# Annexure 1 to the D-BAR:
# Final Rehabilitation, decommissioning and mine closure plan

## Contends

# 1 Introduction

This document serves to comply with regulation 6 of the NEMA Financial Provisioning Regulations, 2015 as amended that states that 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—

(a) annual rehabilitation, as reflected in an annual rehabilitation plan;

(b) final rehabilitation, decommissioning and closure of the prospecting, exploration, mining or production operations at the end of the life of operations, as reflected in a final rehabilitation, decommissioning and mine closure plan; and

(c) remediation of latent or residual environmental impacts which may become known in the future, as reflected in an environmental risk assessment report.

In terms of regulation 10 an applicant must –

(a) ensure that a determination is made of the financial provision and the plans contemplated in regulation 6 are submitted as part of the information submitted for consideration by the Minister responsible for mineral resources of an application for environmental authorisation, the associated environmental management programme and the associated right or permit in terms of the Mineral and Petroleum Resources Development Act, 2002; and

(b) provide proof of payment or arrangements to provide the financial provision prior to commencing with any prospecting, exploration, mining or production operations.

## 1.1 The annual rehabilitation plan

The annual rehabilitation plan provide for concurrent or progressive rehabilitation and contain information that defines activities on an annual basis and how these relate to the Final closure vision, as detailed in this final rehabilitation, decommissioning and mine closure plan.

The objective of the annual rehabilitation plan is to─

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

Taking into account the objective of the annual rehabilitation plan it is clear that it cannot form part of the EMPr to be submitted in terms of Environmental Impact Assessment Regulations, 2014 (EIA Regulations) as amended but will be submitted on an annual basis as part of the environmental audit report in terms of Regulation 34 (1)(b) of the EIA Regulations.

## 1.2 Final rehabilitation, decommissioning and mine closure plan

According to the Financial Regulations the final rehabilitation, decommissioning and mine closure plan will form a component of the EMPr to be submitted in terms of the EIA Regulations and will be subjected to the same requirements as the EMPr regarding opportunities for stakeholder review and comment as well as auditing.

The objectives of this final rehabilitation, decommissioning and mine closure plan is to to identify a post-mining land use that is feasible through-

- providing the vision (goals), objectives, targets and criteria for final rehabilitation, decommissioning and closure of the project;

- outlining the design principles for closure;
- explaining the risk assessment approach and outcomes and link closure activities to risk rehabilitation;
- 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;
- committing to a schedule, budget, roles and responsibilities for final rehabilitation, decommissioning and closure of each relevant activity or item of infrastructure;
- identifying knowledge gaps and how these will be addressed and filled;
- 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
- outlining monitoring, auditing and reporting requirements.

### 1.3 Environmental risk assessment report

According to the Financial Regulations the environmental risk assessment report will also form a component of the EMPr to be submitted in terms of the EIA Regulations and will be subjected to the same requirements as the EMPr regarding opportunities for stakeholder review and comment as well as auditing.

The objective of the environmental risk assessment report is to─

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

Taking into account the objective of the environmental risk assessment report it is clear that it cannot form part of the EMPr to be submitted in terms of Environmental Impact Assessment Regulations, 2014 (EIA Regulations) as amended but will be submitted at the time of final decommissioning as part of an application for closure in terms of section 43(4) of the MPRDA. At the time of final closure of the project the environmental risk assessment report must substantiate why each risk is latent, including why the risk was not or could not be mitigated during concurrent rehabilitation and remediation or during the implementation of this final rehabilitation, decommission and closure plan.

## 2 Context of the plan

Several pieces of legislation are applicable to mine closure. Importantly, public participation is an integral part of mine closure and the process followed needs to fulfil the requirements of all relevant legislation. The following government departments have been identified amongst others as playing a key role in the closure process:

- Department of Minerals Resources (DMR). Lead agent, facilitator of closure inspections and issues the closure certificate,
- Department of Water Affairs (DWA). Lead agent for potential water related issues and signs off on the mine closure certificate. Cancellation of Water Use license.
- Provincial and National Departments with a Environmental mandate. Gives input into the closure plan and guides and monitors protection of the natural environment.
- The local municipality and district municipality. Gives input into the mine closure plan and interfacing thereof with their integrated development plan (IDP) of the local area.

Three approaches were employed to identify the key aims for the closure process:

- Technical assessments which involved the recording of the project activities over the full life cycle of the prospecting operation (including closure) and the consequent potential impacts on the environment (including cumulative impacts). This resulted in the compilation of a draft closure plan that facilitated discussions with the authorities as well as Interested and Affected Parties (I&APs).
- Identification and consultation with the relevant authorities to record their requirements and solicit/record their suggestions/issues/concerns.
- The collection of available/published environmental data, the review thereof for adequacy and hence the identification of the need for more comprehensive environmental studies/investigations and/or further information gathering.

Subsequent to the above activities/processes, advertisements of the operations were placed in local newspapers to notify I&APs about the intended projects and invitations to register and participate in the assessment process. As a result of the consultation and recommendations from the environmental studies/investigations completed the company identified three key closure goals for the final decommissioning and closure of the prospecting operation that are listed below.

- To create a safe and healthy post-mining environment with no residual environmental impact.
- To create a stable, free draining post mining landform, which is compatible with the surrounding landscape and which is capable of a productive land use that achieves a land capability equal to that of pre-prospecting conditions
- To provide optimal post-mining social opportunities

Each goal is supported by a suite of key objectives and activities which are elaborated on in section 3 of this plan. This plan also describes how these objectives are planned to be met and elaborate on the implementation of mitigation actions (section 4).

Aftercare and maintenance of rehabilitated sites is often the difference between the ultimate successes or failure of rehabilitation and monitoring of rehabilitation will determine whether rehabilitation objectives and requirements are being achieved.

## 3 Environmental Authorisation (EMPr) requirements

The objectives for the final decommissioning and closure of the project can be summarised as follow:

**Objective 1 - To create a safe and healthy post-prospecting environment**

- Safe excavations
  - Slope stability of remaining excavation
  - No potentially dangerous areas secured if required
- Limited residual environmental impact
  - Develop a landscape that reduces the requirement for long term monitoring and management
  - No surface and/or groundwater contamination
  - Waste management practices not creating or leaving legacies

**Objective 2 - To create a stable, free draining post prospecting landform, which is compatible with the surrounding landscape**

- Economically viable and sustainable land, as close as possible to its natural state.
  - Prepare area to promote natural re-establishment of vegetation that is self-sustaining, perpetual and provides a sustainable habitat for local fauna and successive flora species
  - Prevent long term changes in land use by implementing prompt rehabilitation and maintenance of disturbances when possible as part of annual rehabilitation plan.
- Stable, free draining post prospecting landform
  - Prevent alteration or diverting natural drainage lines and reduced natural runoff.
  - Prevent concentration of runoff, mixing of clean runoff with contaminated runoff and creation of large open water bodies.

**Objective 3 - To provide optimal post-prospecting social opportunities**

- Optimised benefits for the social environment
  - Positive and transparent relationships with stakeholders and maintaining communication channels, providing stakeholders including government authorities with relevant information as per legislative requirements.
  - Undertaking environmental management according to approved EMPr and Closure plans and regular auditing of the environmental management system.
- Minimal negative aesthetic impact
  - Mitigate the nuisance effects of air emissions (dust), visual intrusion and the cumulative effect of an increase in the ambient noise levels
  - Prevent disturbance of archaeological sites and implement mitigating measures according to the heritage and paleontological assessment.

From the point of view of the environmental impact created, diamond prospecting is a relatively benign industry. There are no emissions besides those of the diesel-powered earthmoving equipment utilised. Contamination of water resources is only likely in the event of petrochemical spillages from storage facilities and equipment, and these can largely be either prevented or cleaned up effectively.

Similarly, prospecting methods themselves generally have a low impact on the surrounding environment due to the small area impacted on. The environmental impacts of prospecting are generally insignificant, are mainly of temporary duration, and can be effectively managed. While there is an economic cost to limiting environmental impacts, these costs are can be made less significant in diamond prospecting if proper planning and consideration is applied from the exploration stage through to closure. In fact, it has been noted that truly environmentally conscious operations requires that activities be conducted with the future in mind, and that this will not only minimize the environmental effects of each activity, but will also result in significant cost savings. In the context of the diamond industry, these cost savings are not limited to costs of restoration, but may also be real cost savings in operating costs when proper planning over the lifecycle of a deposit is applied.

Rehabilitation measures to be implemented include improving the visual appearance of the disturbed areas, establishing a cover to provide erosion control, improving runoff water quality by minimising silt loads, and controlling dust.

Concurrent or progressive rehabilitation of disturbed areas is good practice and is now a requirement. This offers a number of advantages such as limiting the mine's environmental liability and limiting costs at final decommissioning and closure as rehabilitation is included in the operational activities of the mine as part of the annual rehabilitation plan in terms of the financial regulations.

Concurrent rehabilitation and remediation are provided for in the annual rehabilitation plan and contain information that defines activities on an annual basis and how these relate to the final closure vision, as detailed in this final rehabilitation, decommissioning and mine closure plan. Annual reviews in terms of regulations 6(a) and 11(l)(a) of the NEMA Financial Provisioning Regulations, that form part of the Annual Environmental Audit, assesses what closure objectives and criteria are being achieved through the implementation of the plan.

While some disturbed areas can be rehabilitated on a progressive basis during operation, others cannot be rehabilitated until prospecting is complete. For this reason, some rehabilitation is generally still required during and after closure. Remedial initiatives to minimize environmental impact during and after prospecting can be divided into three main categories:

- Firstly, the removal of surface infrastructure that cannot be used for other purposes.
- Secondly, the remediation and rehabilitation of tailings, old pits to remove the hazard they present to people and animals. Earthworks and contouring the mine area to as close as possible to the pre-prospecting landscape. This includes filling pits and small excavations; making pit side's safe and covering the surface area with subsoil and topsoil as necessary; and mitigation or restoration of all surface disturbances and revegetation of the pit slopes.
- Lastly, the removal and isolation of potential pollutants from the environment. Containment and treatment of contaminated water and correct storage and removal of hazardous materials.

The aims of rehabilitation should therefore look at limiting the long-term liabilities that will be borne by future generations. Where possible, natural systems will be used to control water pollution and vegetation cover should limit windblown dust pollution. Gradients will be reduced to levels where erosion is minimal, and natural revegetation is possible.

Maintenance of rehabilitated sites is often the difference between the ultimate successes or failure of rehabilitation and monitoring of rehabilitation will determine whether rehabilitation objectives and requirements are being achieved. As the final phase in the project cycle, decommissioning may present positive environmental opportunities associated with the return of the land for alternative use and the cessation of impacts associated with operational activities.

Depending on the nature of the operational activity, the need to manage risks and potential residual impacts may remain well after operations have ceased. Examples of potential residual impacts and risks include erosion, slow recovery of vegetation, stock that has been abandoned (e.g., oil drums, scrap equipment) and old (unserviceable) structures.

The main closure objective is to hand back the rehabilitated properties in a stable condition that will not be detrimental to the safety and health of humans and animals and that will not pollute the environment or lead to the degradation thereof. The aim therefore is to leave the site in as safe and self-sustaining a condition as possible and in a situation where no post-closure intervention is required. Aftercare and maintenance required can only be identified post decommissioning and depending on success of rehabilitation and mitigating measures.

## 4 Basic rehabilitation methodology

The post closure objective proposed in the EMPr is to restore the land to its pre-prospecting land use for stock farming. Re-vegetation of the disturbed areas will follow a process of natural plant succession starting with pioneer plants. Post prospecting topography for most of the area will follows the original landform shape.

### 4.1 Infrastructure and Logistics areas

The main post closure objective for the infrastructure areas is to leave the site in as safe and self-sustaining a condition as possible and in a situation where no post-closure intervention is required. The aim is to ensure that the affected environment is maintained in a stable condition that will not be detrimental to the safety and health of humans and animals and that will not pollute the environment or lead to the degradation thereof. The aesthetic value of the area will also be reinstated.

The general approach adopted is the complete removal of all infrastructure and equipment and to reuse all infrastructures and equipment at another location by the company. Redundant structures, buildings and civil foundations (down to one meter below surface for subsurface infrastructure) will be removed for use elsewhere or demolished and discarded. All steel structures and reinforcing will be discarded or sold as scrap. The compacted salvage yard, lay down and movement areas will be screened for petrochemical spills and cleaned before it is ripped and levelled. All redundant water pipes, pumps, power lines and cable associated with raw water and electrical supply will be removed. Service roads needs to be maintained and handed over to the landowner in a good state of repair and all redundant fences needs to be removed. All temporary waste storage areas need to be cleaned out and waste removed. Waste material of any description, including receptacles, scrap, rubble and tyres, will be removed entirely from the complete area and disposed of at a recognised landfill facility. It will not be buried or burned on the site.

- Access and service roads: Access to the exploration works will be via existing farm tracks. Existing tracks will be used for service toads, or if required driving off-road will be possible without clearing any vegetation. Leaving roots intact will prevent soil loss and enable vegetation to coppice and regrow. Incremental clearing of ground cover should take place to avoid unnecessary exposed surfaces.
- Water supply: No process water is required as part of the preliminary evaluation phase.
- Electricity supply: No Electrical supply is required as part of the preliminary evaluation phase.
- Logistics: No permanent infrastructure is present or will be required due to the small scale of operations and the availability of the logistics at Silverdoos and Jurg se Kaia the company HQ during this project.
- For laydown areas existing transformed areas/campsites will be used with temporary storage and ablution facilities.
- No workshops or service and wash bay are required as the earth moving contractor will be responsible for maintenance of equipment off-site. Emergency maintenance will be done with the necessary pollution prevention mitigating measures.
- Limited waste management facilities will be provided during the invasive phase and will consist of the following:
  - Plastic containers for domestic waste, which will be transported daily to the company HQ;

- Temporary storage area for used lubrication products and other hazardous chemicals for the collection of the small volume of waste before it is removed to a registered disposal site; and,
- Hydrocarbon management systems will consist of drip trays for stationary equipment and mobile fuel trailer in bunded parking area.

4.2 Active sampling areas (Prospecting Pits)

Diamond prospecting influences the topography on the site creating depressions devoid of vegetation after rehabilitation and before natural revegetation. Post prospecting topography for most of the area will follows the original landform shape except where changes due to historic large-scale trenching have occurred. Re-vegetation of the disturbed areas on virgin land will follow a process of natural plant succession starting with pioneer plants.

The main closure objective therefore is to leave the site in as safe and self-sustaining a condition as possible and in a situation where no post-closure intervention is required. The aim is to ensure that the affected environment is maintained in a stable condition that will not be detrimental to the safety and health of humans and animals and that will not pollute the environment or lead to the degradation thereof. The aesthetic value of the area will also be reinstated.

The basic rehabilitation methodology will therefore strive to replicate the pre-prospecting topography, wherever possible, or at least not to increase overall slope gradients without emplacement of adequately designed erosion control or runoff diversion structures.

For the small prospecting pits rehabilitation will involve backfilling and shaping to construct the required profile and compacted areas will be ripped to promote natural re-vegetation. The operation will not create any fine residue dumps. Note that gravel from the pits is not taken out and processed but left intact and closed after logging of results.

The only spoils to be generated are the overburden during excavations. Only one temporary overburden dump needs to be created per excavation and the creation of secondary dumps must be prevented. All overburden will be backfilled and no overburden dumps will remain above surface level.

The stockpile area for overburden needs to be demarcated and the footprint contained.

Overburden will be backfilled and compacted area to be ripped and profiled with erosion control measures.

This exploration program is only for preliminary evaluation and if an evaluation phase of Bulk sampling (Trenching) may be required an application for amendment of the environmental authorization will be submitted.

4.3 Risk Mitigation and Closure objectives

In addition to the goals and objectives for final decommissioning and mine closure the vision for the post closure land form is to leave the site in as safe and self-sustaining a condition as possible and in a situation where no post-closure intervention is required. The vision is to ensure that the affected environment is maintained in a stable condition that will not be detrimental to the safety and health of humans and animals and that will not pollute the environment or lead to the degradation thereof and that the aesthetic value of the area will be reinstated.

For the vision to be realised the objectives and associated risk management strategies and mitigating measures for the operational phase described in the table below needs to implemented, monitored and evaluated.
The aim with risk mitigation actions is to over time manage significant and medium risks to become insignificant, or at least medium and under control with management actions. Once achieved, a risk will continue to be monitored to confirm its insignificance rating as part of aftercare and maintenance.
The closure process involves a series of actions, executed over a number of years as indicated in the annual closure plans, with continual monitoring, review and remedial actions (if required). Identified and assessed risks feed into mitigation actions (or primary tasks) of which successful implementation result in achievement of the mine closure goals and objectives.

Financial provision is made in section 5 to deal with these mitigating measures in case of temporary closure or sudden closure during the normal operation of the project or at final planned closure.

The identified risks and their levels are listed together with their associated mitigating actions for the operational phase in the BAR and any changes during the life of the operation will be included as part of this Final Rehabilitation, decommissioning and mine closure plan during the first review after the first year of operations.

## 5 Estimated cost for requirements to fully decommission the site

### 5.1 Assesment of financial provision

According to regulation 6 of the NEMA Financial Provisioning Regulations, 2015 as amended 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— (a) annual rehabilitation, as reflected in an annual rehabilitation plan; (b) final rehabilitation, decommissioning and closure of the prospecting, exploration, mining or production operations at the end of the life of operations, as reflected in a final rehabilitation, decommissioning and mine closure plan; and (c) remediation of latent or residual environmental impacts which may become known in the future, including the pumping and treatment of polluted or extraneous water, as reflected in an environmental risk assessment report.

### 5.2 Quantified Closure elements

The following risk-based criteria and assumptions were used to calculate the final rehabilitation, decommissioning and closure cost:

- Access to the sample sites will be via existing farm tracks. Equipment will be transported to site via the existing roads (including gravel and jeep track).
- If no tracks area available, ‘twee-spoor’ tracks will be made by driving (4 x 4) to such a site. This should be done under the supervision of the Environmental Officer
- Any new tracks created will be decommissioned and rehabilitated.
- Rehabilitation is carried out on a continuous basis as work progresses as part of the annual rehabilitation plan. It consists mostly of backfilling of all excavations and scarifying of new tracks.
- The rehabilitation work will be conducted in-house under the supervision of an Environmental Officer.
- Limited surface disturbance will take place and the operation will not create any overburden or fine residue dumps.
- No water reticulation will be laid-on to the mine work area(s) either.

- No processing plant and services will be developed on the prospecting area and no offices and accommodation will be provided onsite that need decommissioning.
- Roads, access control and fencing will remain as part of agricultural operations.
- Accommodation will be provided off-site in one of the nearby towns, and not at the drill site.
- All services related to the operation, water supply lines and storage on site will have to be demolished; the closure cost is therefore included in this estimate.
-

## 5.3 Calculation of Closure cost

For each closure element, various possible combinations of required rehabilitation work were identified and costs were calculated for each of these, based on quotations obtained from independent third party suppliers for earthmovmg equipment rental and various other consumables.

| Earth Moving Equipment | Cost /hour | Fuel | Total Cost |
|---|---|---|---|
| Front End Loader - 30 Ton | R687,00 | R726,00 | R1 413,00 |
| Excavator -20 Ton | R322,00 | R396,00 | R718,00 |
| Cat 14 H Grader | R453,00 | R396,00 | R849,00 |
| Tipper Truck 10m³ | R309,00 | R308,00 | R617,00 |
| Manual Labour /hour | R45,00 | R0,00 | R45,00 |

| Cost Factor | Closure Element | Cost calculation | | | | |
|---|---|---|---|---|---|---|
| 1 | **Demolish and remove Buildings/Infrastructure including subsurface structures and bunded fuel storage - Salvage useable material, break concrete structure and dispose in waste dump** | **Equipment** | **Cost/h** | **m³/h** | **Equipment Cover Charge** | **Total** |
| | Demolish concrete and loading | Excavator - 20 Ton | R718,00 | 10,00 | R5 744,00 | R71,80 |
| | Transport building rubble to waste rock dump | Tipper Truck 10m³ | R617,00 | 10,00 | R4 936,00 | R61,70 |
| | Cleanup | Manual Labour hours | R45,00 | 0,50 | R0,00 | R90,00 |
| | **Total per m³** | | | | **R10 680,00** | **R223,50** |
| 2 | **Remove waste from temporary storage and scrap from salvage yard screen for petrochemical spills and clean** | **Equipment** | **Cost/h** | **h** | **Cover Charge** | **Total** |
| | Transport to waste disposal site | Tipper Truck 10m³ | R617,00 | 8,00 | R0,00 | R4 936,00 |
| | Clean out oil traps | Contractor | R2 000,00 | 1,00 | R0,00 | R2 000,00 |
| | Clean-up | Manual Labour hours | R45,00 | 16,00 | R0,00 | R720,00 |
| | **Total per facility** | | | | **R0,00** | **R7 656,00** |
| 3 | **Screen for petrochemical spills and clean** | **Equipment** | **Cost/h** | **m²/h** | **Cover Charge** | **Total** |
| | Remove 20cm of contaminated soil cover | Excavator - 20 Ton | R718,00 | 20,0 | R0,00 | R35,90 |
| | Dispose contaminated soil cover | Tipper Truck 10m³ | R617,00 | 20,0 | R0,00 | R30,85 |
| | **Total cost/m²** | | | | **R0,00** | **R66,75** |
| 4 | **Shape waste dumps (Terracing)** | **Equipment** | **Cost/h** | **m²/h** | **Cover Charge** | **Total** |
| | Create 3m terraces for heap-filled waste dumps | Excavator - 20 Ton | R718,00 | 1,0 | R0,00 | R718,00 |
| | **Total cost/m²** | | | | **R0,00** | **R718,00** |
| 5 | **Spreading topsoil over level areas** | **Equipment** | **Cost/h** | **m²/h** | **Cover Charge** | **Total** |
| | Loading of topsoil | Excavator - 20 Ton | R718,00 | 250 | R0,00 | R2,87 |
| | Transport of topsoil | Tipper Truck 10m³ | R617,00 | 250 | R0,00 | R2,47 |
| | Shaping of topsoil over Dump tops & Quarry Floor | Excavator - 20 Ton | R718,00 | 250 | R0,00 | R2,87 |
| | **Total cost/m²** | | | | **R0,00** | **R8,21** |
| 6 | **Spreading topsoil slopes** | **Equipment** | **Cost/h** | **m²/h** | **Cover Charge** | **Total** |
| | Loading of topsoil | Excavator - 20 Ton | R718,00 | 100 | R0,00 | R7,18 |
| | Transport of topsoil | Tipper Truck 10m³ | R617,00 | 100 | R0,00 | R6,17 |
| | Shaping of topsoil over dump slopes | Excavator - 20 Ton | R718,00 | 100 | R0,00 | R7,18 |
| | **Total cost/m²** | | | | **R0,00** | **R20,53** |
| 7 | **Sloping Sides of excavations 18°** | | **m²/h** | | **Cost/h** | **R/m²** |
| | Excavator - 20 Ton | Excavator - 20 Ton | R718,00 | 200 | 0,00 | R3,59 |
| | Construction of erosion berms (diversion banks) 50m spacing | Excavator - 20 Ton | R718,00 | 400 | 0,0 | R1,80 |
| | **Total cost/m²** | | | | **R0,00** | **R5,39** |
| 8 | **Rehabilitation of surface disturbance** | **Equipment** | **Cost/h** | **m²/h** | **Cover Charge** | **Total** |
| | Profiling and ripping compacted areas | Excavator - 20 Ton | R718,00 | 200,0 | R5 744,00 | R3,59 |
| | Construction of erosion berms (diversion banks) | Excavator - 20 Ton | R718,00 | 600,0 | 0,0 | R1,20 |
| | **Total cost/m²** | | | | **R5 744,00** | **R4,79** |
| 9 | **Rehabilitation of tracks** | **Equipment** | **Cost/h** | **m/h** | **Cover Charge** | **Total** |
| | Ripping of tracks | Excavator - 20 Ton | R718,00 | 100,0 | 0,0 | R7,18 |
| | Construction of erosion berms (diversion banks) 50m spacing | Excavator - 20 Ton | R718,00 | 150,0 | 0,0 | R4,79 |
| | **Total cost /m** | | | | **R0,00** | **R11,97** |
| 10 | **Cleanup - remove all mining related waste** | **Equipment** | **Cost/h** | **Service hours** | **Cover Charge** | **Total** |
| | Transport to waste disposal site | Tipper Truck 10m³ | R617,00 | 16,00 | 0 | R38,56 |
| | Clean-up | Manual Labour | R45,00 | 32,00 | 0 | R1 440,00 |
| | **Total cost/Ha** | | | | **R0,00** | **R1 478,56** |

5.4 Total estimated cost for requirements to fully decommissioned the prospecting site at final closure

| Infrastructure and Processing Areas | | | | | |
|---|---|---|---|---|---|
| **Risk based criteria and assumptions with regard to rehabilitation** | | | | | |
| • All historic trenches and compacted areas due to historic mining activities will only be rehabilitated if new sampling were done in or close to these areas.<br>• Removal of all structures and infrastructure not developed as part of farm improvement<br>• Remove all assets, all vehicles, plant and workshop equipment will be removed for salvage or resale<br>• All fixed assets that can be profitably removed will be removed for salvage or resale<br>• Any item that has no salvage value to the mine, but could be of value to individuals, will be sold (zero salvage assumed in cost estimation) and the remaining treated as waste and removed from site<br>• All structures will be demolished and terracing and foundations removed to the lesser of 500 mm below the original ground level<br>• A hazardous disposal site will not be constructed and all hazardous waste will be removed from site and transported to the nearest licensed facility as part of housekeeping<br>• All services related to the operation, water supply lines and storage on site will have to be demolished<br>• All compacted areas due to hauling and stockpiling must be ripped to 300 mm<br>• The compacted salvage yard, lay down and movement areas will be screened for petrochemical spills and cleaned before it is ripped and levelled.<br>• All disturbed and exposed surfaces including selected historical mining disturbances will be prepared to facilitate natural revegetation<br>• Existing tracks will be used and new tracks must be restricted to the absolute minimum.<br>• Return of land to its pre-mining land capability where possible taking into account numerous camp sites for recreational purposes | | | | | |
| **Closure Element<br>Mitigating measures** | **Unit** | **No Units** | **Unit Cost** | **Total Cost Element** | **Final Closure** |
| Salvage Yard - demolish remove scrap and waste (CF 2) | Sites | 2 | R7 656,00 | R15 312,00 | R15 312,00 |
| Temporary waste storage - demolish remove scrap and waste (CF 2) | Sites | 2 | R6 872,00 | R13 744,00 | R13 744,00 |
| Screen for petrochemical spills and clean (CF 3) | m² | 100 | R66,75 | R6 675,00 | R6 675,00 |
| Rehabilitation of surface disturbance (CF 8) | m² | 500 | R4,79 | R2 393,33 | R2 393,33 |
| Rehabilitation of tracks (CF 9) | m | 1000 | R11,97 | R11 966,67 | R11 966,67 |
| Final clean-up (CF 10) | Ha | 1 | R1 478,56 | R1 478,56 | R1 478,56 |
| | | | | **Total liability infrastructure** | **R51 569,56** |
| **Mining Area** | | | | | |
| **Risk based criteria and assumptions with regard to rehabilitation** | | | | | |
| • No FRD's will be created.<br>• No new overburden, coarse tailings or oversize dumps will be created as part of this operation.<br>• The general approach adopted for excavations is to reinstating the original profile of the landscape and ensuring the hydrological integrity of the area.<br>• Topography to follow the original landform shape<br>• The excavations will be filled in with overburden, the top 150 mm being topsoil<br>• Where topsoil is not available, the cost for in-situ remediation will be the same as the estimate for top soiling<br>• The post-mining topography at the excavations will be adjusted where possible to minimise the effect on water flow and increase potential for re-vegetation. | | | | | |
| **Closure Element<br>Mitigating measures** | **Unit** | **No Units** | **Unit Cost** | **Cost per Element** | **Final Closure** |
| Screen for petrochemical spills and clean (CF 3) | m² | 100 | R66,75 | R6 675,00 | R6 675,00 |
| Sloping Sides of excavations 18° (CF7) | m² | 5000 | R5,39 | R26 925,00 | R26 925,00 |
| Rehabilitation of surface disturbance (CF 8) | m² | 10000 | R4,79 | R47 866,67 | R47 866,67 |
| Final clean-up (CF 10) | Ha | 5 | R1 478,56 | R7 392,81 | R7 392,81 |
| **Total liability surface disturbance** | | | | | **R88 859,48** |
| | | | | **Total liability Final decommissioning and mine closure** | **R140 429,04** |

# 6 The Public Participation Process

The Public Participation Process (PPP) was designed to fulfil the requirements of several pieces of legislation applicable to mine closure. It forms an integral component of the mine closure process by affording Interested and Affected Parties (I&AP) the opportunity to identify environmental issues and concerns relating to the proposed closure, which they feel should be addressed.

The PPP was designed to provide sufficient and accessible information to registered I&APs in an objective manner to assist them to:

- Identify issues of concern, and provide suggestions for enhanced benefits and alternatives associated with mine closure,
- Identify latent risks associated with mine closure and rehabilitation,
- Contribute local knowledge and experience,
- Verify that their issues have been considered.

The operation set up a database of registered I&APs using existing project databases as a starting point to inform registered I&APs about the mine closure objectives and activities during the life of the mine. Names of persons and organisations will be added to or deleted from the database where appropriate.

# 7 Way Forward

This final Rehabilitation, Decommissioning and Mine Closure Plan will be reviewed on an annual basis to align such approved financial provision set out in regulations 9 and 11, of the NEMA Financial Provisioning Regulations, 2014 as amended. Concurrent rehabilitation and remediation will be provided for in the annual rehabilitation plan and will contain information that defines activities on an annual basis and how these relate to the closure vision, as detailed in this final rehabilitation, decommissioning and mine closure plan.

When final planned closure is applied for the operation will submit a final environmental performance audit report to DMR as lead agent for final perusal with the objective to issue a closure certificate. At that point, the closure process, and associated public participation process, will close.