

**IMERYS REFRACTORY MINERALS SOUTH AFRICA (PTY) LTD –
KRUGERSPOST ANDALUSITE MINE – KLIPFONTEIN MINE**

**Final Closure Plan and Rehabilitation Plan
As part of Closure Application**

Based on Appendix 5 (Closure Plan) of the Environmental Impact Assessment Regulations, 2014 and Appendix 4 (Minimum content of a final rehabilitation, decommissioning and closure plan) of the Regulations Pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production Operations, 2015 i.t.o. the National Environmental Management Act No 107 of 1998 (as amended), and regulation 60 of the Minerals and Petroleum Resources Development Regulations, GN 527 of 2004 (as amended) i.t.o. the Minerals and Petroleum Resources Development Act No 28 of 2002

DMR ref: MP30/5/1/2/2/196MR

DWS ref: 16/2/7/B400/C373

Location: Portions 31, 32, 36 and the remaining extent of Portion 1, of the farm Klipfontein 400KT, Thaba Chweu Local Municipality, Mpumalanga

June 2018



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OBJECTIVE OF THE FINAL REHABILITATION, DECOMMISSIONING AND MINE CLOSURE PLAN

The objective of the final rehabilitation, decommissioning and mine closure plan, which must be measurable and auditable, is to identify a post-mining land use that is feasible through—

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

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Addendum 1: Environmental Risk Report

Addendum 2: Environmental Management Programme Performance Assessment Report

Addendum 3: Reshaping, Soil Replacement, Re-Vegetation, and Alien Control

Addendum 4: Sloping and Earthworks Plan

Addendum 5: Asbestos Inventory of Asbestos Cement at the Samrec Krugerspost Mine in Lydenburg

Addendum 6: Public participation proof

ABBREVIATIONS

DWS	Department of Water and Sanitation
EAP	Environmental assessment practitioner
EMP	Environmental Management Programme
GN 982	Environmental Impact Assessment Regulations, GN 982 of 2014 i.t.o. the National Environmental Management Act No 107 of 1998 (as amended)
GN 1147	Regulations Pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production, GN 1147 of 2015 i.t.o. the National Environmental Management Act No 107 of 1998 (as amended)
MAR	Mean annual runoff
MHSA	Mine Health and Safety Act, 1996 (Act No. 29 of 1996)
MPRDA	Minerals and Petroleum Resources Development Act (Act 28 of 2002 as amended)
MPRDR	Minerals and Petroleum Resources Development Regulations, GN 527 of 2004 (as amended) i.t.o. the Minerals and Petroleum Resources Development Act No 28 of 2002
MWP	Mine works programme
NEMA	National Environmental Management Act No 107 of 1998 (as amended)
PPE	Personal protective equipment
WUL	Water use licence

EXECUTIVE SUMMARY

Imerys Refractory Minerals South Africa (Pty) Ltd (Imerys) – Krugerspost Mine, is an existing andalusite mine in the Mpumalanga Province. The purpose of this document is to provide sufficient information for the closure and rehabilitation of the mine.

Information regarding the background to the mine was taken from the approved Environmental Management Programme (EMP) (author unknown, 1999), the Hydrogeological Report (Shangoni Management Services, 2013) and various specialist studies conducted on the adjacent property. A site visit was held on 22 March 2018 to gather any additional information.

This Closure Plan is compiled in line with the requirements of the Minerals and Petroleum Resources Development Act (Act 28 of 2002 as amended) (MPRDA) contemplated in regulation 62 of the Minerals and Petroleum Resources Development Regulations, GN 527 of 2004 (as amended) i.t.o. the Minerals and Petroleum Resources Development Act No 28 of 2002 (MPRDR); regulation 19(6) & Appendix 5 of the Environmental Impact Assessment Regulations, GN 982 of 2014 i.t.o. the National Environmental Management Act No 107 of 1998 (as amended) NEMA; and regulations 6(b) & 12(2) & Appendix 4 of the Regulations Pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production, GN 1147 of 2015 i.t.o. NEMA.

Attached as Addendum 1 is the Environmental Risk Assessment Report in line with the requirements of the MPRDA contemplated in regulation 60 of the MPRDR; regulations 6(c), 11(1)(c) & 12(3) & Appendix 5 of the Regulations Pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production, GN 1147 of 2015 i.t.o. NEMA.

Attached as Addendum 2 to this report is the final EMP Performance Assessment contemplated in regulation 55(9) of the MPRDR.

Attached as Addendum 3 as a report on the ripping, re-vegetation, and alien control plan of all the areas to be rehabilitated as indicated in Section 4 of this report.

Attached as Addendum 4 is the Sloping and Earthworks Plan. Attached as Addendum 5 as the Asbestos Inventory of Asbestos Cement at the Samrec Krugerspost Mine in Lydenburg.

Attached as Addendum 6 is the public participation proof of the original plan.

No transfer of environmental liabilities and responsibilities will take place, Imerys will rehabilitate the mine.

Layout of document

Refer to the Table 1 below for a layout of this documents, considering the requirements as set out in regulation 62 of the MPRDR, Appendix 5 of GN 982, and Appendix 4 of GN 1147.

According to Appendix 4 of GN 1147:

'The final rehabilitation, decommissioning and mine closure plan must be measurable and auditable, must take into consideration the proposed post-mining end use of the affected area and must contain information that is necessary for the definition of the closure vision, objectives and design and relinquishment criteria, indicating what infrastructure and activities will ultimately be decommissioned, closed, removed and remediated and the risk drivers determining actions, indicating how the closure actions will be implemented to achieve closure relinquishment criteria and indicating monitoring, auditing and reporting requirements.'

Table 1: Layout of document

GN 527	GN 982	GN 1147	Description	Section
a			A description of the closure objectives and how these relate to the mine operation and its environmental and social setting	4
b			A plan contemplated in regulation 2(2), showing the land or area under closure	Figure 2
c			A summary of the regulatory requirements and conditions for closure negotiated	3.1
d			A summary of the results of the environmental risk report and details of identified residual and latent impacts	Addendum 1
e			A summary of the results of progressive rehabilitation undertaken	Addendum 2, 4.2
f			A description of the methods to decommission each prospecting or mining component and the mitigation or management strategy proposed to avoid, minimize and manage residual or latent impacts	4.2
g			Details of any long-term management and maintenance expected	5
h			Details of a proposed closure cost and financial provision for monitoring, maintenance and post closure management	6
i			A sketch plan drawn on an appropriate scale describing the final and future land use proposal and arrangements for the site	4.1
j			A record of interested and affected persons consulted	2.3
k			Technical appendices	Addendums
	1(a)		i. Details of the EAP who prepared the closure plan; and	1.2

GN 527	GN 982	GN 1147	Description	Section
			ii. the expertise of that EAP	
	1(b)		Closure objectives	3.2
	1(c)		Proposed mechanisms for monitoring compliance with and performance assessment against the closure plan and reporting thereon	5
	1(d)		Measures to rehabilitate the environment affected by the undertaking of any listed activity or specified activity and associated closure to its natural or predetermined state or to a land use which conforms to the generally accepted principle of sustainable development, including a handover report, where applicable	3.1 4.2
	1(e)		Information on any proposed avoidance, management and mitigation measures that will be taken to address the environmental impacts resulting from the undertaking of the closure activity;	Addendum 1
	1(f)		A description of the manner in which it intends to: <ul style="list-style-type: none"> i. modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation during closure; ii. remedy the cause of pollution or degradation and migration of pollutants during closure; iii. comply with any prescribed environmental management standards or practices; and iv. comply with any applicable provisions of the Act regarding the closure 	Addendum 1
	1(g)		Time periods within which the measures contemplated in the closure plan must be implemented	4.2
	1(h)		The process for managing any environmental damage, pollution, pumping and treatment of extraneous water or ecological degradation as a result of the closure	Addendum 1
	1(i)		Details of all public participation processes conducted in terms of regulation 41 of the EIA Regulations, including - <ul style="list-style-type: none"> i. copies of any representations and comments received from registered interested and affected parties; ii. a summary of comments received from, and a summary of issues raised by registered interested and affected parties, the date of receipt of these comments and the response of the EAP to those comments; iii. the minutes of any meetings held by the EAP with interested and affected parties and other role players which record the views of the participants; iv. where applicable, an indication of the amendments made to the plan as a result of public participation processes conducted in terms of regulation 41 of these Regulations 	2.3

GN 527	GN 982	GN 1147	Description	Section
	1(j)		Where applicable, details of any financial provisions for the rehabilitation, closure and on-going post decommissioning management of negative environmental impacts	6
		3(a)	Details of: i. the person or persons that prepared the plan; ii. the professional registrations and experience of the preparers	1.2
		3(b)	The context of the project, including: i. material information and issues that have guided the development of the plan	2.1
		3(b)	The context of the project, including: ii. an overview of (aa) the environmental context, including but not limited to air quality, quantity and quality of surface and groundwater, land, soils and biodiversity; and (bb) the social context that may influence closure activities and post-mining land use or be influenced by closure activities and post-mining land use;	2.2
		3(b)	The context of the project, including: iii. stakeholder issues and comments that have informed the plan	2.3
		3(b)	The context of the project, including: iv. the mine plan and schedule for the full approved operations, and must include: (aa) an appropriate description of the mine plan; (bb) drawings and figures to indicate how the mine develops; (cc) what areas are disturbed; and (dd) how infrastructure and structures (including ponds, residue stockpiles etc.) develops during operations	2.4
		3(c)	Findings of an environmental risk assessment leading to the most appropriate closure strategy, including: i. a description of the risk assessment methodology including risk identification and quantification, to be undertaken for all areas of infrastructure or activity or aspects for which a holder of a right or permit has a responsibility to mitigate an impact or risk at closure	Addendum 1
		3(c)	Findings of an environmental risk assessment leading to the most appropriate closure strategy, including:	Addendum 1

GN 527	GN 982	GN 1147	Description	Section
			ii. an identification of indicators that are most sensitive to potential risks and the monitoring of such risks with a view to informing rehabilitation and remediation activities	
		3(c)	Findings of an environmental risk assessment leading to the most appropriate closure strategy, including: iii. an identification of conceptual closure strategies to avoid, manage and mitigate the impacts and risks	Addendum 1
		3(c)	Findings of an environmental risk assessment leading to the most appropriate closure strategy, including: iv. a reassessment of the risks to determine whether, after the implementation of the closure strategy, the residual risk has been avoided and/or how it has resulted in avoidance, rehabilitation and management of impacts and whether this is acceptable to the mining operation and stakeholders; and	Addendum 1
		3(c)	Findings of an environmental risk assessment leading to the most appropriate closure strategy, including: v. an explanation of changes to the risk assessment results, as applicable in annual updates to the plan	Addendum 1
		3(d)	Design principles, including: i. the legal and governance framework and interpretation of these requirements for the closure design principles	3.1
		3(d)	Design principles, including: ii. closure vision, objectives and targets, which objectives and targets must reflect the local environmental and socio-economic context and reflect regulatory and corporate requirements and stakeholder expectations	3.2
		3(d)	Design principles, including: iii. a description and evaluation of alternative closure and post closure options where these exist that are practicable within the socioeconomic and environmental opportunities and constraints in which the operation is located	3.3
		3(d)	Design principles, including: iv. a motivation for the preferred closure action within the context of the risks and impacts that are being mitigated	3.4
		3(d)	Design principles, including: v. a definition and motivation of the closure and post closure period, taking cognisance of the probable need to implement post closure monitoring and maintenance for a period sufficient to demonstrate that relinquishment criteria have been achieved	3.5
		3(d)	Design principles, including: vi. details associated with any on-going research on closure options	3.6
		3(d)	Design principles, including:	3.7

GN 527	GN 982	GN 1147	Description	Section
			vii. a detailed description of the assumptions made to develop closure actions in the absence of detailed knowledge on site conditions, potential impacts, material availability, stakeholder requirements and other factors for which information is lacking	
		3(e)	A proposed final post-mining land use which is appropriate, feasible and possible of implementation, including: i. descriptions of appropriate and feasible final post-mining land use for the overall project and per infrastructure or activity and a description of the methodology used to identify final post-mining land use, including the requirements of the operations stakeholders	4.1
		3(e)	A proposed final post-mining land use which is appropriate, feasible and possible of implementation, including: ii. a map of the proposed final post-mining land use	4.1
		3(f)	Closure actions, including: i. the development and documenting of a description of specific technical solutions related to infrastructure and facilities for the preferred closure option or options, which must include all areas, infrastructure, activities and aspects both within the mine lease area and off of the mine lease area associated with mining for which the mine has the responsibility to implement closure actions	4.2
		3(f)	Closure actions, including: ii. the development and maintenance of a list and assessment of threats and opportunities and any uncertainties associated with the preferred closure option, which list will be used to identify and define any additional work that is needed to reduce the level of uncertainty	4.2
		3(g)	A schedule of actions for final rehabilitation, decommissioning and closure which will ensure avoidance, rehabilitation, management of impacts including pumping and treatment of extraneous water: i. linked to the mine works programme, if greenfields, or to the current mine plan if brownfields	4.2
		3(g)	A schedule of actions for final rehabilitation, decommissioning and closure which will ensure avoidance, rehabilitation, management of impacts including pumping and treatment of extraneous water: ii. including assumptions and schedule drivers; and	4.2
		3(g)	A schedule of actions for final rehabilitation, decommissioning and closure which will ensure avoidance, rehabilitation, management of impacts including pumping and treatment of extraneous water: iii. including a spatial map or schedule, showing planned spatial progression throughout operations	4.2
		3(h)	An indication of the organisational capacity that will be put in place to implement the plan, including:	4.2

GN 527	GN 982	GN 1147	Description	Section
			i. organisational structure as it pertains to the plan	
		3(h)	An indication of the organisational capacity that will be put in place to implement the plan, including: ii. responsibilities	4.2
		3(h)	An indication of the organisational capacity that will be put in place to implement the plan, including: iii. training and capacity building that may be required to build closure competence	4.3
		3(i)	An indication of gaps in the plan, including an auditable action plan and schedule to address the gaps	4.4
		3(j)	Relinquishment criteria for each activity or infrastructure in relation to environmental aspects with auditable indicators	4.5
		3(k)	Closure cost estimation procedure, which ensures that identified rehabilitation, decommissioning, closure and post-closure costs, whether on-going or once-off, are realistically estimated and incorporated into the estimate, on condition that: i. cost estimates for operations or components of operations that are more than 30 years from closure will be prepared as conceptual estimates with an accuracy of ± 50 per cent. Cost estimates will have an accuracy of ± 70 per cent for operations or components of operations, 30 or less years (but more than ten years) from closure and ± 80 per cent for operations, or components of operations ten or less years (but more than five years) from closure. Operations with 5 or less years will have an accuracy of ± 90 per cent. Motivation must be provided to indicate the accuracy in the reported number and as accuracy improves, what actions resulted in an improvement in accuracy	6
		3(k)	Closure cost estimation procedure, which ensures that identified rehabilitation, decommissioning, closure and post-closure costs, whether on-going or once-off, are realistically estimated and incorporated into the estimate, on condition that: ii. the closure cost estimation must include: (aa) an explanation of the closure cost methodology; (bb) auditable calculations of costs per activity or infrastructure; (cc) cost assumptions	6
		3(k)	Closure cost estimation procedure, which ensures that identified rehabilitation, decommissioning, closure and post-closure costs, whether on-going or once-off, are realistically estimated and incorporated into the estimate, on condition that: iii. the closure cost estimate must be updated annually during the operation's life to reflect known developments, including changes from the annual review of the closure strategy assumptions and inputs, scope changes, the effect of a further year's inflation, new regulatory requirements and any other material developments	6

GN 527	GN 982	GN 1147	Description	Section
		3(l)	Monitoring, auditing and reporting requirements which relate to the risk assessment, legal requirements and knowledge gaps as a minimum and must include: <ul style="list-style-type: none"> i. a schedule outlining internal, external and legislated audits of the plan for the year, including: <ul style="list-style-type: none"> (aa) the person responsible for undertaking the audit(s); (bb) the planned date of audit and frequency of audit; (cc) an explanation of the approach that will be taken to address and close out audit results and schedule 	5
		3(l)	Monitoring, auditing and reporting requirements which relate to the risk assessment, legal requirements and knowledge gaps as a minimum and must include: <ul style="list-style-type: none"> ii. a schedule of reporting requirements providing an outline of internal and external reporting, including disclosure of updates of the plan to stakeholders 	5
		3(l)	Monitoring, auditing and reporting requirements which relate to the risk assessment, legal requirements and knowledge gaps as a minimum and must include: <ul style="list-style-type: none"> iii. a monitoring plan which outlines: <ul style="list-style-type: none"> (aa) parameters to be monitored, the frequency of monitoring and period of monitoring; (bb) an explanation of the approach that will be taken to analyse monitoring results and how these results will be used to inform adaptive or corrective management and/or risk reduction activities 	5
		3(m)	Motivations for any amendments made to the final rehabilitation, decommissioning and mine closure plan, given the monitoring results in the previous auditing period and the identification of gaps as per 2(i).	7

SECTION 1: INTRODUCTION

1.1 Details of applicant

Table 2: Description of the applicant

Project applicant	Imerys Refractory Minerals South Africa (Pty) Ltd – Krugerspost Mine
Contact person	Hendrik Jones
Designation	Operational Director
Telephone number	+27 12 643 5940
E-mail address	Hendrik.Jones@imerys.com

1.2 Details of Environmental assessment practitioner

Refer to Table 3 below for a description of the environmental assessment practitioner (EAP).

Table 3: Description of the environmental assessment practitioner

Name of company	BECS Environmental
Postal address	PO Box 72960, Lynnwood Ridge, 0040
Telephone number	012 361 9970
Cell phone number	072 191 6074
Facsimile number	012 361 0645
E-mail address	salome@becsenv.co.za
Name of responsible EAP	Salome Beeslaar
Expertise of EAP	B.Sc Environmental Science (UP), B.Sc Honours Geography (UP), M.Sc Geography (UP), Professional Scientist (Environmental Science), member of the International Associated of Impact Assessments South Africa.
Name of second responsible EAP	Deshree Pillay
Expertise of EAP	B. Sc Environmental Science (UP), B. Sc Honours Geography & Environmental Science (UP)

1.2.1 Professional registrations and experience

Professional registration – Salome Beeslaar:

- Professional Scientist (Environmental Science), SACNASP (400385/14)
- Member of the International Associated of Impact Assessments South Africa (membership number 5853)

Experience:

- Rehabilitation plans for Samrec Anref Mine, SANRAL, Vergenoeg Mining Company, Rolfes Silica, Vereeniging Refractories (Rietfontein Mine and Marico Chrome), Boekenhout Sand, Krosa.
- Closure plans for Imerys Refractory Minerals South Africa, Petra Diamonds Sedibeng Mine.

I, Salome Beeslaar (8310190032081), hereby declare that I have no conflict of interest related to the work of this report. Specially, I declare that I have no business, personal, or financial interests in the property and/or mining right being assessed in this report and that I have no personal or financial connections to the relevant property owners or mine. I declare that the opinions expressed in this report are my own and a true reflection of my professional expertise and that there are no circumstances that may compromise my objectivity in performing such work.

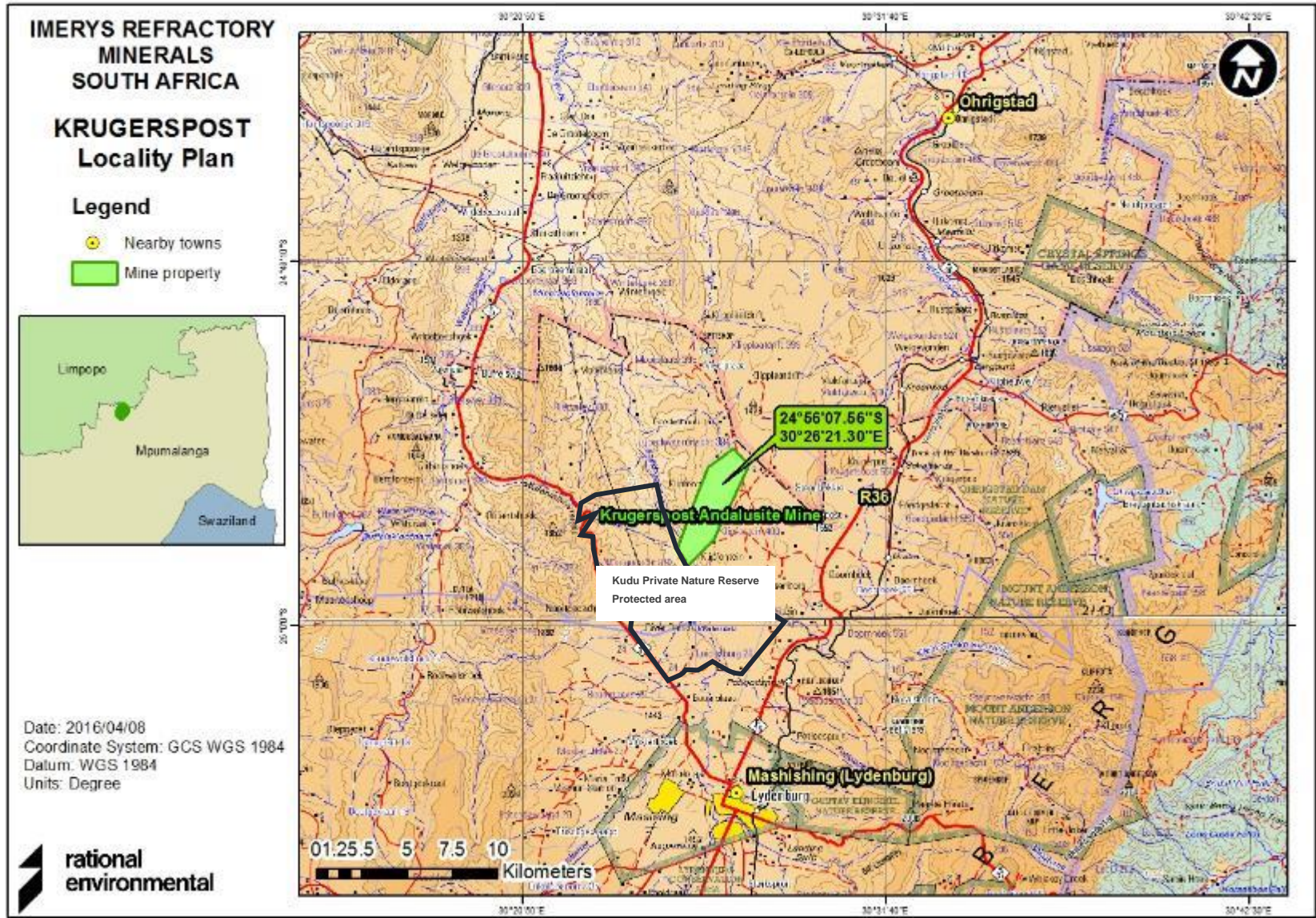


Salome Beeslaar
MSc – Geography
SACNASP (400385/14)
4 June 2018

1.3 Background on locality

Krugerspost Mine is located on portions 31, 32, 36 and the remaining extend (re) of portion 1 of the farm Klipfontein 400 KT in Thaba Chweu Local Municipality in the Mpumalanga Province. No active mining or processing is taking place.

The mine is in the B42E quaternary catchment of the Olifants Water Management Area and the Central Transvaal (Bushveld) Basin. Krugerspost is located at S24.937 and E30.436 (central coordinates). Approximately 978ha on the farm Klipfontein was used for the Krugerspost mining operations. The Spekboom River runs approximately 3km to the south west from the current mining activities.



SECTION 2: THE CONTEXT OF THE PROJECT

2.1 Material information and issues that have guided the development of the plan

Information regarding the background to the mine was taken from the approved Environmental Management Programme (EMP) (author unknown, 1999), the Hydrogeological Report (Shangoni Management Services, 2013) and various specialist studies conducted on the adjacent property. A site visit was held on 18th January 2016 and a follow up on the rehabilitation monitoring was conducted on the 24th October 2017. Another site visit took place, this year on the 22nd March 2018 to gather any additional information.

2.2 The environmental context and the social context that may influence closure activities and post-mining land use or be influenced by closure activities and post-mining land use

The environmental context must include but not limited to air quality, quantity and quality of surface and groundwater, land, soils and biodiversity.

2.2.1 Topography

The mine is situated on the eastern slope of a north / south water divide. Surface flow from the mine will, therefore, be in a south-eastern direction towards the natural drainage line and dams to the east which also acts as the mine surface water system. This water flows down south-west towards the north draining Spekboom River. Extracted from the Storm Water Management Plan (Shangoni Management Services, 2012)

2.2.2 Soil

In the north-eastern sector, approximately 25% of the mining area was relatively good arable land. To the north, west and south of the mined area clay, boulder rich soils suitable for only grazing occurred. Approximately in the middle of the mined area, deep lowlands-type arable soils occurred. These soils were of poor quality due to the high silt content and moderate blocky structure. Extracted from the approved Environmental Management Programme (author unknown, 1999).

No mention is made of the residual impacts on the soil in any of the specialist studies. It is, however, assumed that the residual impacts on the soil will be significant. Very little topsoil was stockpiled during the mining activities. Topsoil is mixed with overburden and shows signs of erosion. Until such time that revegetation is completed, these areas will be prone to soil erosion.

2.2.3 Pre-mining land capability and land use

10% of the mining area comprised pasture while the remaining 90% was wilderness land suitable for low density cattle grazing. No data on historical agricultural production is available. No evidence of

misuse exists. No existing structures occur within the mining area. Extracted from the approved Environmental Management Programme (author unknown, 1999).

2.2.4 Natural vegetation

The area as described by Acocks is mixed bushveld, which is very mixed bush and may be characterised as "*Acacia nigresens* veld". The hill slopes are well wooded with a large variety of medium species of trees as well as shrubs and aloes. No endangered or rare species have been found. No invader species were identified prior to mining. Extracted from the approved Environmental Management Programme (author unknown, 1999).

According to the Vegetation Assessment for the adjacent mining right process (Classic Environmental Management Services, 2014), after closure, the rehabilitated soil could become infested with alien and invasive plant species. This is already evident on the existing mine. Lack of adequate rehabilitation of soils and vegetation could result in an area of vegetation with a low basal cover, prone to erosion and invasion by exotic and invasive plant species. In addition, the vegetation will stay in a pioneer stage and are unlikely to become more functional through succession, limiting the value of the vegetation for grazing or game farming.

2.2.5 Animal life

The area has little remaining wildlife except on the outskirts of the mining area which are remote from habitation. There are no endangered or rare species. Extracted from the approved Environmental Management Programme (author unknown, 1999).

2.2.6 Surface water

According to the Hydrogeological Report (Shangoni, 2013), after mine closure, surface runoff will drain in an easterly direction into the affected dams and eventually into the Spekboom River. Since the water table is so close to the surface, groundwater most probably daylights in this zone to the west of the mine. The surface water dams in this drainage line, therefore, act as a recharge boundary and pollutants will migrate with the groundwater into the surface water as *groundwater contribution baseflow*. Receptors which may be influenced by the mining activities include the users in the Spekboom River (aquatic species, livestock, wildlife).

The Spekboom river is a sensitive habitat and, in being part of the Olifants River Catchment area, it is of particular interest and concern. Rivers and drainage lines are longitudinal ecosystems, and therefore their condition at any point is a reflection of not only upstream activities but also of those within adjacent and upstream parts of the catchment (O'Keefe 1986). Any impact on the riverine area is therefore also likely to impact on the upstream and downstream area. Within the flood benches of the Waterval River, which is a tributary of the Spekboom River, subtropical freshwater wetlands exist. The Dorps River which joins the Spekboom River about 2km upstream from the mine is considered to be of high sensitivity and conservation importance owing to it being a remaining area of indigenous riparian

vegetation in Mpumalanga at risk of being replaced by alien invasive species. The ecological functioning and health of these rivers ensure a suitable habitat for indigenous vegetation as well as biological or dispersal corridors for remaining faunal species. It must also be noted that *Scilla natalensis* also occurs in the area which is an important plant harvested for indigenous medicinal use. Whilst not endemic to South Africa it is on SANBI's Red List of threatened plant species (Kudu Game Ranch, 2016).

2.2.7 Groundwater

Extracted from the Hydrogeological Report (Shangoni Management Services, 2013).

A mining waste geochemical characterisation procedure was conducted on the waste generated by the andalusite mining activities to evaluate the potential risk it poses to the receiving surface and groundwater environments. At present, the mine disposes of the waste by backfilling into the open quarries and slimes dams. Backfilling of wastes do pose several advantages compared to surface storage and include:

- No erosion and therefore sedimentation risks towards the receiving environment.
- Vertical seepage will dominate during the operational phase due to the high hydraulic conductivity of fines thereby reducing horizontal seepage risks towards the matrix and receiving environment. Seepage loads from the slimes and tailings wastes will, therefore, most probably remain isolated during the operational phases.

Although it is expected that vertical seepage will dominate over horizontal seepage during the operational phases of the mine, it may nevertheless remain a potential risk towards the receiving environment. This would be especially true if large-scale fracturing and/ weathering are present in the host matrix.

A sampling and analysis strategy to obtain representative samples of the geological materials and mine wastes was implemented. The analysis strategy included static geochemical testing of the waste material and included:

- An Acid Rain leach to determine the geochemical composition of materials (major and trace elements) based on a worst-case scenario; and
- The acid rock drainage, neutralisation and leaching potential of metals.

The samples were submitted to the Waterlab Pty Ltd, a **SANAS accredited testing laboratory**. Analyses included ABA analyses, major cation and anion distribution and an ICP-OES scan for dissolved metal phases. The results of the analyses are appended as Appendix B to the report.

It is unlikely that significant acid (if any) will be generated from the mine residue. The pH is likely to be neutral to slightly alkaline and heavy metal solubilisation will, therefore, be minimal. Further, it can be determined that the **waste present a slight/ low risk** to the environment posed by the backfilling material in the quarries. Despite the low risk, it is nevertheless recommended that a monitoring programme is implemented to reflect these and other standard elements.

Boreholes which are most susceptible to potential polluting effects are those drilled to the west of the natural drainage line in which the affected surface water features are located. Depending on the proximity and cone of depression formed because of pumping, boreholes drilled to the east thereof will remain unaffected. Receptors which may be influenced by the mining activities include KRBH01 (Borehole at Bagging Plant); KRBH02 (Borehole at workshop); House#2 (Tinashe's House); House#3 (Manie's House); House#4 (John's House); House#5 (Andriana's House); and selected boreholes on adjacent Klipplaatdrift.

Groundwater monitoring takes place at the HMS Plant, Quarry 2/3 and Barge dam. These qualities are the only indicators of water quality at the Office Slimes Dam. Per the last water results, various chemical levels are above the recommended limits as per the WUL (BECS Environmental, 2015).

2.2.8 Socio-economic environment

Extracted from the Integrated Water and Waste Management Plan (Shangoni Management Services, 2014)).

Krugerspost Mine is situated within the Ehlanzeni District Municipality with the regional services council being the Thaba Chweu Local Municipality.

Demography

Per Statistics SA 2011 Census, 98 387 people formed part of the 33 352 households in the Thaba Chweu Local Municipality. The average household size is estimated to be 2.9 people per household while there are 105.1 males for every 100 females (Statistics SA, 2011).

Major economic activities

The major economic activities of the Thaba Chweu local municipality are summarised below:

- Mining - 23.8%
- Community Services – 19%
- Trade - 14.6%
- Finance - 14.1%
- Transport - 10.9%
- Manufacturing - 9.3%
- Agriculture - 5.1%

- Construction - 2.8%
- Electricity - 0.5%
- Eco-tourism
- Conservation

Employment and unemployment

Per Statistics SA 2011 Census, the official unemployment rate is 20.5% and the youth unemployment rate (15-34 years) 27.7%. The dependency ratio is 43 per 100 people between ages of 15 and 64 years.

The Office Slimes Dam will have a low Zone of influence since no wet slimes are deposited on the dam anymore.

2.2.9 Sensitive areas

It must be noted that the Spekboom River Valley, of which the mine falls part of, is a sensitive area.

2.3 Stakeholder issues and comments that have informed the plan

This section must include:

- i. copies of any representations and comments received from registered interested and affected parties;
- ii. a summary of comments received from, and a summary of issues raised by registered interested and affected parties, the date of receipt of these comments and the response of the EAP to those comments;
- iii. the minutes of any meetings held by the EAP with interested and affected parties and other role players which record the views of the participants;
- iv. where applicable, an indication of the amendments made to the plan as a result of public participation processes conducted in terms of regulation 41 of these Regulations

This closure plan is an update of the closure plan which was submitted in 2016 to DMR. Kudu Game Ranch commented on the closure plan. See below their comments and the applicant’s response.

Kudu Game Ranch comments	Response
<p>As has already been previously advised to you (email dated 07 November 2016), Kudu Private Nature Reserve (KPNR) is situated between latitudes 24° 23' and 25° 02'S, and longitudes 30° 23' and 30° 28'E, adjacent to the south-western point of the Krugerspost Mine bordering the Spekboom River. KPNR was declared a Protected Area, as gazetted, on 10 May 2013 in terms of the NEM: Protected Areas Act, 57 of 2003 and is under the management authority of the Mpumalanga Tourism and Parks Agency (MPTA). As such KPNR has its own operational legal requirements in terms of the National</p>	

Kudu Game Ranch comments	Response
<p>Environment Management: Protected Areas Act No. 57 of 2003 (NEM: PAA) as laid out in a management plan which endorses the process of Adaptive Planning as laid down by the Department of Environmental Affairs and Tourism for setting norms and standards for protected areas (Grossman & Holden 2011). This requires that we:</p> <ul style="list-style-type: none"> • negotiate to mitigate or improve the management of external potentially detrimental impacts; • as far as is possible, mitigate the impacts of aquatic pollution events through appropriate contingency planning; • encourage eco-friendly resource use and land management practices on adjacent properties <p>Further to the above, a conservation agreement is in place with all KPNR neighbouring landowners. As the company's management authority Kudu Game Ranch Share Block (KGRSB) we are also required to act on behalf of shareholders' interests and respond to any direct impacts and risks as a result of activities on adjacent properties. As you have duly noted in the Closure Plan, the mine property landowner, Imerys Refractory Minerals South Africa (Pty) Ltd., has its own legislative obligations as detailed in Section 24R of the NEMA that "Every holder remains responsible for any environmental liability, pollution or ecological degradation, the pumping and treatment of polluted or extraneous water, the management and sustainable closure thereof notwithstanding the issuing of a closure certificate by the Minister responsible for mineral resources in terms of the MPRDA to the holder or owner concerned"</p> <p>Given the legislative context above, our comments and responses to the Krugerspost Mine Closure Plan are as follows:</p> <ol style="list-style-type: none"> 1. Omissions in the content and scope of the Krugerspost Mine Closure Plan 2. Proposed mitigation efforts proposed in the plan to avoid aquatic pollution events 3. Environmental and visual sensitivities relating to the pump stations' infrastructure 4. Future land-use considerations following rehabilitation 	
<p>1. Omissions in the content and scope of the Krugerspost Mine Closure Plan</p>	
<p>1.1 Use of out-dated Locality Map resulting in the omission of Kudu Private Nature Reserve demarcation as a "Protected Area: National Parks and Nature Reserves" (Mpumalanga Province Conservation Plan 2014)</p> <p><i>Comment: Amended map to be included in the Closure Plan and content amended accordingly to reflect this conservation land-use. In</i></p>	<p>The map, as well as the socio-economic aspects, have been amended as requested.</p>

Kudu Game Ranch comments	Response
<p>addition, under 1.4.2.8 Socio-economic Environment, it would be appreciated if you could add "Eco-tourism" and "Conservation" to the list of major economic activities.</p>	
<p>1.2 No reference to the sensitive conservation environment of the Spekboom River valley in which the closure will take place <i>Comment: Content to be amended to reflect the sensitive nature of the mine's surrounds (see Mpumalanga Conservation Handbook 2014)</i></p>	<p>I included the conservation importance of the Spekboom River.</p>
<p>1.3 Exclusion of the locality of two pump stations infrastructure and access roads as part of mine's closure plan as depicted in the two images below. Addendum 1 contains photos of the second lower pump station's old infrastructure and broken piping in the river. <i>Comments: All mining operations infrastructure to be included in the Layout Plan and Rehabilitation Layout Plan as well as in the content of the Closure Plan and Addendums. It also needs to be noted that the location of the infrastructure and access roads is primarily in an untransformed and unfragmented natural area of Ohrigstad Mountain Bushveld in which several protected species - Marula Sclerocarya birrea subsp. caffra — occur. As such care must be taken when removing the infrastructure and rehabilitating the area and access roads. In addition, it needs to be noted that the second pump house acoustic enclosure was done and paid for by Kudu Game Ranch Share Block (KGRSB) in an agreement with then-owner, SAMREC (Pty) Ltd in an attempt to reduce the noise pollution from the pump stations operating late at night. This material is owned by KGRSB and must be returned to it when the structure is taken down and rehabilitated.</i></p>	<p>I also included the pump stations locality in the report. I also included the management with regards to clean-up of pump stations. Please be advised, the stations will remain. The mine is still going to use these stations. The access roads to these stations will therefore also remain.</p>
<p>2. Proposed mitigation efforts to avoid aquatic pollution events</p>	
<p>2.1 Slimes Dams: We note the activities put in place for the proper rehabilitation and long-term management and maintenance plans to prevent latent risks and threats such as seepage, erosion and collapse of the dams resulting in very serious pollution of the Spekboom River. The monthly testing of the Spekboom River water upstream and downstream of the mine for five years after rehabilitation as laid out in Addendum 3 of the Closure Plan is duly noted and welcomed. <i>Comments: We would like it to be noted that a previous aquatic pollution event of the Spekboom River occurred in 2009 during SAMREC (Pty) Ltd ownership. The water analysis results categorised the water in the Class 4 Purple Range but the company accepted no liability despite the legislative obligations laid out in Section 24R of the</i></p>	<p>The quarterly water monitoring report is sent to Kudu Game Ranch.</p>

Kudu Game Ranch comments	Response
<p><i>NEMA. Whilst KPNR regularly monitors the water downstream of the mine's locality we would appreciate receipt of the monthly water monitoring results for the full five-year period after rehabilitation.</i></p>	
<p>2.2 Regarding Groundwater and Surface Water contamination risk, you reference the Hydrogeological Report (Shangoni, 2013), stating that "after mine closure, surface runoff will drain in an easterly direction into the affected dams and eventually into the Spekboom River. Since the water table is so close to the surface, groundwater most probably daylight in this zone to the west of the mine. The surface water dams in this drainage line, therefore, act as a recharge boundary and pollutants will migrate with the groundwater into the surface water as groundwater contribution baseflow. Receptors which may be influenced by the mining activities include the users in the Spekboom River (aquatic species, livestock, wildlife)" Note: My underlining.</p> <p><i>Comments: This statement as underlined fails to give due consideration to the importance of the Spekboom River being a sensitive habitat and that, in being part of the Olifants River Catchment area, it is of particular interest and concern. It takes no cognisance of rivers and drainage lines as longitudinal ecosystems, and that their condition at any point is a reflection of not only upstream activities but also of those within adjacent and upstream parts of the catchment (O'Keefe 1986). Any impact on the riverine area is therefore also likely to impact on the upstream and downstream area. Within the flood benches of the Waterval River, which is a tributary of the Spekboom River, subtropical freshwater wetlands exist. The Dorps River which joins the Spekboom River about two kms upstream from the mine is considered to be of high sensitivity and conservation importance owing to it being a remaining area of indigenous riparian vegetation in Mpurnalanga at risk of being replaced by alien invasive species. The ecological functioning and health of these rivers ensure a suitable habitat for indigenous vegetation as well as biological or dispersal corridors for remaining faunal species. The plan must give due consideration to the above and "receptors that may be influenced" need to be expanded to include the full biodiversity of the river's ecosystem not just "the users....(aquatic species, livestock, wildlife)" It must also be noted that Scilla Natalensis also occurs in the area which is an important plant harvested for indigenous medicinal use. Whilst not endemic to South Africa it is on SANBI's Red List of threatened plant species.</i></p>	<p>Your comments on the Spekboom River has been included into the report.</p>
<p>3. Further environmental and visual sensitivities relating to the pump stations' infrastructure</p>	

Kudu Game Ranch comments	Response
<p>3.1 The condition of the lower pump station's infrastructure is in complete disrepair. Please refer to photos in Addendum 1. Should the Spekboom River experience flooding (as has happened in the early 2000s) this infrastructure including the debris left lying around on the ground will be washed downstream to the detrimental effect of the river's ecosystem.</p> <p><i>Comment: This area must be cleared immediately of all loose debris, piping, poles and cabling that is in the reaches of flood waters to prevent an aquatic pollution event, followed by the removal of all other infrastructure as part of the Rehabilitation Plan for the mine's closure.</i></p>	<p>Clean-up of this area has taken place. Please let us know whether you have any further comments on this area.</p>
<p>3.2 Visual sensitivities and impacts of the mine's pump station's infrastructure and access roads are referenced in Addendum 1. The degree of visual sensitivity of an area is closely related to the aesthetic quality of the area, as well as to the value placed on the aesthetic quality of the landscape. All shareholder landowners of KGRSB place immense value on the landscape and conservation aesthetics of the nature reserve. When the area was developed, the developers went to great lengths to ensure lookout points, game drive routes, hiking trails, picnic sites and shareholders sites were optimally positioned for the visual aesthetic value and appreciation of this unique landscape, its natural beauty and its views. In addition, the reserve has strict aesthetics rules that shareholders are forced to comply with when building their homesteads.</p> <p><i>Comment: The mine's pump station's structures and access roads are visually intrusive in terms of this landscape. The rehabilitation of these areas and roads, including the road cut in 2003 across the neighbouring property of the landowner, Buddy Roth, must be included in the Closure Plan, and Addendums 1 and 3</i></p>	<p>Please be advised, the stations will remain. The mine is still going to use these stations. The access roads to these stations will therefore also remain.</p>
<p>3.3 During rehabilitation of pump stations infrastructure and roads Given that this mining infrastructure has been omitted from the Closure Plan the following comments are provided to guide the rehabilitation activities conducted in this area in addition to the comments made in 1.3 above.</p> <p><i>Comments: People assigned/contracted to work on the rehabilitation in this area need to take cognisance of the conservation sensitivity of the environment, particularly in and near the conservation land as laid out in the agreement with KGRSB. As per the agreement KPNR has with neighbouring landowners regarding the conservation land, the fences and gates will continue to be maintained and monitored by KPNR. This includes maintaining fire breaks along the fences and controlling gate access. Also due consideration in the rehabilitation plan must be given to avoid any destruction or disturbance of the habitat that could endanger: - the unique and extremely rare leopard</i></p>	<p>Extensive rehabilitation has already taken place. Please advise Imerys if the contractor has breached any part of this agreement.</p>

Kudu Game Ranch comments	Response
<p><i>species, the Red or Erythristic Leopard, found in the area, currently being studied by MTPA and the data deficient Golden Mole (Amblysomus hottentotus meesteri) the rare birds that are breeding in the area - the Verreauxs Eagle (Black Eagle), African Crowned Eagle, Cape Vulture, Denhams Bustard (Stanley's Bustard), Black-bellied Bustard, White-bellied Korhaan and Black Stork Cussonio Transvaalensis, which is endemic to SA and Argyrolobium Wilmsii which is endemic to Mpumalanga and Sala Natalensis</i></p> <p><i>This aspect of a sensitive environment needs to be included in Addendums 1 and 3 of the Closure Plan.</i></p>	
<p>4. Future land-use considerations following rehabilitation</p>	
<p>The Closure Plan states that the end land-use has been identified as grazing and game farming which is unfortunate given the largely untransformed and unfragmented natural area of the property that exists below the main mining operation which could contribute significantly more to protection targets for Lydenburg Thornveld as well as Ohrigstad Mountain Bushveld, both of which are poorly protected.</p> <p><i>Comments: In light of the environmental sensitivity and conservation value of the area it is important that KPNR engage with Imerys Refractory Minerals (Pty) Ltd on decisions relating to final end-use. The Imerys Group's Sustainable Development Strategy on Biodiversity states, and I quote, "Our strategy consists of building our knowledge and understanding of the environment and, in sensitive zones, encouraging the development of biodiversity management plans. Approximately 15% of the Group's operations are located on or near zones recognized for their interest in terms of biodiversity. Our quarries, especially their end-of-life restoration, offer many opportunities to enrich biodiversity by reviving natural areas or helping to conserve endangered animal or plant species. Several examples of positive contributions to ecosystems on our sites demonstrate this phenomenon. Most of these examples result from partnerships with local environmental associations or NGOs". A special appeal is made to the mine owners to seriously consider the future end land-use of this area after rehabilitation for conservation and biodiversity management, thereby enhancing the wider biodiversity and ecological processes envisioned as part of Mpumalanga's Protected Areas Expansion Strategy. The NEM: Protected Areas Act provides an array of procedures with which to include or expand protected areas. Brian Morris is the Senior Manager for Protected Areas Expansion and Establishment at Mpumalanga Tourism and Parks Authority (MTPA) whose role is to work with landowners to improve the provincial protected area network and to provide biodiversity information that</i></p>	<p>Future end land use will remain cattle/game or arable farming. The mine cannot commit to a park.</p>

Kudu Game Ranch comments	Response
<p><i>supports land-use planning and helps to streamline and monitor environmental decision-making. As a Protected Area: National Parks and Nature Reserves, the management of Kudu Private Nature Reserve would be very willing to approach Brian Morris on behalf of the Imerys Group to request an opportunity for their engagement with him.</i></p>	

2.4 The mine plan and schedule for the full approved operations

This section must include:

- (aa) appropriate description of the mine plan;
- (bb) drawings and figures to indicate how the mine develops;
- (cc) what areas are disturbed; and
- (dd) how infrastructure and structures (including ponds, residue stockpiles etc.) develops during operations

The mine is currently non-operational. It was an opencast rip-and-doze operation along the gentle scarp slope of a range of low hills. The quarries have a total length of 2km and cut into the side of the hill along the weathering profile of the andalusite-bearing hornfels host rock. The ore was crushed and screened, removing fines and barren ore. The ore was then concentrated by Heavy Medium Separation, where after it was dried and magnetically separated to produce a pure final product. Krugerspost Mine consists of the following infrastructures (refer to Figure 2 for the site layout plan).

- Plant,
- Workshops,
- Offices,
- Scrap yard,
- Magnetic waste site,
- Office Slimes Dam,
- Old Slimes Dam;
- Quarries (1, 2, 3, 4, 6 and Hostel Quarry),
- Barge Dam,
- Spekboom Reservoir Dam,
- Borrow Pit Dam,
- Settling Dams (1 and 2), and
- Ericsson Dams (1 to 5).

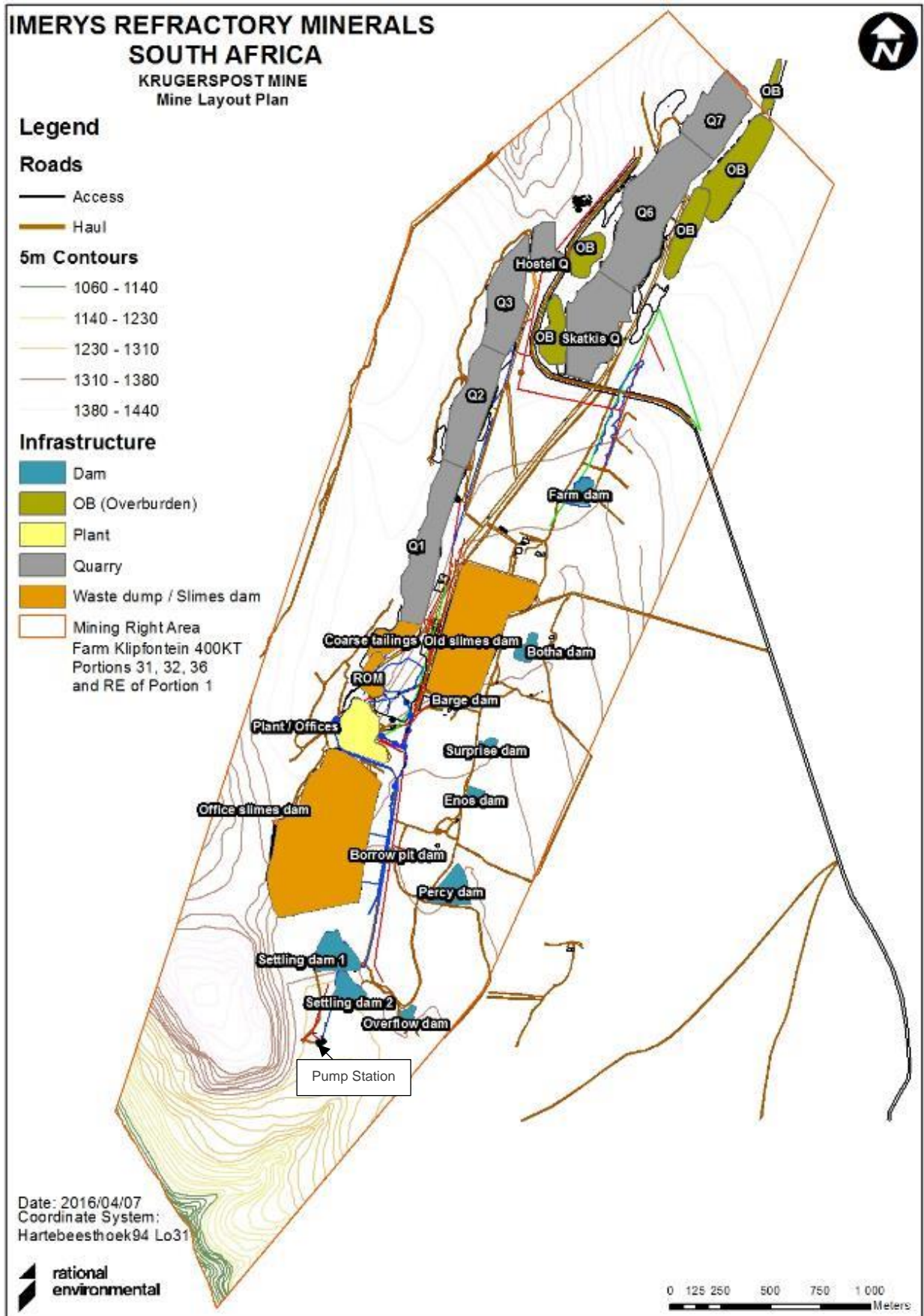


Figure 2: Site layout plan of the mining area

SECTION 3: DESIGN PRINCIPLES

3.1 The legal and governance framework and interpretation of these requirements for the closure design principles

This section includes the legal and governance framework and interpretation of these requirements for the closure design principles. It also includes measures to rehabilitate the environment affected by the undertaking of any listed activity or specified activity and associated closure to its natural or predetermined state or to a land use which conforms to the generally accepted principle of sustainable development, including a handover report, where applicable

The requirements of closure are documented in various legislation. The various legislation and interpretation of these requirements for the closure design principles are discussed in Table 4 below.

Table 4: Legislation and interpretation of these requirements for the closure design principles

Legislation	Requirements	Interpretation of these requirements for the closure design principles
Regulation 56 of MPRDR	<p>In accordance with applicable legislative requirements for mine closure, the holder of a mining right must ensure that -</p> <ul style="list-style-type: none"> (a) the closure of a mining operation incorporates a process which must start at the commencement of the operation and continue throughout the life of the operation; (b) risks pertaining to environmental impacts must be quantified and managed proactively, which includes the gathering of relevant information throughout the life of a mining operation; (c) the safety and health requirements in terms of the Mine Health and Safety Act, 1996 (Act No. 29 of 1996) (MHSA) are complied with; (d) residual and possible latent environmental impacts are identified and quantified; (e) 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 concept of sustainable development; and (f) mining operations are closed efficiently and cost effectively. 	<p>The approved EMP (1999) includes reference to rehabilitation and closure of the mine. The mine has gathered information over the years to assess risks, including a Hydrogeological Report (Shangoni Management Services, 2013). This is incorporated into this Closure Plan. Closure of the mine will incorporate any necessary safety and health requirements in terms of the MHSA. The residual and possible latent environmental impacts are identified and quantified in this Closure Plan. The end land use is discussed in Section 2.14 of this Closure Plan. Refer to Section 2 for the closing of all mining operations.</p>

Legislation	Requirements	Interpretation of these requirements for the closure design principles
Regulation 57 of MPRDR	<p>An application for a closure certificate by the holder of a mining right in terms of section 43(4) of the MPRDA must be completed in the form of Form P, contained in Annexure II.</p> <p>(2) The application referred to in sub-regulation (1) must be accompanied by the following documentation -</p> <ul style="list-style-type: none"> (a) A closure plan contemplated in regulation 62; (b) an environmental risk report contemplated in regulation 60; (c) a final performance assessment report contemplated in regulation 55(9); and (d) a completed application form contemplated in regulation 58(1) to transfer environmental liabilities and responsibilities, if the transfer of such liabilities have been applied for. 	<p>A form will be completed with this application. Refer to this Closure Plan as contemplated in regulation 62, Addendum 1 for the Environmental Risk Report as contemplated in regulation 60, Addendum 2 for the final Performance Assessment report contemplated in regulation 55(9). No environmental liabilities will be transferred.</p>
Regulation 61 of MPRDR	<p>Closure objectives form part of the draft environmental management programme and must -</p> <ul style="list-style-type: none"> (a) identify the key objectives for mine closure to guide the project design, development and management of environmental impacts; (b) provide broad future land use objective(s) for the site; and (c) provide proposed closure costs. 	<p>Closure objectives were included in the approved EMP (1999). The closure costs are updated on an annual basis.</p>
Section 43 of MPRDA, Section 24R of NEMA	<p>Every holder remains responsible for any environmental liability, pollution or ecological degradation, the pumping and treatment of polluted or extraneous water, the management and sustainable closure thereof notwithstanding the issuing of a closure certificate by the Minister responsible for mineral resources in terms of the MPRDA to the holder or owner concerned.</p>	<p>The residual impacts are addressed in this Closure Plan.</p>
	<p>When the Minister responsible for mineral resources issues a closure certificate, he or she must return such portion of the financial provision contemplated in section 24P as the Minister may deem appropriate to the holder concerned, but may retain a portion of such financial provision</p>	<p>Noted</p>

Legislation	Requirements	Interpretation of these requirements for the closure design principles
	referred to in subsection (1) for any latent, residual or any other environmental impact, including the pumping of polluted or extraneous water, for a prescribed period after issuing a closure certificate.	
	Every holder of works must plan, manage and implement such procedures and requirements in respect of the closure of a mine as may be prescribed.	The mine will adhere to the requirements as set out in this Closure Plan, once approved by DMR.
	The Minister may, in consultation with the Minister responsible for mineral resources and by notice in the Gazette, identify areas where mines are interconnected or their impacts are integrated to such an extent that the interconnection results in a cumulative impact.	Noted
	The Minister may, by notice in the Gazette, publish strategies to facilitate mine closure where mines are interconnected, have an integrated impact or pose a cumulative impact.	Noted
Regulation 19(6) of GN 982	A closure plan must contain the information set out in Appendix 5 to these Regulations, and the closure plan must address the requirements as set in the regulations, pertaining to the financial provision for the rehabilitation, closure and post closure of mining operations, made in terms of NEMA.	This Closure Plan is based on the requirements of the MPRDA, Appendix 5 of GN 982 as well as Appendix 4 of GN 1147.
Regulations 6(b) of GN 1147	An applicant must determine the financial provision through a detailed itemisation of all activities and costs, calculated based on the actual costs of implementation of the measures required for final rehabilitation, decommissioning and closure of the mining operations at the end of the life of operations, as reflected in a final rehabilitation, decommissioning and closure plan.	The financial provision is included in Section 6 of the is Closure Plan.
Regulations 12(2) of GN 1147	The final rehabilitation, decommissioning and closure plan must contain all information set out in Appendix 4.	This Closure Plan is based on the requirements of the MPRDA, Appendix 5 of GN 982 as well as Appendix 4 of GN 1147.

3.2 Closure vision, objectives and targets

This section must reflect the local environmental and socio-economic context and reflect regulatory and corporate requirements and stakeholder expectations

Closure objectives form part of the draft EMP, and must:

- a. Identify the key objectives for mine closure to guide the project design, development and management of environmental impacts;
- b. Provide broad future land use objective(s) for the site; and
- c. Provide proposed closure costs.

Key closure objectives are necessary for mine closure, to guide the project design, development and management of environmental impacts. The closure objectives for the mine are as follow:

1. To rehabilitate the land to a level where natural topography, vegetation and land use approach the original state as closely as possible.
2. That stormwater control is permanent in view of the large volumes of fine erodible materials that have been created.
3. That the water quality and catchment yield return to the original state as closely as possible.

The rehabilitation of Krugerspost will focus on sloping of quarries and sloping and levelling of any additional overburden; removal of alien vegetation and establishment of natural vegetation on all disturbed areas to also prevent erosion; adequate stormwater control to prevent siltation and pollution of the Spekboom River; and removal of all old infrastructure. The rehabilitation plan will, therefore, be compatible with the closure objectives.

3.3 A description and evaluation of alternative closure and post closure options where these exist that are practicable within the socioeconomic and environmental opportunities and constraints in which the operation is located

The mine is already busy with closure; therefore, no alternatives are necessary.

3.4 A motivation for the preferred closure action within the context of the risks and impacts that are being mitigated

Refer to Section 4.2 for a complete description.

3.5 A definition and motivation of the closure and post closure period

This must take cognisance of the probable need to implement post closure monitoring and maintenance for a period sufficient to demonstrate that relinquishment criteria have been achieved.

Refer to Section 4.2 for a complete description.

3.6 Details associated with any on-going research on closure options

Refer to Section 4.2 for a complete description.

3.7 A detailed description of the assumptions made to develop closure actions in the absence of detailed knowledge on site conditions, potential impacts, material availability, stakeholder requirements and other factors for which information is lacking

Refer to Section 4.2 for a complete description.

SECTION 4: FINAL REHABILITATION PLAN

4.1 Proposed final post-mining land use which is appropriate, feasible and possible of implementation

This section includes:

- a. descriptions of appropriate and feasible final post-mining land use for the overall project and per infrastructure or activity and a description of the methodology used to identify final post-mining land use, including the requirements of the operations stakeholders; and
- b. a map of the proposed final post-mining land use

The end land-use has been identified as grazing and game farming. Water accumulating within the remaining quarries will be utilised and optimised to compliment the end land-use. Sloping should be at a safe angle for cattle and other animals to graze on site and provide easy access to the water. Sloping should allow for free drainage and prevent siltation of the water resources.

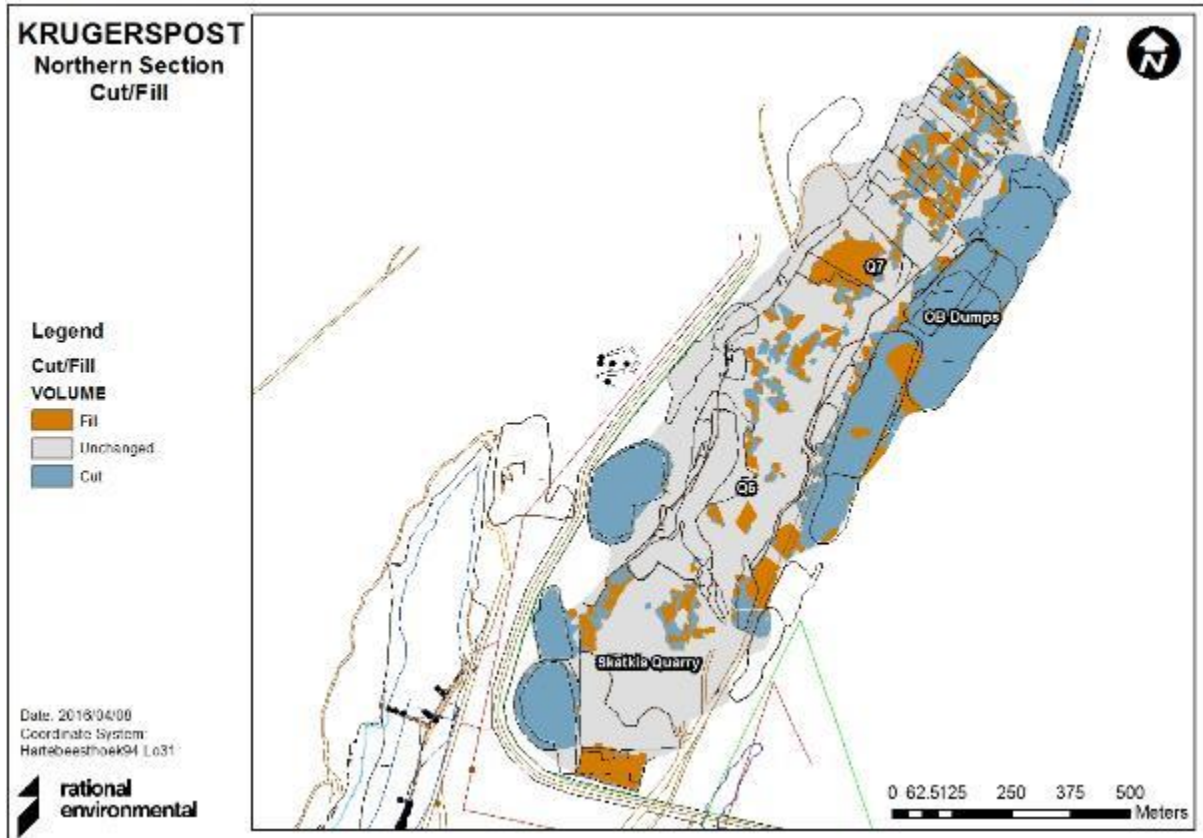


Figure 3: Final cut and fill of the northern section of the mine

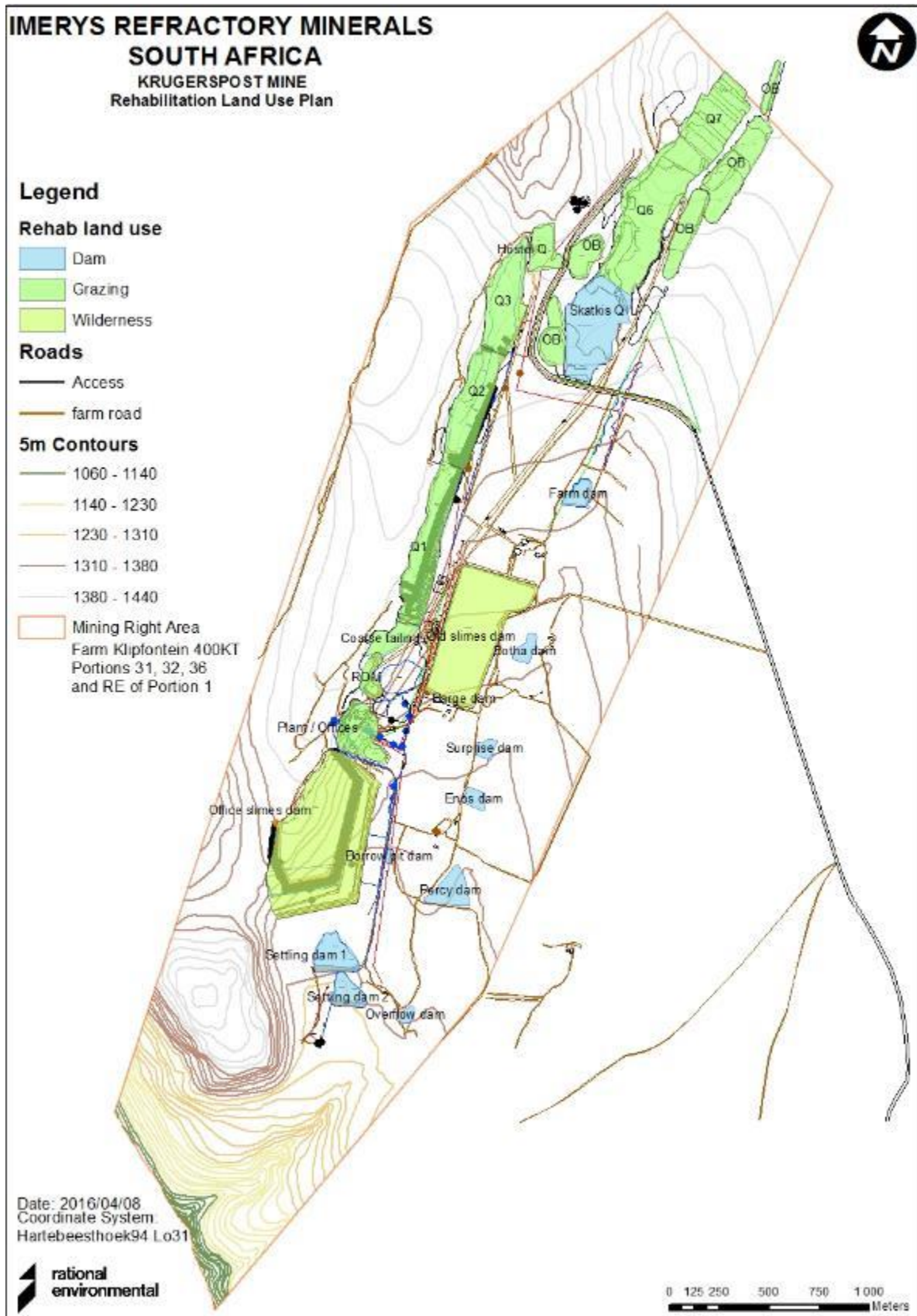


Figure 4: A sketch plan describing the final and future land use proposal and arrangements for the site

4.2 Closure actions, and schedule of actions

The closure actions include:

- i. the development and documenting of a description of specific technical solutions related to infrastructure and facilities for the preferred closure option or options, which must include all areas, infrastructure, activities and aspects both within the mine lease area and off of the mine lease area associated with mining for which the mine has the responsibility to implement closure actions; and
- ii. the development and maintenance of a list and assessment of threats and opportunities and any uncertainties associated with the preferred closure option, which list will be used to identify and define any additional work that is needed to reduce the level of uncertainty

The schedule of actions for final rehabilitation, decommissioning and closure which will ensure avoidance, rehabilitation, management of impacts including pumping and treatment of extraneous water must be:

- i. linked to the mine works programme, if greenfields, or to the current mine plan if brownfields
- ii. including assumptions and schedule drivers; and
- iii. including a spatial map or schedule, showing planned spatial progression throughout operations

Resloping information was extracted from Sloping and Earthworks Plan (Rational Environmental, 2016). Refer to Figure 5 for the layout plan indicating the areas to be rehabilitated corresponding with the sub-sections below.

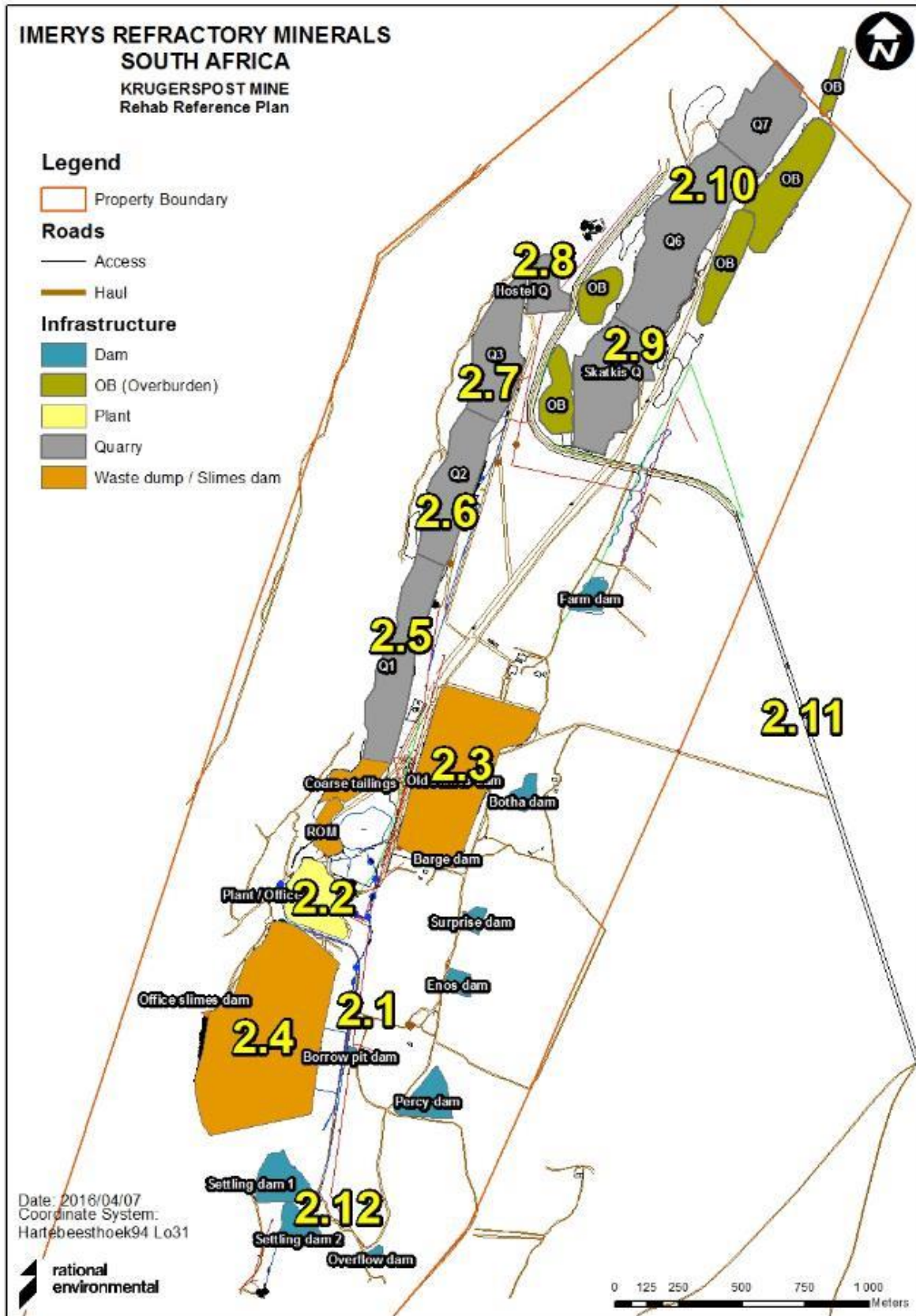




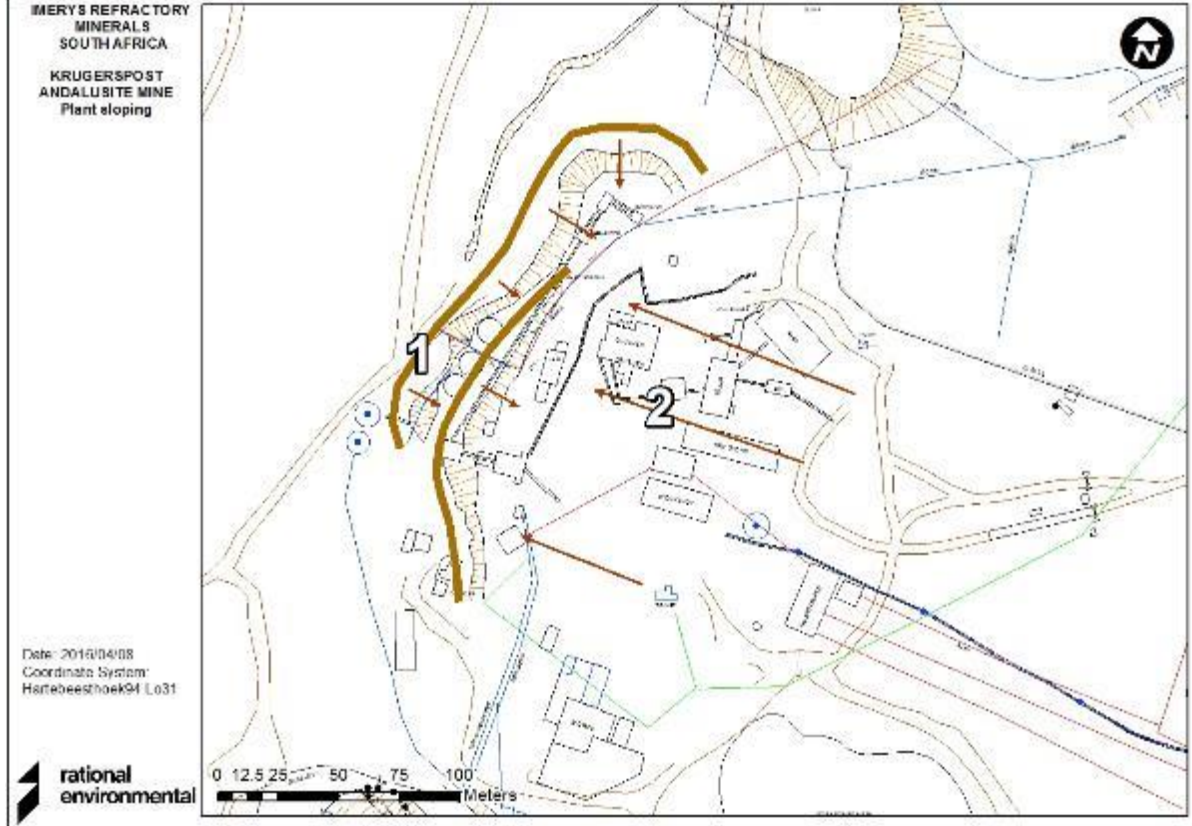
Figure 5: Areas to be rehabilitated


Table 5: Final rehabilitation action plans and schedule


Removal of pipelines	
Specific closure vision, objectives and targets	To remove all pipes in accordance with all environmental principles as well as the requirements of the MHSA.
Original closure plan action plans	<p>All steel pipes will be removed to other mines within the Imerys Group. These pipes will then be reused as part of their operations.</p> <p>All asbestos pipes will be removed per the requirements as stipulated in the Asbestos Regulations (GN 155) of 2001 of the Occupational Health and Safety Act (No 85 of 1993). All asbestos waste will be disposed of only on sites specifically designated for this purpose. All vehicles, re-usable containers or any other similar articles which have been in contact with asbestos waste will be cleaned and decontaminated after use. All persons occupied in the collection, transport and disposal of asbestos waste, will wear personal protective equipment (PPE).</p>
Current situation	<p>Pipelines were removed as per the closure plan. During a recent veld fire, various pipes were discovered which were previously not visible due to vegetation growth. This includes clay, steel and asbestos pipes.</p> <div style="text-align: center;">  </div> <p>Figure 6: Some asbestos pipes in the veld (taken in 2017)</p> <p>There is also one last pipeline from the Office Slimes dam. This pipe will only be removed once the go-ahead is given by the engineer.</p>

	 <p>Figure 7: Pipeline from Office Slimes dam (taken in 2017)</p>
<p>Updated action plans</p>	<p>Remove all pipes that have been discovered after the veld fire. Remove final pipeline from Office Slimes dam once an engineer has given the go-ahead.</p>
<p>Schedule</p>	<p>This is ongoing</p>
<p>Description and evaluation of alternative closure and post closure options</p>	<p>Not applicable.</p>
<p>Motivation for the preferred closure action within the context of the risks and impacts that are being mitigated</p>	<p>The reuse of the steel pipes on other mines or by the contractor to reduce the generation of waste. Further, asbestos pipes must be removed in accordance with the MHSA.</p>

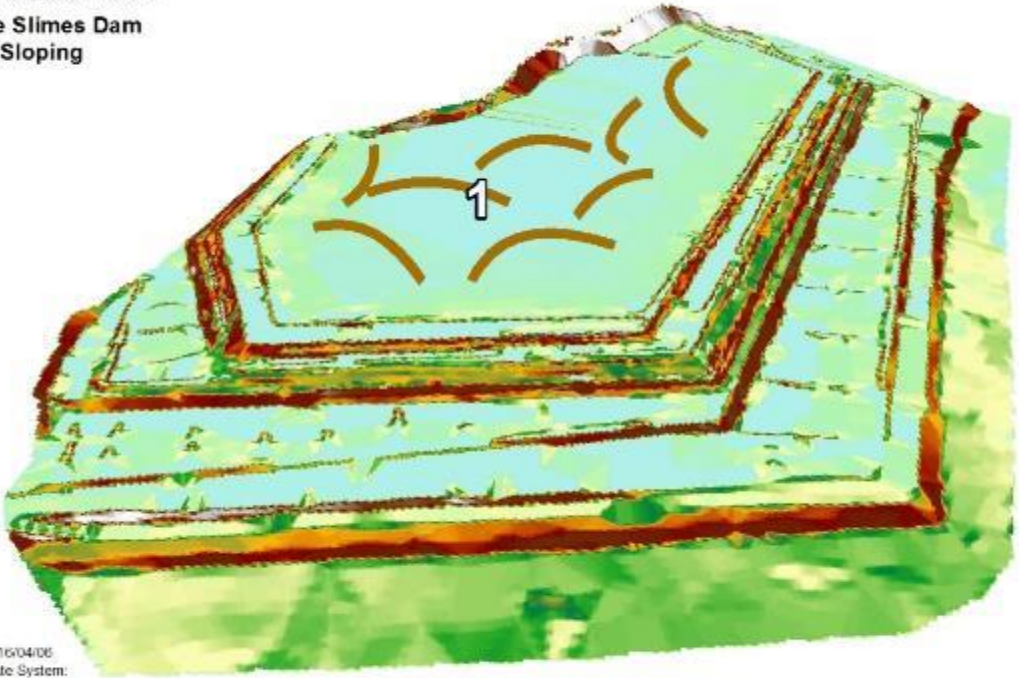
<p>Details associated with any on-going research on closure options.</p>	<p>Not applicable.</p>
<p>A detailed description of the assumptions made to develop closure actions in the absence of detailed knowledge on site conditions, potential impacts, material availability, stakeholder requirements and other factors for which information is lacking.</p>	<p>It is assumed that either the other mines within the Imerys Group or the contractor will use the steel pipes to be removed.</p>
<p>Removal of plant area and other buildings</p>	
<p>Specific closure vision, objectives and targets</p>	<p>To keep the existing terraces with only minor cut and fill operations; and To allow a gradual drainage to the east of the plant.</p>
<p>Original closure plan action plans</p>	<p>All hazardous materials such as hydrocarbons, fluorescent tubes, etc. will be removed by a licensed waste contractor to a licensed disposal area. The mine will obtain all the correct documentation such as safe disposal certificates and copy of the disposal site license. All asbestos cement will be removed. All salvageable material is being removed by either SA Metals or other mine operations. Concrete will be removed to a depth of 1m below surface. Building rubble (inert waste) could be used for backfilling of the quarries, however, the disposal of more than 25tons need a waste license excluding the disposal of such waste for the purposes of levelling which has been authorised by or under other legislation. This will be discussed with DMR prior to disposal.</p> <p>Once all remaining infrastructure is removed the sloping can be done with the aim to keep the existing terraces with only minor cut and fill operations by pushing the edges of the high wall down. Refer to the figure below marked as '1'.</p> <p>Sloping of the floor is recommended to be done towards the terraces to allow a gradual drainage to the east. Refer to the figure below marked as '2'.</p>


	<p>IMERY'S REFRACTORY MINERALS SOUTH AFRICA KRUGERSPOST ANDALUSITE MINE Plant sloping</p>  <p>Date: 2016/04/08 Coordinate System: Hartebeesthoek94 L031</p> <p>rational environmental</p> <p>0 12.5 25 50 75 100 Meters</p>	
<p>Current situation</p>	<p>Figure 8: Rehabilitation of the plant area</p> <p>The plant has been completely removed. The area has already been sloped. No hazardous chemicals are left on site. The offices above the plant area are still intact; however, some of the ceiling was stolen.</p>	


		
	<p>Figure 9: Plant area (taken in 2018)</p>	
<p>Updated action plans</p>	<p>Remove the old office at the plant.</p>	
<p>Schedule</p>	<p>Ongoing</p>	
<p>Description and evaluation of alternative closure and post closure options</p>	<p>No alternative closure and post closure options are evaluated.</p>	
<p>Motivation for the preferred closure action within the context of the risks and impacts that are being mitigated</p>	<p>The removal of all plant material is necessary to reslope area and ensure free-flowing of water and revegetation for the planned end land use.</p>	
<p>Details associated with any on-going research on closure options.</p>	<p>Not applicable.</p>	
<p>A detailed description of the assumptions made to develop closure actions in the absence of detailed knowledge on site</p>	<p>It is assumed that all infrastructure will be removed and either disposed of or sold as scrap. Resloping of the area is based on surveyor data received from the mine.</p>	

conditions, potential impacts, material availability, stakeholder requirements and other factors for which information is lacking.	
Old Slimes Dam	
Specific closure vision, objectives and targets	To prevent seepage from old slimes.
Original closure plan action plans	None
Current situation	<p>The old slimes dam has been revegetated. No additional rehabilitation is envisaged.</p>  <p>Figure 10: The densely vegetated area is the old slimes dam (taken in 2017)</p>
Updated action plans	None
Schedule	Not applicable.
Description and evaluation of alternative closure and post closure options	No alternative closure and post closure options are evaluated.

Motivation for the preferred closure action within the context of the risks and impacts that are being mitigated	The Old Slimes Dam is already revegetated.
Details associated with any on-going research on closure options.	Not applicable.
A detailed description of the assumptions made to develop closure actions in the absence of detailed knowledge on site conditions, potential impacts, material availability, stakeholder requirements and other factors for which information is lacking.	Resloping of the area is based on surveyor data received from the mine. Seepage potential is based on the information from the Hydrogeological Report (Shangoni, 2013).
Office Slimes Dam	
Specific closure vision, objectives and targets	<ul style="list-style-type: none"> To allow even distribution of runoff; To assist vegetation growth; To prevent ponding at the sealed penstock; and To prevent seepage from old slimes.
Original closure plan action plans	The penstock will be sealed. All berms are already paddocked therefore; no additional paddocks are necessary. The Office Slimes Dam has some vegetation already established on parts of the sidewalls. It will not be beneficial to disturb the slimes dam along the sidewalls. It is recommended to construct small berms on the top to allow even distribution of runoff to assist vegetation growth and prevent ponding at the sealed penstock. Refer to the figure below marked as '1'.


	<div data-bbox="584 204 1771 1043" style="border: 1px solid black; padding: 10px;"> <p>KRUGERSPOST Office Slimes Dam Sloping</p>  <p>Date: 2016/04/06 Coordinate System:</p>  </div> <p>Figure 11: Resloping of Office Slimes Dam</p>
<p>Current situation</p>	<p>The penstock has not yet been sealed. The engineer must first indicate that this can be done. Most of the structures on the dam has been removed. Vegetation is still limited.</p> <p>No resloping has yet taken place.</p>

	 <p data-bbox="580 667 1055 695">Figure 12: Office slimes dam (taken in 2018)</p>
Updated action plans	Vegetation of slimes dam is necessary. Assess what vegetation practices are efficient on this dam.
Schedule	Ongoing
Description and evaluation of alternative closure and post closure options	No alternative closure and post closure options are evaluated.
Motivation for the preferred closure action within the context of the risks and impacts that are being mitigated	The free-flowing of water and revegetation will aid in the reduction of any residual seepage from the dam.
Details associated with any on-going research on closure options.	Water results will indicate whether the slimes dam does generate groundwater pollution.
A detailed description of the assumptions made to develop closure actions in the absence of detailed knowledge on site	Resloping of the area is based on surveyor data received from the mine. Seepage potential is based on the information from the Hydrogeological Report (Shangoni, 2013).

<p>conditions, potential impacts, material availability, stakeholder requirements and other factors for which information is lacking.</p>	
<p>Quarry 1</p>	
<p>Specific closure vision, objectives and targets</p>	<p>To allow free flowing of surface water; To promote even vegetation growth; and To ensure the safety of quarry for community and animals.</p>
<p>Original closure plan action plans</p>	<p>This quarry has been backfilled fairly flat with the natural topography on the eastern side. No major sloping is proposed. Only paddocks on the top surface are proposed to promote even vegetation growth.</p>
<p>Current situation</p>	<p>The replacement of soil is underway. This soil replacement is done by making berms to help with water retention.</p> <div data-bbox="577 699 1032 1310" style="text-align: center;">  </div> <p>Figure 13: Quarry 1 (taken in 2017)</p>

Updated action plans	Ensure revegetation. It is recommended that a surveyor ensure these quarries have been sloped to the angle as indicated in the closure plan.
Schedule	Ongoing
Description and evaluation of alternative closure and post closure options	No alternative closure and post closure options are evaluated.
Motivation for the preferred closure action within the context of the risks and impacts that are being mitigated	The sloping of the quarry to ensure free-flowing of water and revegetation, as well as safety of the quarry, will ensure that the planned end land use can be obtained.
Details associated with any on-going research on closure options.	Not applicable.
A detailed description of the assumptions made to develop closure actions in the absence of detailed knowledge on site conditions, potential impacts, material availability, stakeholder requirements and other factors for which information is lacking.	Resloping of the area is based on surveyor data received from the mine.
Quarries 2 & 3	
Specific closure vision, objectives and targets	To allow free flowing of surface water; To prevent ponding at the sealed penstock; To promote even vegetation growth; and To ensure the safety of quarry for community and animals.
Original closure plan action plans	No sloping to of Quarry 2 take place. The quarry will be revegetated.

	<p>Small contour berms are suggested along all of the backfilled tailings quarries to runoff water to be dispersed as part of the vegetation establishment and prevent ponding at the sealed penstocks.</p> <p>Quarry 3 has been backfilled fairly flat with the natural topography on the eastern side. No major sloping is proposed. Only paddocks on the top surface are proposed to promote even vegetation growth. Paddocks should not commence without the approval of the responsible engineer as the dam is still draining through the penstock.</p>
<p>Current situation</p>	<p>Backfilling (sloping) of these quarries has been done. Topsoils is also being spread over the area and berms are incorporated to help with water retention. There is still some topsoil that can be worked into the area.</p> <div data-bbox="577 568 1182 1027" data-label="Image"> </div> <p>Figure 14: Quarry 2 (taken in 2017 – similar in 2018)</p>

	 <p data-bbox="580 667 1137 694">Figure 15: Quarry 3 (taken in 2017 – similar in 2018)</p>
Updated action plans	Ensure revegetation. It is recommended that a surveyor ensure these quarries have been sloped to the angle as indicated in the closure plan.
Schedule	Ongoing
Description and evaluation of alternative closure and post closure options	No alternative closure and post closure options are evaluated.
Motivation for the preferred closure action within the context of the risks and impacts that are being mitigated	The sloping of the quarry to ensure free-flowing of water and revegetation, as well as safety of the quarry, will ensure that the planned end land use can be obtained.
Details associated with any on-going research on closure options.	Not applicable.
A detailed description of the assumptions made to develop closure actions in the absence of	Resloping of the area is based on surveyor data received from the mine.

<p>detailed knowledge on site conditions, potential impacts, material availability, stakeholder requirements and other factors for which information is lacking.</p>	
<p>Hostel Quarry</p>	
<p>Specific closure vision, objectives and targets</p>	<p>To allow free flowing of surface water; To promote even vegetation growth; and To ensure the safety of quarry for community and animals.</p>
<p>Original closure plan action plans</p>	<p>None</p>
<p>Current situation</p>	<p>Topsoil replacement has taken place. Revegetation must now be done.</p> <div data-bbox="577 699 1182 1157" style="text-align: center;">  </div> <p>Figure 16: Hostel Quarry (taken in 2017 – similar in 2018)</p>
<p>Updated action plans</p>	<p>Ensure revegetation and final sloping.</p>
<p>Schedule</p>	<p>Ongoing</p>

Description and evaluation of alternative closure and post closure options	No alternative closure and post closure options are evaluated.
Motivation for the preferred closure action within the context of the risks and impacts that are being mitigated	The quarry is already sloped, only revegetation is necessary.
Details associated with any on-going research on closure options.	Not applicable.
A detailed description of the assumptions made to develop closure actions in the absence of detailed knowledge on site conditions, potential impacts, material availability, stakeholder requirements and other factors for which information is lacking.	It is assumed that very little ore has been removed from this quarry.
Skatkis Quarry	
Specific closure vision, objectives and targets	To allow free flowing of surface water; To promote even vegetation growth; and To ensure the safety of quarry for community and animals.
Original closure plan action plans	Fill box cut quarry with overburden from the west. A total of 32,600m ³ is required. Refer to the figures below marked as '1'. Use remainder of overburden to fill in Skatkis quarry from the west to create a natural gradient over benches. The two overburden stockpiles on the west is 164,301m ³ combined. Refer to the figures below marked as '2'.

Dig open separation wall between Skatkis Quarry and Quarry 6 to allow free flowing of surface water between quarries as it gradually rises. Refer to the figures below marked as '3'.

Use remainder of overburden together with the proposed trench berm concept to construct safety berms along steep slopes. Refer to the figures below marked as '4'.

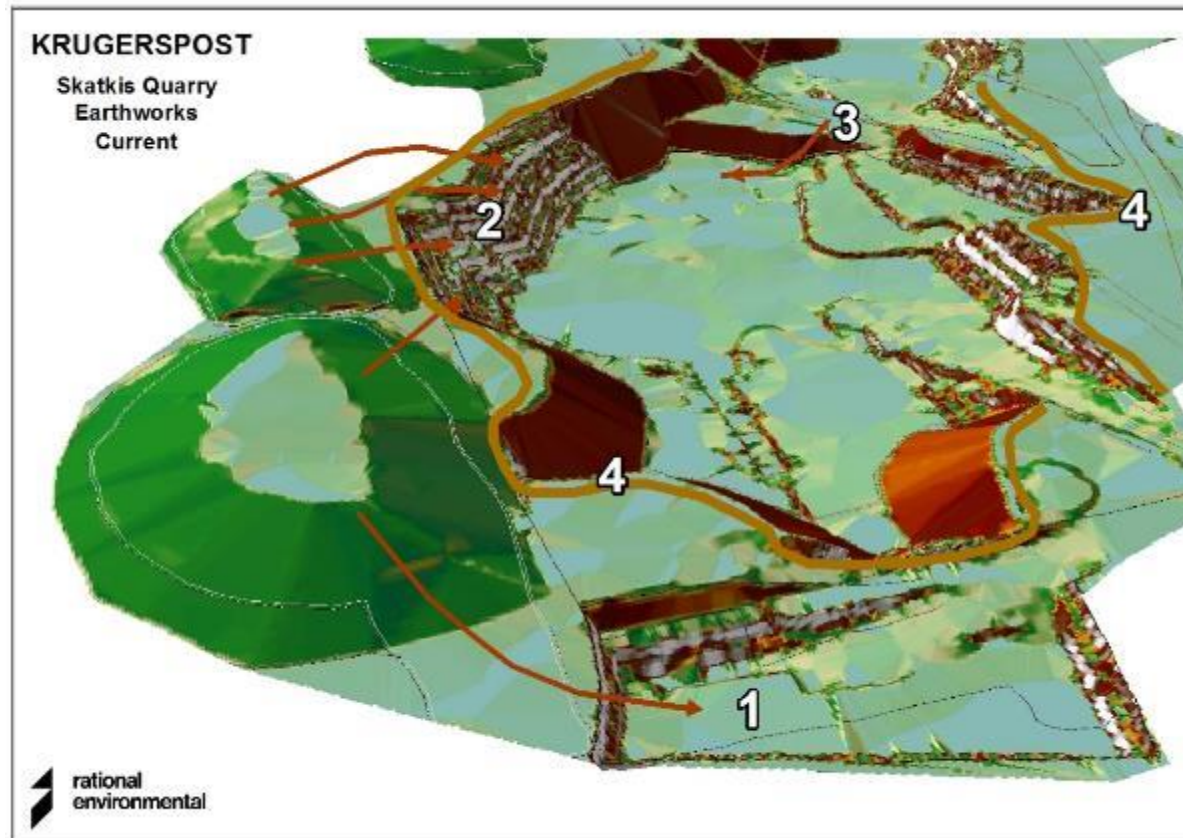

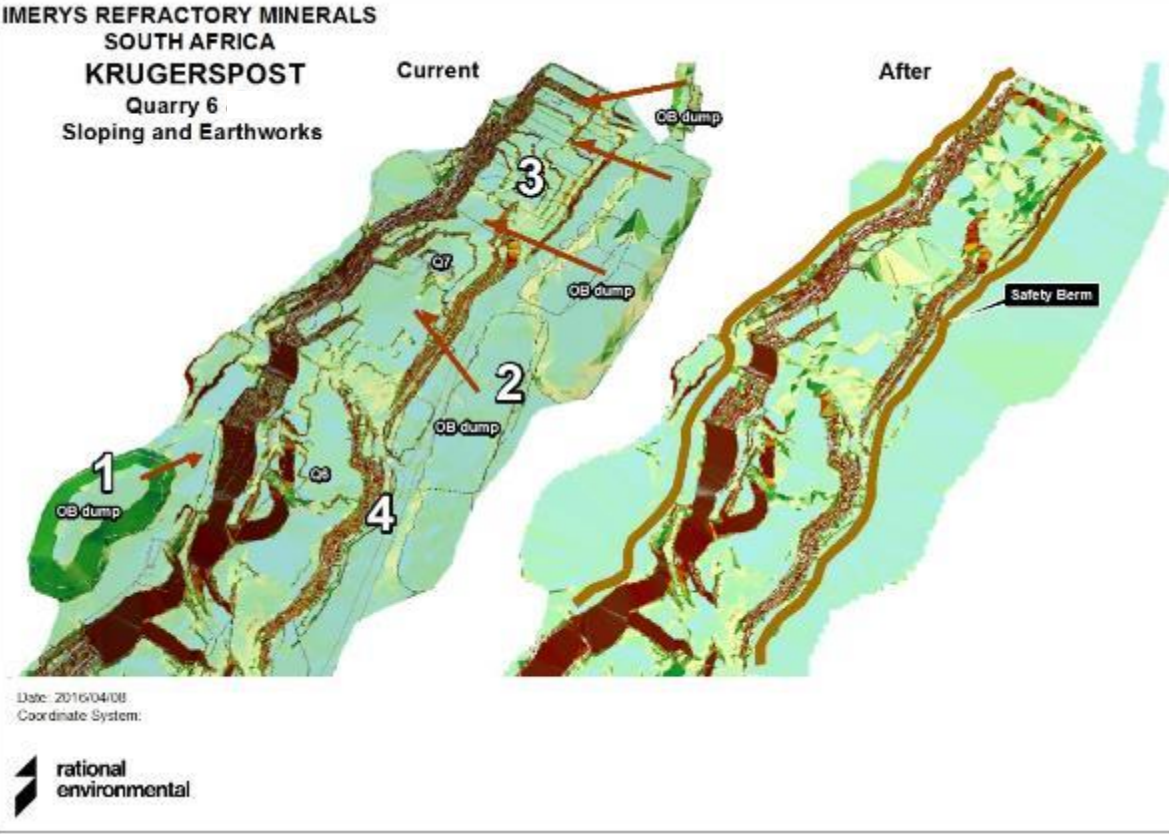



Figure 17: Resloping of Skatkis Quarry

	<p>KRUGERSPOST Skatkis Quarry Earthworks After</p> <p>Safety Berm</p> <p>Skatkis Quarry</p> <p>Date: 2016/04/05 Coordinate System:</p> <p>rational environmental</p>
<p>Current situation</p>	<p>Figure 18: Measure after resloping of Skatkis Quarry</p> <p>Sloping has taken place. It is unclear whether the separation wall between Skatkis Quarry and Quarry 6 has been broken down.</p>

	 <p data-bbox="580 667 1021 695">Figure 19: Skatkis Quarry (taken in 2017)</p>
Updated action plans	Ensure separation wall is broken down. Construct safety berms. It is recommended that a surveyor ensure these quarries have been sloped to the angle as indicated in the closure plan.
Schedule	Ongoing
Description and evaluation of alternative closure and post closure options	No alternative closure and post closure options are evaluated.
Motivation for the preferred closure action within the context of the risks and impacts that are being mitigated	The sloping of the quarry to ensure free-flowing of water and revegetation, as well as safety of the quarry, will ensure that the planned end land use can be obtained.
Details associated with any on-going research on closure options.	Not applicable.
A detailed description of the assumptions made to develop closure actions in the absence of	Resloping of the area is based on surveyor data received from the mine.

<p>detailed knowledge on site conditions, potential impacts, material availability, stakeholder requirements and other factors for which information is lacking.</p>	
<p>Quarries 6 and 7</p>	
<p>Specific closure vision, objectives and targets</p>	<p>To allow free flowing of surface water; To promote even vegetation growth; and To ensure the safety of quarry for community and animals.</p>
<p>Original closure plan action plans</p>	<p>Quarries 6 should allow being free draining towards Skatkis Quarry to the south. The strategy is to safeguard the high walls, fill in some material to the western benches to allow vegetation growth. Finally, move overburden material into the quarry.</p> <p>Use overburden on the west to fill benches on the high wall for a more natural gradient. An estimated 134,256m³ is to be moved from this stockpile. Refer to the figure below marked as '1'.</p> <p>Use overburden from the east to fill and gradually slope the northern floor of the quarry to produce a gradual contour within the quarry. This should provide free drainage to the south of the quarry with less ponding. The total estimated overburden to be moved from the east into the quarry is 245,000m³. Note that there are no detailed survey data available for the calculation of the volume above. Only the footprints of the overburden stockpiles are available. The volume is calculated based on the natural angle of repose for the overburden in the area together with a predetermined height of four metres. Refer to the figure below marked as '2'.</p> <p>Together with the gradual sloping using overburden, the remaining benches within the quarry should also be flattened to produce a more natural surface for vegetation. Refer to the figure below marked as '3'.</p> <p>Construct a safety berm along remaining high walls. Refer to the figure below marked as '4'.</p>

	<p>IMERY'S REFRACTORY MINERALS SOUTH AFRICA KRUGERSPOST Quarry 6 Sloping and Earthworks</p>  <p>Date: 2016/04/08 Coordinate System:</p> <p>rational environmental</p>	
<p>Current situation</p>	<p>Figure 20: Resloping of Quarry 6</p> <p>It is unclear whether the separation wall between Skatkis Quarry and Quarry 6 has been broken down. Sloping of these quarries has commenced.</p>	

	 <p data-bbox="580 662 1016 691">Figure 21: Quarries 6 & 7 (taken in 2017)</p>
<p data-bbox="203 708 434 735">Updated action plans</p>	<p data-bbox="580 708 2033 775">Ensure separation wall is broken down. Construct safety berms. It is recommended that a surveyor ensure these quarries have been sloped to the angle as indicated in the closure plan.</p> <p data-bbox="580 831 1850 858">It is recommended that a surveyor ensure these quarries have been sloped to the angle as indicated in the closure plan.</p>
<p data-bbox="203 879 309 903">Schedule</p>	<p data-bbox="580 879 674 903">Ongoing</p>
<p data-bbox="203 920 555 1027">Description and evaluation of alternative closure and post closure options</p>	<p data-bbox="580 920 1234 944">No alternative closure and post closure options are evaluated.</p>
<p data-bbox="203 1048 555 1198">Motivation for the preferred closure action within the context of the risks and impacts that are being mitigated</p>	<p data-bbox="580 1048 2033 1115">The sloping of the quarry to ensure free-flowing of water and revegetation, as well as safety of the quarry, will ensure that the planned end land use can be obtained.</p>
<p data-bbox="203 1214 555 1321">Details associated with any on-going research on closure options.</p>	<p data-bbox="580 1214 741 1238">Not applicable.</p>


<p>A detailed description of the assumptions made to develop closure actions in the absence of detailed knowledge on site conditions, potential impacts, material availability, stakeholder requirements and other factors for which information is lacking.</p>	<p>Note that there are no detailed survey data available for the calculation of the volume above. Only the footprints of the overburden stockpiles are available. The volume is calculated based on the natural angle of repose for the overburden in the area together with a predetermined height of four metres.</p>
<p>Water dams</p>	
<p>Specific closure vision, objectives and targets</p>	<p>To ensure all dams used for farming remain in the area.</p>
<p>Original closure plan action plans</p>	<p>The farm dams will be kept afterwards for farming. These dams are not part of the mining right. The Barge dam will be closed, and water will be directed away from this dam. Ericson dam will be removed. The borrow pit dam will remain.</p>
<p>Current situation</p>	<p>Barge dam has been removed. This area is now a wetland area. The settling dams will remain intact. Some of the Erickson dams have not yet been removed.</p> <div data-bbox="577 863 1182 1321" style="text-align: center;"> </div> <p>Figure 22: Barge dam (taken in 2017)</p>



Figure 23: Settling dam 1 (taken in 2017)



Figure 24: Settling dam 2 (taken in 2017)

	 <p data-bbox="577 667 840 694">Figure 25: Erickson dam</p>
Updated action plans	Remove the Erickson dams. The settling dams must be included in the mining right for Klipplaatdrift.
Schedule	Ongoing
Description and evaluation of alternative closure and post closure options	No alternative closure and post closure options are evaluated.
Motivation for the preferred closure action within the context of the risks and impacts that are being mitigated	Many of the dams will be kept by the farmers. The Settling Dams will also aid in the drainage of the water in the area.
Details associated with any on-going research on closure options.	Not applicable.
A detailed description of the assumptions made to develop closure actions in the absence of	It is assumed that some of the dams will be retained for farmers.

detailed knowledge on site conditions, potential impacts, material availability, stakeholder requirements and other factors for which information is lacking.	
Primary and secondary access roads	
Specific closure vision, objectives and targets	To remove any unnecessary roads.
Original closure plan action plans	Remove all hydrocarbon spillages and dispose of as hazardous waste. Rip all roads. Ripping is done by using a dozer with one or two ripper tines. Ripping must penetrate through soil into the underlying overburden materials to ensure free drainage and to ensure root penetration. Refer to Addendum 3 for a report on the ripping, re-vegetation, alien control, and monitoring plan of the area. The road to the pump stations will be kept because these stations will still be used.
Current situation	Most of these roads have already been ripped. These roads were seeded. However, due to a lack of rain, no grasses are yet visible.
Updated action plans	Follow up on seeding
Schedule	Ongoing
Description and evaluation of alternative closure and post closure options	No alternative closure and post closure options are evaluated.
Motivation for the preferred closure action within the context of the risks and impacts that are being mitigated	The removal of unwanted roads will prevent erosion of these areas. Some roads will still be used by farmers and cannot be removed.
Details associated with any on-going research on closure options.	Not applicable.
A detailed description of the assumptions made to develop	It is assumed that some roads will be retained for farmers.

<p>closure actions in the absence of detailed knowledge on site conditions, potential impacts, material availability, stakeholder requirements and other factors for which information is lacking.</p>	
<p>Clean-up of pump stations</p>	
<p>Specific closure vision, objectives and targets</p>	<p>The removal of any unwanted material and clean-up of the area.</p>
<p>Original closure plan action plans</p>	<p>No decommissioning will take place; however, all unwanted material will be removed. This area will be cleared immediately of all loose debris, piping, poles and cabling that is in the reaches of flood waters to prevent an aquatic pollution event.</p> <p>People assigned/contracted to work on the rehabilitation in this area need to take cognisance of the conservation sensitivity of the environment, particularly in and near the conservation land as laid out in the agreement with Kudu Game Range. As per the agreement KPNR has with neighbouring landowners regarding the conservation land, the fences and gates will continue to be maintained and monitored by KPNR. This includes maintaining fire breaks along the fences and controlling gate access. Any destruction or disturbance of the habitat will be avoided that could endanger:</p> <ul style="list-style-type: none"> • the unique and extremely rare leopard species, the Red or Erythristic Leopard, found in the area, currently being studied by MTPA and the data deficient Golden Mole (<i>Amblysomus hottentotus meesteri</i>); • the rare birds that are breeding in the area – the Verrauxs Eagle (Black Eagle), African-Crowned Eagle, Cape Vulture, Denhams Bustard (Stanley’s Bustard), Black-Bellied Bustard, White-Bellied Korhaan and Black Stork; and • <i>Cussonia transvaalensis</i>, which is endemic to South Africa and <i>Argyrolobium wilmsii</i>, which is endemic to Mpumalanga and <i>Scilla natalensis</i>.
<p>Current situation</p>	<p>According to the mine personnel, these stations have been removed with only the pumps remaining.</p>
<p>Updated action plans</p>	<p>None</p>
<p>Schedule</p>	<p>Not applicable</p>

Description and evaluation of alternative closure and post closure options	Total removal of pump station is not feasible as these pump stations will be used in the future.
Motivation for the preferred closure action within the context of the risks and impacts that are being mitigated	These stations will be used in the future.
Details associated with any on-going research on closure options.	There is no ongoing research.
A detailed description of the assumptions made to develop closure actions in the absence of detailed knowledge on site conditions, potential impacts, material availability, stakeholder requirements and other factors for which information is lacking.	It is assumed that these stations will be used in the future.

4.3 The indication of the organisational capacity that will be put in place to implement the plan

This section must include:

- i. the organisational structure as it pertains to the plan
- ii. responsibilities
- iii. training and capacity building that may be required to build closure competence

The mining contractor and the contractor removing the infrastructure will be responsible for rehabilitation. The operational management of Imerys will ultimately be responsible for final rehabilitation. No training has been done.

4.4 An indication of gaps in the plan, including an auditable action plan and schedule to address the gaps

The work conducted in this report is compiled from specialist studies and the EMP. There is nothing additional that is done.

4.5 Relinquishment criteria for each activity or infrastructure in relation to environmental aspects with auditable indicators

The area will only be relinquished once adequate drainage and natural vegetation is retained, with no erosion on roads to be removed.

SECTION 5: POST REHABILITATION ACTIVITIES

Information for this section was taken from 'Rehabilitation Recommendations after Alien Plant Control' (Campbell, 2001). Post rehabilitation will take place after closure of the mine. These activities will be in the form of maintenance and monitoring.

5.1 Monitoring plan

Monitoring of any rehabilitation is absolutely necessary to ensure that the integrity and performance of the rehabilitation method are still in line with the original objectives and purposes of the method. It is very important that monitoring takes place continuously throughout and after rehabilitation. The main goals of a monitoring program are (van Deventer, 2009):

1. To meet legal requirements. In the EMP, a description of methods to be followed to monitor compliance with the approved rehabilitation plan is included. Closure application should also be substantiated with adequate monitoring data. Closure objectives must be specified upfront and accepted by all parties. Objectives must be prescribed for at least the following:
 - Topographical reshaping
 - Erosion (surface stability);
 - Vegetation cover (species diversity, abundance);
 - Surface water drainage systems;

- Surface water quality
 - Groundwater quality
 - Mine residue characteristics with respect to plant growth (soil quality)
2. Evaluating mine residue and vegetation quality. Dynamic assessment requires a monitoring system to provide a regular surveillance of mine residue and vegetation quality attributes or indicators.
 3. Land management. The annual results of the monitoring program will determine the actions to be taken for the following year to ensure the site is improving in the direction of the stipulated end result.
 4. Improving our understanding of new ecosystems. For the new ecosystem, the biological productivity, stocks and exchange of nutrients, and the regulation of other ecological processes need to be characterized, quantified and modelled.

Refer below for the parameters of monitoring. This includes an explanation of the approach that will be taken to analyse monitoring results and how these results will be used to inform adaptive or corrective management and/or risk reduction activities.

Parameters to be monitored	Frequency of monitoring	Period of monitoring	Responsible person	Explanation of the approach that will be taken to address and close out audit results and schedule
Topographical reshaping				
After reshaping the resultant topography must be surveyed to determine the degree to which the final topography meets planned objectives, particularly in terms of surface drainage and in terms of slope required to meet land capability objectives.	Once after reshaping	Once after reshaping	Mine surveyor	Deviations from plan must be documented, and the final reshaped surface should be signed off by the responsible person prior to the replacement of topsoil.
Erosion monitoring				
<p>The primary objective of the closure of any sloped area is to create a rehabilitated surface and topography that has the capacity to be stabilised under all environmental conditions e.g. severe rain events, veld fires, droughts etc. Erosion status of the rehabilitated land should be monitored and zones with excessive erosion should be identified for remedial action. Erosion can be quantified by insertion of marked stakes into the rehabilitated profile and recording the rate at which the stakes are uncovered. However, the norm is simply the recording of the existence of erosion in a particular location. Key objectives to improve surface stability are;</p> <ul style="list-style-type: none"> • The minimisation of surface erosion (wind and water) • Establishment of a plant community that is self-sustaining or any other cover material which complies with surface stability <p>Achievement of these objectives should be demonstrated by monitoring of the rehabilitated areas. The key objective of surface stability monitoring lies in</p>	Monthly	Five years after rehabilitation	Mine manager	<p>It is much simpler, and cheaper, to treat this type of erosion in the early stages of formation than to try to repair the damage once a deep gully has formed. Small ruts that are just starting to open up can be easily controlled by filling them with brush, straw, manure or even stones.</p> <p>Treatments should be concentrated in areas of clearly active soil erosion, rather than relatively stable (vegetated) gulleys).</p> <p>An extremely important principle with any soil erosion control method is that when natural materials are gathered for use in control structures, care must be taken to ensure that the removal (for example, of stones) does not become the cause of a new erosion problem at the source of the material. Stones, for example, should only be collected along roads, where they are displaced during road-making, or from piles of stones cleared off irrigation lands. Similarly, natural vegetation should not be destroyed by vehicles collecting or delivering materials for gully control.</p> <p>(http://www.ostrichsa.co.za/downloads/bio_diversity/rehabilitation.pdf)</p>

Parameters to be monitored	Frequency of monitoring	Period of monitoring	Responsible person	Explanation of the approach that will be taken to address and close out audit results and schedule
<p>being able to demonstrate in a quantified manner the stability of surface rehabilitation works. The monitoring programme should be developed such that loss of soil can be quantified and the stability of the vegetated areas be assessed.</p>				
Vegetation monitoring				
<p>Vegetation establishment on new ecosystems or on disturbed systems should yield a self-sustaining community that is dynamic and able to change as the rehabilitated site ages and matures. The success of re-established plant community must be demonstrated through appropriate monitoring. The monitoring program must quantify the established plant community in terms of:</p> <ol style="list-style-type: none"> 1. Species abundance (diversity) <ol style="list-style-type: none"> a. Improvement on contact cover b. Canopy cover c. Rooting depth d. Reproductive performance - Sexual reproduction 2. Asexual reproduction <ol style="list-style-type: none"> a. Microbial activity and biomass b. Frequency – once a year c. Remarks <p>The vegetation-monitoring programme must be developed for each case of implementation, without</p>	<p>Refer to Figure 26 below.</p>	<p>Five years after rehabilitation</p>	<p>Mine manager</p>	<p>Refer to step 4 and 5 in parameters to be monitored</p>

Parameters to be monitored	Frequency of monitoring	Period of monitoring	Responsible person	Explanation of the approach that will be taken to address and close out audit results and schedule
<p>compromising the integrity of data gathered. A qualified ecologist with experience in assessment of rehabilitated plant communities must design the monitoring programme.</p> <p>The rehabilitation of grass species will potentially take place over 5 years depending on the progress of the rehabilitation plan. After this initial monitoring, a less comprehensive monitoring will be done. Refer to Figure 26 for a diagram of the vegetation monitoring to be done on the site. It is important to note that throughout all the monitoring phases, alien vegetation should be noted and included in an Alien Invasive Vegetation Control Programme.</p> <p>It is the objective to eradicate all alien plants during the control programme; however, it is very likely that alien vegetation will re-occur after such initial control. To combat this, an Alien Invasive Vegetation Control Programme is set out. There are five steps to this control programme. They are as follows: Please note, this alien vegetation monitoring must also be done after concurrent rehabilitation and the re-vegetation and removal of plants during concurrent rehabilitation has taken place.</p> <p>Step 1: Information gathering</p>				

Parameters to be monitored	Frequency of monitoring	Period of monitoring	Responsible person	Explanation of the approach that will be taken to address and close out audit results and schedule
<p>This first step is done to create a map, indicating the different infestation areas on the site. The following should be done to create such a map:</p> <ol style="list-style-type: none"> 1. Alien plant infestations should be divided into control areas. To do this, natural or man-made barriers can be used. These barriers include roads, rivers and fences. These barrier areas should be numbered for record purposes. 2. A detailed alien plant survey should be done in each area. The following should be recorded – <ul style="list-style-type: none"> • All alien plant species present and their growth habit (shrubs, trees, coppice, saplings, seedlings), • Percent density of each alien plant species (75-100% is very dense, 50-75% is dense, 25-50% is medium dense, 5-25% is sparse and 0-5% is scattered), • The terrain. 3. Rank the areas into high, medium and low priority areas. This depends on the biodiversity, water yield and carrying capacity. 4. Identify suitable grass species for establishment and availability, per land use aims. 5. Place all above information on a 1:1 000 maps. <p>Step 2: Planning</p>				

Parameters to be monitored	Frequency of monitoring	Period of monitoring	Responsible person	Explanation of the approach that will be taken to address and close out audit results and schedule
<p>This step is to establish integrated control strategies in each control (barrier) area as identified in Step 1. The following should be done:</p> <ol style="list-style-type: none"> 1. List the required resources for each high priority control area (e.g. labour, herbicides, and equipment) and the current management practices on the property. 2. Evaluated and select appropriate control methods, using registered herbicides. 3. Calculate the costs for the high priority control areas. 4. Secure a long-term commitment to rehabilitation. <p>Step 3: Management</p> <ol style="list-style-type: none"> 1. Draw up an Annual Plan of Operations (APO) for high priority control areas. This plan must be updated each year. It includes a budget for the required resources for control strategies during the first year. This determines the scale of work. <ol style="list-style-type: none"> a. 75% for follow-up work and rehabilitation of previously cleared areas' b. 20% for initial control of new area' and c. 5% for an emergency. 2. Establish an emergency fund to cope with catastrophes such as mass seeding generation, fire, flood, etc. 3. Allocate resources to high priority control areas. 				

Parameters to be monitored	Frequency of monitoring	Period of monitoring	Responsible person	Explanation of the approach that will be taken to address and close out audit results and schedule
<p>4. Draw up timetables for control operations, including a “catch-up” for in case operations fall behind.</p> <p>5. The plan must be flexible and adjusted as progress is made.</p> <p>Step 4: Implementation Train the labourers in correct control and grass planting methods.</p> <p>Step 5: Record keeping</p> <p>1. Keep simple records of daily operations, e.g. record of labour days, herbicide used and volumes and equipment used.</p> <p>2. Monitor progress with the control work (after the first year) by recording information on maps.</p> <p>3. The information from these records must be fed back into the budget to update and amend the APO for the following year.</p>				
Surface water drainage systems				
<p>The functionality of the surface water drainage systems should be checked annually, preferably after the first major rains of the season, and then after any major storm. This is both to ensure that the drainage of the re-created profile matches the plan, and to permit early repair of drainage structures that are not functioning efficiently.</p>	<p>During rainy season</p>	<p>Five years after rehabilitation</p>	<p>Mine manager</p>	<p>Repair drainage structures that are not functioning efficiently.</p>
Surface water quality				

Parameters to be monitored	Frequency of monitoring	Period of monitoring	Responsible person	Explanation of the approach that will be taken to address and close out audit results and schedule
<p>Surface water upstream and downstream of the Spekboom River must be monitored to assess the quality of the water from the mining area.</p> <p>Water monitoring results will be sent to Kudu Game Ranch for the complete 5 year period.</p>	Monthly	Five years after rehabilitation	Mine manager	If water results from the mine indicate quality above the acceptable limits, this will be discussed with DWS and the users of the Spekboom River.
Groundwater quality				
The mine currently monitors groundwater from Quarry 2/3, Barge dam, Ericsson dam, and the plant.	Quarterly	Five years after rehabilitation	Mine manager	If water results from the mine indicate quality above the acceptable limits, this will be discussed with DWS and the groundwater users in the area.
Mine residue characteristics with respect to plant growth (soil quality)				
Soil quality monitoring will only be done if necessary and until natural vegetation is in place.			Mine manager	

5.2 Internal, external and legislated audits of the monitoring plan

The monitoring plan will be audited to ensure effective implementation.

5.2.1 Person responsible for undertaking the audit

Health Safety and Environmental Manager for internal audits and consultant for external audits.

5.2.2 Planned date of audit and frequency of audit

Annually.

5.2.3 An explanation of the approach that will be taken to address and close out audit results and schedule

Refer to the monitoring plan in section 5.1 for an approach that will be taken to address and close out audit results and schedule.

5.2.4 Disclosure of updates of the plan to stakeholders

The audit report will be sent to all stakeholders once finalised, therefore on a quarterly basis.

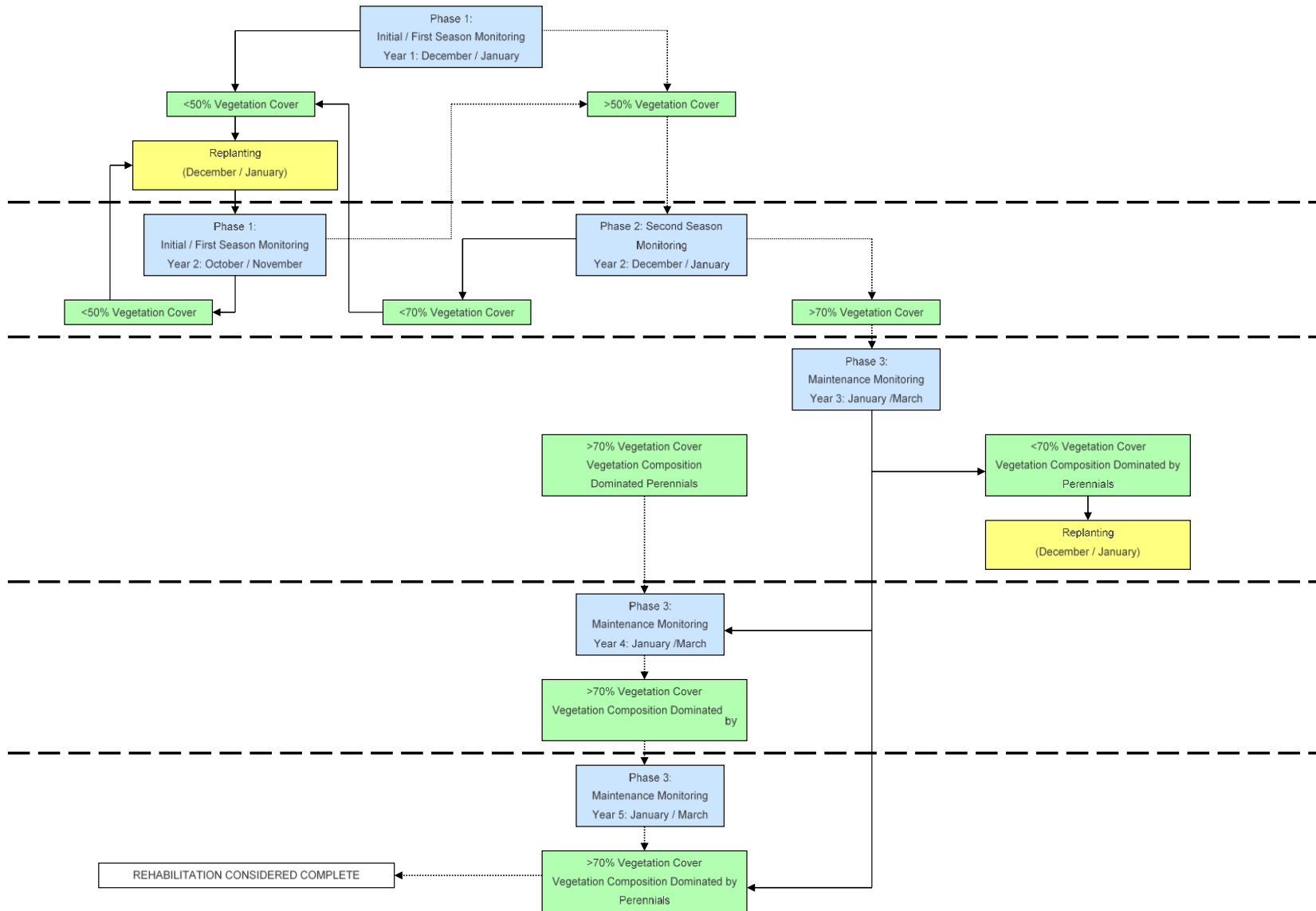


Figure 26: Summary of vegetation monitoring

SECTION 6: MINE CLOSURE FINANCIAL PROVISION UPDATE

The annual forecasted financial provision calculation must include an explanation of the financial provision methodology; auditable calculations per activity or infrastructure; and financial provision assumptions.

6.1 Financial provision methodology

The following is extracted from the Annesley Andalusite Mine Closure Liability Update (Shangoni Management Services, 2016):

The CES Group was contracted by Shangoni to acquire rates for demolition and rehabilitation of mining activities. Procurement of budget pricing approached by identifying reputable demolition companies, various sites of varying sizes at various locations and identifying local companies in the study area with the ability to work on similar scale project. A bill of quantities (BoQ) was distributed to the various companies. The table below indicates the number of contractors to which the BoQ was distributed and the number of tenders received afterwards.

Table 6: Results of rate acquisition process

Area	Number of contractors identified	Tenders received
National	6	1
North West	6	3
Free State	5	1
Northern Cape	7	2
Limpopo	5	3 (One joint venture with national based company)
Total	29	10

The prices received from contractors were reviewed by the CES Group, after which average and meridian rates were drawn rates to correctly establish a baseline rate. The following methods to establish the baseline rates were followed:

- Price A - Average if priced – across the board average of rates received per category;
- Price B - Median pricing – “middle” rate of all rates in series per category;
- Price C - Average between Price A & B;
- Price D - Average rate excluding top and bottom rates per category.
- Price D - rate category that was used in the financial provision calculation, unless otherwise indicated in the financial provision spreadsheet “Rate” sheet.

The financial provision consists of the following areas:

Physical - Demolition of infrastructure where infrastructure does not form part of end land use. The potential for transfer to the third party was identified.

Biophysical - Actions to safeguard (making safe and stable) and re-establish the biophysical to ensure a sustainable landform and mitigate identified risks. This includes levelling of the dumps, seeding of the trees and grass.

6.2 Auditable calculations of financial provision per activity or infrastructure

Table 7: Tariffs used for quantum determination

Rehabilitation and Demolition	Unit	Rates
800mm thick /deep Reinforced in situ concrete structures: Demolition and removal to demolition site	m ³	R 502.27
400mm thick /deep reinforced concrete	m ³	R 447.27
250mm thick /deep reinforced concrete	m ³	R 350.00
340mm thick /deep concrete slabs	m ³	R 400.00
220mm thick brick wall buildings (single storey) Face brick building, 14.8 x 10m x 4.4m high, consisting of 600 x 230mm strip footings laying 655mm deep, 150mm surface bed finished off with ceramic floor tiles including 110mm internal walls, with 1000 x 100mm apron around building and Roller shutter doors at service hatch 3000 x 1200mm. Ceilings at 2805mm high. Roof trusses 1600mm high at centre with 500mm overhang, pitching 15 degrees and 0.6mm IBR profiled colomet roof sheeting, ridge capping, fascia boards, barge boards, gutters and downpipes.	m ²	R 447.27
Face brick building, 48 x 12.46m x 7.85m high, consisting of 750 x 300mm strip footings laying 755mm deep, 150mm surface bed finished off with ceramic floor tiles including 110mm internal walls, with 1000 x 100mm apron around the building. Ceiling below hollow block slab at 2805mm high. 1st floor hollow block slab, 255mm thick finished off with ceramic floor tiles. Stairs to 1st floor 220mm threads x 150mm risers and slab to the wall at 1400mm high in middle and to one side of the building. Ceilings at 2890mm high. Prefabricated roof trusses 1900mm high at centre with 500mm overhang, pitching 15 degrees and 0.6mm colomet roof sheeting, ridge capping, fascia boards, barge boards, gutters and downpipes. Canopy at the entrance to building 3m wide x 2.8m high	m ³	R 435.00
Excavating foundations 600 x 230 x 655mm deep strip footings	m ³	R 320.00
Light steel construction clad with corrugated iron (car ports etc.) Carports 7.5m x 11m, consisting of 6 x 75 SHS Columns in 500mm deep concrete bases with colomet 6mm IBR roof sheeting on 75 x 75 SHS Curved purlins (one carport size 5.5 x 2.5m x 2.3m high)	m ²	R 53.13
Medium steel construction buildings (corrugated iron clad workshops and sheds with concrete floors)	m ²	R 290.00
Dismantle, break down and remove plant structure, not exceeding 15m height	m ³	R 171.85
Demolish and remove 48kg/m railway line on P2 concrete sleepers, including fasteners, pads & clips.	m	R 80.00
Up to 400mm Diameter piping	m	R 37.69
Greater than 400mm Diameter piping	m	R 67.90
Dismantle and remove Cattle Fencing not exceeding 1.2m high, including posts, gates, foundations, etcetera	m	R 12.00

Rehabilitation and Demolition	Unit	Rates
Dismantle and remove Mesh Fencing not exceeding 1.8m high, including posts, gates, foundations, etcetera	m	R 12.00
Dismantle and remove Security Fencing exceeding 1.8m high, including posts, gates, foundations, etcetera	m	R 13.50
Dismantle and remove Steel Palisade Fencing exceeding 1.8m high, including posts, gates, foundations, etcetera	m	R 22.00
Dismantle and remove Palisade Concrete Fencing exceeding 1.8m high, including posts, gates, foundations, etcetera	m	R 22.00
Dismantle and remove Electric Fencing not exceeding 2.1m high, including posts, gates, foundations, etcetera	m	R 22.00
Dismantle and remove Diamond Mesh Fencing not exceeding 2.4m high, including posts, gates, foundations, etcetera	m	R 22.00
Dismantle and remove Precast walling not exceeding 1.8m high, including posts, gates, foundations, etcetera	m	R 22.00
Wildlife fence 1.8m	m	R 140.00
15m H Pole structure complete with double 11kV Wolf conductor (6 x ACSR) and all accessories	m	R 45.00
Demolition of reinforced concrete silo 20m high	m ³	R 89.77
Disconnect and remove 2 x MCC panels. Demolish and remove face brick building 6,5 x 9 x 5.05m high to a roof truss, strip footings laying 750mm deep, 6 x 2m high columns with 300mm thick concrete slab on columns. Steel stairs and hand railing to 1st floor. Steel roof structure 1,6m high to pitch.	no	R 26,850.00
Disconnect and remove transformers, demolish transformer room brick building, 3 x 3 x 4m high.	no	R 10,850.00
Remove fuel pumps & tank	m ³	R 850.00
Remove overhead workshop cranes 15 Ton Single Girder crane - 20m wide	no	R 6,500.00
Drain and fill French drain	no	R 6,585.00
Filling of Soakaways	no	R 6,585.00
Remove water tank	m ³	R 450.00
Permatank	m ³	R 850.00
Overland conveyor	m	R 540.00
Earthworks, break-up and level	m ³	R 40.01
6m Office	no	R 1,500.00
12m Office	no	R 1,500.00
9.6m Park home	no	R 1,500.00

Rehabilitation and Demolition	Unit	Rates
Quarry maintenance	ha	R 10,000.00
No cost incurred	n/a	R -
Ripping of dirt road	m ²	R 14.89
Ripping of previously tar surfaced surface areas (tar removal measured elsewhere)	m ²	R 21.31
Remove tarred surface areas not exceeding 50mm thick	m ²	R 25.87
Break-up and remove paving bricks	m ²	R 34.94
Break-up and remove concrete paving	m ²	R 30.51
Demolish reinforced concrete	m ³	R 950.69
Remove pumps and piping and demolish pump room size 3,5 x 5,25 x 3m high.	no	R 1,805.75
Drain dam, leave to dry, remove liner	m ²	R 18.63
Earthworks, break-up and level*	m ³	R 40.01
Traditional seeding	m ²	R 3.36
Grass	m ²	R 43.08
Backfilling of open pit	m ³	R 8.09
Enviroberm	m	R 22.55
Hydro seeding	m ²	R 26.50
Sloping	m ³	R8.89

6.3 Financial provision estimation

The following table contains a summary of the calculations made for the financial provision based on the rehabilitation monitoring plan.

Table 8: Summary of the financial provision estimation until closure

Item	Size (m / m ² / m ³)	Rate	Final cost
Sloping with topsoil			
Overburden		R 8.89	R -
Quarries	77,904.00	R 8.89	R 692,566.56
Infrastructure			
Access roads		R 14.89	R -
Pit perimeter berm	3,603.00	R 22.55	R 81,247.65
Pipes	Estimate	R 36,000.00	R 36,000.00
Office	450.00	R 435.00	R 195,750.00
Vegetation			
Seeding	731,647.00	R 3.36	R 2,458,333.92
Removal of alien vegetation	Estimate	R 30,000.00	R 30,000.00
Monitoring			
Soil erosion, vegetation growth, and alien vegetation monitoring	5 Years	R 30,000.00	R 150,000.00

Item	Size (m / m ² / m ³)	Rate	Final cost
Groundwater monitoring	Quarterly for 5 years	R 30,000.00	R 600,000.00
Sub-total			R 4,243,898.13
P&G (13.5%)			R 572,926.25
Contingency (10%)			R 424,389.81
Total			R 5,241,214.19

6.4 Financial provision assumptions

Extensive rehabilitation has already taken place. Refer to the rehabilitation monitoring report for an update on the rehabilitation on site.

- Pipes were removed, however; more pipelines were uncovered after a veldfire. Some of these pipes are asbestos pipes. A previous quotation of R36,000 was used to remove asbestos pipes. All steel pipes will be removed to other mines within the Imerys Group. These pipes will then be reused as part of their operations.
- The entire plant area has been removed and sloped. Only the offices are still intact. The site offices are approximately 450m².
- The old slimes dam has been revegetated. No additional rehabilitation is envisaged.
- Most of the structures on the Office slimes dam has been removed. Vegetation is still limited. The side must be revegetated. The area for seeding is approximately 144,337m².
- Quarries 1, 2 and 3 have been sloped and topsoil cover is underway. The area for seeding is approximately 161,034m² for quarries 1 and 2 and 78,613m².
- Topsoil replacement on Hostel Quarry has taken place. Revegetation must now be done. The area for seeding is approximately 24,867m².
- Sloping at Skatkis Quarry has taken place. It is unclear whether the separation wall between Skatkis Quarry and Quarry 6 has been broken down.
- Sloping of quarries 6 and 7 has commenced. Final sloping of approximately 77,904m² (at a depth of 1m) must still take place and seeding of an area of 267,336m².
- Most of the roads have already been ripped. These roads were seeded. However, due to a lack of rain, no grasses are yet visible.
- Barge dam has been removed. This area is now a wetland area. The settling dams will remain intact.
- The pump station area has been cleaned with some pipes and other rubble still remaining to be removed. The contractors take rubble away and resell.
- Sloping and replacement of topsoil is underway on the coarse tailings and run of mine. Reseeding of an area of 55,460m² is necessary.
- Enviroberm around quarries 6 and 7 and Skatkis quarry with an approximate perimeter of 3,603m.

SECTION 7 MOTIVATIONS FOR ANY AMENDMENTS MADE TO THE FINAL REHABILITATION, DECOMMISSIONING AND MINE CLOSURE PLAN, GIVEN THE MONITORING RESULTS IN THE PREVIOUS AUDITING PERIOD AND THE IDENTIFICATION OF GAPS AS PER 2(I)

None.

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