



mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

NAME OF APPLICANT: Laman Group (Pty) Ltd

REFERENCE NUMBER: EC 30/5/1/1/2/10017 PR

ENVIRONMENTAL MANAGEMENT PLAN

**SUBMITTED
IN TERMS OF SECTION 39 AND OF REGULATION
52 OF THE MINERAL AND PETROLEUM
RESOURCES DEVELOPMENT ACT, 2002,
(ACT NO. 28 OF 2002) (the Act)**

STANDARD DIRECTIVE

Applicants for prospecting rights or mining permits, are herewith, in terms of the provisions of Section 29 (a) and in terms of section 39 (5) of the Mineral and Petroleum Resources Development Act, directed to submit an Environmental Management Plan strictly in accordance with the subject headings herein, and to compile the content according to all the sub items to the said subject headings referred to in the guideline published on the Departments website, within 60 days of notification by the Regional Manager of the acceptance of such application. This document comprises the standard format provided by the Department in terms of Regulation 52 (2), and the standard environmental management plan which was in use prior to the year 2011, will no longer be accepted.

IDENTIFICATION OF THE APPLICATION IN RESPECT OF WHICH THE ENVIRONMENTAL MANAGEMENT PLAN IS SUBMITTED.

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1 REGULATION 52 (2): Description of the environment likely to be affected by the proposed prospecting or mining operation

- 1.1 The environment on site relative to the environment in the surrounding area.

The site is a combination of open land used for livestock grazing, growing pineapples, thicket and forest covered areas. Virtually all of the originally occurring indigenous vegetation has been removed from the areas used for growing pineapples. The site is positioned in a farming area where this clearing practice is common.

This section provides a description of the existing biophysical and social environment within the vicinity of the project study area. The information presented below is a synthesis of knowledge gained from literature reviews, discussions with various roleplayers and from site investigations.

Geology

Limestone of the Bathurst Formation, Algoa Group underlain by Quartzite of the Witpoort Formation, Witteberg Group.

Topography

The topography of the general area is predominantly comprised of rolling hills and river valleys of the coastal belt.

The prospecting area itself is predominantly flat with low hills and gentle hillslopes. Altitudes across the site area vary from 200+m above mean sea level to 207+m above mean sea level.

Drainage

The area is drained by the Kap River which flows into the Great Fish River in the Eastern Cape. Drainage is generally in a south-easterly direction towards the coastline.

There are no drainage lines directly affected by any of the prospecting locations/sites.

Climate

The climate is typical of the Eastern Cape with mild summers and winters. The area experiences a relatively mild climate with temperatures rarely falling below 0°C during winter. Precipitation for the area falls predominantly within the summer months with average annual rainfall for the region measuring approximately 785mm. Winds are typical of the Eastern Cape, with strong south-westerly and easterly winds prevailing.

Vegetation and Wildlife

Indigenous vegetation in the extended area, and in areas on the farm, comprises Kowie Thicket. This vegetation type exists mainly on steep north-facing dry slopes. It consist of tall thickets dominated by succulent euphorbias and aloes with a thick understorey composed of thorny shrubs, woody lianas and shrubby succulents. Moister south-facing slopes support thorny thickets dominated by low evergreen trees and shrubs with fewer succulent shrubs and trees. The herbaceous layer is poorly developed.

The surrounding environment has already been highly disturbed by previous human activities. Much of the farm environment has also been disturbed as this is a pineapple growing farm and large areas of land have been cleared for those farming activities.

Animals in the area are expected to be limited to small rodents, antelope and birdlife as well as livestock on surrounding farms.

There are no known protected areas in close proximity to the Project.

Existing Land-use and Tenure

The general study area lies within a rural landscape. Key land uses noted within the general area include:

- Roughly north-south orientated gravel road.
- Livestock grazing lands.
- Pineapple farmlands.
- Shaw Park Primary School.
- Local Community Country and Sports Club
- Scattered farm homesteads on each farm.
- Areas of indigenous forested areas.

It is understood the area to be directly affected by the prospecting works is zoned 'agriculture'.

The categorisation of land cover for the study area reflects the observed land uses with reference to thicket, and degraded grasslands (assumed to be in connection with general grazing and pineapple growing activities).

The study areas on which the proposed prospecting is to take place is privately owned farms/land.

Public consultation undertaken with the relevant landowners is presented in Section 7 of this report.

Land Ownership

The study area is Privately Owned Land.

Local Economic and Social Structure

The local economy of the area is based on agriculture (livestock and pineapples mostly), wildlife reserves and on the commercial enterprises established in the town of Port Alfred (and Bathurst to a lesser extent).

Cultural Heritage, Archaeology and Palaeontology

Comments regarding the existing cultural heritage, archaeology and palaeontology of the site will be provided in the specialist Archaeological and Palaeontological specialist reports that will be submitted as part of the Heritage Impact Assessment that will be submitted to the DMR. The archaeological and palaeontological reports will be prepared by Karen van Ryneveld and Dr John Almond respectively. The reports will identify any potential sites of interest and will propose mitigation/conservation/remedial for those sites.

Visual Aspects

The prospecting sites are positioned within a rural setting which is generally aesthetically pleasing. The sites are located in close proximity to a district road and are easily visible from that road and from the houses of the landowners. They will be new sites and will therefore represent a visual impact.

- 1.2 The specific environmental features on the site applied for which may require protection, remediation, management or avoidance.

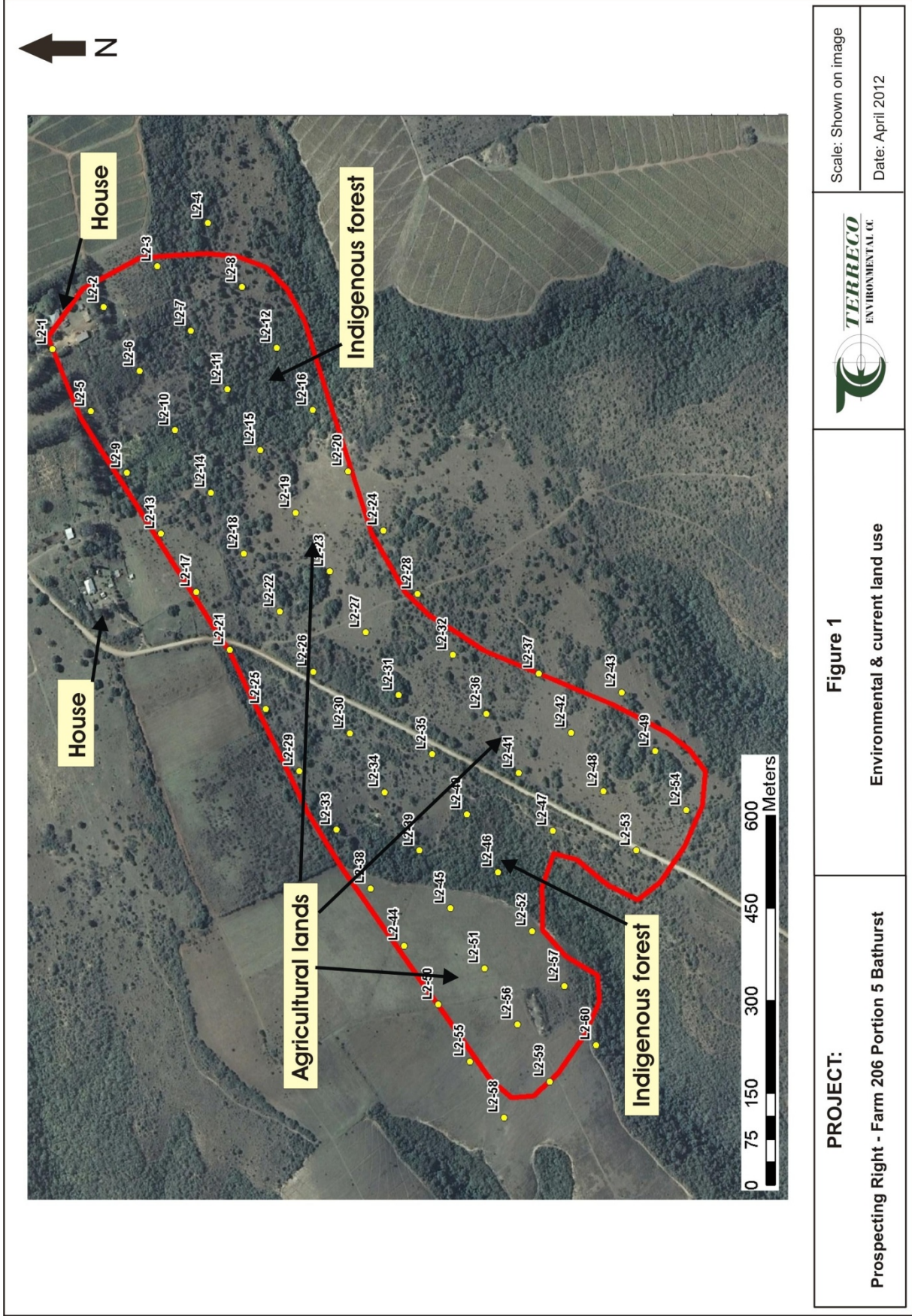
This is predominantly a previously disturbed farmland environment. Environmental features to be protected/avoided include avoiding the unnecessary clearing of existing vegetation on site (especially in indigenous forest/thicket areas) and to avoid any damage to the farmer's crops, livestock, equipment and/or structures on site.

Any sites of cultural, archaeological or palaeontological importance (identified in the specialist reports – submitted separately) must also be avoided unless otherwise instructed by the South African Heritage Resource Agency (SAHRA)

- 1.3 Map showing the spatial locality of all environmental, cultural/heritage and current land use features identified on site.

See map overleaf.

Maps showing sites of cultural/heritage or palaeontological importance will be submitted separately (in the respective specialist reports).



- 1.4 Confirmation that the description of the environment has been compiled with the participation of the community, the landowner and interested and affected parties.

The description of the environment was compiled through site inspection, aerial reconnaissance (helicopter) and desktop studies by an environmental assessment practitioner.

2 REGULATION 52 (2) (b): Assessment of the potential impacts of the proposed prospecting or mining operation on the environment, socio-economic conditions and cultural heritage.

2.1 Description of the proposed prospecting or mining operation.

2.1.1 The main prospecting activities (e.g. access roads, topsoil storage sites and any other basic prospecting design features)

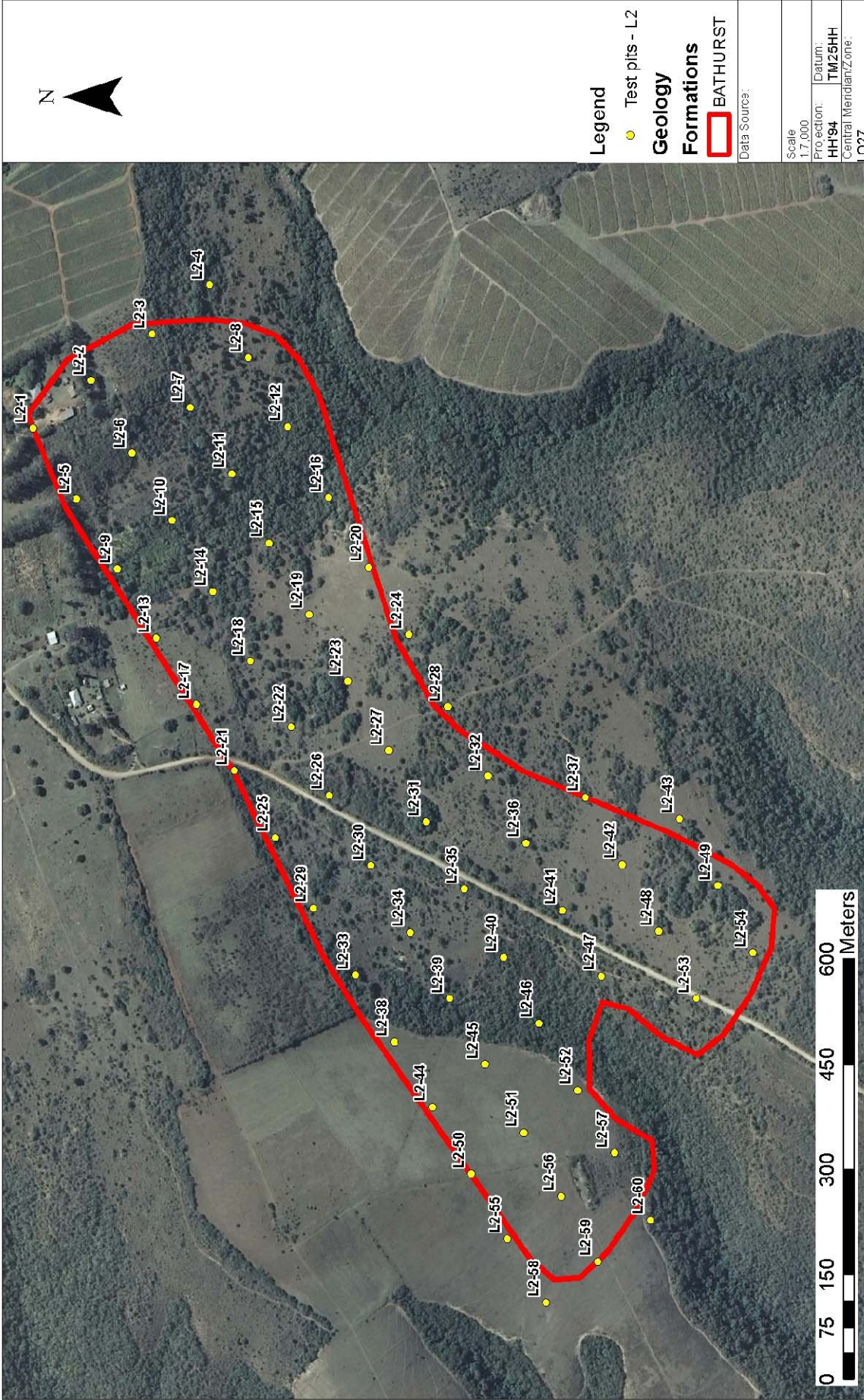
The prospecting activities will comprise of excavation of trial holes to establish reserves of limestone material. Topsoil material will be stockpiled adjacent to the activity.

Access roads will not be required as the area is open grassland/grazing and vehicles will be able to travel to each prospecting site without the need for an access road.

Prospecting sites in indigenous forest/thicket areas will be accessed on foot.

2.1.2 Plan of the main activities with dimensions

See plan overleaf.



Legend
 ● Test pits - L2
Geology
Formations
 □ BATHURST
 Data Source:

Scale
 1:7,000
 Projection
 HH94
 Datum
 TM25HH
 Central Meridian/Zone
 LO27

Compiled by:
 Date: 11/04/2012
 Project No.: KRUR
 Fig No.:
 415623
 N/A
 Revision: A Date: 11 04 2012

LPL GEOTECH
BATHURST LIMESTONE L2 - TEST PIT PLANNING



Path: G:\Projects\Craters\415623 LPL Geotech\COCB\GIS\GSPROJMXDB\athursts\2012\415623_LPL_GEC\TECH1_SITE_GEOLOGY_BATHURST_FARMS_APR_2012.mxd

Coordinates of the prospecting sites are attached in APPENDIX A.

2.1.3 Description of construction, operational, and decommissioning phases.

Construction and operational:

In areas where there is no indigenous vegetation excavate a series of trial holes with a track-mounted 20 ton excavator to establish existence of reserve.

In areas where there is indigenous vegetation (forest/thicket) the excavation must be done by hand (manually using picks and spades) to ensure that damage to vegetation cover is prevented.

Thereafter trenches should be designed to traverse the limestone perpendicular to its strike based on the information gathered from the trial holes.

Trial holes to be mapped, photographed and sampled.

Should the mapping and sampling indicate a deposit with the potential to become a resource then a reverse circulation ("RC") drilling programme is proposed.

Decommissioning:

All trenches will be backfilled as soon as possible after recording of information from each position.

2.1.4 Listed activities (in terms of the NEMA EIA regulations)

Gov. Notice No. R544: 19: "Any activity which requires a prospecting right or renewal thereof in terms of section 16 and 18 respectively of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).

2.2 Identification of potential impacts

(Refer to the guideline)

2.2.1 Potential impacts per activity and listed activities.

Potential Impacts:

1. Soil compaction and erosion
2. Soil pollution
3. Air pollution
4. Surface water pollution (dirty water runoff and pollutants)
5. Habitat degradation and loss
6. Spread of invasive alien species
7. Public nuisance – traffic disruption
8. Public nuisance – dust generation
9. Public nuisance – Noise
10. Public health and safety
11. Degradation of landscape value. Aesthetic appeal or sense of place
12. Cultural heritage
13. Change in landuse
14. Economic development, income generation and social upliftment

2.2.2 Potential cumulative impacts.

There are unlikely to be cumulative impacts to the environment as a result of the limited trial hole excavation activities on site provided each of those sites is properly rehabilitated as per the requirements of the EM Plan.

2.2.3 Potential impact on heritage resources

A specialist archaeological and palaeontological (one of each) report will be submitted to the DMR separately. This will identify any sites of cultural heritage, archaeological or palaeontological value on site.

2.2.4 Potential impacts on communities, individuals or competing land uses in close proximity.

(If no such impacts are identified this must be specifically stated together with a clear explanation why this is not the case.)

The activities could, as described above in the listed impacts, impact on the landowner and his current farming activities in the short term (ie. during the prospecting activities). Provided the prospecting sites are correctly rehabilitated then those impacts will be greatly minimised upon closure/decommissioning of the site.

2.2.5 Confirmation that the list of potential impacts has been compiled with the participation of the landowner and interested and affected parties,

The potential impacts on the site were discussed with the landowner.

2.2.6 Confirmation of specialist report appended.

(Refer to guideline)

A specialist archaeological and palaeontological (one of each) report will be submitted to the DMR separately.

3 REGULATION 52 (2) (c): Summary of the assessment of the significance of the potential impacts and the proposed mitigation measures to minimise adverse impacts.

3.1 Assessment of the significance of the potential impacts

3.1.1 Criteria of assigning significance to potential impacts

The following tables show the criteria used for assessing the significance of each potential impact:

Table 3.1 Criteria for ranking *Severity*

RANK		CRITERIA
NEGATIVE	HIGH	<ul style="list-style-type: none"> • Substantial, Measurable deterioration, Death, illness or injury • Recommended Level always exceeded • Widespread complaints from community • Complete loss of land capability • Soil alteration resulting in a high level impact in one of the other environments • Disturbance to areas that are pristine, have conservation value or are an important resource to Humans • Destruction of rare or endangered species • Deterioration of water quality/quantity, resulting in a high negative impact on one of the other environments • Is difficult to manage • May require an alternative course of action. • May affect the viability of the project

	MEDIUM	<ul style="list-style-type: none"> • Moderate, measurable deterioration and discomfort • Recommended level will occasionally be violated • Widespread complaints from community • Partial loss of land capability • Soil alteration resulting in a moderate impact on one of the other environments • Disturbance of areas that have some conservation value or are of some potential use to humans • Complete change in species variety or prevalence • Deterioration of water quality/quantity, resulting in a moderate negative impact on one of the other environments • May be managed • Is low or medium only if managed according to a management programme • Does not affect the viability of the project
	LOW	<ul style="list-style-type: none"> • Minor, deterioration, nuisance or minor irritation. Change not measurable • Recommended level will never be violated • Sporadic community complaints • Minor deterioration in land capability • Disturbance of areas that are degraded, have little value or are unimportant to humans as a resource • Minor changes in species variety or prevalence • Deterioration of water quality/quantity, resulting in a low negative impact on one of the other environments
POSITIVE	LOW ⁺	<ul style="list-style-type: none"> • Minor Improvement in quality • Change not measurable • Sporadic complaints
	MEDIUM ⁺	<ul style="list-style-type: none"> • Moderate improvements • Measurable improvements • Will be within or better than recommended level • No observed reaction from public
	HIGH ⁺	<ul style="list-style-type: none"> • Substantial improvements • Measurable improvements • Will be within or better than recommended level • Favourable publicity

Table 3.2 Criteria for ranking Spatial Extent, Duration and Probability

Criteria	Categories	Explanation
Spatial Extent	Site (S)	<i>Immediate area of activity</i>
	Local (L)	<i>Area within 500m of the site</i>
	Regional (R)	<i>Entire municipality, drainage basin, landscape etc</i>
	National (N)	<i>South Africa</i>
Duration	Short-term (S)	<i>Less than the construction/ operation period</i>
	Medium Term (M)	<i>Construction / operation period</i>
	Long-term (L)	<i>Less than 2 years post construction / operation</i>
	Permanent (P)	<i>Permanent change</i>
Probability	Unlikely (U)	
	Possible (P)	
	Likely (L)	
	Definite (D)	

3.1.2 Potential impact of each main activity in each phase, and corresponding significance assessment

See Tables on pages 14 – 23.

POTENTIAL IMPACT – <u>CONSTRUCTION</u> PHASE	ASPECT	Nature	Severity	Duration	Extent	Probability	Confidence	MITIGATION POTENTIAL	SIGNIFICANCE	
									Without Mitigation	With Mitigation
<p>1.1 Soil Compaction and Erosion</p> <p>Activities:</p> <ul style="list-style-type: none"> • Clearing and grubbing • Stripping of topsoil <p>Description:</p> <p>The compaction of soil may occur during the site preparation phase as a result of operating heavy machinery. Compaction of soil may result in the loss of soil viability which will affect the ability of the vegetation to recover. Compacted soil decreases infiltration and therefore increases the amount of surface runoff which will contribute to the rate of erosion. The removal of vegetation cover and exposure of underlying soil will increase the risk of erosion, particularly on steeper slopes. Erosion may result in the loss of viable topsoil and downstream impacts on the receiving water bodies.</p>	Surface Disturbance	Negative Direct	M	M	S	L	H	M	MEDIUM NEGATIVE	LOW NEGATIVE
<p>1.2 Soil Pollution</p> <p>Activities:</p> <ul style="list-style-type: none"> • Operation of machinery <p>Description:</p> <p>The operation of heavy machinery during the stripping and clearing of each prospecting site may result in spillages of hydraulic oils due to breakdowns or spillages of diesel during refuelling in the field. Spillages may result in the pollution of soil which could affect soil viability.</p>	Hazardous Waste	Negative Direct	M	S	S	P	H	H	MEDIUM NEGATIVE	LOW NEGATIVE
<p>1.3 Air Pollution</p> <p>Activities:</p> <ul style="list-style-type: none"> • Clearing and grubbing • Stripping of topsoil • Stripping of overburden <p>Description:</p> <p>Vehicle emissions (exhaust emissions) will be generated by the operation of plant on site.</p> <p>Dust will be generated from the use of machinery during the stripping of vegetation, topsoil and overburden. Exposed surfaces will contribute to atmospheric dust particularly during high wind conditions. Excessive exposure to dust will impact on human health. Lower levels may be considered of nuisance value. The impact on Public Health and Safety is discussed under Section 1.10 below.</p> <p>Some of the trial hole sites are quite close to the nearest house and so care will have to be taken to minimise dust distribution during excavating those sites.</p>	Emissions to Air (Gaseous) Emissions to Air (Particulate – Dust)	Negative Direct	M	S	S	D	H	M	MEDIUM NEGATIVE	LOW NEGATIVE

POTENTIAL IMPACT – <u>CONSTRUCTION</u> PHASE	ASPECT	Nature	Severity	Duration	Extent	Probability	Confidence	MITIGATION POTENTIAL	SIGNIFICANCE	
									Without Mitigation	With Mitigation
<p>1.4 Surface Water Pollution (Dirty Water Runoff and Pollutants)</p> <p>Activities:</p> <ul style="list-style-type: none"> • Clearing and grubbing • Stripping of topsoil • Stripping of overburden • Topsoil and overburden stockpiles <p>Description: Without proper management, runoff from exposed soil surfaces and stockpiles is likely to become highly sedimented (ie carry a high sediment load). The compaction of surfaces and the creation of hard, impermeable surfaces will increase the amount of runoff generated. A stormwater management system is therefore proposed, with regular monitoring of downstream impacts. Spillages of hydrocarbons (such as hydraulic oils) may enter into surface water bodies if washed off site. There is a no defined drainage line that falls within the area in which the prospecting activities are to be undertaken.</p>	Release to water (diffuse & point)	Negative Direct	M/L	M	R	P	H	H	MEDIUM NEGATIVE	LOW NEGATIVE
<p>1.5 Habitat Degradation and Loss</p> <p>Activities:</p> <ul style="list-style-type: none"> • Clearing and grubbing <p>Description: The preparation of the site will involve the clearing of vegetation which will mostly be limited to grassland. Some removal of thicket will be required at some of the prospecting sites but this will be limited. Where there is existing indigenous vegetation cover excavations will be done manually with picks and spades to prevent damage to that vegetation. The general site area is currently a degraded grassland environment. The site preparation will effectively result in the complete transformation of site in terms of plant and animal habitat in the small areas where the trial holes will be excavated. The vegetation assessment indicated that the vegetation type affected by the mining areas is not unique and is in fact well represented in the surrounding areas. One may therefore assume that the loss of the vegetation on the footprint of the prospecting areas will not have a significantly detrimental impact on the vegetation type as a whole. Notwithstanding this, an effort should be made to minimize the area of impact and to reestablish the vegetation as close to the original condition as possible, following completion of the prospecting operations.</p>	Surface Disturbance	Negative Direct	M/L	L	S	D	H	M	HIGH - MEDIUM NEGATIVE	LOW NEGATIVE
<p>1.6 Spread of invasive alien species</p> <p>Activities:</p> <ul style="list-style-type: none"> • Clearing and grubbing <p>Description: The removal of indigenous/existing vegetation and the creation of disturbed surfaces is an open invitation for the invasion of alien plant species. Alien invader species such as Black Wattle have been recorded in the area. Invasive alien plants effectively out compete many of the indigenous species and ultimately lead to a loss of biodiversity. This impact must be managed throughout the prospecting process through the implementation of a detailed alien plant eradication programme.</p>	Surface Disturbance	Negative Direct	M	L	S	L	H	H	MEDIUM NEGATIVE	LOW NEGATIVE

POTENTIAL IMPACT – <u>CONSTRUCTION</u> PHASE	ASPECT	Nature	Severity	Duration	Extent	Probability	Confidence	MITIGATION POTENTIAL	SIGNIFICANCE	
									Without Mitigation	With Mitigation
<p>1.7 Public Nuisance – Traffic Disruption</p> <p>Activities:</p> <ul style="list-style-type: none"> Accessing the site <p>Description: Accessing the prospecting area may result in some disruption to traffic along the gravel public road in the area. This will be short-lived and of low significance.</p> <p>The site will not need to be fenced as it falls within already fenced farmlands.</p>	Creation/disruption of access	Negative Direct	L	S	L	P	H	L	LOW NEGATIVE	LOW NEGATIVE
<p>1.8 Public Nuisance – Dust Generation</p> <p>Activities:</p> <ul style="list-style-type: none"> Accessing the site Clearing and grubbing Stripping of topsoil Stripping of overburden <p>Description: Dust will be generated from the use of machinery during the stripping of vegetation, topsoil and overburden. Exposed surfaces will contribute to atmospheric dust particularly during high wind conditions.</p> <p>The nearest houses lie in fairly close proximity to some of the prospecting locations. Therefore care will be required to minimise dust generation and distribution at those specific locations.</p>	Emissions to air - particulate	Negative Direct	L	M	L	L	M	M	MEDIUM NEGATIVE	LOW NEGATIVE
<p>1.9 Public Nuisance – Noise</p> <p>Activities:</p> <ul style="list-style-type: none"> Accessing the site Clearing and grubbing Stripping of topsoil Stripping of overburden <p>Description: During the site establishment phase, noise will be generated primarily by heavy earthmoving machinery as the prospecting areas are stripped of topsoil and overburden. As such, the noise levels are likely to be those commonly experienced on any civils construction site. Activities will be limited to normal working hours. The impact of noise on mine workers' health will be addressed by the Mine Health and Safety Plan and will include the use of protective hearing devices.</p> <p>The nearest houses lie in fairly close proximity to some of the prospecting locations. Therefore care will be required to minimise noise generation at those specific locations.</p>	Noise Disturbance	Negative Direct	L	M	S	D	M	M	MEDIUM NEGATIVE	MEDIUM – LOW NEGATIVE

POTENTIAL IMPACT – <u>CONSTRUCTION</u> PHASE	ASPECT	Nature	Severity	Duration	Extent	Probability	Confidence	MITIGATION POTENTIAL	SIGNIFICANCE	
									Without Mitigation	With Mitigation
<p>1.10 Public Health and Safety</p> <p>Activities:</p> <ul style="list-style-type: none"> • Accessing the site • Clearing and grubbing • Stripping of topsoil • Stripping of overburden <p>Description: Public health and safety may be at risk as a result of a number of aspects: generation of dust and noise, the operation of heavy earthmoving machinery of site and the creation of excavations and stockpiles. The impacts of noise and dust generation on public health and wellbeing are discussed in the sections above. The existing farm fences will keep people away from the prospecting areas. On site staff as well as proper safety signage, will minimize the safety risks posed to nearby residents and other members of the public.</p>	Emissions to air, Noise, surface disturbance, changes in landform and topography	Negative Direct	M	M	S	P	M	H	MEDIUM NEGATIVE	LOW NEGATIVE
<p>1.11 Degradation of landscape value, aesthetic appeal or sense of place</p> <p>Activities:</p> <ul style="list-style-type: none"> • Clearing and grubbing • Stripping of topsoil • Stripping of overburden <p>Description: The site establishment phase will have a visual impact as vegetation and topsoil is stripped. The activities will be visible from the majority of the surrounding areas. The prospecting sites are located alongside a district road in a rural area and are therefore highly visible from the road. These are all new sites and will therefore represent a visual impact. Considering that the surrounding landuse is largely rural agricultural in nature, the site establishment activities are likely to be noticeable and therefore will have a significant impact on the aesthetic value of the landscape. This will be mitigated somewhat by minimizing cleared areas.</p>	Surface disturbance, change in landform and topography	Negative Direct	M	L	L	D	M	M	MEDIUM/ LOW NEGATIVE	LOW NEGATIVE
<p>1.12 Cultural Heritage</p> <p>Activities:</p> <ul style="list-style-type: none"> • Clearing and grubbing • Stripping of topsoil • Stripping of overburden <p>Description: The cultural heritage, archaeological and palaeontological investigation of the site must still be completed. The report that will be prepared based on the results of those investigations will inform the prospecting process and ensure that no sites of cultural or historical importance will be disturbed during the prospecting activities on site (without the proper permitting process - if necessary).</p>	Surface disturbance, change in landform and topography	Negative Direct	L	L	L	D	H	H	MEDIUM NEGATIVE	N/A

POTENTIAL IMPACT – <u>CONSTRUCTION</u> PHASE	ASPECT	Nature	Severity	Duration	Extent	Probability	Confidence	MITIGATION POTENTIAL	SIGNIFICANCE	
									Without Mitigation	With Mitigation
<p>1.13 Change in Landuse</p> <p><i>Activities:</i></p> <ul style="list-style-type: none"> • General prospecting activities <p><i>Description:</i></p> <p>The excavation of the prospecting sites will result in a temporary change of landuse which will be largely reinstated on closure.</p>	Surface disturbance, change in landform and topography	Negative Direct	M	L	S	D	H	M	MEDIUM NEGATIVE	LOW NEGATIVE
<p>1.14 Economic Development, income generation and social upliftment</p> <p><i>Activities:</i></p> <ul style="list-style-type: none"> • Procurement of goods and services • Employment and training <p><i>Description:</i></p> <p>The site establishment phase is likely to require the use of generalized and specialized services. Preference will be given to local service providers and suppliers where possible and to the employment of local labour.</p> <p>Employment of local labour, use of existing SMME's based in the area, and the support of local businesses in the supply of goods and services will benefit the regional economy.</p>	Materials Consumption, recruitment and training	Positive Direct and Indirect	M+	M	R	P	M	N/A	MEDIUM POSITIVE	

POTENTIAL IMPACT – OPERATION PHASE	ASPECT	Nature	Severity	Duration	Extent	Probability	Confidence	MITIGATION POTENTIAL	SIGNIFICANCE	
									Without Mitigation	With Mitigation
2.1 Soil Compaction and Erosion <i>Activities:</i> <ul style="list-style-type: none"> Extraction of material <i>Description:</i> Refer to Section 1.1	Surface Disturbance	Negative Direct	M	M	S	L	H	M	MEDIUM NEGATIVE	LOW NEGATIVE
2.2 Soil Pollution <i>Activities:</i> <ul style="list-style-type: none"> Operation of machinery <i>Description:</i> Refer to Section 1.2	Hazardous Waste	Negative Direct	M	S	S	P	M	H	MEDIUM NEGATIVE	LOW NEGATIVE
2.3 Air Pollution <i>Activities:</i> <ul style="list-style-type: none"> Extraction of material <i>Description:</i> Refer to Section 1.3	EMISSIONS TO AIR (Gaseous) Emissions to Air (Particulate – Dust)	Negative Direct	M	S	S	D	H	M	MEDIUM NEGATIVE	LOW NEGATIVE
2.4 Surface Water Pollution (Dirty Water Runoff and Pollutants) <i>Activities:</i> <ul style="list-style-type: none"> Extraction of material <i>Description:</i> Refer to Section 1.4	Release to water (diffuse & point)	Negative Direct	L	M	L	P	H	H	MEDIUM NEGATIVE	LOW NEGATIVE
2.5 Spread of invasive alien species <i>Activities:</i> <ul style="list-style-type: none"> Extraction of material <i>Description;</i> Refer to Section 1.6	Surface Disturbance	Negative Direct	M	L	S	L	H	H	MEDIUM NEGATIVE	LOW NEGATIVE

POTENTIAL IMPACT – <u>OPERATION</u> PHASE	ASPECT	Nature	Severity	Duration	Extent	Probability	Confidence	MITIGATION POTENTIAL	SIGNIFICANCE	
									Without Mitigation	With Mitigation
<p>2.6 Public Nuisance – Traffic Disruption</p> <p>Activities:</p> <ul style="list-style-type: none"> • Movement of plant and vehicles to site <p>Description: There will be very little disruption to local traffic as traffic disruption on local roads will be limited to the moving of excavation equipment to the site.</p>	Creation/disruption of access	Negative Direct	L	L	S	L	H	L	LOW NEGATIVE	LOW NEGATIVE
<p>2.7 Public Nuisance – Dust Generation</p> <p>Activities:</p> <ul style="list-style-type: none"> • Extraction of material <p>Description: Dust will be generated from excavation and the exposure of bare soil within the trial holes.</p>	Emissions to air - particulate	Negative Direct	L	M	L	L	M	M	MEDIUM NEGATIVE	LOW NEGATIVE
<p>2.8 Public Nuisance – Noise</p> <p>Activities:</p> <ul style="list-style-type: none"> • Extraction of material <p>Description: Refer to Section 1.9.</p>	Noise Disturbance	Negative Direct	M	M	L	D	M	M	MEDIUM NEGATIVE	LOW NEGATIVE
<p>2.9 Public Health and Safety</p> <p>Activities:</p> <ul style="list-style-type: none"> • Extraction of material <p>Description: Public health and safety may be at risk as a result of a number of aspects: generation of dust and noise, the operation of heavy earthmoving machinery of site and the creation of excavations and stockpiles. The impacts of noise and dust generation on public health and wellbeing are discussed in the sections above. The existing farm fences will keep people away from the prospecting areas. On site staff as well as proper safety signage, will minimize the safety risks posed to nearby residents and other members of the public.</p>	Emissions to air Noise, surface disturbance, changes in landform, topography	Negative Direct	M	M	S	P	M	H	MEDIUM NEGATIVE	LOW NEGATIVE

POTENTIAL IMPACT – OPERATION PHASE	ASPECT	Nature	Severity	Duration	Extent	Probability	Confidence	MITIGATION POTENTIAL	SIGNIFICANCE	
									Without Mitigation	With Mitigation
<p>2.10 Degradation of landscape value, aesthetic appeal or sense of place</p> <p>Activities:</p> <ul style="list-style-type: none"> Excavation of the material – development of the prospecting sites <p>Description: As the prospecting activities are undertaken the number of prospecting sites will grow as indicated in the development plans. This will have a visual impact, particularly as the sites are visible from an existing gravel road.</p>	Surface disturbance, change in landform and topography	Negative Direct	M	L	L	D	M	M	MEDIUM NEGATIVE	LOW NEGATIVE
<p>2.11 Economic Development, income generation and social upliftment</p> <p>Activities:</p> <ul style="list-style-type: none"> Procurement of goods and services Employment and training <p>Description: Refer to Section 1.14.</p>	Consumption, recruitment and training	Positive Direct and Indirect	M+	M	R	P	M	N/A	MEDIUM POSITIVE	

POTENTIAL IMPACT – <u>CLOSURE</u> PHASE	ASPECT	Nature	Severity	Duration	Extent	Probability	Confidence	MITIGATION POTENTIAL	SIGNIFICANCE	
									Without Mitigation	With Mitigation
3.1 Soil Compaction and Erosion Activities: <ul style="list-style-type: none"> Backfilling of the prospecting sites Topsoiling Description: Refer to Section 1.1	Surface Disturbance	Negative Direct	M	M	S	L	H	M	MEDIUM NEGATIVE	LOW NEGATIVE
3.2 Soil Pollution Activities: <ul style="list-style-type: none"> Operation of machinery Description: Refer to Section 1.2	Hazardous Waste	Negative Direct	M	S	S	P	M	H	MEDIUM NEGATIVE	LOW NEGATIVE
3.3 Air Pollution Activities: <ul style="list-style-type: none"> Backfilling of the prospecting sites Topsoiling Description: Refer to Section 1.3	(Gaseous) Emissions to Air (Particulate – Dust)	Negative Direct	M	S	S	D	H	M	MEDIUM NEGATIVE	LOW NEGATIVE
3.4 Surface Water Pollution (Dirty Water Runoff and Pollutants) Activities: <ul style="list-style-type: none"> Backfilling of the prospecting sites Topsoiling Description: Refer to Section 1.4	Release to water (diffuse & point)	Negative Direct	M	M	L	P	H	H	MEDIUM NEGATIVE	LOW NEGATIVE
3.5 Spread of invasive alien species Activities: <ul style="list-style-type: none"> Spreading of topsoil Seeding Description: Refer to Section 1.6	Surface Disturbance	Negative Direct	L	L	S	L	H	H	LOW NEGATIVE	LOW NEGATIVE

POTENTIAL IMPACT – <u>CLOSURE</u> PHASE	ASPECT	Nature	Severity	Duration	Extent	Probability	Confidence	MITIGATION POTENTIAL	SIGNIFICANCE	
									Without Mitigation	With Mitigation
3.6 Public Nuisance – Dust Generation Activities: <ul style="list-style-type: none"> Backfilling of the prospecting sites Spreading of topsoil Description: Dust will be generated from the backfilling of the prospecting sites as well as the spreading of the topsoil.	Emissions to air - particulate	Negative Direct	M	M	L	L	M	M	MEDIUM NEGATIVE	LOW NEGATIVE
3.7 Public Nuisance – Noise Activities: <ul style="list-style-type: none"> Backfilling of the prospecting sites Spreading of topsoil Description: Refer to Section 1.9.	Noise Disturbance	Negative Direct	M	M	L	D	M	M	MEDIUM NEGATIVE	MEDIUM – LOW NEGATIVE
3.8 Public Health and Safety Activities: <ul style="list-style-type: none"> Backfilling of the prospecting sites Spreading of topsoil Description: Public health and safety may be at risk as a result of a number of aspects: generation of dust and noise, the operation of heavy earthmoving machinery of site and the creation of excavations and stockpiles. The impacts of noise and dust generation on public health and wellbeing are discussed in the sections above. The existing farm fences will keep people away from the prospecting areas. On site staff as well as proper safety signage, will minimize the safety risks posed to nearby residents and other members of the public.	Emissions to air Noise, surface disturbance, changes in landform, topography	Negative Direct	M	M	S	P	M	H	MEDIUM NEGATIVE	LOW NEGATIVE
3.9 Degradation of landscape value, aesthetic appeal or sense of place Activities: <ul style="list-style-type: none"> Backfilling of the prospecting sites Topsoiling Hydroseeding Description: The final rehabilitation will result in a vast improvement to the visual impact of the selected prospecting sites. The sites will be shaped to blend in with the surrounding topography and will be grassed and returned to their former agricultural landuse.	Surface disturbance, change in landform and topography	Negative Direct	M+	P	S	D	M	N/A	MEDIUM POSITIVE	

3.1.3 Assessment of potential cumulative impacts.

Provided the EM Plan is implemented correctly there are not anticipated to be any potential cumulative impacts resulting from the proposed prospecting activities.

3.2 Proposed mitigation measures to minimise adverse impacts.

3.2.1 List of actions, activities, or processes that have sufficiently significant impacts to require mitigation.

- 1) Soil compaction and erosion
- 2) Soil pollution
- 3) Air pollution
- 4) Surface water pollution (dirty water runoff and pollutants)
- 5) Habitat degradation and loss
- 6) Spread of invasive alien species
- 7) Public nuisance – traffic disruption
- 8) Public nuisance – dust generation
- 9) Public nuisance – noise
- 10) Public health and safety
- 11) Degradation of landscape value. Aesthetic appeal or sense of place
- 12) Cultural heritage
- 13) Change in land use
- 14) Economic development, income generation and social upliftment

3.2.2 Concomitant list of appropriate technical or management options

(Chosen to modify, remedy, control or stop any action, activity, or process which will cause significant impacts on the environment, socio-economic conditions and historical and cultural aspects as identified. Attach detail of each technical or management option as appendices)

See APPENDIX B that describes the environmental management procedures that will be implemented on site.

3.2.3 Review the significance of the identified impacts

(After bringing the proposed mitigation measures into consideration).

See Tables in Section 3.1.2 above. They provide an assessment of each impact both with and without mitigation.

4 REGULATION 52 (2) (d): Financial provision.The applicant is required to-

4.1 Plans for quantum calculation purposes.

(Show the location and aerial extent of the aforesaid main mining actions, activities, or processes, for each of the construction operational and closure phases of the operation).

See plan showing prospecting locations in Section 2.1.2 above.

4.2 Alignment of rehabilitation with the closure objectives

(Describe and ensure that the rehabilitation plan is compatible with the closure objectives determined in accordance with the baseline study as prescribed).

Only limited disturbance of the earth is expected as a result of the proposed prospecting activities. All trial pits will be backfilled once investigation of each respective hole is complete.

Closure objectives are to return the disturbed prospecting sites to their previous landuse which is currently agriculture. By backfilling the trial pits the closure objectives will be achieved.

4.3 Quantum calculations.

(Provide a calculation of the quantum of the financial provision required to manage and rehabilitate the environment, in accordance with the guideline prescribed in terms of regulation 54 (1) in respect of each of the phases referred to).

Rehabilitation Cost Summary Table for 60 Prospecting Sites

Description	Unit	Quantity	Rate	Amount
<i>Backfilling of the Prospecting Sites</i>				
Excavator (05.hr per pit)	hr	30	400	12 000.00
Lowbed Hire	km	80	15	1 200.00
<i>Disturbed Areas (prospecting sites)</i>				
Profiling (incl plant hire - each pit 3 square metres)	ha	0.018	10000	180.00
Topsoil (topsoil on site, placing only with TLB - 0.5hr per pit)	hr	30	400	12 000.00
Fertiliser (0.6t/ha of 2:3:2 - each pit 3 square metres)	t	0.01	2750	27.50
Seed purchase (18kg/ha - each pit 3 square metres)	kg	0.32	100	32.00
Labour	man days	10	100	1 000.00
<i>Alien vegetation Control</i>				
Labour	days	45	100	4 500.00
Herbicide	ltr	45	150	6 750.00
<i>After Care & Maintenance</i>				
Labour	man days	20	60	1 200.00
Herbicide	ltr	20	150	3 000.00
Sub Total				41 889.50
Establishment and Management should current mine operator become liquidated or incapacitated			@10%	4 188.95
GRAND TOTAL				46 078.45

4.4 Undertaking to provide financial provision

(Indicate that the required amount will be provided should the right be granted).

The Applicant will provide the required financial guarantee as calculated in this section.

5 REGULATION 52 (2) (e): Planned monitoring and performance assessment of the environmental management plan.

5.1 List of identified impacts requiring monitoring programmes.

See APPENDIX B.

5.2 Functional requirements for monitoring programmes.

See APPENDIX B.

5.3 Roles and responsibilities for the execution of monitoring programmes.

See APPENDIX B.

5.4 Committed time frames for monitoring and reporting.

See APPENDIX B.

6 REGULATION 52 (2) (f): Closure and environmental objectives.

6.1 Rehabilitation plan

(Show the areas and aerial extent of the main prospecting activities, including the anticipated prospected area at the time of closure).

See plan showing prospecting locations in Section 2.1.2 above

6.2 Closure objectives and their extent of alignment to the pre-mining environment.

The closure objectives will fully return the affected prospecting sites to their current landuse of agriculture.

6.3 Confirmation of consultation

(Confirm specifically that the environmental objectives in relation to closure have been consulted with landowner and interested and affected parties).

The landowner was informed that the excavations created during prospecting activities would be backfilled. This would allow the land to return to its previous landuse of agriculture.

7 REGULATION 52 (2) (g): Record of the public participation and the results thereof.

7.1 Identification of interested and affected parties.

(Provide the information referred to in the guideline)

Percy Elliot – Landowner

Ndlambe Local Municipality

7.2 The details of the engagement process.

7.2.1 Description of the information provided to the community, landowners, and interested and affected parties.

A meeting was held on the site with the landowner. The proposed prospecting activities were described to him and it was explained that various sites on the farm would be prospected.

The Ndlambe Municipality was issued with a letter informing them of the proposed prospecting activities on this land.

7.2.2 List of which parties indentified in 7.1 above that were in fact consulted, and which were not consulted.

Both of the parties listed above were consulted.

7.2.3 List of views raised by consulted parties regarding the existing cultural, socio-economic or biophysical environment.

The Ndlambe Municipality did not issue any response to the letter that was hand-delivered to their office for the attention of the Municipal Manager.

The landowner, Mr Percy Elliot, indicated that he did not oppose the proposed prospecting operations provided they were undertaken in an environmentally informed manner, that the sites

were backfilled properly and the sites returned to their current landuse of agriculture.

He agreed to allow the Applicant access to the farm for the prospecting activities.

7.2.4 List of views raised by consulted parties on how their existing cultural, socio-economic or biophysical environment potentially will be impacted on by the proposed prospecting or mining operation.

The proposed prospecting activities are likely to impact on the existing cultural, socio-economic and biophysical environment in a limited manner. These impacts will include visual impacts during prospecting and closure activities and the disruption of having other people/workers on the farm property.

7.2.5 Other concerns raised by the aforesaid parties.

None.

7.2.6 Confirmation that minutes and records of the consultations are appended.

See Minutes of Meeting held on Birbury Farm attached in APPENDIX C.

7.2.7 Information regarding objections received.

The landowner did not object to the proposed prospecting activities and gave his consent for the Applicant to undertake the proposed activities.

7.3 The manner in which the issues raised were addressed.

A meeting was held on the Birbury Farm. The potential impacts of the prospecting activities were discussed. The meeting was attended by Mr Sikoma (Laman), Mr Scott (Terreco) and Mr Percy Elliot (Landowner).

8 SECTION 39 (3) (c) of the Act: Environmental awareness plan.

8.1 Employee communication process

(Describe how the applicant intends to inform his or her employees of any environmental risk which may result from their work).

Before beginning any work on site each staff member will undergo environmental awareness training (see handbook attached in APPENDIX D).

Regular “toolbox talks” will be held with on site staff to inform employees of the potential risk of their actions to the environment.

Site management will make use of the EM Plan to provide information to the staff regarding protection of the environment in which they will work.

8.2 Description of solutions to risks

(Describe the manner in which the risk must be dealt with in order to avoid pollution or degradation of the environment).

See APPENDIX A for a list of environmental management procedures that will be implemented on site to help prevent environmental damage.

8.3 Environmental awareness training.

(Describe the general environmental awareness training and training on dealing with emergency situations and remediation measures for such emergencies).

Before beginning any work on site each staff member will undergo environmental awareness training (see handbook attached in APPENDIX D). This training will be given by an independent environmental assessment practitioner and attendance records will be kept on site.

As stated above the contractor/site manager will also undertake regular “toolbox talks” with the onsite staff during which the staff will be reminded of various aspects of environment that need to be protected and of how the staff must operate in order to achieve that level of protection.

9 SECTION 39 (4) (a) (iii) of the Act: Capacity to rehabilitate and manage negative impacts on the environment.

9.1 The annual amount required to manage and rehabilitate the environment.

(Provide a detailed explanation as to how the amount was derived)

The proposed work will be undertaken in a matter of weeks as it is limited to investigation and sampling of small selected sites for prospecting purposes.

Therefore it is anticipated that rehabilitation activities will only be required on one occasion at each prospecting site while the trial pits are being backfilled and that the activities will be completed within a time period of one calendar year.

As stated in Section 4.3 (above) a disturbed area size of 3m² was estimated per trial pit. The actual trial pit excavations will be far smaller than that but as an excavator will be used a limited area around each site will be affected and hence the need to allow for the rehabilitation of the 3m² area (instead of only the excavated area).

On site management will be undertaken by a professional geologist who will be appointed to undertake the prospecting activities. The cost of providing such management was provided by a professional geologist. The costs of excavating and drilling were also provided by the geologist.

An independent environmental assessment practitioner will be appointed to undertake bi-annual assessments (ECO audits) of the prospecting activities and to report those findings to the DMR. The cost of providing such services was supplied by an environmental consultant (Terreco). The proposed costs of rehabilitation were provided by Terreco.

Item	Activity	Cost
1	Sampling and Survey	R55 000.00
2	Environmental studies	R50 000.00
3	Drilling (if required) and rehabilitation	R150 000.00
4	Professional fees – On site management of activities	R130 000.00
5	Transport and accommodation	R50 000.00
6	Documentation	R20 000.00
7		

As can be seen in the table above the calculated costs of rehabilitating the site (and as presented in the Mining Works Programme) have been included into Item 3 and are less than the amount stipulated for drilling and rehabilitation of the affected prospecting sites.

9.2 Confirmation that the stated amount correctly reflected in the Prospecting Work Programme as required.

As can be seen in the table in Section 9.1 above the calculated costs of rehabilitating the site (and as presented in the Mining Works Programme) have been included into Item 3 and are less than the amount stipulated for drilling and rehabilitation of the affected prospecting sites.

10 REGULATION 52 (2) (h): Undertaking to execute the environmental management plan.

Herewith I, the person whose name and identity number is stated below, confirm that I am the person authorised to act as representative of the applicant in terms of the resolution submitted with the application, and confirm that the above report comprises EIA and EMP compiled in accordance with the guideline on the Departments official website and the directive in terms of sections 29 and 39 (5) in that regard, and the applicant undertakes to execute the Environmental management plan as proposed.

Full Names and Surname	Mr Mcebisi Rudolf Mlonzi
Identity Number	710915 6213 08 6

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