woody species

- ▼ Initially, self-succession of revegetation will be allowed. Where unsuccessful, alternative revegetation options will be considered. Hardy trees will be planted at the toe of each excavation to assist in screening the high excavation.
- ▼ Hydroseeding should be applied onto the platform areas once the 300mm cover layer is installed.

7.2.4 Invasive and alien control programme

- ▼ An invasive and alien control programme to be implemented.
- ▼ All invader and exotic weeds will be removed.

7.2.5 After care and maintenance

- ▼ Rehabilitated areas will be monitored and maintained for a minimum of 2 years, until a self-sustaining plant community that protects soil against erosion has been established.

7.3 Closure and Post Closure Period

It is estimated that the final rehabilitation, decommissioning and closure actions, would take approximately 6-12 months to implement from the date of commencement.

8 Post Mining Land Use

8.1 Post closure land use objectives²⁴

Currently existing agricultural/ agro-industry activities dominate the land use of the greater area. The quarry will remain as a rehabilitated disturbed mining area while the rest of the proposed area will be rehabilitated back to grazing land or residential development. The latter seems to be in high demand from urban spread from the east. Figure 3 below indicates proposed end land use areas.

²⁴ Final Scoping Report, Bundu Mining, April 2024

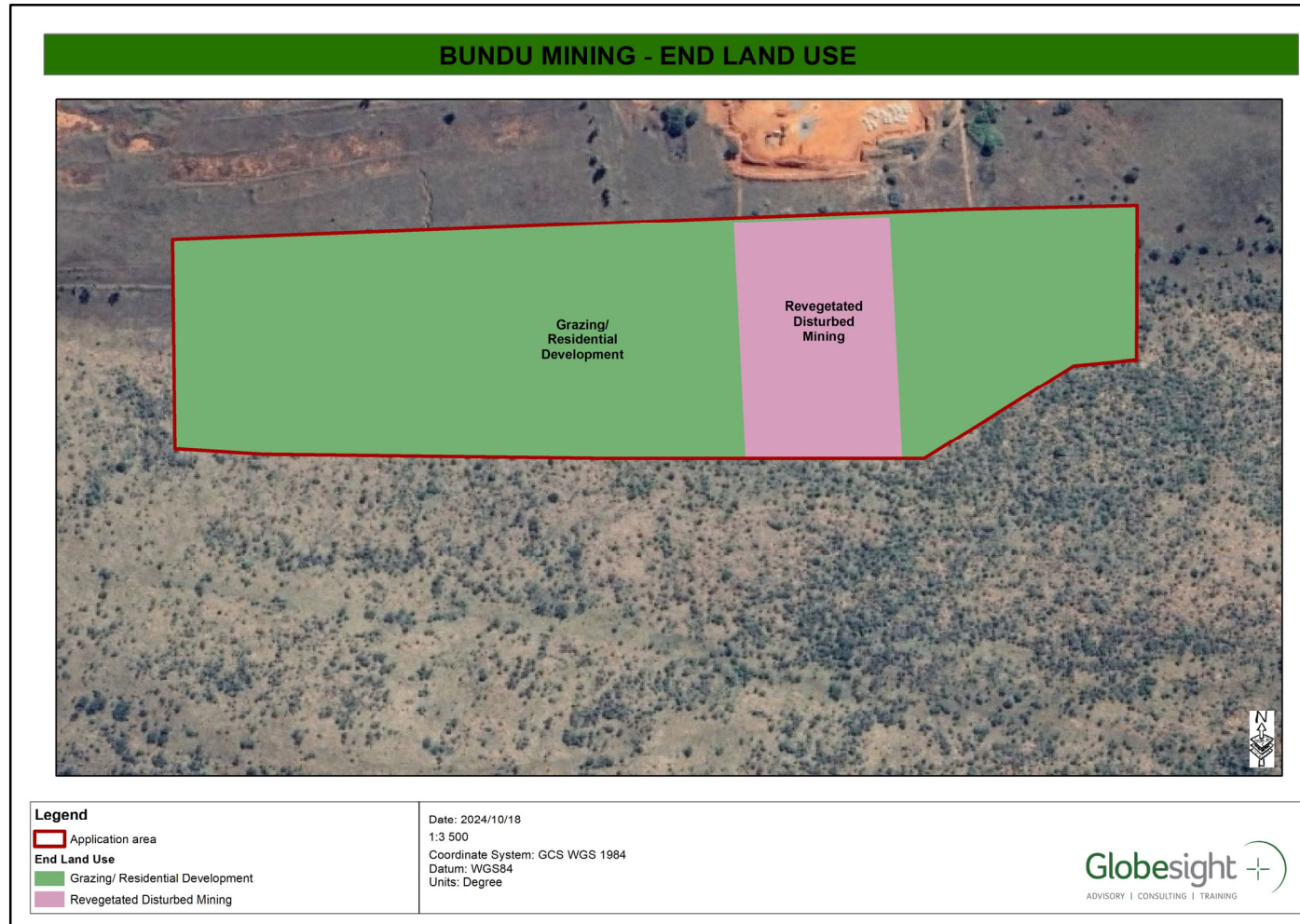


Figure 4: End Land Use Plan – Bundu Mining

9 Rehabilitation and Closure Framework

9.1 Rehabilitation and Closure Techniques

The table below (Table 2) depicts specific technical (engineering) solutions and techniques related to the decommissioning and closure of each infrastructure component at Bundu mining. The technical solutions are derived from a set of evaluation criteria (Table 4) selected specifically for the Bundu Mining project site.

Table 2: Rehabilitation and Decommissioning Objectives and Specifications

BUNDU MINING - REHABILITATION & CLOSURE FRAMEWORK 2024		
Components		Objectives & Specifications
1	Topography	Due to the nature of the excavation the slopes cannot be rehabilitated as per pre-mining conditions. It will however be partially rehabilitated with a growth medium and vegetation to screen excavations as much as possible
2	Roads (gravel)	Main access road to remain in place, all internal mining roads to be ripped for revegetation.
3	Power lines (above surface) (if applicable)	Power lines not in use after closure to be dismantled to salvage area.
4	Materials balance (i.e., topsoil on site)	Topsoil is limited due to the site being against a hill. Topsoil excavated on site to be stockpiled on site to be used for rehabilitation and landscape restoration.
5	Product stockpiles	Sale first, alternatively use material as backfill/fill material for pit or berms.
6	Earthworks (load & haul, doze, shape, topsoil spread, survey etc.)	Specified by Civils Engineer during evaluation (if required).
7	Mine Plan correlation	Final mine plan not yet available
8	Regulation (laws, regulations & guidelines)	Refer to section 6.1.
9	Post-closure risk (groundwater contamination etc.)	Refer to section 5.2.
10	Post closure land use and land capability	
	Open pit	Due to the nature of the pit, the walls will stay as is. Construct a fence along the high walls of the open pit, along with safety signs.
	Disturbed surfaces (post decommissioning)	Open field (low pre-mining land capability). Requires growth medium establishment and re-vegetation.
11	Post closure aftercare and maintenance (set for 2 years post closure)	
	Invader/alien vegetation monitoring & management	As per environmental specialist specification.
	Land stability & erosion maintenance	As per civil engineer specification (if required)

Table 3: Evaluation Criteria

	Aspect	Description	Cross Reference
1	Site Inspection	Yes (14 August 2024).	N/A
2	Yellow Plant	Industry/contractor rates.	Annexure C
3	Labour	Industry/contractor rates.	Annexure C
4	Unit Rates	Determination: Plant capacity, travelling distance, route angle, operator skill, height of structures & specific quantity.	-
5	Bill of Quantities	Independently quantified.	-
6	P&Gs	15% Estimate.	-
7	Cost assumptions	Assumptions made which influences the overall costs.	Section 10.3
8	Level of accuracy	90%	N/A

10 Rehabilitation and Closure Action Plan

A rehabilitation and closure action plan have been compiled for Bundu Mining and contains specific implementable actions in respect of decommissioning, rehabilitation, remediation, and closure. Refer to Table 4 for the rehabilitation and closure action plan. The action plan is also depicted spatially to display planned rehabilitation progression throughout operations (refer Figure 4). A visual interpretation of the proposed final rehabilitation is presented in Figure 5.

It should be noted that this report only focus on the mining right application area, which only include the current rock quarry that will be expanded. All associated infrastructure are covered in a different Mining Permit (GP10396MP).

Table 4: Rehabilitation and Closure Action Plan for Bundu Mining

Area	Item Description	Activity
Quarry	Pit/Quarry	Fill toe areas with growth medium to establish vegetation, import and place topsoil (suitable growth medium) on platform areas for grassing and revegetation.

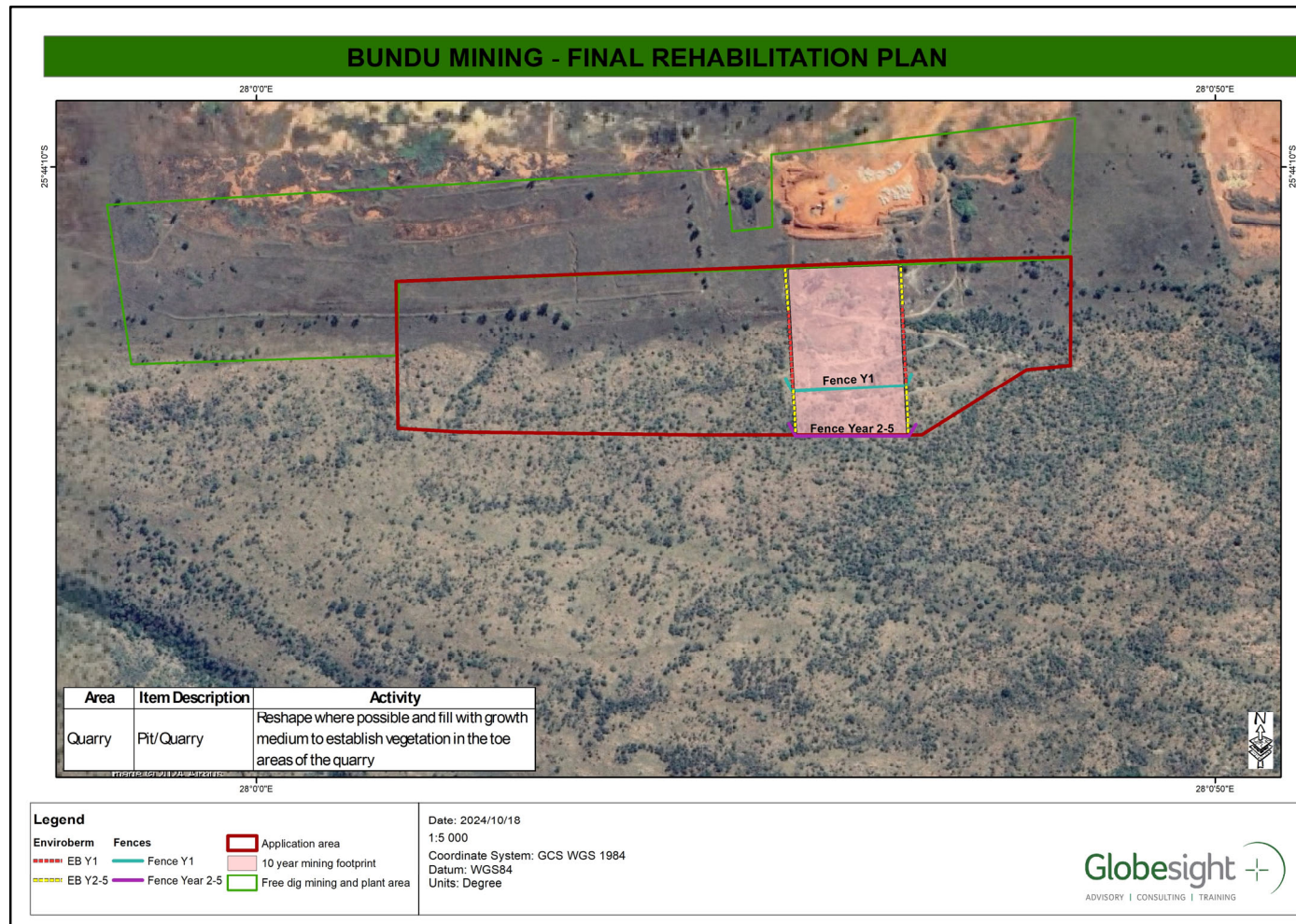


Figure 5: Final Rehabilitation Action Plan

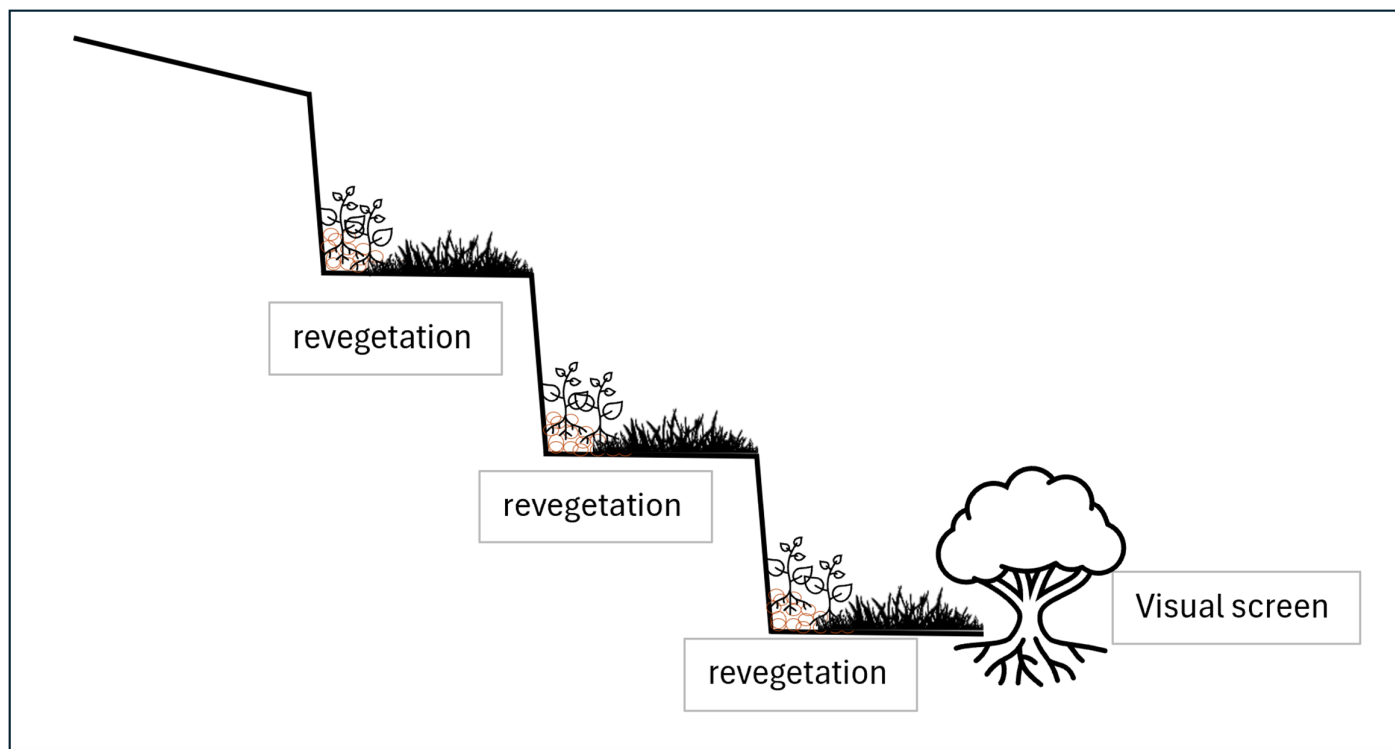


Figure 6: Visual interpretation of proposed final rehabilitation

11 Final Rehabilitation and Closure Cost Estimation

11.1 Methodology to determine closure costs

The approach adopted during this evaluation broadly involved conducting a site investigation during which visual observations were made and interviews were held with key personnel and a comprehensive review and scrutiny of applicable scientific and technical reports inclusive of supplemental information. From this a costing strategy and framework was developed to ultimately compile a detailed independent rehabilitation and closure solution for the purposes of the action plan and the cost estimate.

The development of site-specific costs for final rehabilitation, decommissioning and closure involved the following sequence of evaluations:

- ▼ A detailed and comprehensive site assessment (1 day in this case).
- ▼ Collection of the proposed development site layout drawings.
- ▼ Compilation of the Bill of Quantities (BoQ), utilizing observations made during the site inspection and individual measurements made from the site layout drawings and available information obtained as per the rehabilitation and closure component.
- ▼ Identification of the respective closure components.
- ▼ Identification of the prescribed post mining land use requirement for each closure component.
- ▼ Compilation of a list of activities/actions, referred to as items, to be implemented to achieve the desired post mining land use objective for each closure component.

Rehabilitation and closure costs were then determined by undertaking the following:

- ▼ Selection of the most appropriate equipment/plant type, capacity, time requirement, operator efficiency, fuel requirement, distance of travel, angle of route and height of infrastructure applicable to each item to derive actual costs for each item individually.
- ▼ Then, for the purposes of auditable calculations, unit rates are derived mathematically using total item cost divided by the respective item quantity.
- ▼ Important to note is that decommissioning, and rehabilitation activities are almost entirely engineering projects in themselves, therefore the approach to price the project and then to relay the cost estimate information into an auditable format for the purposes of external review and verification.

The cost estimate is derived in the same way as when the rights holder requests a quotation from an external contractor.

Refer to Annexure B for detailed Cost and Rate calculations.

Refer to Table 5 below for the Final Rehabilitation and Closure Cost estimation for Bundu.

Bundu Mining: Compounded rehabilitation projection for years 1 to 10										
Mine Section	Yr1	Yr2	Yr3	Yr4	Yr5	Yr6	Yr7	Yr8	Yr9	Yr10
Year 1	501 471.09	-	-	-	-	-	-	-	-	-
Year 2-5	-	192 805.11	192 805.11	192 805.11	192 805.11	-	-	-	-	-
Year 6-10*	-	-	-	-	-	-	-	-	-	207 442.67
Sub-total per annum	501 471.09	192 805.11	192 805.11	192 805.11	192 805.11	-	-	-	-	207 442.67
Accumulated Total	501 471.09	694 276.20	887 081.31	1 079 886.42	1 272 691.53	1 272 691.53	1 272 691.53	1 272 691.53	1 272 691.53	1 480 134.20
Preliminary & General (15%)	75 220.66	28 920.77	28 920.77	28 920.77	28 920.77	-	-	-	-	31 116.40
Contingency (10%)	50 147.11	19 280.51	19 280.51	19 280.51	19 280.51	-	-	-	-	20 744.27
Total per annum (excl VAT)	626 838.86	241 006.39	241 006.39	241 006.39	241 006.39	-	-	-	-	259 303.34
Accumulated Total (excl VAT)	626 838.86	867 845.25	1 108 851.64	1 349 858.03	1 590 864.41	1 590 864.41	1 590 864.41	1 590 864.41	1 590 864.41	1 850 167.75
Accumulated Total (incl. VAT)	720 864.69	998 022.04	1 275 179.38	1 552 336.73	1 829 494.07	1 829 494.07	1 829 494.07	1 829 494.07	1 829 494.07	2 127 692.91
*Note: Pit excavation for Year 6 to 10 extends only by depth, hence at Year 5 the surface extremities of the pit area are reached.										

11.3 Cost Assumptions

- ▼ Rates and costs include all services and supplies to/on site.
- ▼ Rates are inclusive of fuel costs (i.e., rates are wet rates).
- ▼ Rates and costs are based on the premise of premature/third party closure.
- ▼ Costs are based on the present currency (ZAR) value, i.e. at "day of assessment (September 2024)" and thus represents a snapshot rehabilitation and closure scenario at the 10-year development proposed.
- ▼ Costs include Value Added Tax (VAT) of 15%.
- ▼ The rehabilitation and closure cost estimate is based on a 6–12-month decommissioning, rehabilitation and closure schedule with a two (2) year post-closure maintenance and aftercare period.
- ▼ The post-operational land use is aimed at making safe the entire site and rehabilitation and screening the excavations.
- ▼ Rehabilitation by third party contractor.
- ▼ Plant hire site establishment included in the cost.
- ▼ Assume all m³ = LCM (loose cubic meters).
- ▼ A free-haul rate of up to 1km.
- ▼ Health, Safety and Security will be required during the decommissioning and closure phase with only reduced security services being required during the post-closure aftercare and maintenance period.
- ▼ Economies of scale are based on the rehabilitation and closure of the entire operational site as a single encompassing exercise; rehabilitation and closure of individual components within the project area will price higher.

12 Identification of Gaps

The knowledge base utilized during this assessment was sufficient to develop a rehabilitation plan with satisfactory confidence levels. Therefore, at present, there are no known knowledge gaps which likely affected the accuracy of the rehabilitation plan. Should any perceived information gaps develop over time, then these will be considered and evaluated as and when applicable.

13 Relinquishment Criteria

Relinquishment occurs at the point where the holder of the right has achieved all agreed standards and completion criteria for the decommissioning and rehabilitation of the project site. All parties should be satisfied that the site does not pose any danger to public health and safety nor to environmental health. The site should allow productive use of the land, specifically the intended end land use objective. The final relinquishment criteria would in this case be the receipt of a Closure

Certificate in terms of Section 43 of the MPRDA (as amended), as well as selected requirements set by the landowner from time to time.

14 Monitoring, Auditing and Reporting Requirements

14.1 Audit Schedule

The following table presents the audit schedule to be followed:

Table 6: Audit Schedule as it pertains to Bundu mining

Audit	Regulatory Requirement	Timeframe	External Responsibility	Internal Responsibility
MPRDA Performance Assessments	Once every year	As per Bundu mining audit schedule	To be appointed	Mine Manager
NWA Performance Assessment	Once every year	As per Bundu mining audit schedule	To be appointed	Mine Manager
Financial Provision Assessment	Once every year	As per Bundu mining audit schedule	To be appointed	Mine Manager
Annual & Final Rehabilitation Plan review	Once every year	As per Bundu mining audit schedule	To be appointed	Mine Manager

14.2 Reporting Requirements

The following table presents the reporting requirements to be followed:

Table 7: Reporting Requirements as it pertains to Bundu mining

Audit	Regulatory Requirement	Timeframe	Timeframe in which to submit	Regulatory Authority	Comment
MPRDA Performance Assessments	Once every year	As per Bundu mining audit schedule	30 days after finalisation	DMRE	These reports should be presented to Stakeholders during a feedback forum if the findings of the audits detect that the approved measures are no longer suitable to address the activities of the mine and that stakeholders may be negatively impacted as a result. <u>or</u> Upon instruction of the DMRE.
NWA Performance Assessment	Once every year	As per Bundu mining audit schedule	30 days after finalisation	DWS	
Financial Provision Assessment	Once every year	As per Bundu mining audit schedule	Once audited by external financial auditors	DMRE	
Annual & Final Rehabilitation Plan	Once every year	As per Bundu mining audit schedule	Once audited by external financial auditors	DMRE	

14.3 Monitoring Plan

The monitoring plan as it relates to the realised risks, the legal requirements and knowledge gaps in terms of respective biophysical and social parameters.

At the end of the active decommissioning stage when earthworks are completed, and ecosystems are becoming established, decommissioning moves to a passive care stage for a period until it is demonstrated that completion criteria is achieved. The post- decommissioning monitoring programme should be like monitoring undertaken during the progressive rehabilitation but geared to focus on those aspects of the site that either relate to a potential on-going pollution hazard or provide an indicator for the success of rehabilitation.

14.3.1 Surface Monitoring²⁵

A surface water monitoring plan was proposed by GSC (Hydrology Assessment for Bundu Sands, GCS, November 2023).

Three phases of monitoring are proposed:

1. Monthly visual assessments in work areas associated with the preparation, operation and closure phase activities. If visual and monitoring observations show areas of concern it is advised mitigation measures to be formatted based on the scale of impact observed.
2. Post-closure surface water sampling and analysis can be considered at time of closure, dependent on the observations and results during the operational phase.
3. The position of the proposed surface water streams are from upstream to downstream in the downstream watercourse and aim to assess the long-term impact on the stream and wetland system.
 - a. Post-closure water quality sampling is proposed on a biannual basis up until relinquishment.

14.3.2 Vegetation monitoring²⁶

The following monitoring recommendation were included in the Terrestrial Biodiversity Assessment of December 2022.

- ▼ Erosion should be rectified as soon as possible as part of ongoing rehabilitation. This can be done through stabilisation, shape and the application of topsoil as well as revegetation.
- ▼ Alien and invasive floral species to be eradicated and controlled as per the invasive species management plan.

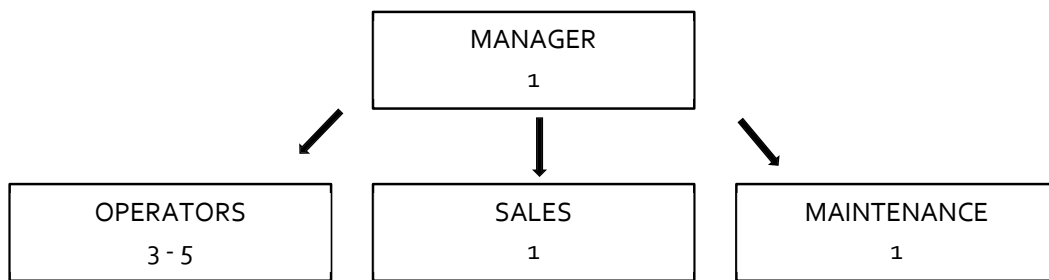
²⁵ Hydrology Assessment for Bundu Sands, GCS, November 2023

²⁶ Terrestrial Biodiversity and Plant Species Assessment, David Hoare Consulting (Pty) Ltd, 7 December 2022

- ▼ Progressive rehabilitation should continue as per an approved rehabilitation management plan. The end land use (grazing land) and other closure requirements should be kept in mind when continuous rehabilitation is taking place.
- ▼ Should indigenous vegetation cover not be achieved in the disturbed areas and bare soils, within one year, seeding with locally indigenous grass species should be implemented.
- ▼ Continue floral and faunal monitoring during operation phase, to identify and rectify areas of concern. Long term data could be used to develop final rehabilitation parameters.
- ▼ Where natural re-vegetation and self-succession proves unsuccessful, ripping, fertilization and seeding with indigenous seed mixture, should be undertaken.

15 Organisational Capacity

15.1 Organisational Structure



15.2 Responsibilities

It is the responsibility of the Mine Manager to ensure that the requirements of the plan are maintained, implemented, and then annually reviewed in line with the requirements, procedures and legal requirements as set by the regulator.

The Finance Manager must always ensure that enough funds are allocated to enable the implementation of this plan.

16 Amendments to Final Rehabilitation Plan

As per the Regulations, this report will be assessed and updated annually to assist the operation in planning towards closure and the implementation of concurrent rehabilitation actions as part of the day-to-day mining operations.

This report is part of the EIA/EMP phase of the Mining right application for Bundu Mining.

17 References

The following documents were consulted in the preparation of this report:

- ▼ Scoping Report, Final Version for Submission, Aquastrat Solutions (Pty) Ltd & Umhlaba Environmental Consulting cc, April 2024
- ▼ Terrestrial Biodiversity and Plant Species Assessment Report for Bundu Mining on the Farm Uitzicht alias Rietvalei 314-JR, east of Hartbeespoort, Gauteng Province, David Hoare Consulting (Pty) Ltd, 7 December 2022
- ▼ Report: Blast Impact Assessment Bundu Mining (Pty) Ltd Rietvalei Mining Right Application Project, Blast Management & Consulting, 28 November 2023
- ▼ Faunal Assessment Bundu Mining (Pty) Ltd Quarry Site, BioAssests, October 2023
- ▼ Bund Mining (Pty) Ltd Mining Permit Application, Specialist Impact Assessment (Avifauna), Feathers Environmental Services, October 2023
- ▼ A Heritage Impact Assessment Report for the Bundu Rietvalei Mining Rights Application on the Farm Uitzicht Alias Rietvalei 314JR, APelser Archaeological Consulting, September 2023
- ▼ Hydrology Assessment for the Bundu Sands (Rietvalei) Mining Permit, GCS, 7 November 2023
- ▼ Geohydrology Assessment for the Bundu Sands (Rietvalei) Mining Permit, GCS, 25 September 2024
- ▼ Water Resource Study, Bundu Sands, Tate Environmental Specialist Services, April 2024

Annexure A: CV of assessors

Annexure B: Detailed Cost & Rate Calculations

Site: Bundu Mining

Date: October 2024

ITEM	DESCRIPTION	ITEM	RATE PER DAY	USAGE	COST	UNIT RATE
1.1	Backfill., Enviroberm & Topsoil (load & haul)					
	8,469m ³ / 30m ³ = 282 loads					
	1 Truck = 60 loads per day					
	Therefore: 282 / 60 = 5 days					
	Excavator for 5 days	47T Excavator	R17 139.25	5 days	R85 696.25	
	ADT for 5 days	ADT 30D	R13 650.25	5 days	R68 251.25	
	D6 Dozer @ 3000m ³ /day = 5 days	D6 Dozer	R14 641.50	5 days	R73 207.50	
	Total Cost				R227 155.00	
	Plus: 15% escalation factor for supervision and mark-up				R261 228.25	
	Unit Rate					R30.85
2.1	Rip & Shape Road Areas (General Surface Rehabilitation)					
	Rip & shape					
	Area = 2150m ² x 0.3m deep					
	Therefore: D8 Dozer @ 3000m ³ /day = 1 days	D8 Dozer	R20 515.25	1 days	R20 515.25	
	Plus: Revegetation on 2150m ² .	Fertilizer	R383.29	1 bags	R383.29	
		Seed mix	R2 964.65	1 bags	R2 964.65	
	Total Cost				R23 863.19	
	Plus: 15% escalation factor for supervision and mark-up				R27 442.67	
	Unit Rate					R12.76
3.1	Hydroseeding					
	Therefore: D8 Dozer @ 3000m ³ /day = 5 days (0.3m deep scarify)	D8 Dozer	R20 515.25	5 days	R102 576.25	
	Plus: Revegetation on 45400	Fertilizer	R383.29	4 bags	R1 533.15	
		Seed mix	R2 964.65	4 bags	R11 858.62	
	Total Cost				R115 968.02	
	Plus: 15% escalation factor for supervision and mark-up				R133 363.22	
	Unit Rate					R2.94
1.1	Excavate cut-off trench					
	560m					
	Volume per meter = 0.75					
	Therefore: 560*0.75 = 420m ³ @ 100m ³ /day = 5 days					
	Excavator for 5 days	47T Excavator	R17 139.25	5 days	R85 696.25	
	Total Cost				R85 696.25	
	Plus: 15% escalation factor for supervision and mark-up				R98 550.69	
	Unit Rate					R234.64

Annexure C: Equipment and Consumables Pricing

[illegible]

	Price per kg	50kg bag	Price per bag	Area (m2)	Coverage (m2)	No of bags (rounded)	Total cost	Remarks
Fertiliser								
- OBARO Cooperation (232 blend)	14.40	25	359.99	45 200	20 000	3	1 174	
- OBARO Cooperation (321 blend)	16.26	25	406.58	45 200	20 000	3	1 325	
Average price (estimate)	15.33	25	383.29	45 200	20 000	3	1 250	Price excludes delivery.
Total cost for seeding (mix + fertilizer)							10 914	Price excludes delivery.
Trees/Shrubs								
	Price per tree	Remarks						
100L Tree								
- Windy Willows	1 500.00							
- Watercombe	1 300.00							
Average price (estimate)	1 400.00							
	Price per tree	Remarks						
50L Tree								
- Windy Willows	600.00							
- Watercombe	600.00							
Average price (estimate)	600.00							
Farm Fence								
	Price per meter	Remarks						
5 strand barbed wire fence	38.20							
Diamond Mesh	59.95							
Pig Wire fence	57.24							
Average price (estimate)	51.80							
Installation cost	40							
Total cost	91.80							