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REHABILITATION AND CLOSURE PLAN

Proposed Prospecting with Bulk Sampling at Gumbu in the Madimbo Corridor on Unsurveyed Stated Land 440MT and 442MT, Siyabasa, Venda, District of Musina, Limpopo Province

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EXECUTIVE SUMMARY

Naledzi Environmental Consultants CC has been requested by Samin Group Pty Ltd to compile a Rehabilitation and Closure Plan, as well as financial provision for its proposed prospecting and bulk sampling activities at Gumbu in support of the Environmental Authorisation Process. The study site is located in the Madimbo Corridor, 91km east of Musina in Limpopo Province of South Africa.

The document supplies the Department of Mineral Resources (DMR) with information pertaining to closure planning for the proposed prospecting and bulk sampling activities on the farms 'unsurveyed state land 440MT and 442MT' as required in terms of the National Environmental Management Act 107 of 1998 (NEMA) and the Mineral and Petroleum Resources Development Act 28 of 2002.

The contents of this Rehabilitation and Closure Plan has been prepared as per the requirements of Appendix 5 of the NEMA EIA Regulations of 2014 (GNR 982 and GNR 327) and as stipulated under Appendix 4 of GNR 1147.

The proposed prospecting activities would be conducted in phases:

- Site Preparation
- Invasive Drilling, trenching, pitting , bulk sampling and concurrent rehabilitation
- Final decommissioning, rehabilitation and closure

The current status of the study site is natural with indigenous vegetation in pristine condition. The site is a declared nature reserve. The site is more sensitive in its eastern section with a disturbed area at the old Gumbu Graphite Mine on the western section of the study site. At present the land is used by the SANDF for military training. Livestock of the local community graze on parts of the study site.



Figure 1: View towards the east of the study site from a high point near old Graphite Mine (photo taken by R.F. Terblanche)



Figure 2: Ridges of Gumbu Valley (photo taken by R.F. Terblanche)

The closure aim would be to return the disturbed prospecting target areas to their natural state. Based on the 2007 Land Use and Development Plan for Madimbo Corridor rehabilitation and self-generating potential of vegetation in the project area is low owed to the low nutrient status of the soils. It would therefore be imperative to restrict disturbance to an utter minimum,

rehabilitate disturbed areas to ensure a safe and stable land use after prospecting for humans, wild animals and livestock.

SUMMARY OF REHABILITATION AND CLOSURE ACTIONS

Rehabilitation actions for the proposed prospecting activities would be undertaken in two fold namely concurrent rehabilitation and afterwards final decommissioning and rehabilitation.

Concurrent rehabilitation would include:

- Sealing of drill holes
- Backfilling of sumps, pits and trenches
- Clean up of surrounding areas, pollution and waste materials
- Spread overburden and topsoil evenly and re-vegetate disturbed areas to finalise the rehabilitation
- Inspect rehabilitated areas to monitor re-vegetation rate and remove alien invader species that may establish in the area;

Final decommissioning and rehabilitation:

- Remove all temporary infrastructure from the site camp and at prospecting sites
- Rip and seed disturbed areas
- Inspect rehabilitated areas to monitor re-vegetation rate as well as to remove alien invader species

It is recommended that concurrent rehabilitation is undertaken to improve the success of rehabilitation. The rehabilitated areas must be monitored to ensure that the objectives of rehabilitation are met and correct rehabilitation process is followed.

The 2018 financial provision estimate was calculated by means of the DMR standard method for assessment of closure. The summary of the calculated environmental rehabilitation cost is presented in Table 6. The cost for rehabilitation and closure of the proposed prospecting activities according to DMR methodology and rates is R 254 206, including Preliminary and General, Contingency and Value added Tax (VAT).

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ANNEXURE A – FINANCIAL PROVISION

Closure and Rehabilitation Plan

1 INTRODUCTION

Naledzi Environmental Consultants CC has been appointed by Samin Group Pty Ltd to compile a Rehabilitation and Closure Plan for the proposed prospecting and bulk sampling activities over the farms Unsurveyed State Land 440MT and 442MT at Gumbu in support of the Environmental Authorisation Process. The study site is located in the Madimbo Corridor, 91km east of Musina in Limpopo Province of South Africa.

1.1 Project Description

Samin Group Pty Ltd proposes to undertake prospecting with bulk sampling on the farms 'unsurveyed state land' 440MT and 442MT which is located at Gumbu, 91km east of Musina in the Limpopo Province. The application area (herein after study site) comprises the bulk of the Madimbo Military Corridor and covers 42 628 hectares of semi-arid Mopane bushveld bordering the Limpopo River next to the South African/Zimbabwe border. See Figure 1 for an Aerial Local Map.

Samin intends to identify if there are economically exploitable concentrations of Brytes, Chrome ore, Coal, Cobalt, Copper ore, Diamond, Gold ore, Graphite, Iron Ore and Nickel ore minerals within the study site. Prospecting would be focused to an area of 4000 hectares in the northern section of the site along the west-east boundary. Target areas will include 1 brownfield target area, the old Gumbu Gaphite Mine and a further 18 greenfield target areas.

Prospecting activities will include establishing a main prospecting site for drilling, trenching and bulk sampling at the old Graphite Mine with a site camp. Prospecting at the old mine will include:

- 23 drill holes (drill pads, excavation, lining of drill water sump)
- 20 Trench Sites (Dimensions: 1m x 1m x 20m long)
- Site camp, ablution facilities, site office, accommodation, equipment storage at old Gumbu Mine site
- Temporary fencing
- Subsequently, another 18 Greenfield Target areas will be followed up with trenching, pitting and drilling on the study site
- Access tracks to drill sites and bulk sampling site will be obtained from existing routes as far as possible, yet single track routes may be requires to sites (without vegetation clearance)
- Water supply for domestic use at the site camp will be obtained from existing boreholes at the Gumbu Village and water for drilling operations will be obtained from the Limpopo River.

The total work planned at the 19 target areas are 45 trenches, 2 drill holes and 25 exploration pits. Each target detail will change with more work done per site.

Prospecting activities will begin at the old graphite mine and spread out to the rest of the study site in a phased manner.

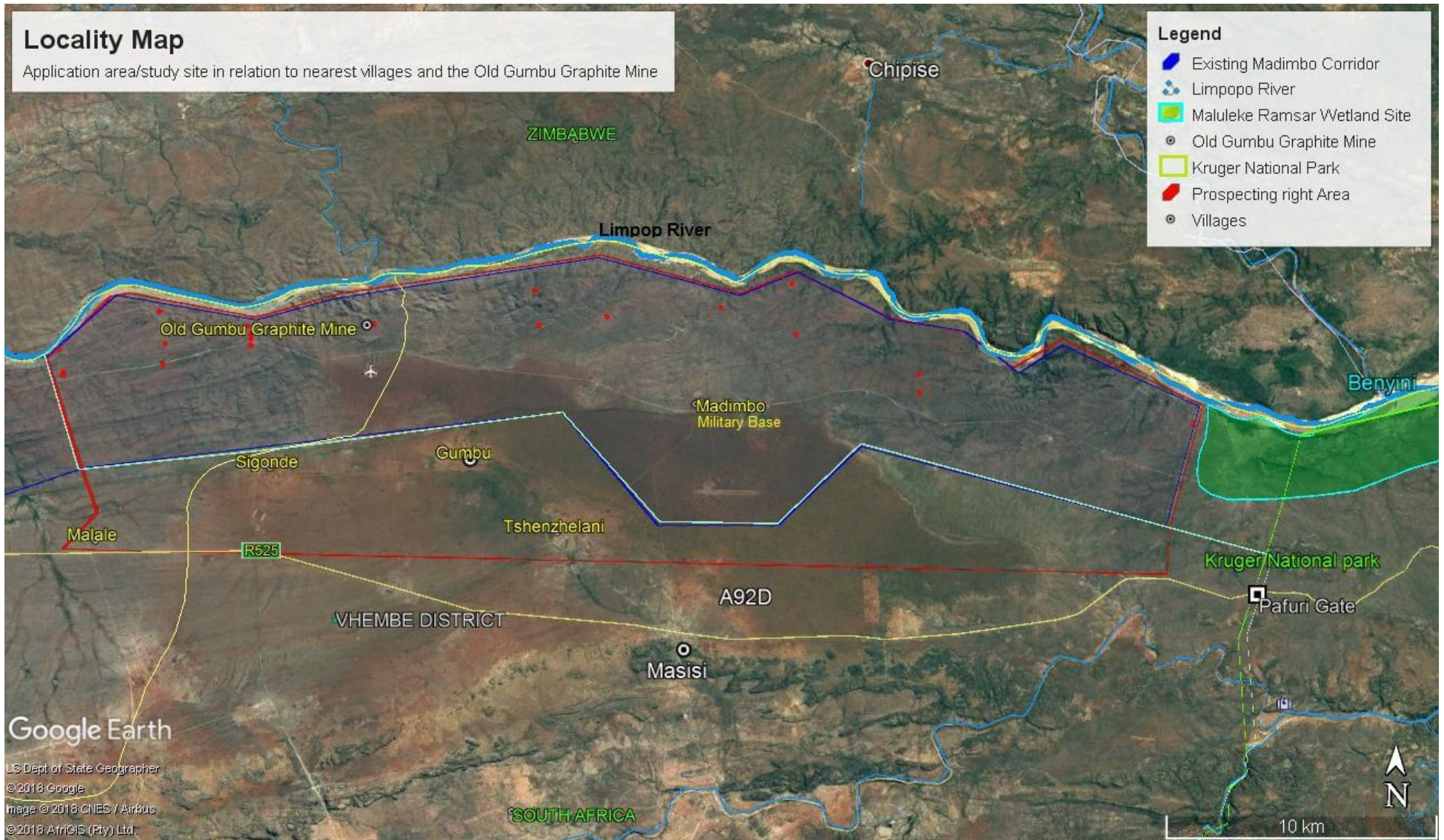


Figure 2: Locality Map of proposed Prospecting Right Area

1.2 Requirements for a Rehabilitation and Closure Plan

In terms of the National Environmental Management Act 107 of 1998 (NEMA) Regulation GNR 940 promulgated on 31 October 2014 and GNR. 1147 of 20 November 2015, the scope of Financial Provision for Rehabilitation must comprise:

- Rehabilitation and remediation annually
- Decommissioning and closure activities at the end of prospecting
- Remediation and management of latent / residual environmental impacts which may become known in future

It must be submitted with the Environmental Impact Report (EIR) and Environmental Management Programme (EMPr) for authorisation of the prospecting right and bulk sampling activities.

This document has been prepared in line with Appendix 5 of the NEMA EIA Regulations of 2014 (GNR 982 and GNR 327) and as stipulated under Appendix 4 of the Financial Provision Regulations of 2015 (GNR 1147).

2 CONTACT PERSON AND CORRESPONDENCE ADDRESS

2.1 Details of EAP who prepared the report

Name of Practitioner: Naledzi Environmental Consultants CC

Contact person: Marissa Botha

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2.2 Expertise of the EAP

Mrs Marissa Botha is a registered professional Environmental Scientist with SACNASP (registration number 117526) has 13 years working experience in the environmental management industry.

3 PROJECT CONTEXT

3.1 PROSPECTING METHOD

The prospecting method would include trenching, pitting, bulk sampling followed by exploration drilling. The methods to be implemented would include:

- Trenches will be dug manually or mechanically depending on depth of terrain. Trenches will be mapped and samples collected where mineralisation is intersected. Channel sampling will be done where underground exposure allows;
- Bulk sampling at a selected grid depending on orebody variability will be carried out. Bulk samples will be collected from trenching spoil if sufficient sample size is collected.
- Exploration drilling will be planned as informed by trenching and bulk sampling results.
- Exploration drilling methods considered include core drilling, reverse circulation or percussion drilling.

Eighteen target areas of 1 hectare each are required with the exception of the target at the old Graphite Mine which requires 1.5 hectares. Prospecting activities will begin at the old graphite mine and spread out to the rest of the study site in a phased manner.

3.2 Target Area at old Gumbu Graphite Mine

Detailed exploration work will be carried out at the old mine which will include trenching, pitting, bulk sampling and mineralogical test work to ascertain recoverability of graphite. A site camp would also be established at the old Graphite Mine.

Planned prospecting work includes 20 trenches and bulk sampling followed by 23 drill holes to evaluate the mineral deposit. The total area of impact will be 1.5 Hectares including site offices, storage areas and site camp.

The areas designated for infrastructure will be cleared of vegetation and fenced off. An excavator, survey and geological equipment, trucks will be brought to site followed by a drill rig. Temporary cooking and security facilities would be set up.

Trench, pit and bulk sampling target areas at the old Graphite Mine will be cleared by dozing off vegetation where necessary (most of the minerals form outcrop on the project area). Trenches, pits and bulk sampling sites will be backfilled with spoil material, topsoil replaced and landscaped.

3.3 Trenching and Bulk Sampling

Pits will be dug with a mechanical excavator, logged, sampled and re-filled. Trenches will be dug either manually or mechanically depending on depth or terrain. All pits and trenches will be excavated in a phased manner. Topsoil will be stockpiled next to site and spoil material will be placed alongside excavations. Trenches and pits will be mapped and samples collected where mineralisation is intersected. Bulk sampling at a selected grid depending on ore body variability will be carried-out. Each trench / pit will be immediately rehabilitated on completion of sampling.

Bulk samples will be collected from trenching spoil if sufficient size can be collected. Mineral Samples will be tested and a result and grade of mineralisation will be determined. Depending on sample quality required exploration drilling will be planned as informed by trenching and bulk sampling results.

The bulk sampling would comprise 45 trenches over the 18 identified target areas; each trench will have a size of 12.5m² with a depth of 1 metre. The volume of ore to be removed would be 7.5 cubic metres per trench. The time frame for bulk sampling is 3 months. Majority of bulk sampling would be undertaken at the old Graphite Mine (20 trenches). With minimal trenching proposed at the rest of the target areas.

3.4 Exploration drilling

Exploration drilling will be planned as informed by trenching and bulk sampling results. Exploration drilling methods considered include core drilling, reverse circulation or percussion drilling.

Areas designated for drill holes, sumps and parking bays will be removed of vegetation and topsoil. The truck mounted drill rig will be placed on site. The drill unit is diesel powered and require storage a low volumes of diesel and oil next to the drill unit. Small sumps would be excavated and lined for the purposes of drilling water. Drill water will be trapped and stored in sumps for reuse in the drilling process.

The target areas shall be fenced and temporary cooking and security facilities shall be established.

On completion, drill holes shall be capped by placing a steel casing to a suitable depth and concrete cap on top of the borehole.

3.5 Clearing and Stripping of Topsoil

Protected tree species have been observed on the study site particularly Baobab, Shepard's Tree, Leadwood, Apple-Leaf and Marula. No plants of conservation importance were observed but conservation important birds, butterfly and baboon spiders may occur onsite.

A qualified specialist shall observe the target areas for the presence/absence of protected trees. These shall be demarcated and protected against damage or destruction. Removal of large individual protected tree species must be avoided; where it cannot be avoided a permit for removal will be obtained from DAFF. No Baobab's shall be removed.

A qualified bird specialist shall inspect the target areas for nests of birds in trees for any large raptures or vultures of conservation concern. Where required, any bird nests shall be removed by a bird specialist. A specialist shall also inspect the target areas for presence of baboon spiders ('horned-baboon spiders') in need of removal or translocation.

Each target area shall be cleared, topsoil stripped and prepared once all conservation important cover and species have been demarcated for avoidance or relocation. This would include:

- Removal of vegetation, topsoil and subsoil;
- Topsoil will be stockpiled next to site and spoil material will be placed alongside excavations. Topsoil and subsoil shall not be mixed
- Topsoil will only be handled twice only-once to strip and stockpile, and once to replace and level;
- Topsoil will be stockpiled in heaps of a maximum of 2 metres and protected from erosion, loss of any form of contamination.
- No topsoil will be stripped or cleared within the 50metre buffer zone applied to riparian zones and wetlands.

3.6 Access Roads if to be established

Existing access roads shall be used as far as possible. Single lane access tracks may be created for in and egress from the target areas. Minimal to no vegetation clearance shall be undertaken for these purposes. No access track shall be created through a wetland, stream or any riparian zone. Uphold a 50 metre buffer zone regarded a no-go area for prospecting to riparian areas and wetlands.

3.7 Fencing

Fences and gates will be erected on the boundaries of prospecting target areas prior to commencement of works at the target footprint areas. Fences and gates are to remain maintained at all times and gates are not to be left open at any time.

Please refer to Figure 3 for a Site Plan indicating the prospecting target areas.

3.8 Specified Activities as per the EIR & EMPR

NAME OF ACTIVITY (All activities including activities not listed) (Eg. Excavations, blasting, stockpiles, discard dumps or dams, loading and hauling and transport, water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, stormwater control, berms, roads, pipelines, power lines, conveyors etc etc etc)	AERIAL EXTENT OF ACTIVITY IN Ha or m²	LISTED ACTIVITY Mark with X where applicable or affected	APPLICABLE LISTING NOTICE (GNR 983, 984 or 985) / NOT LISTED	WASTE MANAGEMENT AUTHORIZATION (Indicate if an authorisation is required to Waste Management Act). (Mark with an X)
Prospecting Right Application in terms of Section 16 & 20 of MPRDA	42628 Ha	X	GNR 983 Activity 20 GNR 984 Activity 19	N/A
Main Target: Establish a prospecting site for drilling, trenching and bulk sampling with site camp at old Gumbu Graphite Mine: - 23 drill holes (drill pads, excavation, lining of drill water sump) - 20 Trench Sites (Dimensions: 1m x 1m x 20m long) - Site camp, ablution facilities, site office, accommodation, equipment storage at old Gumbu Mine site - Temporary fencing	1.5 Ha for site camp and prospecting activities	X	GNR 983 Activity 20 GNR 984 Activity 19	N/A
Establish 18 Greenfield Target areas for trenching, pitting and	1 Ha per target area	X	GNR 983 Activity 20	

drilling on project site				
Establish access track to drill site and bulk sampling sites (use of existing routes as far as possible)	Single track with no vegetation clearance	X	GNR 983 Activity 20 GNR 984 Activity 19	N/A
Clearing of indigenous vegetation and topsoil for drilling, pitting, trenching, bulk sampling, including clearing thereof in priority biodiversity areas	Maximum of 200m ² per site	X	GNR 983 Activity 27 GNR 985 Activity 12 (ii)	N/A
Excavation of soil from 3 Exploration pit target areas in old river channels (pits are 4m ² each at 5 per site)	20m ² per site with removal of maximum of 30m ³	X	GNR 983 Activity 19 (i)	N/A
Supply of water for domestic purposes at site camp and for drilling operations	100 litres/ day for domestic use. 10m ³ /day- drilling operations.	X	GNR 983 Activity 20 GNR 984 Activity 19	N/A
Overburden piles/stockpiles	None due to outcropping			N/A
Decommissioning and Rehabilitation				
<ul style="list-style-type: none"> • Backfilling of trenches and pits, capping of boreholes • Removal of alien vegetation • Ripping of compacted ground, sloping trenched areas • Encouragement of indigenous vegetation 	19.5 ha			
Non-invasive Mine Feasibility Reporting				
<ul style="list-style-type: none"> • Prefeasibility Study • Bankable Feasibility Study • Planning for Mining License 	42628 Ha			

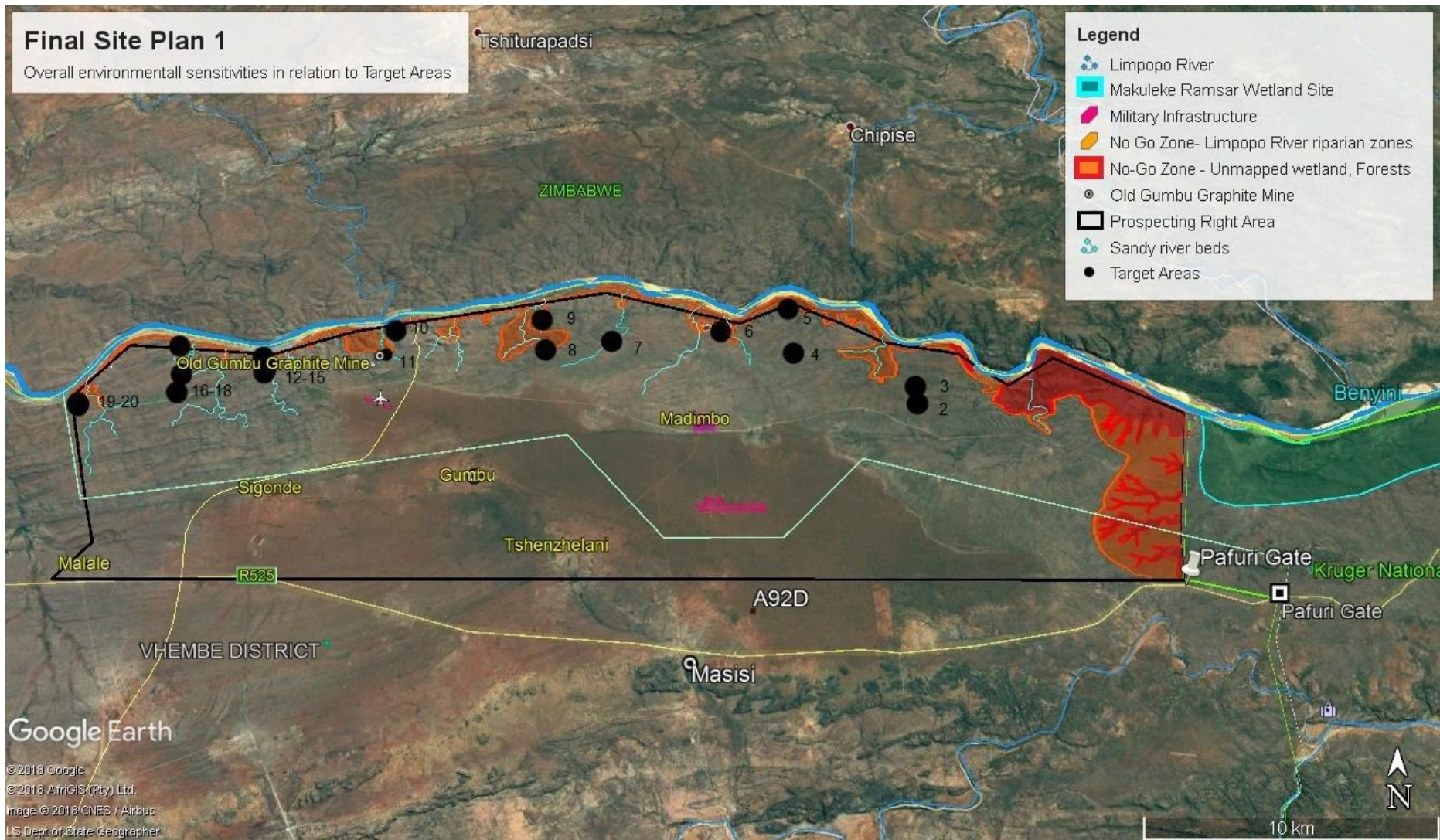


Figure 3: Overall Site Plan of 19 Planned Prospecting Target Areas

4 ENVIRONMENTAL AND SOCIAL CONTEXT

4.1 Geology

The geological formation of the project area includes Gneiss, silicate rocks, marble, scapolite leucocratic-quartzo-gelspatic Gneiss. Associated minerals include Graphite, base metals and hydrothermal precious metals deposits. The area under study has a history of artisanal graphite mining within the Gumbu formation. The Gumbu mine is hosted by the Graphitic schist located in the Limpopo metamorphic belt.

4.2 Soils

The National Soil descriptions for the project site as per the SANBI BGIS interactive mapping system indicate the site comprises the following soils:

- Soils with minimal development, usually shallow on hard weathered rock, with or without intermittent diverse soils. Lime is generally present in part or most of the landscape;
- Red soils with a high base status;
- Soils with dark coloured, well-structured topsoil and high base status (melanic soils). In addition, one or more of vertic and red structured soils may be present.

Based on the 2007 Land Use and Development Plan for Madimbo Corridor majority of the study site comprise rocks and Mispah soil forms with a small proportion of Hutton and Fernwood forms. Majority of the site is very sandy with low nitrogen levels. The Mispah soil form comprises relatively hard weathered bedrock at shallow depth. The soil is very shallow at 0-300mm in depth and is non-arable. The soil rooting depth is 50mm to 250mm with moderate to low permeability not suitable for cropping. The rehabilitation and self-generating potential of vegetation in the project area is low owed to the low nutrient status of the soils.

4.3 Climate

The project area is situated in a summer rainfall region. The long term mean annual precipitation (MAP) recorded for the area indicates a low average rainfall rate of approximately 300mm. The highest rainfall months are January to February. Winter months are very dry. The average maximum temperature is above 30°C in summer and 22 to 25°C during winter months. The predominant wind direction in the application area is from the east.

4.4 Topography

The site is rugged comprising a mixture of terrains from undulating hill crest, scarp (steep slopes), mid slopes, footslopes including valley bottoms. Rocky ridges are present in a number of places at the site. At flatter areas surface rock are sparse / absent. The northern and north western portion of the property is dominated by midslopes and the rest are hill crest and valley bottom. Half of the central portion to the northern portion is dominated by steep slopes; part of the central portion is composed of foot slopes and some hill crest, scarp and valley bottom. The central-southern portion comprise foot slope.

The prospecting target areas would mostly be located within the undulating hills and ridges of site between the elevations of 421m to 413m absl.

4.5 Land cover / Aquatic & Ecological Characteristics

According to the Ecological Impact Assessment the following was noted:

Vegetation units' covering the project site includes Limpopo Ridge Bushveld, Musina Mopane Bushveld and Subtropical Alluvial Vegetation in the north-eastern portion of site. Both the ridge and Mopane Bushveld are endemic to the district and least threatened. The alluvial vegetation is a unique habitat and should be conserved. None of the units are listed as nationally threatened.

The Limpopo River forms the west-east boundary at the northern portion of the study site and riparian zones and active channels are present at the Limpopo River and its tributaries in the study area. There are unmapped wetlands and forests in the north eastern section of the project site.

The site is in pristine condition covered in plains vegetation with a diversity of indigenous plant species. The site is covered in Mopane trees with the Baobab trees as the most prominent tree in the landscape. The White Seringa stands out on the rocky outcrops. There are ecologically disturbed areas at the old graphite mine.

No go areas for prospecting have been set aside in the Environmental Composite Map for the study site. No go areas for prospecting include wetlands, riparian zones and sandy river beds, riparian zone of the Limpopo River as well as the unique habitat in the north-eastern section of the project site.

No plant species of conservation concern are likely to be resident onsite. Protected tree species Baobab, Sheppard's Tree, Leadwood, Apple-Leaf and Marula are present at the study site. Faunal species of conservation concern do occur on site. Critically endangered and endangered species of White Backed -, Hooded -, White Headed -, and Lapped Faced Vulture could be regular/resident. Near threatened species such as the Pel's Fishing Owl could be present at the extreme northeastern and eastern parts of the study area; and the Half Collared Kingfisher, Lemon Breasted Canary, Marabou Stork and Bateleur (vulnerable) would likely be resident at the site owed to the riparian zones.

Mammal species of high conservation concern could be present at site from time to time although no tracks were present during survey. This includes Elephant, Leopard, Spotted Hyena, Brown Hyena and possibly Lion. Antelope such as Nyala, Kudu and Impala would also be present on site and a large species diversity of bats at Baobab trees. The Lilac Tip butterfly is rare and low density specie confirmed to occur at the project site. Presence of notable populations of baboon spiders of conservation concern is possible at proposed footprints.

It was further noted that the study site is located within the Vhembe Biosphere Reserve buffer zone also delineated as a potential area for expansion for a protected area. The site is a declared nature reserve. It is also located in the sub catchment area of Luvuhu/Mutale. According to the NFEPA the site is part of a Fish Sanctuary and Fish Support Area & associated sub-quaternary catchment. Fish Sanctuaries are rivers essential for protecting high conservation concern indigenous species.

4.6 Groundwater

The groundwater potential in the study area is moderate to low. The average borehole yield is less than 2.0 litres per second. The water quality ranges from marginal to unacceptable due to high nitrate concentration and total hardness owed to high levels of naturally occurring basalts in the area. The main user of groundwater in the application area is the Defence Force obtaining water for domestic needs from three boreholes. There are also several boreholes within the Gumbu community villages.

4.7 Heritage

It was noted from the Heritage Impact Assessment that the following heritage sites were identified on the study site:

- Old graphite mine shafts, excavated trenches, associated building foundations dating to early 1942;
- Graves and Stone walled sites
- Historical homesteads identified by presence of stonewalls, stone foundations, and ash midden
- Intangible heritage sites presented by sacred Tshavhasikana river pools, Baobab tree where ritual dances were performed;
- Oral traditions & local community consultation revealed occurrence of stonewalls and grave sites belonging to Ne-Madimbo and Tshenzhelani families on top of rocky outcrops within the military corridor;
- Old army base ruins

4.8 Socio-Economic Aspects

According to the Musina IDP the village of Gumbu/Mutale communities/villages are 5th order settlements, are small in population and function as residential areas with no economic base except for subsistence farming. According to the 2007 Land Use Development Plan for the Madimbo Corridor sustainable economic land uses for the study site which could be practised include crop production, grazing for cattle, goat, Kudu, game farming and open game farming. It is stated economic potential lies in the beautiful landscape and abundance of wildlife and game.

4.9 Current land use

The study site comprises the Madimbo Military Corridor and unsurveyed state land. The current land use cover is settlements, nature reserve, subsistence farming and military training base and corridor.

The Madimbo Corridor is under control by SANDF as military buffer zone and training zone. Unexploded ammunitions and visible dangerous excavations and terrain are present onsite. The corridor was also proclaimed a nature reserve in 1992. It is managed as a conservation area by the SANDF. The SANDF is also responsible to conduct environmental rehabilitation within the corridor based on its impact on the environment from use and testing of ammunition and presence of unexploded ordnances, dangerous excavations.

The villages of Gumbu, Sigonde, Bende Mutale, Tshenzhelani, Masisi, Tshikuyu and Mutale are situated on the southern portion of the site. Subsistence farming is also associated with the villages. There's an old Graphite mine on the western section of the land. A Foot and Mouth

Disease fence has been erected by Department of Agriculture in proximity of the Limpopo River in east-west direction.

4.10 Stakeholder Issues and Comments

A public participation process as required by the NEMA EIA Regulations, 2014 has been undertaken for the proposed prospecting. In this regard please refer to Section 6.2 and Appendix 3A-3I of the EIR for a comprehensive record of the process followed and comments received. Once comments have been received, an extract from the Issues and Responses Report (IRR) which relate to rehabilitation and closure activities will be provided in this section. The comments and issues raised through the public participation will be considered and inform the compilation of this plan.

5 ENVIRONMENTAL RISK ASSESSMENT

5.1 Risk Assessment

Section 8 of the EIR provides a detailed description of the environmental impact assessment (including the methodology) undertaken for the proposed prospecting. The risk assessment evaluates each identified impact by considering the consequence of each impact as well as its probability of occurrence.

Table 2 lists the environmental impacts and risks identified and assessed in the EIR, which relate to rehabilitation, decommissioning and closure of the prospecting. The EMPr addresses the management and mitigation of environmental impacts associated with the preceding phases whilst the annual environmental rehabilitation plan (to be prepared and reviewed annually) will provide for the planning and financial provisioning for the concurrent and progressive rehabilitation and remediation activities. The applicable conceptual closure strategy to avoid, manage and mitigate the impacts and risks are also included in Table 7, together with the re-assessment of the environmental risk. The environmental risk assessment of the impacts associated with final rehabilitation, decommissioning and closure will inform the most appropriate closure strategy for the prospecting. It is expected that, in most cases, if all the management and mitigation measures identified in the EIR and EMPr are adhered to and successfully implemented, then no latent or residual environmental impacts will remain.

Impacts that are classified as high risk post-mitigation will be considered as latent environmental impacts and financial provision will be provided to remediate these specific impacts.

It is important to note that the environmental risk assessment will be revised and updated on an annual basis to ensure that this Rehabilitation and Closure Plan remains applicable to the actual and predicted environmental impacts and risks.

Table 1: IMPACTS ASSOCIATED WITH THE REHABILITATION, DECOMMISSIONING AND CLOSURE PHASE						
ASPECT	ACTIVITY	IMPACT DESCRIPTION	IMPACT WOM	MITIGATION TYPE	IMPACT WM	CLOSURE OPTION
Impact on soil, groundwater and surfacewater	Use of fuel, chemicals, hydrocarbons, disposal practice and open boreholes as well as erosion from respreading of topsoil before vegetation has re-established	Contamination of soil, groundwater and surface water including soil erosion	M	<ul style="list-style-type: none"> - All fuel storage tanks will be emptied prior to removal; - Drill holes must be permanently capped as soon as possible to eliminate risk of groundwater contamination; - Wastes will be removed and disposed of at a licensed landfill site and recyclables will be taken to a licenced recycling facility; - No activities are to be undertaken neither within the north-eastern section of the project site nor within 50m buffer zones upheld to wetland and riparian zones. These areas are regarded as no go zones for prospecting activities. - If erosion has occurred, usable soil should be sourced and replaced and shaped to reduce the recurrence of erosion; - Keep grazers out of rehabilitated areas, if possible, until suitable vegetation cover has established. - Progressive monitoring must take place rehabilitated areas must take place 	L	Rehabilitate disturbed areas. On-going monitoring
Fauna & Flora	Decommissioning and rehabilitation of prospecting target areas and infrastructure which include removal of drill pads, backfilling trenches and bulk sampling areas, capping of boreholes, respreading of stockpiled topsoil over denuded areas	Destruction and or disturbance of fauna and flora at disturbed target areas	M	<ul style="list-style-type: none"> - Limit bush clearing and conduct concurrent rehabilitation with follow-up inspections to decide effectiveness of rehabilitation steps undertaken - Use existing tracks and roads as far as possible; - Avoid damage to indigenous vegetation and species of conservation concern (large protected trees) whilst removing prospecting infrastructure; - Close drill holes, trenches as soon as possible after drilling and sampling activities have completed to avoid risk of 	L	Rehabilitate disturbed areas. On-going monitoring

				<p>fauna or livestock falling into open drill holes, trenches;</p> <ul style="list-style-type: none"> - Drill holes must be permanently capped and trenches backfilled as soon as possible after sampling and testing is completed at prospecting sites 		
Flora	<p>Poor vegetation re growth post decommissioning and re habilitation of target areas.</p> <p>Establishment of alien vegetation during re-vegetation of disturbed areas.</p>	Degradation of the ecology	M	<ul style="list-style-type: none"> - Rehabilitate pits, trenches and bulk sampling sites immediately after sampling, concurrent rehabilitation, do not wait until the end to rehabilitate; - Revegetation of disturbed areas will be undertaken immediately after prospecting activities; - Keep topsoil for rehabilitation to promote effective re vegetation - Keep topsoil separate from other materials (overburden or waste materials). Monitor re vegetated areas - Remove all alien vegetation from the site which has established on newly exposed soils; - Eradicate alien vegetation during the lifecycle of the project and monitor post-rehabilitation; 	L	Rehabilitate disturbed areas. On-going monitoring
Noise	Decommissioning and rehabilitation of prospecting sites and the site camp will generate noise	Impact on the ambient noise level and may cause a nuisance to SANDF, communities	L	Activities are to take place during daytime period 07h00 to 17h00;	L	Control
Air Quality & Dust	Dust emissions from decommissioning and rehabilitation activities such as removal of drill pad, backfilling of trenches and bulk sampling sites, capping of boreholes, ripping of disturbed areas	Dust emissions from decommissioning and rehabilitation activities (vehicle entrained dust)	L	<ul style="list-style-type: none"> - Wet dust suppression will be undertaken to manage entrained dust emissions from vehicle movement on gravel roads and at target areas when necessary; - Implement concurrent rehabilitation and revegetate disturbed areas. 	L	Rehabilitate disturbed areas. On-going monitoring

Traffic	Increased traffic along main gravel route during decommissioning and rehabilitation of prospecting sites and increased traffic on R525 Punda Maria road when equipment is removed and transported off site	Increase in traffic along main site gravel road and R525 Punda Maria Road	L	<ul style="list-style-type: none"> - Limit unnecessary vehicle movement - Relocation of prospecting machinery must not be undertaken during peak traffic times along main gravel roads and regional roads 	L	Control
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5.2 Environmental Indicators and Monitoring

Table 3 provides a list of the identified environmental impacts identified for the rehabilitation, decommissioning and closure of the Prospecting. In addition, environmental indicators are identified for each impact, together with proposed monitoring requirements. The indicators and monitoring will aim to inform on-going rehabilitation and remediation activities. These indicators will also inform the assessment of whether the closure objectives have been adequately met.

Table 2: Environmental Indicators and Monitoring

Measures to rehabilitate the environment affected by the undertaking of any listed activity

ACTIVITY	SIZE AND SCALE	PHASE	MITIGATION	COMPLY WITH STANDARDS	TIME FOR IMPLEMENTATION
Establishment of trenches, bulk sampling sites and drill hole sites	19 Target sites	Site Preparation Invasive Prospecting Decommissioning	<ul style="list-style-type: none"> - A 50 meter buffer zone must be upheld and regarded as a no-go zone for prospecting activities from wetland and riparian zones; - A 50 meter buffer zone must be upheld and regarded as no-go zone for prospecting activities from identified heritage sites; - Do not place the site camp infrastructure where it can cause pollution to sensitive areas (drainage lines, steep slopes) - Appoint a qualified specialist prior to removal of any fauna or flora, protected tree species. - Remainder of target sites at point of impact must be inspected and likely absence of protected trees, localised plant species, nests of vultures&raptors, baboon spider colonies confirmed; - Footprints need to be kept to a minimum so larger mammals can roam freely; - Necessary caution must be adhered to due to large animals onsite to avoid conflict as a result of human activity (Elephants, Lion, Leopard); - Each target area needs to be inspected for nests in trees of raptors and vultures which are threatened and could be resident/visitors such as the White Backed Vulture (nationally critically endangered), Hooded Vulture (critically endangered) and Bateleur (vulnerable); - Removal of nests, if possible or practicle, in case of any removal of nests, should be done by qualified bird specialist; - Each target site should be inspected for baboon spiders (horned baboon). If there are burrows and resident spiders in area these are to be removed and translocated by a specialist; <p>Protected Trees</p>	<p>Rehabilitation of study site in terms of NEMA and MPRDA.</p> <p>Biodiversity and alien invasive management in accordance with the NEM: Biodiversity Act of 2004.</p> <p>Mine Water management in line with Mine Water Regulations- Regulation 7 of GNR 704 of 1999</p> <p>Dust Regulations</p> <p>SANS 10103</p> <p>ECA Noise Regulations</p> <p>Appoint a qualified specialist prior to removal of any fauna or flora, protected tree species.</p> <p>Permits must be obtained from DAFF and LEDET for removal/ destruction of any species of conservation concern.</p> <p>Adherence to the Closure and Rehabilitation Plan.</p> <p>Section 15 (1) National</p>	Throughout Construction, Operation and Decommissioning

Table 2: Environmental Indicators and Monitoring

Measures to rehabilitate the environment affected by the undertaking of any listed activity

ACTIVITY	SIZE AND SCALE	PHASE	MITIGATION	COMPLY WITH STANDARDS	TIME FOR IMPLEMENTATION
			<ul style="list-style-type: none"> - Apply for protected tree permits from DAFF if any protected trees are to be damaged/removed; - Each target are must first consider avoiding damage/removal to protected trees (Baobab, Shepard’s Tree, Leadwood, Apple-Leaf, Marula) - It is recommended that prospecting avoid removal of large protected species (Baobab in particular); - Vegetation clearing for prospecting sites should be kept to a minimum in order to reduce the disturbance footprint; - Topsoil is to be handled twice only-once to strip and stockpile, and once to replace and level; - Ensure that topsoil is at no time buried, mixed with spoil or subjected to compaction by vehicles or machinery. - Topsoil needs to be protected and returned for rehabilitation as soon as possible; - Implement good stockpiling practice and storm water control to avoid soil erosion - Eradicate alien vegetation which colonise on topsoil stockpiles - All measures should be implemented to minimise the potential for dust generation; - The local community and SANDF should be notified of any potential noisy activities of work and these activities should be undertaken from 07h00 to 17h00. These works should not be undertaken at night or weekends; - When working near sensitive features, demarcate the areas of works, and use appropriate material to fence the works in from sensitive features; - Ensure proper storage of fuels, oil; 	<p>Forest Act, (Act 84 of 1998)</p> <p>Biodiversity management in terms of NEMBA of 2004-Section 56</p> <p>LEMA Act 7 of 2003 – Section 8, 11 & 12</p> <p>A Heritage Specialist must be appointed to map and document heritage sites if they are to be affected by prospecting.</p> <p>Compliance with NHRA 25 of 1998.</p>	

Table 2: Environmental Indicators and Monitoring

Measures to rehabilitate the environment affected by the undertaking of any listed activity

ACTIVITY	SIZE AND SCALE	PHASE	MITIGATION	COMPLY WITH STANDARDS	TIME FOR IMPLEMENTATION
			<ul style="list-style-type: none"> - On-site vehicles must be limited to existing access roads and single tracks leading to target areas; - Should any watercourse be affected, then the necessary water use licenses should be obtained from the Department of Water and Sanitation; - Concurrent rehabilitation of disturbed areas must be undertaken; - Keep grazers out of rehabilitated areas, if possible, until suitable vegetation cover has established; - Portable toilets must be placed on impervious level surfaces that are lipped to prevent spillages - Planning of prospecting target sites, site camp including design and siting of access roads must avoid heritage sites - Sites at the old Graphite mine must be documented and mapped in event that its affected by prospecting; - Permits must be obtained from the Provincial Heritage Authority if heritage sites at the graphite mine are affected - Graves must be avoided and protected insitu - Prospecting close to hut floors must be done with great caution as it was used as burial sites - There are further stone walls and grave sites on top of rocky outcrops within the military area which could not be accessed for survey. If prospecting extends to this area a full assessment of the target area is required before proceeding with prospecting 		
Trench, Pit, Bulk	19 Target Areas	Decommissioning	- Rehabilitate pits, trenches and bulk sampling sites immediately after sampling, concurrent	MPRDA Rehabilitation Plan	Decommissioning

Table 2: Environmental Indicators and Monitoring					
Measures to rehabilitate the environment affected by the undertaking of any listed activity					
ACTIVITY	SIZE AND SCALE	PHASE	MITIGATION	COMPLY WITH STANDARDS	TIME FOR IMPLEMENTATION
Sampling and Drill Hole Closure			<ul style="list-style-type: none"> rehabilitation, do not wait until the end to rehabilitate; - Revegetation of disturbed areas will be undertaken immediately after prospecting activities; - Keep topsoil for rehabilitation to promote effective re vegetation - Keep topsoil separate from other materials (overburden or waste materials). Monitor re vegetated areas - Remove all alien vegetation from the site which has established on newly exposed soils; - Eradicate alien vegetation during the lifecycle of the project and monitor post-rehabilitation; - Limit bush clearing and conduct concurrent rehabilitation with follow-up inspections to decide effectiveness of rehabilitation steps undertaken - Use existing tracks and roads as far as possible; - Avoid damage to indigenous vegetation and species of conservation concern (large protected trees) whilst removing prospecting infrastructure; - Close drill holes, trenches as soon as possible after drilling and sampling activities have completed to avoid risk of fauna or livestock falling into open drill holes, trenches; - Drill holes must be permanently capped and trenches backfilled as soon as possible after sampling and testing is completed at prospecting sites 		
Removal of surface infrastructure	Site camp infrastructure	Decommissioning	<ul style="list-style-type: none"> - All infrastructure, equipment and other items used during prospecting will be removed from the site; - Compaction of soil must be avoided as far as possible. Use of heavy machinery must be restricted in areas outside of the proposed prospecting sites to reduce the compaction of soils; 	MPRDA Rehabilitation Plan	Decommissioning
Removal of waste	Small scale and localized	Decommissioning	<ul style="list-style-type: none"> - Any excess or waste material/chemicals, including drill muds must be removed from the site and 	NWA DWAF Best Practice	Decommissioning

Table 2: Environmental Indicators and Monitoring

Measures to rehabilitate the environment affected by the undertaking of any listed activity

ACTIVITY	SIZE AND SCALE	PHASE	MITIGATION	COMPLY WITH STANDARDS	TIME FOR IMPLEMENTATION
			recycled (e.g. oil, hydrocarbon waste products; - Any waste materials or chemicals that cannot be recycled must be disposed of at a suitably licensed waste facility;	Guideline	
Rehabilitation	19 Target Sites	All disturbed areas	- Restoration and rehabilitation of disturbed areas must be implemented as soon as prospecting activities are completed; - All debris and contaminated soils must be removed and suitably disposed of; - Contours and natural surroundings must be reformed; - Natural drainage patterns must be restored - All surface infrastructure on site must be removed - Any temporary access routes must be suitably rehabilitated; - Sites must be monitored by the ECO for adequate rehabilitation until the desired rehabilitation objectives have been achieved.	MPRDA Rehabilitation Plan NEMA	Rehabilitation
Monitoring	Post – Invasive Prospecting	All disturbed and rehabilitated areas	- The post-operation monitoring and management period following decommission of prospecting activities must be implemented by a qualified independent party for a minimum of one year, or as specified by the DMR. - The monitoring activities during this period include: ✓ Biodiversity monitoring ✓ Re-vegetation of disturbed areas Provision must be made to monitor any unforeseen impacts that may arise as a result of proposed prospecting activities and incorporated into post closure monitoring and management.	MPRDA Rehabilitation Plan	Post-Invasive Prospecting

5.3 Latent and Residual Risks

These include environmental impacts that remain post the issuing of a closure certificate. All the management actions are recommended to limit the potential for residual environmental impacts. The real risk will only be determined once a closure risk assessment has been conducted.

It is reiterated that the rehabilitation and self-generating potential of vegetation in the project area is low owed to the low nutrient status of the soils. The risks for soil erosion due to inadequate vegetation establishment after decommissioning of prospecting activities exist. The rehabilitation method will contribute to the prevention of erosion and post rehabilitation inspection will identify any post rehabilitation erosion.

6 LEGISLATIVE REQUIREMENTS FOR CLOSURE

National Environmental Management Act 107 of 1998 (NEMA) and EIA Regulations of 2014 (as amended in 2017):

The National Environmental Management Act as amended defines mine rehabilitation, closure cost assessment and closure planning. Section 24P (3) of NEMA now deals with Mine Closure. Section 24P (3) states every holder must annually assess his/her environmental liability and must increase his or her financial provision to the satisfaction of the Minister for mineral resources.

Section 24R (1) states that every holder of an old order right or owner of works remain responsible for any environmental liability, pollution or ecological degradation, the management and sustainable closure thereof. This indicates holders must plan, manage and implement procedures and requirements in respect of the closure of a mine as may be prescribed. Appendix 5 of the EIA Regulations of 2014 provides information associated with what a closure and rehabilitation plan must contain.

NEMA Financial Provision for Rehabilitation Regulations 1147 of 20 November 2015

In terms of the National Environmental Management Act 107 of 1998 (NEMA) Regulation and GNR. 1147 of 20 November 2015, the scope of Financial Provision for Rehabilitation must comprise:

- Rehabilitation and remediation annually
- Decommissioning and closure activities at the end of prospecting
- Remediation and management of latent / residual environmental impacts which may become known in future
- Annual Assessment reviewing:
 - Annual Environmental Audit Report (independent person must conduct the audit)
 - Annual Rehabilitation Progress Report / Plan (update financial provision)
 - An Environmental Performance Assessment against the EMPr and Closure Plan every 2 years (independent person)

The legislation used as guideline for this document includes:

- Constitution of Republic of South Africa Act 108 of 1996
- The Mineral and Petroleum Resources Development Act 28 of 2002
- MPRD Regulations GN 527 of 2004;
- The Mineral and Petroleum Resource Act Amendment Bill of 2007;

- National Environmental Management Act 107 of 1998 and its subsequent amendments;
- National Environmental Management Laws Amendment Act 25 of 2014;
- The NEMA Environmental Impact Assessment (EIA) Regulations 2014 as amended by GNR 326 of 2017;
- NEMA Regulation R 1147 of November 2015 pertaining to Financial Provision for prospecting/mining/ or production operations;
- National Environmental Management: Biodiversity Act (Act 10 of 2004) (NEMBA)
- NEMBA Regulations GNR 598, 2014 on Alien Invasive Species
- National Environmental Management: Waste Act (Act 59 of 2008) as amended;
- National Water Act 36 of 1998
- Mine Health and Safety Act 29 of 1996
- National Environmental Management: Air Quality Act 39 of 2004
- Conservation of Agricultural Resources Act 43 of 1983
- Hazardous Substances Act 15 of 1973;
- Mine Water Regulations of GNR 704 of 1999 under the NWA aimed at protection of water resources.
- National Heritage Resources Act 25 of 1999

7 TERMS OF REFERENCE

The Rehabilitation and Closure Plan has been prepared in line with the National Environmental Management Act 107 of 1998 and the EIA Regulations of 2014 as well as the NEMA Financial Provision for Rehabilitation Regulations 1147 of 20 November 2015

The components of the plan include Rehabilitation Plan and Closure Plan.

8 ASSUMPTIONS AND LIMITATIONS

- a) The Rehabilitation and Closure Report is a living document which will be updated as monitoring and rehabilitation progresses.
- b) The information contained in the Rehabilitation and Closure Plan is based on the current planned prospecting works programme and prospecting method proposed. If there is a significant change or addition of infrastructure or prospecting method areas of the Rehabilitation and Closure Plan will need to be updated to cater for the amendments;
- c) Naledzi Environmental Consultants CC accepts the specialist studies and prospecting works programme supplied by the applicant and qualified specialists as true and correct.

9 LAND USE

9.1 Current land use

The study site comprises the Madimbo Military Corridor and unsurveyed state land. The current land use cover is settlements, nature reserve, subsistence farming and military training base and corridor.

The Madimbo Corridor is under control by SANDF as military buffer zone and training zone. Unexploded ammunitions and visible dangerous excavations and terrain are present onsite. The

corridor was also proclaimed a nature reserve in 1992. It is managed as a conservation area by the SANDF. The SANDF is also responsible to conduct environmental rehabilitation within the corridor based on its impact on the environment from use and testing of ammunition and presence of unexploded ordnances, dangerous excavations.

The villages of Gumbu, Sigonde, Bende Mutale, Tshenzhelani, Masisi, Tshikuyu and Mutale are situated on the southern portion of the site. Subsistence farming is also associated with the villages. There's an old Graphite mine on the western section of the land. A Foot and Mouth Disease fence has been erected by Department of Agriculture in proximity of the Limpopo River in east-west direction.

9.2 Impact Statement

The extent of the prospecting right area is 42 628 hectares. The entire extent of the area will not be impacted by prospecting. Prospecting will be focussed to an area of 4000 hectares in the northern portion of the site from the western to eastern section. Nineteen (19) target sites have been identified for prospecting activities. The extent of each site would be 1 hectare with the exception of the target area at the old Gumbu Graphite Mine which would be 1.5 hectares in extent. Disturbance would be limited to the target areas and gravel access roads.

9.3 Post Closure Land-use

The closure aim would be to return the disturbed prospecting target areas to their natural state for conservation/grazing.

10 REHABILITATION AND CLOSURE PLAN

The Gumbu Prospecting Rehabilitation Plan aims to inform on the actions required to rehabilitate the prospecting right target areas to ensure a socially and environmentally safe and sustainable area. The Rehabilitation Plan consists of direct activities that will be done where natural area has been disturbed during prospecting.

10.1 Aims and Objectives of Rehabilitation and Closure Plan

Rehabilitation and closure is an integral part of all prospecting and mining operations and having a plan serves as a roadmap to direct, refine and implement closure at the end of prospecting/mining. It ensures that the integrity of the environmental is sustained after prospecting/mining operations have ceased. The implementation of this concept also reduced the financial burden of rehabilitation and closure. The main objectives for rehabilitation and closure include:

- Make all areas safe for humans, wild animals and livestock;
- Prevent soil, surface and groundwater contamination by managing water on site;
- Minimise negative impacts;
- Establish a sustainable cover to prevent erosion and enhance ecological succession;
- Maintain and restore biodiversity levels to provide appropriate habitat for fauna utilisation;
- Protected drainage lines and watercourses
- Not leave any infrastructure onsite;
- Use approved sites for safe disposal of all wastes
- Maintain Traditional Owners access to areas of cultural & heritage significance

- Monitor key environmental variables (i.e. soils, erosion, vegetation) to demonstrate stability of rehabilitated areas
- Adhere to all statutory and other legal requirements

The closure aim would be to return the disturbed prospecting target areas to their natural state for conservation/grazing. Based on the 2007 Land Use and Development Plan for Madimbo Corridor rehabilitation and self-generating potential of vegetation in the project area is low owed to the low nutrient status of the soils. It would therefore be imperative to restrict disturbance to an utter minimum, rehabilitate disturbed areas to ensure a safe and stable land use after prospecting for humans, wild animals and livestock.

10.2 Closure Period and Post Closure Requirements

The closure period is the period between stopping of prospecting activities and the completion of active rehabilitation actions on the disturbed target areas. The nature of prospecting is of such that closure may be implemented for individual trenches and boreholes as and when analysis ends.

The closure options together with monitoring over a 2 year post closure period, will achieve the stipulated closure objective. This closure option is in line with the requirements of the MPRDA Regulations.

Following successful completion of the closure actions it is suggested that a further post closure period of 2 years be assigned to monitor the success of closure. The post closure monitoring will include:

- Inspection of drill hole caps;
- Inspect and remedy any erosion around rehabilitated trench, drill sites
- Inspect rehabilitated areas re-vegetation rate
- Remove alien invader species

10.3 Rehabilitation and Closure

The clearing of soil surface areas would be restricted to what is really necessary for prospecting and construction/establishment of infrastructure. During rehabilitation and closure of these sites, or where vegetation is lacking or compacted, the areas would be ripped or ploughed and levelled in order to re-establish a growth medium and if necessary fertilise to ensure the regrowth of vegetation and the soil ameliorated based on a fertiliser recommendation (soil sample analysed).

As the project progresses there will be an increase in topsoil surface area disturbed initially but also concurrent rehabilitation will take place which involves the replacement of topsoil on backfilled pits and trench areas. All drill holes and trenches will be rehabilitated after drilling and sampling activities have been completed to avoid risk of fauna, livestock falling into open drill holes and trenches.

The disturbed sites shall be returned as closely as possible to the original state.

10.4 Rehabilitation of access roads

- Existing roads would be used as far as possible;
- Whenever the prospecting right is suspended/cancelled or lapses such access road shall be removed and rehabilitated to the satisfaction of the Regional Manager;
- Any gate or fence set up by the holder shall be removed and situation restored to the pre prospecting state;
- Any temporary roads created, single track or formal shall be ripped or ploughed, and where necessary fertiliser (based on soil analysis) applied to ensure the regrowth of vegetation;
- If reasonable assessment indicates that re-establishment of vegetation is unacceptably slow the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the prospecting operation, be correct and the area be seeded with seed mix to Regional Managers specification;

10.5 Rehabilitation of surface trenches/pits and drill holes

On completion of operations, all buildings, structures or objects at the site camp shall be dealt with in accordance with Section 44 of the MPRDA. After all foreign matter has been removed from site; excavations shall be backfilled with subsoil, compacted and levelled with previously stored topsoil. No foreign matter such as cement or other rubble shall be introduced into such backfilling.

On completion of the prospecting operation, the areas shall be cleared of any contaminated soil. The surface shall then be ripped or ploughed to a depth of at least 300mm (Mispha soils limited in depth to 300mm) and the topsoil previously stored adjacent to excavations, shall be spread evenly to its original depth over the whole area. The area shall then be fertilised if necessary. The site shall be seeded with a vegetation seed mix adapted to reflect the local indigenous flora. Where sites have been rendered devoid of vegetation or where soils have been compacted by heavy machinery, the surface shall be scarified and ripped.

Drill holes shall be capped by placing a steel casing to a suitable depth and concrete cap on top of the borehole.

Photographs of the different prospecting target sites, before, during mining and after rehabilitation and closure, will be taken at selected fixed points and kept on record for regional manager's information.

Rehabilitation of the new landscape would be done in such a manner to blend in with the surrounding landscape and allow normal surface drainage to continue. Water control systems must be implemented to prevent erosion.

The visual impact would be addressed by means of:

- Re-vegetation with grasses
- Removal of any infrastructure, scrap, waste that would contribute to a negative impact.

10.6 Fertilising of Areas to be rehabilitated

If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, it may be required that soil be analysed and any effects from prospecting be corrected and the area be seeded with a seed mix to his or her specification.

Please note that the Limpopo Ridge bushveld vegetation type has a poor ground layer in terms of grasses. Therefore seeding mixture would be derived from common grasses found in the Mopane Bushveld type.

10.7 Seeding of Grass Seed Mixture and planting of Woody Species

The herbaceous layer for Mopane Bushveld includes grasses such as Common Nine-awn Grass *Enneapogon cenchroides*, Tassel Three-awn *Aristida congesta*, Kalahari Sand Quick *Schmidtia pappophoroides*, *Stipagrostis uniplumis*, *Pogonarthria squarrosa*, *Cenchrus ciliaris*, *Panicum maximum* and *Digitaria eriantha*.

The seed mix must therefore take into account the availability of indigenous grass seeds as per the above, different soil situations and the prevailing climatic conditions of the area. The following mixture will be applicable to the target areas:

- Common Nine-awn Grass
- Tassel Three-awn
- Kalahari Sand Quick
- *Stipagrostis uniplumis*,
- *Pogonarthria squarrosa*,
- *Cenchrus ciliaris*,
- *Panicum maximum* and
- *Digitaria eriantha*

10.8 Demolition / Removal of infrastructure

On completion of operations all structures or other infrastructure on the prospecting terrain shall be dealt with in accordance with Section 44 of the MPRDA.

10.9 Invasive and Alien Species Control Programme

Develop and implement an invasive and alien species control programme to control the spread of weeds and other invasive species. Eradicate exotic weeds and invader species if it invades the terrain.

10.10 Monitoring and Maintenance

The post-monitoring period following decommissioning of prospecting activities must be implemented by a suitable qualified independent party for a minimum of 2 years unless otherwise specified by the DMR. The monitoring activities during this period would include:

- Inspection of drill hole caps

- Inspect and remedy of erosion around rehabilitated trench and drill sites
- Inspect rehabilitated areas re-vegetation rate
- Remove alien invader species

Provision must be made to monitor any unforeseen impact that may arise as a result of the proposed prospecting activities and incorporated into post closure monitoring and management.

10.11 Post Closure Monitoring and Maintenance

Prior to decommissioning and rehabilitation activities, a monitoring programme shall be developed and submitted to the DMR for approval, as part of the Final Rehabilitation Plan. The programme is to include proposed monitoring during and after the closure of prospecting sites. It is recommended that post-closure monitoring include the following:

- Confirm all de-contaminated sites are free of latent pollution after decommissioning;
- Confirm all waste, wastewater or other pollutants generated as a result of decommissioning will be managed appropriately, as per requirements of the Final Rehabilitation Plan;
- Confirm acceptable cover has been achieved in areas where indigenous vegetation is re-established;
- Confirm that trench, pit and drill hole sites (all prospecting target areas) are safe and not a potential hazard for humans, wild animals or livestock.

Annual Environmental Report will be submitted to the DMR at least one year post decommissioning. The monitoring reports shall include a list of any remedial action required to ensure that the site remains safe and pollution free after infrastructure has been removed and alien invader species free.

10.12 Final Rehabilitation and Closure Schedule

The schedule of actions related to final rehabilitation, decommissioning and closure, relation to overall prospecting schedule is detailed in Table 4. Please note that the tabled schedule does not consider the recommendation the final rehabilitation, decommissioning and closure (concurrent rehabilitation) may be initiated earlier in the prospecting process for individual prospecting target sites or trenches, pits or drill holes.

Table 3: Final Rehabilitation and Closure Schedule

ACTIVITY	TIME FRAME	OUTCOME	TIME FRAME FOR OUTCOME
Phase 1: Non-invasive methods			
Surface Geological mapping, old mine works mapping and channel sampling	1 month	Detailed Geological map of structural controls of mineralisation (thickness, dips, strike, depth)	Month 2
Literature review, desktop study and conceptual study	1 month	Estimate of potential mineral inventory	Month 3
Phase 2: Invasive methods			
Trenching, pitting and Bulk Sampling	3 months	Assay results & grade of mineralisation. Bulk sample and Metallurgical test work results	Month 8

Phase 3a: Non-invasive methods			
Prefeasibility Study	4 months	Geology model, Resource model and mining options	Month 14
Phase 3b: Invasive methods			
Exploration Drilling	6 Months	Drill sample results and confirmation of depth of mineralisation	Month 22
Phase 4: Non-invasive methods			
Feasibility Study and preparation for Mining License / EIA	12 Months	Bankable Feasibility Study with resource and reserves and financial model	Month 36

10.13 Managerial Capacity

The applicant will be responsible for ensuring compliance with all the provisions of the prospecting right and supporting plans. The Applicant must have the knowledge and understanding of the applicable legislation and guidelines. The applicant must where necessary appoint suitably qualified specialists, engineers and other internal and external resources to comply with the applicable commitments and requirements. The applicant must also ensure that suitable communication avenues are in place with local communities and relevant stakeholders.

An independent Environmental Assessment Practitioner shall be appointed to ensure compliance with requirements of the Final Rehabilitation, Decommissioning and Closure Plan and to undertake the following tasks:

- Conduct pre-closure environmental site assessment, risk assessment and landowner consultation
- Compile a site specific final closure and decommissioning plan;
- Conduct periodic compliance monitoring and reporting during closure.

Prospecting Contractor who has relevant experience in prospecting. The contractor must have experience in prospecting site closure as well as closure standards and guidelines. This contractor would be responsible for ensuring the closure plan is implemented and to ensure that environmental and social risks are prevented or minimised.

10.14 Relinquishment Criteria

The end land use is natural / grazing as the study site is covered in pristine indigenous vegetation and is a declared nature reserve.

The relinquishment criteria therefore include:

- No waste materials must have remained on site
- The vegetation cover of the disturbed target sites must be consistent with the surrounding vegetation cover, biodiversity levels restored and no faunal mortalities due to prospecting.
- All complaints registered during the prospecting and closure must have been addressed

11 CLOSURE COST CALCULATION

This Financial Provision Calculation has been undertaken as per the Department of Mineral Resource (DMR) "Guideline Document for Evaluation of the Quantum of Closure Related Financial Provision Provided by a Mine" published in January 2005.

11.1 Cost Estimate

The DMR Guideline format makes use of a set template for which defined rates and multiplication factors are used. The multiplication and weighting factors which ultimately define the rate to be used are determined by amongst others the topography, classification of the mine according to the mineral mined, the risk class of the mine and its proximity to built-up or urban areas.

11.2 Rates

The 2005 DMR Master Rates were updated and published by the DMR in 2012 however, due to inflation, these are no longer accurate. An average inflation of 6% was used to reflect 2018 costs.

11.3 DMR Classification

The DMR Guideline Document classifies a mine/activity according to a number of factors which allows one to determine the appropriate weighing factors to be used during the quantum calculation which include:

- Mineral mined/explored
- Risk class of mine/operation
- Environmental sensitivity of site
- Type of operation proposed
- Geographic location

Once the risk class (Class A, B or C) and the sensitivity of the area where the mine is located (Low, Medium, High) had been determined using the appropriate tables the unit rates for the applicable closure components were identified. The primary risk class is categorised as Class A (High Risk), Class B (Medium Risk) or Class C (Low Risk). Prospecting with bulk sampling can be considered a Class C – Low Risk operation. The study site sensitivity was determined by establishing the overall sensitivity of the area by accepting the most sensitive of the three (biophysical, social, and economic).

In terms of biophysical the site is of high sensitivity due to it being largely natural with a vibrant fauna and flora and as it forms part of an overall ecological regime of conservation value. From a social perspective the site is of medium sensitivity due to local communities being within sighting distance of some of the target areas. The economic sensitivity is high as the land would be the bulk of the Gumbu/Mutale Communities income once restored by RLCC. There is no economic base at Gumbu. Overall the site is considered of high sensitivity.

The nature of the terrain is considered rugged undulating hilly terrain with moderate steep slopes at ridges as well as some parts with flatter areas with gentle slopes. The weighing factors include flat, undulating (mix of slopes) and rugged (steep natural ground slopes greater than 1:6). The weighing factor for the nature of terrain was thus chosen as undulating with a weighing factor of 1.10. The geographic location of an activity is categorised as urban (in urban area), peri-urban (<150km from urban area), remote (> than 150km from urban area). The site is 91km from Musina and land uses include natural, settlements (4km) with subsistence farming and grazing. It is regarded as peri-urban with a weighing factor of 1.05.

The overall activity class is considered:

Table 4: Overall Activity Class

Operation	Risk Class	Sensitivity	Terrain	Proximity to Urban Area
Prospecting & Bulk Sampling	C – Low Risk	High	Undulating	Peri-urban

12 SUMMARY OF FINANCIAL PROVISION

Table 5: Financial Provision Calculation

CALCULATION OF THE QUANTUM								
SAMIN GROUP PTY LTD						Location:	GUMBU VALLEY	
APPLICATION FOR PROSPECTING Ref: LP 30/5/1/1/2/13050 EM						Date:	LIMPOPO PROVINCE 25/05/2018	
Risk Class		C						
Area Sensitivity		High						
Terrain		Undulating						
Proximity to Urban		Peri Urban (less than 150km from urban developed area)						
No.	Description	Unit	A	B	C	D	E=A*B*C*D	
			Quantity	Master rate	Multiplication factor	Weighting factor 1	Amount (rands)	
7	Sealing of shafts, adits and inclines (capping of boreholes)	no	25	1,700.00	1.00	1.10	46,750	
10	General surface rehab and grassing	ha	0.75	118,923.51	1.00	1.10	98,112	
12	Fencing	m	150	135.65	1.00	1.10	22,382	
14	2 to 3 years of maintenance and aftercare	ha	0.75	15,826.32	1.00	1.10	13,057	
		Sum	0	0.00	0.00	0.00		
						SubTotal 1	180,301	
(Sum of items 7, 10, 12, 14 above)								
1	Preliminary and General	6.0% if Subtotal 1 > 100 000 000			Weighting factor 2			
		12.0% if Subtotal 1 < 100 000 000			1.05		22,718	
7	Contingency	10.0% of Subtotal 1						18,030
						SubTotal 2	221,049	
(Subtotal 1 plus sum of management and contingency)								
						Add Vat (15%)	33,157	
						GRAND TOTAL	254,206	
(Subtotal 2 plus VAT)								

Refer to Annexure A for the Financial Provision Calculation.

13 CLOSURE COST FOLLOW-UPS

The proposed prospecting project should take cognisance of the regulations pertaining the financial provision for the rehabilitation and management of negative environmental impacts associated with prospecting, exploration, mining and production operations which came into effect on 20 November 2015 (GNR 1147). (With 39 month extension to February 2019).

The Regulations which apply to the holder under the MPRDA, regulates the ‘method for determining and making financial provision for the costs associated with the management of environmental impacts’ caused by mining activities and operations.

The Regulations require holders to make financial provision for:

- Annual rehabilitation
- Final Rehabilitation, decommissioning and closure at the end of the prospecting / mining operations;
- Remediation and management of latent or residual environmental impacts, which become known in future.

This financial provision is based on the Regulations applicable as at 1 December 2014. The financial provision for 2018/2019 period for the planned activities is R 254 206.

The financial provision calculation should be re-evaluated in February 2019 at which the new Financial Provision Regulations of 2015 should be followed.

14 CLOSURE MONITORING, AUDITING AND REPORTING

Monitoring is of ultimate importance as closure will only be obtained once evidence can be presented to the DMR that the closure objectives have been achieved and that closure plans have been effectively implemented and rehabilitation is sustained.

The mechanisms that will be applied to monitor the success of the EMPr include:

- Performance Assessment Report of the EMPr and Closure Plan
- Physical monitoring
- Compliance Audits
- Addressing external complaints, incident reporting

The Project Geologist, normally, will be responsible for daily monitoring. Internal monthly and annual performance assessment would be conducted of which records would be kept to inform an annual Performance Assessment Report of the EMPr and Closure Plan which will be submitted to the DMR. An external audit in the form of an EMPr Performance Assessment will be conducted every two years by an independent consultant and submitted to the DMR.

According to Regulation 34 of the NEMA EIA Regulations of 2014, the holder of an environmental authorisation must for the period during which the environmental authorisation, EMPR and Closure Plan remain valid:

- Ensure compliance with the conditions of the environmental authorisation and the EMPR and where applicable the closure plan, is audited and;
- Submit an environmental audit report to the relevant competent authority.

15 RECOMMENDATIONS

15.1 Compliance with Closure Plan

The closure objectives can only be achieved by fore filling the responsibilities as set out in the rehabilitation plan. Closure objectives cannot be achieved if the actions of the rehabilitation plan are not complied with resulting in an unsuccessful closure plan.

15.2 Annual update requirements of the plan

The closure plan must be reviewed annually and updated as and when major changes are effected to the Prospecting Works Programme.

15.3 On-site documents

The closure plan must be available onsite as per the requirements of Regulation 26 (h) of NEMA EIA Regulations of 2014.