



# mineral resources

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Mineral Resources  
REPUBLIC OF SOUTH AFRICA

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Sub Directorate: Mine Environmental Management      Ref: NC30/5/1/1/3/2/1/ 10063 EM

The Director  
South African Heritage Resources Agency  
PO Box 4637  
CAPE TOWN  
8000

*Case no: 763*

Attention: Nonofho Ndobochani

**CONSULTATION IN TERMS OF SECTION 40 OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT 2002, (ACT 28 OF 2002) IN RESPECT OF PROSPECTING FOR MANGANESE AND IRON ORE ON THE FARMS CONSTANTIA NO.309, RIVERA NO.335, PICARDY ON.360, HEUNINGDRAAI NO.334 AND SMUTS NO.364 SITUATED IN THE MAGISTERIAL DISTRICT OF KURUMAN, NORTHERN CAPE REGION.**

**APPLICANT: BY MILE INVESTMENTS 384 (PTY) LTD.**

Attached herewith, please find a copy of an EMP received from the above-mentioned applicant, for your comments.

It would be appreciated if you could forward any comments or requirements your Department may have to this office and to the applicant before **04<sup>th</sup> December 2012** as required by the Act.

Consultation in this regard has also been initiated with other relevant State Departments. In an attempt to expedite the consultation process please contact **Mr Livhuwani Malatjie** or the **Regional Manager** of this office to make arrangements for a site inspection or for any other enquiries with regard to this application.

Your co-operation will be appreciated.

*pp Malatjie*

ACTING REGIONAL MANAGER: MINERAL REGULATION  
NORTHERN CAPE REGION



7 JUL 1965  
WASH DC  
OFFICE OF THE DIRECTOR



**mineral resources**

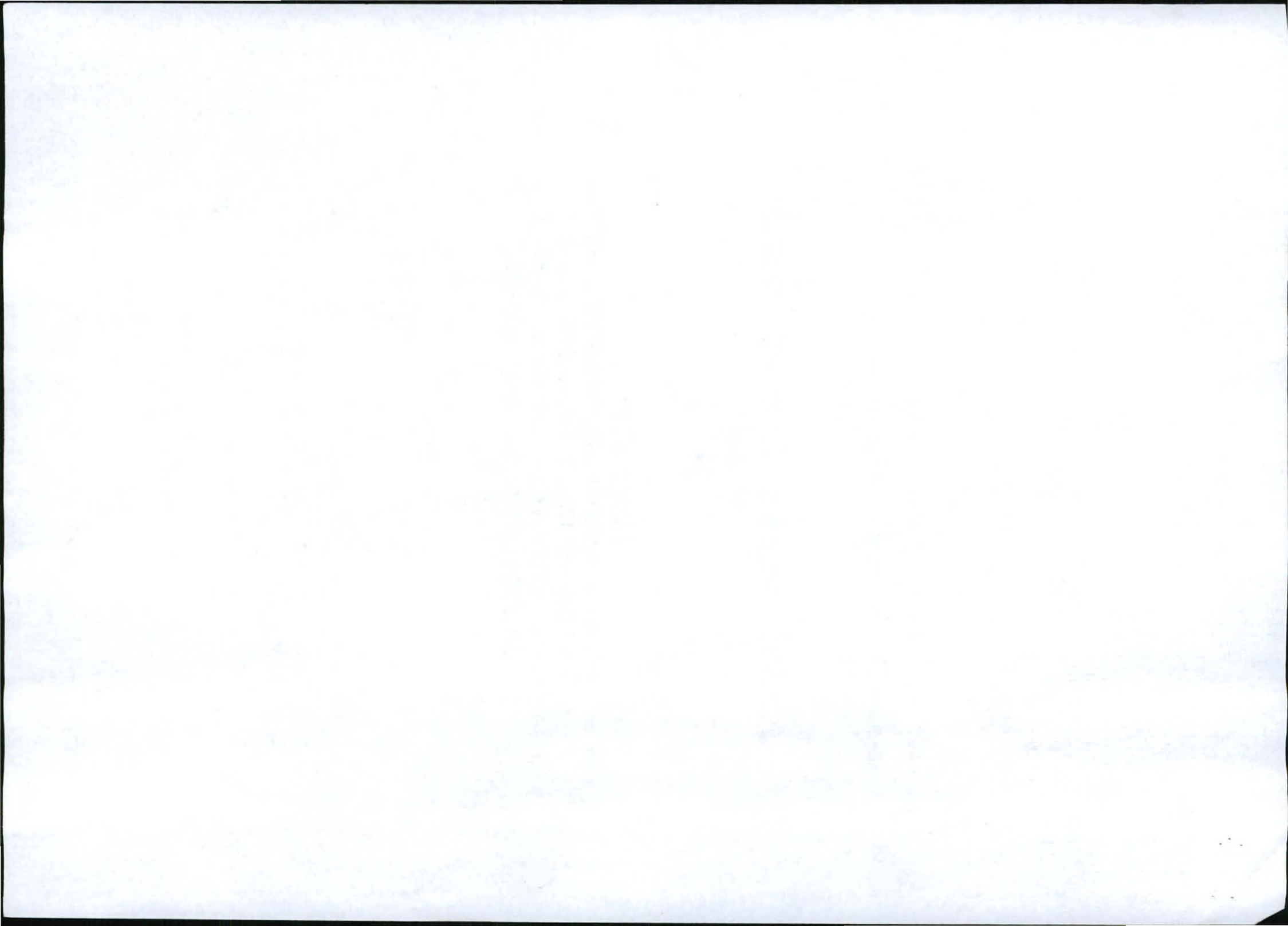
Department:  
Mineral Resources  
REPUBLIC OF SOUTH AFRICA

NAME OF APPLICANT: MILE INVESTMENTS 384 (PTY) LTD

REFERENCE NUMBER: NC 30/5/1/1/2/10063 PR

**ENVIRONMENTAL MANAGEMENT  
PLAN**

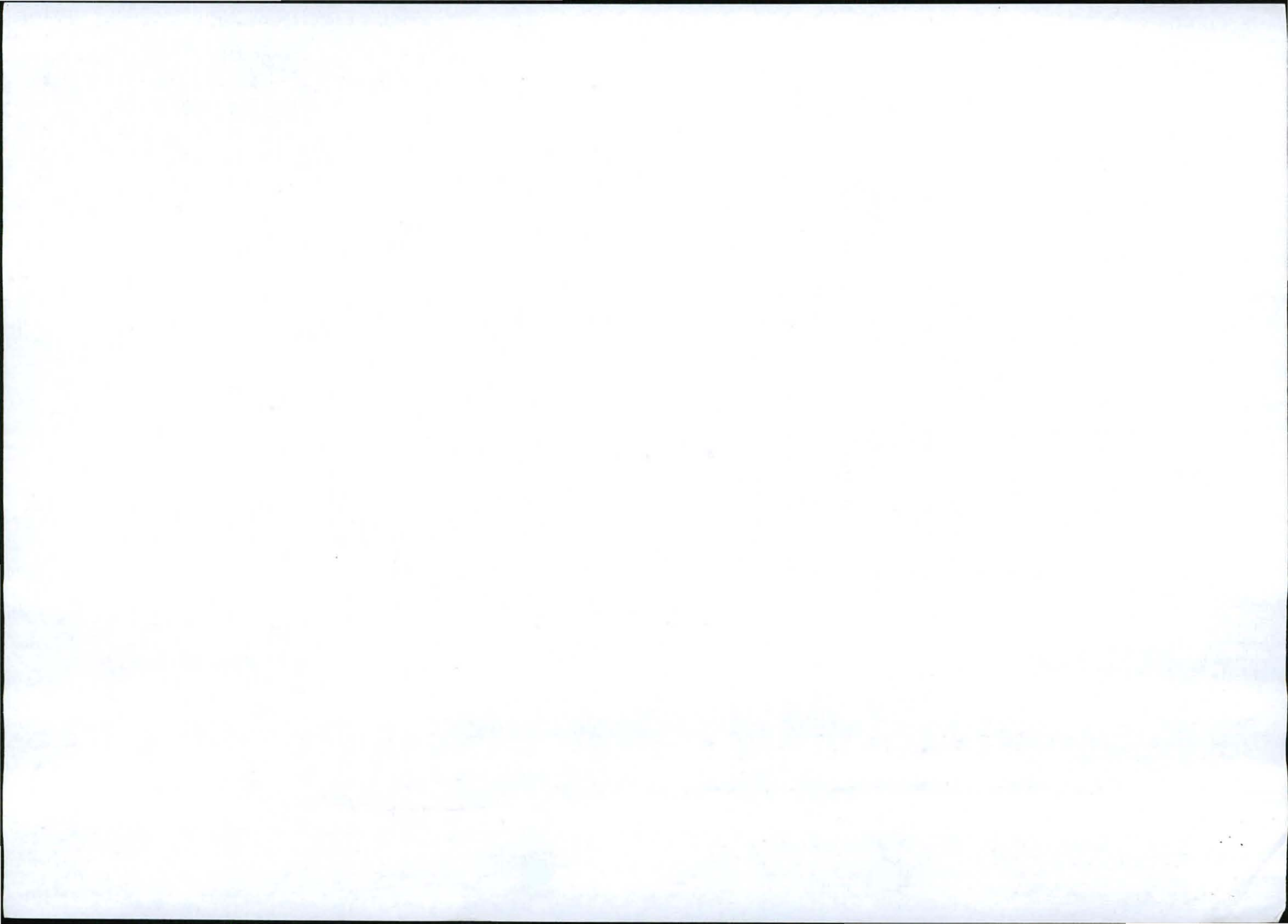
**SUBMITTED  
IN TERMS OF SECTION 39 AND OF REGULATION  
52 OF THE MINERAL AND PETROLEUM  
RESOURCES DEVELOPMENT ACT, 2002,  
(ACT NO. 28 OF 2002) (the Act)**





## 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.**

ITEM	COMPANY CONTACT DETAILS
Name	Mr. Monde Dhladhla
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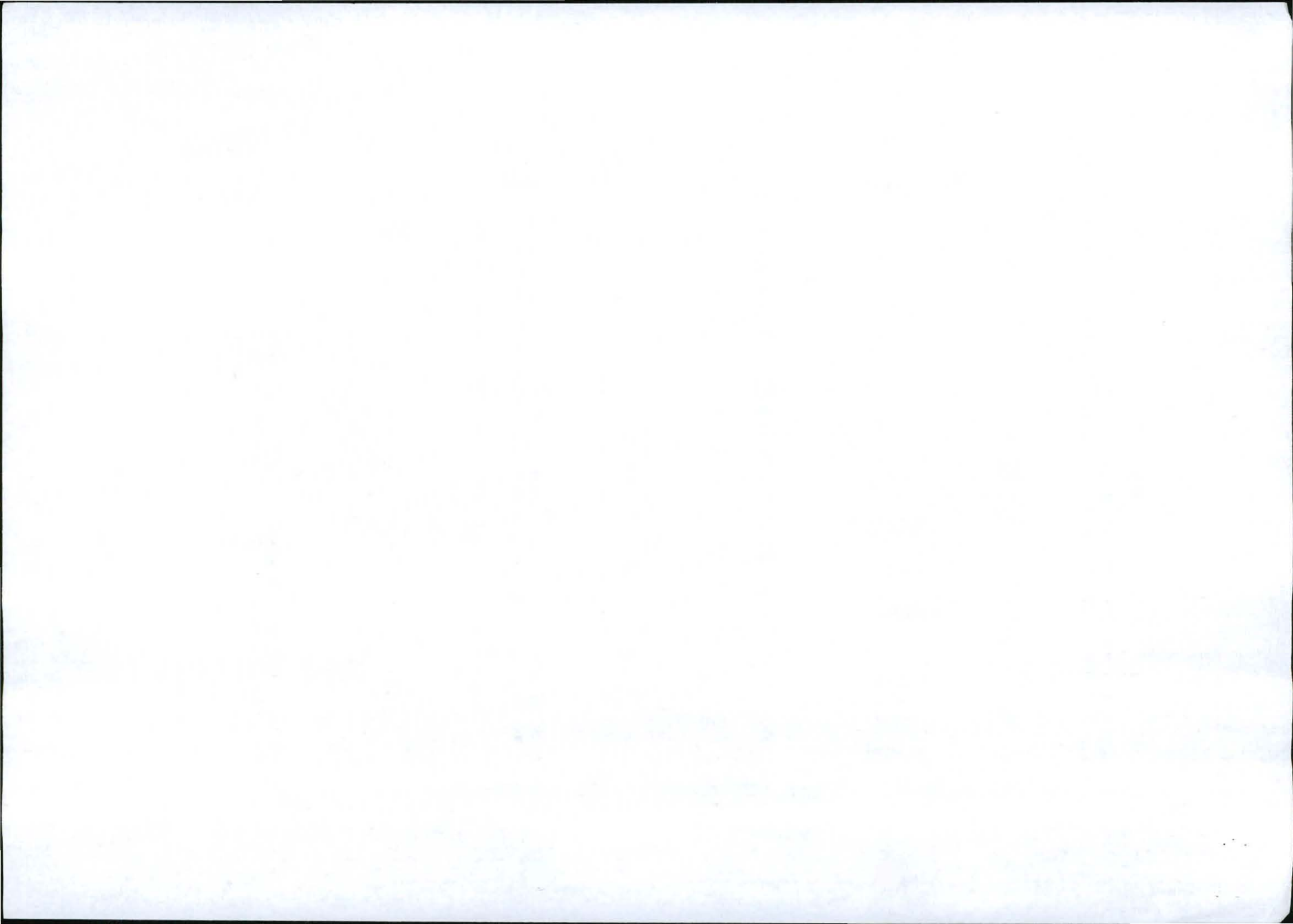
ITEM	CONSULTANT CONTACT DETAILS (If applicable)
Name	Mpho Mothetha
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Postal address	P O Box 620 Polokwane 0700

**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 proposed project area is located in Northern Cape Province. It falls within the jurisdiction of the Tsantsabane Local Municipality. Rain fall within the province is highly variable, both in space and time. The natural vegetation consists of open grasslands and scrubs. The area is mainly used for agricultural purposes. The Postmansburg town it is located on the south of the proposed area. And the Regional road (R386) passes through on the application area.

**Project motivation:** Mining sector contributes significantly to the economy of South Africa. It is one of the major employers. Mineral exploration/prospecting is required in order to sustain and also to increase the contribution of mining of the economy. This is because the prospecting activities are necessary to identify new resources. Mineral exploration/prospecting enable mining/exploration Companies to have a better understanding of the mineral deposit/occurrence.





Decisions to open a mine are based on exploration/prospecting results. Opening of a mine brings (to rural areas in particular) benefits such as job creation, infrastructure development, training and bursaries amongst others. If the project is not implemented, the opportunity of improving the lives of the affected communities would have been lost.

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

The environmental features on the site which may require protection, remediation, management or avoidance include the following:

- Drainage lines
- Protected flora and fauna species (if identified); and
- Heritage/cultural resources

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

See Appendix

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,

We confirm that consultation was done with affected and/or interested parties and they also participated in the description of the environment. However, we are still waiting for written comments from some affected and interested parties (See attached confirmations of consultations and responses received).

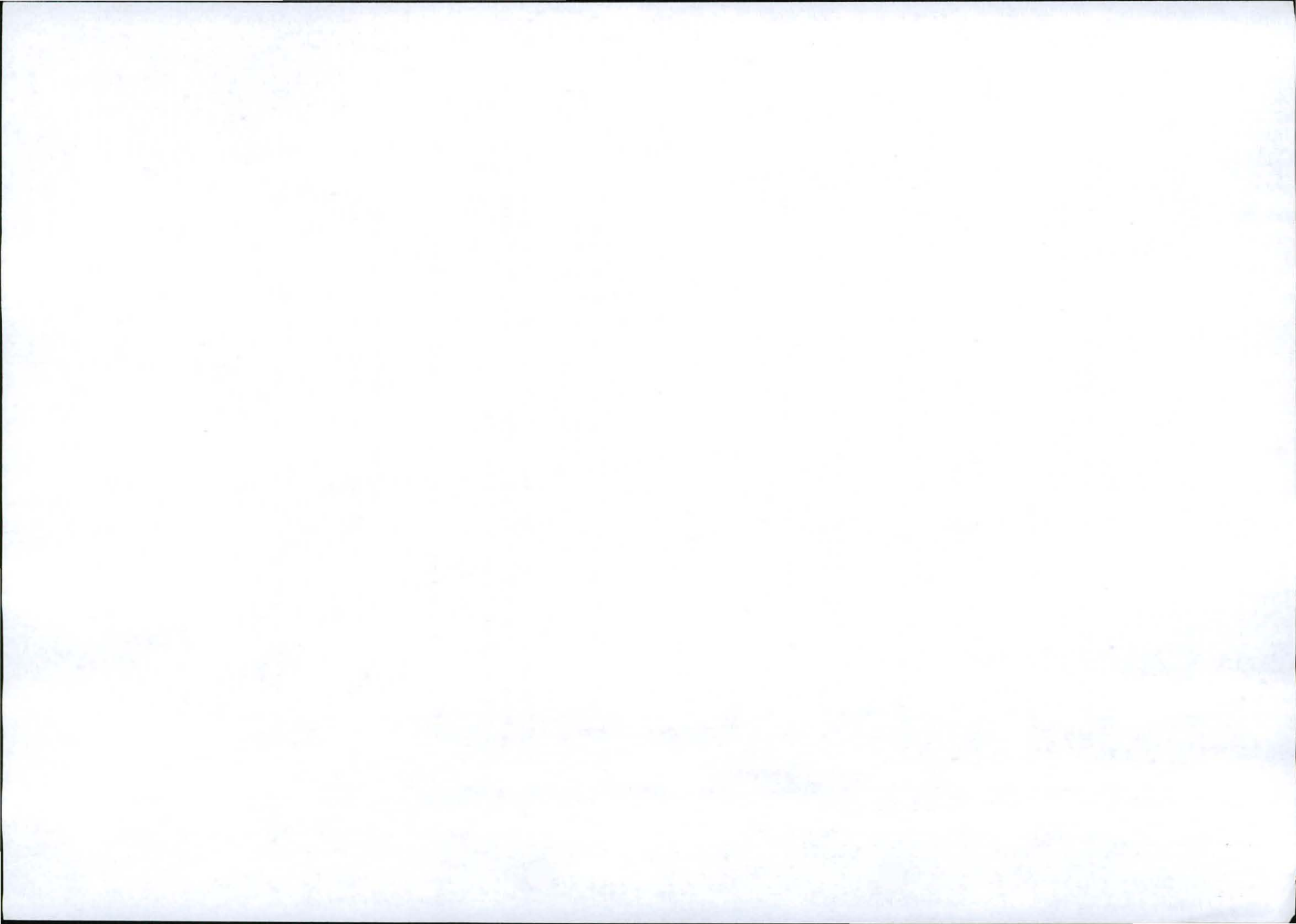
## **2 REGULATION 52 (2) (b): Assessment of the potential impacts of the proposed prospecting or mining operation on the environment, socio-economic conditions and cultural heritage.**

### **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 project will use existing access roads as far as practicable. If there is a need to establish access roads, they will be constructed in such a way that minimum number of bushes/trees is felled and existing structures such as fence lines shall be followed as far as possible. If required, topsoil will be removed and protected. Topsoil removed will be used during rehabilitation process. If there is a need to erect gate in fence lines the applicant will consult and reach agreement with the landowner/s and other affected parties before erecting a





gate. The opening and closing status of gates shall be clarified with the landowner and other affected parties. The applicant will also negotiate with the landowner/s to use existing toilet facilities and if this is not possible chemical toilet facilities will be provided.

### **PROSPECTING WORK PROGRAMME**

#### **Description of land being applied for:**

Farm name: Pensfontein  
Farm number: 449  
Magisterial district: Postmansburg  
Subdivision number: Whole farm  
Area covered: 11784 hectares

#### **Minerals applied for include:**

- (i) Iron and
- (ii) Manganese ores

#### **Prospecting Work Programme**

The prospecting work programme will be divided into 2 phases, invasive and non-invasive prospecting:

##### **Non-invasive prospecting activities**

The following non-invasive activities are planned for the proposed prospecting program:

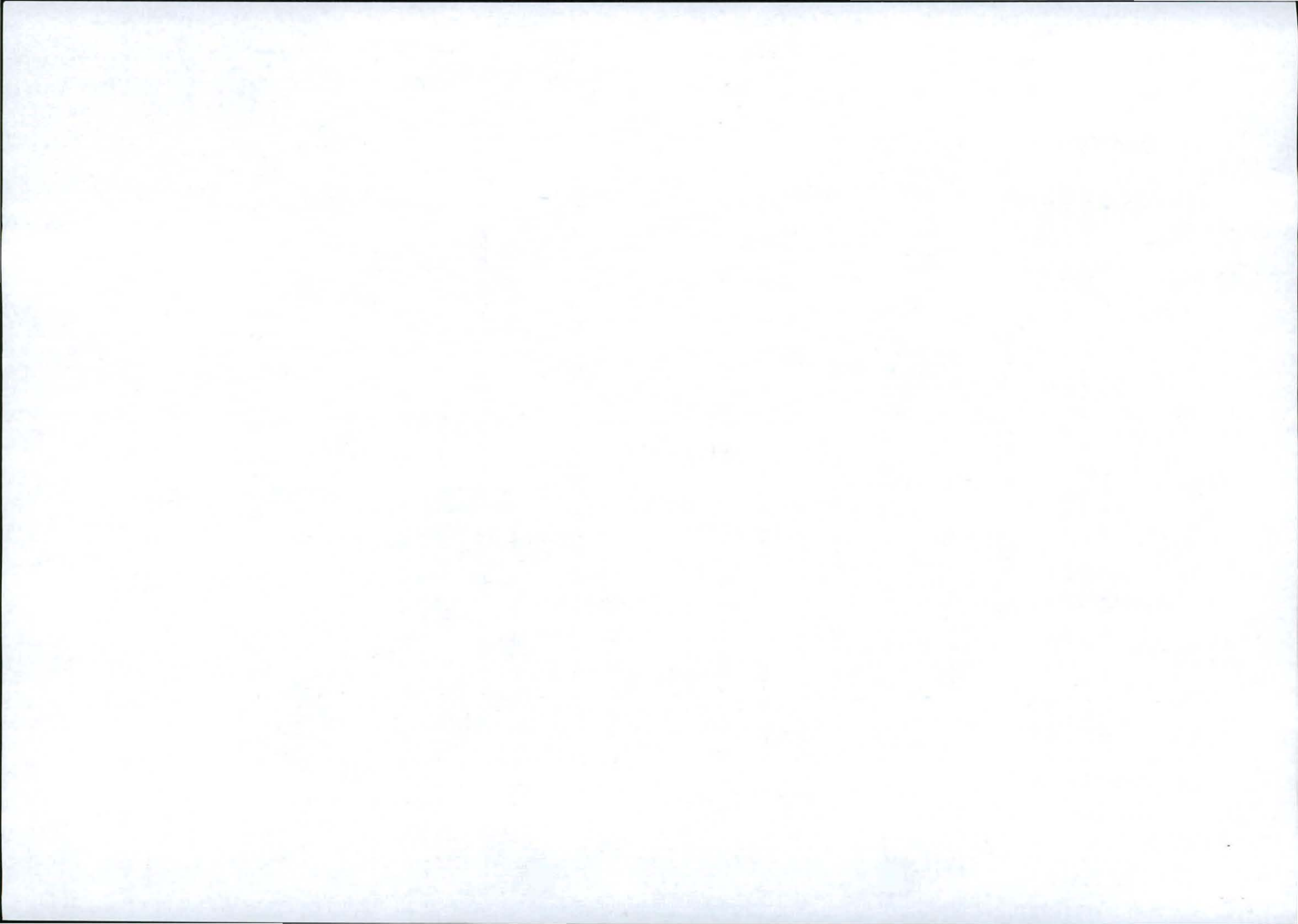
- Data collection, geological interpretation and projection
- Geological mapping and surface sampling
- review of all published and unpublished literature

##### **Invasive prospecting activities**

###### **(i) Trenching**

Four trenches will be dug in a hundred meters spacing distances and it will be in the rectangular shape

###### **(ii) Drilling**



The principal prospecting activity will be diamond core drilling. One drill rig will be utilized to drill 60 mm diameter of core size. This core size provides sufficient sample mass for laboratory analysis. A minimum of 5 samples of Iron ore and Manganese intersection will be taken, although it may be necessary to take additional samples in transitional zones. A total of 17 boreholes will be drilled. The approximate depth of each borehole will be 370 m. A total of 12 boreholes (approximately 4 440 m) will be drilled to cover the potential Iron Ore bearing area. Additional 5 boreholes will be drilled in phase two of drilling with the estimated depth of 1850 meters.

A description of the prospecting method or methods generally employed during mineral prospecting

#### 1. Geophysical Exploration Techniques

Geophysical prospecting and exploration is the geophysics applied to the location of mineral deposits or geological structures concealed beneath the surface of the earth. In general, a hidden orebody or geological structure associated with it must possess one (or more) physical property that is different from surroundings in order to cause a measurable effect or anomaly in a geophysical survey. The main physical properties exploited during geophysical prospecting are:

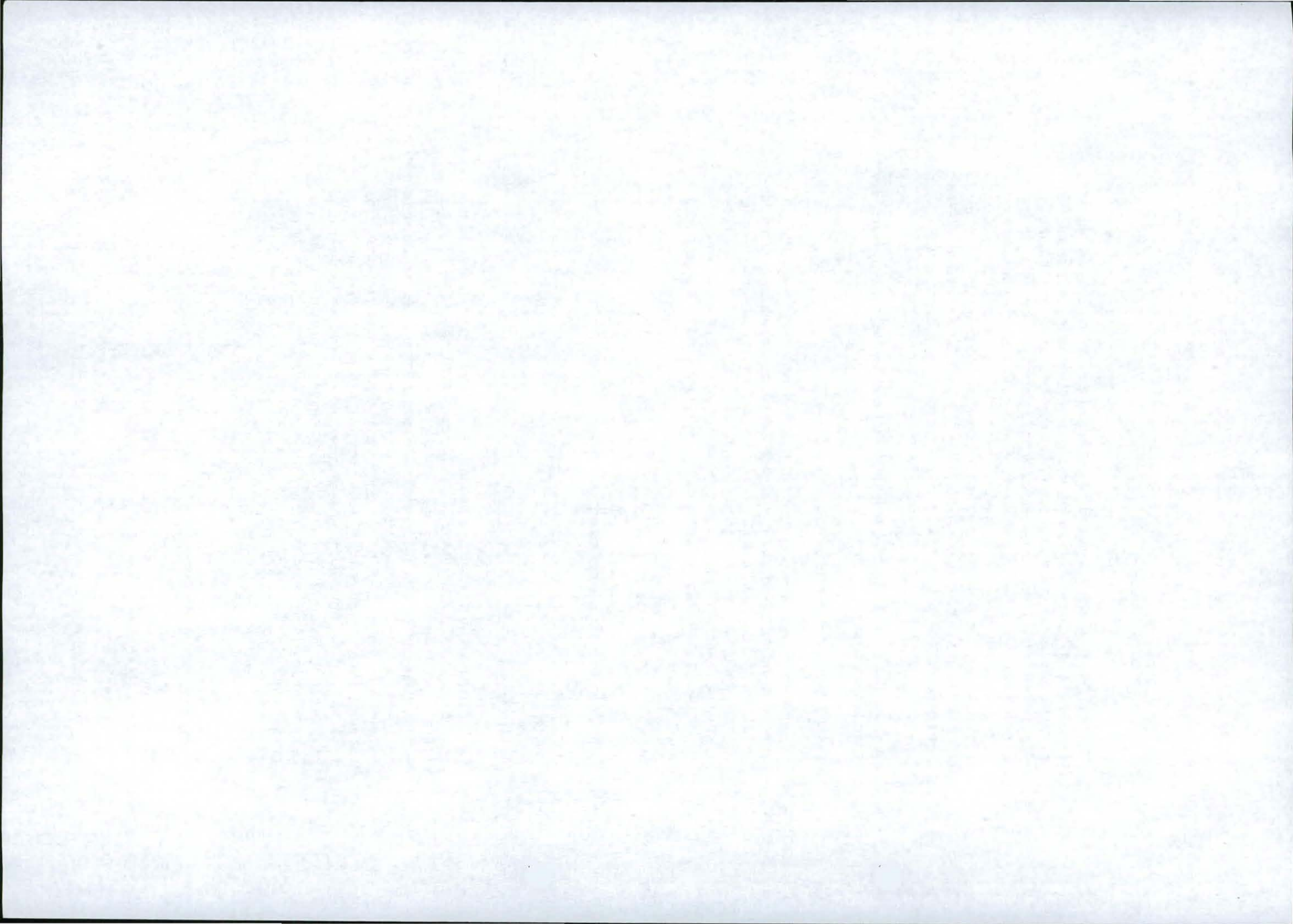
- Electrical Properties
- Magnetic Properties
- Nuclear Properties
- Gravity Properties

The main instrument types used for geophysical exploration are discussed below:

##### a) Magnetic Methods

Certain types of ore, especially magnetite, ilmenite and pyrrhotite bearing sulphide deposits, produce distortions in the earth's magnetic field. Some iron-rich manganese and chromium ore may also yield magnetic anomalies. The ferro-magnetic minerals have two distinct magnetic properties. One is that the earth's magnetic field effectively turns the orebody into a large magnet, which in turn wraps the normal field, thus producing anomaly. The other is that the ferro-magnetic materials often have a residual magnetism due to their original formation and this residual magnetism may act at an angle to the earth's magnetic field, thus strengthening or weakening the original field and thus forming anomalies. A magnetic survey may be established from the air or at ground level.

##### b) Electro-Magnetic Methods





When a transmitted electro-magnetic field is propagated through the ground it induces an electrical current in any conductor in its path. These secondary currents in turn produce their own alternating secondary electro-magnetic field, which opposes the primary field. The lower the resistance of the conductor, then the stronger the opposing current will be. Thus, if the induced field is passed through a good conductor such as an orebody containing graphite, pyrrhotite, pyrite, chalcopyrite or magnetite, a strong secondary field is set up.

#### c) Electrical Methods

Three forms of electrical geophysical prospecting methods are used self-potential, resistivity and induced polarization.

The self-potential method is useful as an indicator of near surface anomalies because it is cheap and simple to operate. If two non-polarizable electrodes are driven anywhere into the ground and connected to the terminals of a sensitive voltmeter, a small voltage is found to exist between terminals.

In the resistivity method, an electric current is sent into the ground and a pair of electrodes and a sensitive voltmeter measures the resulting distribution of potentials. When an electrical current is passed into the earth, its theoretical paths through homogenous ground are known.

#### d) Other Geophysical Techniques

Several other techniques are available for geophysical prospecting such as seismic and gravity techniques, which are suitable for structural mapping although they have some application to specific types of orebody.

Gravity techniques are based on small changes in the earth's surface gravitational effect caused by a pool of rocks lying up to several thousand meters below surface. It is used to locate faults, anticlines and other structures and may also be used to detect high density orebodies.

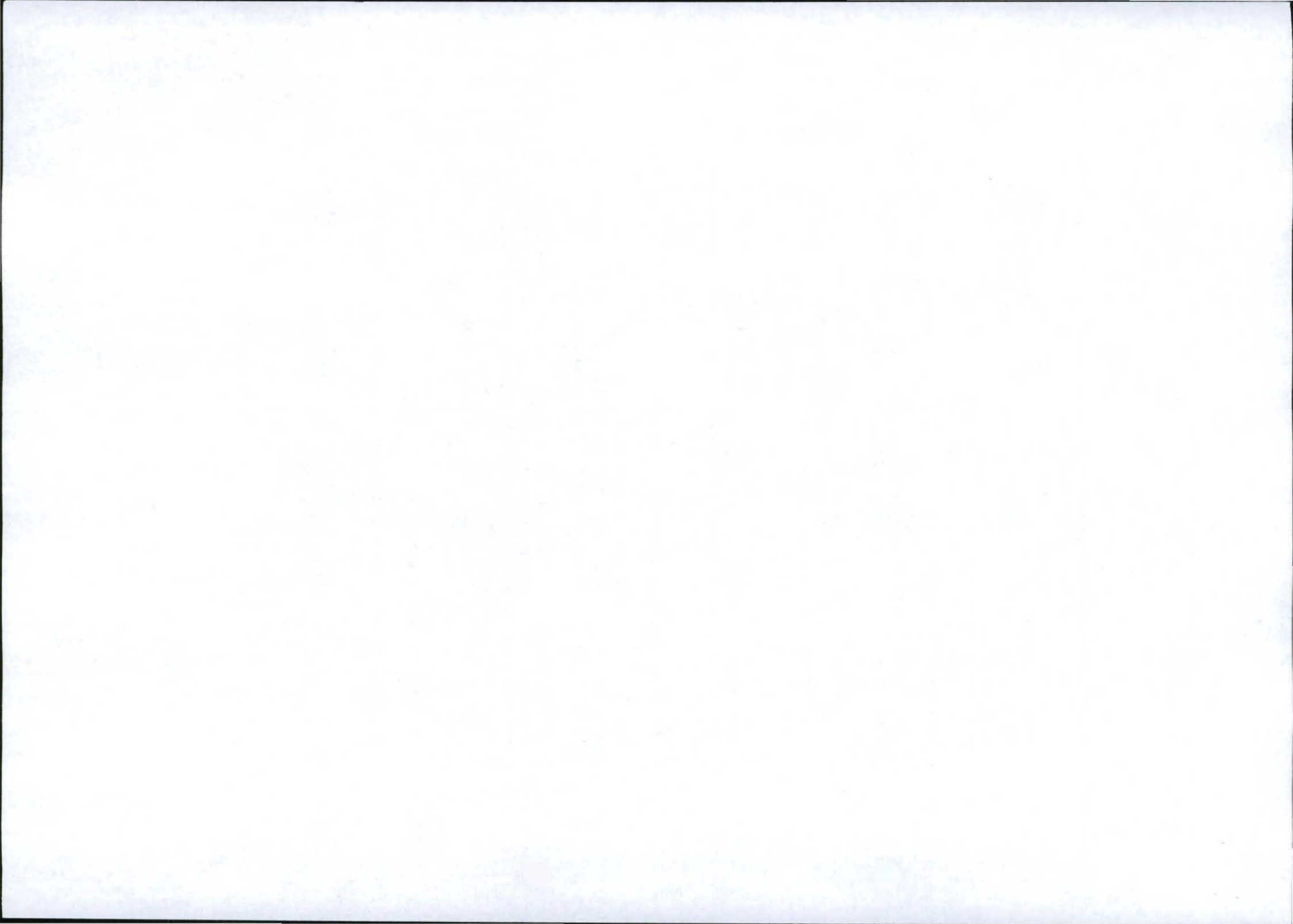
Seismic methods are based upon physical characteristics by which large differences occur in the velocity of sound waves in geological strata.

#### 1. Geochemical Techniques

It is used to determine values of elements that are higher than the normal background value. Samples that should be analyzed include:

- a) Rock samples from surface outcrops
- b) Soil samples from surface pits
- c) Stream sediments
- d) Stream water
- e) Leaves and roots of predominant vegetation.

#### 2. Exploration Drilling



After an anomaly or a presumed anomaly has been detected it is necessary to define its limits and to determine mineral content of any ore present. After determination of these factors, it is necessary to evaluate the ore in terms of its physical characteristics for:

- a) Mining operating parameters
- b) Geotechnical design, and
- c) Metallurgical extraction.

The type of drilling program required to evaluate the orebody is primarily dependent upon the depth of the orebody and the strength of the material to be drilled. Generally shallow orebodies are sampled using:

- a) Pitting/trenching
- b) Percussive drilling
- c) Conventional rotary drilling.

Deep orebodies are most commonly evaluated by diamond drilling techniques.

The essential part of exploratory drilling and pitting is that material broken out of the borehole must be recovered for analysis.

#### a) Percussive Drilling and Conventional Rotary Methods

Percussive drilling of the surface and down-the-hole type has been used with some success in several sampling solutions. Sampling of the drill cuttings is carried out at specific intervals. The primary advantages of this method are that drilling speeds are higher and costs much lower than diamond drilling. Disadvantages are limited depth capability compared to diamond drills and difficulty of obtaining good geological, metallurgical and geotechnical information from the sample.

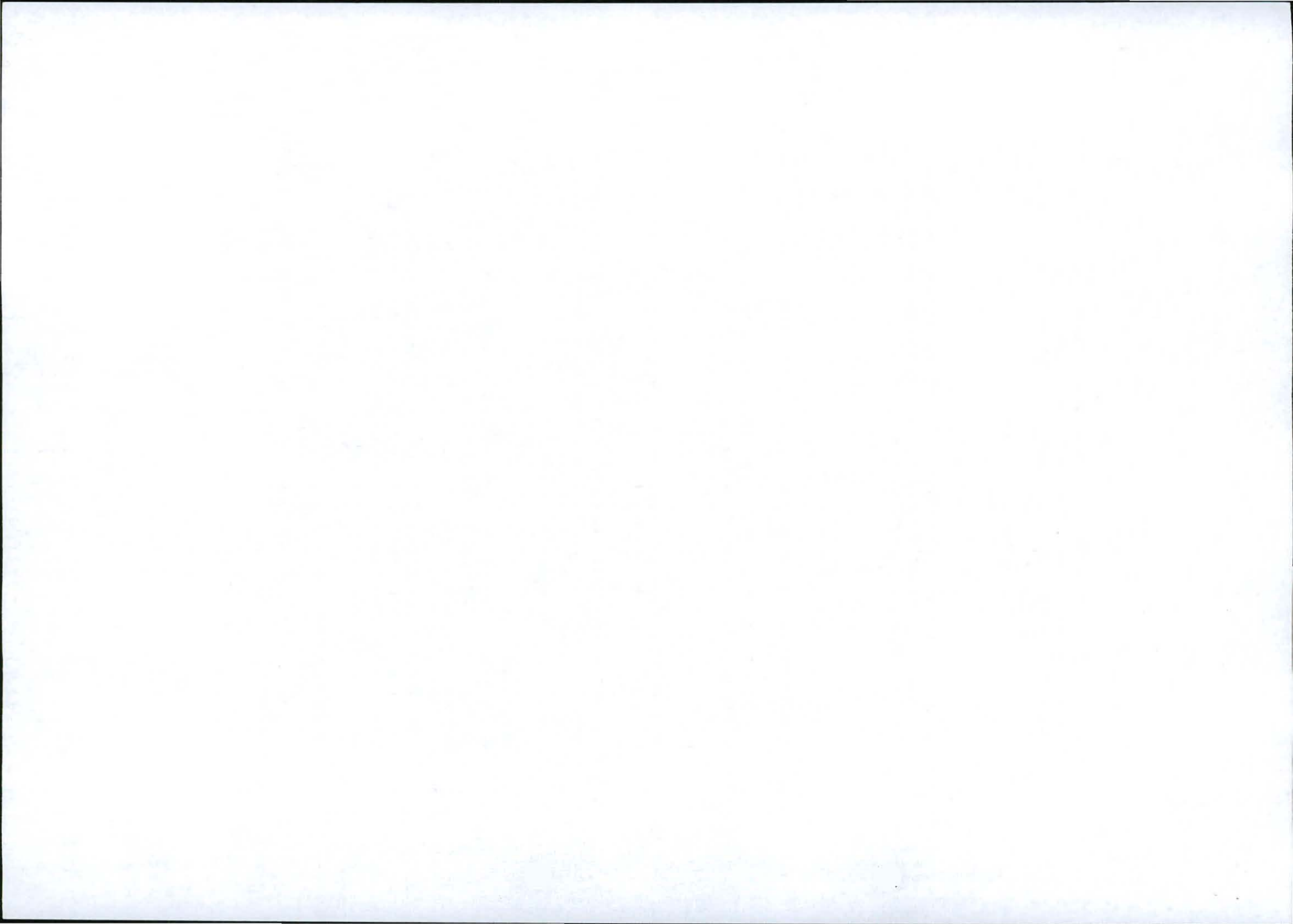
#### b) Diamond Drilling

Diamond drilling is the most common method of exploratory drilling and is frequently used for holes greater than 20 meters in depth. Large sample is required for geological and a geotechnical purpose, the diameter of the core is kept small to minimize drilling costs. The core is removed in the core barrel and carefully laid in the special box. The beginning and the end of the core is carefully marked with the depth of the hole. The core is then cleaned and logged. If the core is mineralized it is normally split and one half is retained for geological purposes and then sent for assay.

### 3. Hole Depth and Spacing

In order to minimize the drilling requirements, an orebody is frequently drilled in three stages:

- a) Information drilling to verify qualitatively the information obtained from earlier stages of exploration. This would require 6-12 holes in the anomaly.





- b) Outline drilling to determine, in an approximate way, the main dimensions and characteristics of the deposit. This would require the drilling of holes 200 meters apart in extending pattern from the information holes until orebody is delineated.
- c) Sampling drilling to determine the qualitative and quantitative characteristics of the deposit with enough accuracy to allow reliable economic appraisals. The drilling would be 100–150 meters regular grid depending upon the grade and variability of the orebody determined from earlier drilling stages.

#### 4. Exploration Drilling

##### Diamond Drilling Method

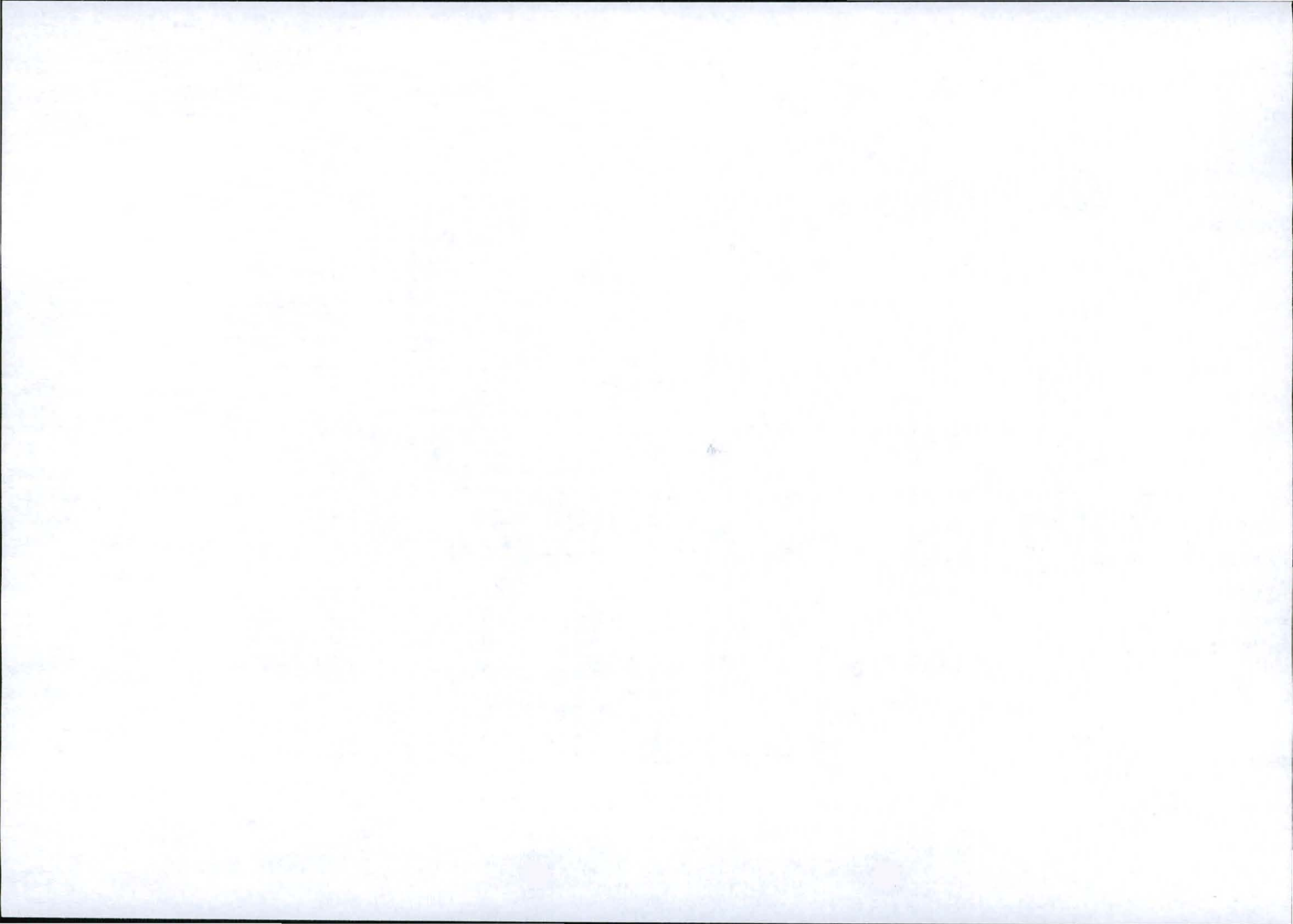
Before any diamond drilling work commences, Mile Investments Pty Ltd will consult with the registered surface rights owners and notify them of the company's intentions to prospect within their land/area. The geologists together with the drilling contractors will compile an HSEC (Health, safety, environment and community) risk assessment, sign it and attend the HSEC induction.

Drilling will be done during the day and no drilling will take place at night due to health and safety issues and will be carried out in 2 phases:

Phase 1 drilling (6- 12 months) is done to determine the nature and abundance of the minerals in the target area, a total of 12 boreholes will be drilled. Phase 2 (8 months- few years), more boreholes will be drilled to determine the size, continuity, competency, grade and metallurgy of the deposit and if it can be extracted at a profit.

Diamond drilling method is used mainly in mineral exploration for boreholes with a depth of more than 20 meters. An HQ bit size (96 mm) will be used for boreholes with estimated depths of less than 100m and for the geotechnical purposes, BQ bit size (60 mm) will be used for boreholes with estimated depths of greater than 100m. A double-tube wire-line system will be used for extracting the core. When the core is removed from the core barrel, it will be washed, broken into smaller pieces to fit into the core trays and meter markings will be done to show the top and end of borehole. The core will be transported to the core shed to be logged and sampled (mineralized sections) for assaying by geologists. The mineralized core will be split into two halves, the other half will remain in the core trays for future sampling if required and the sampled half will be sent to the laboratory for analysis, the results will be used in ore body modelling, evaluation and resource estimation.





Cost breakdown of activities to be carried out throughout the prospecting programme

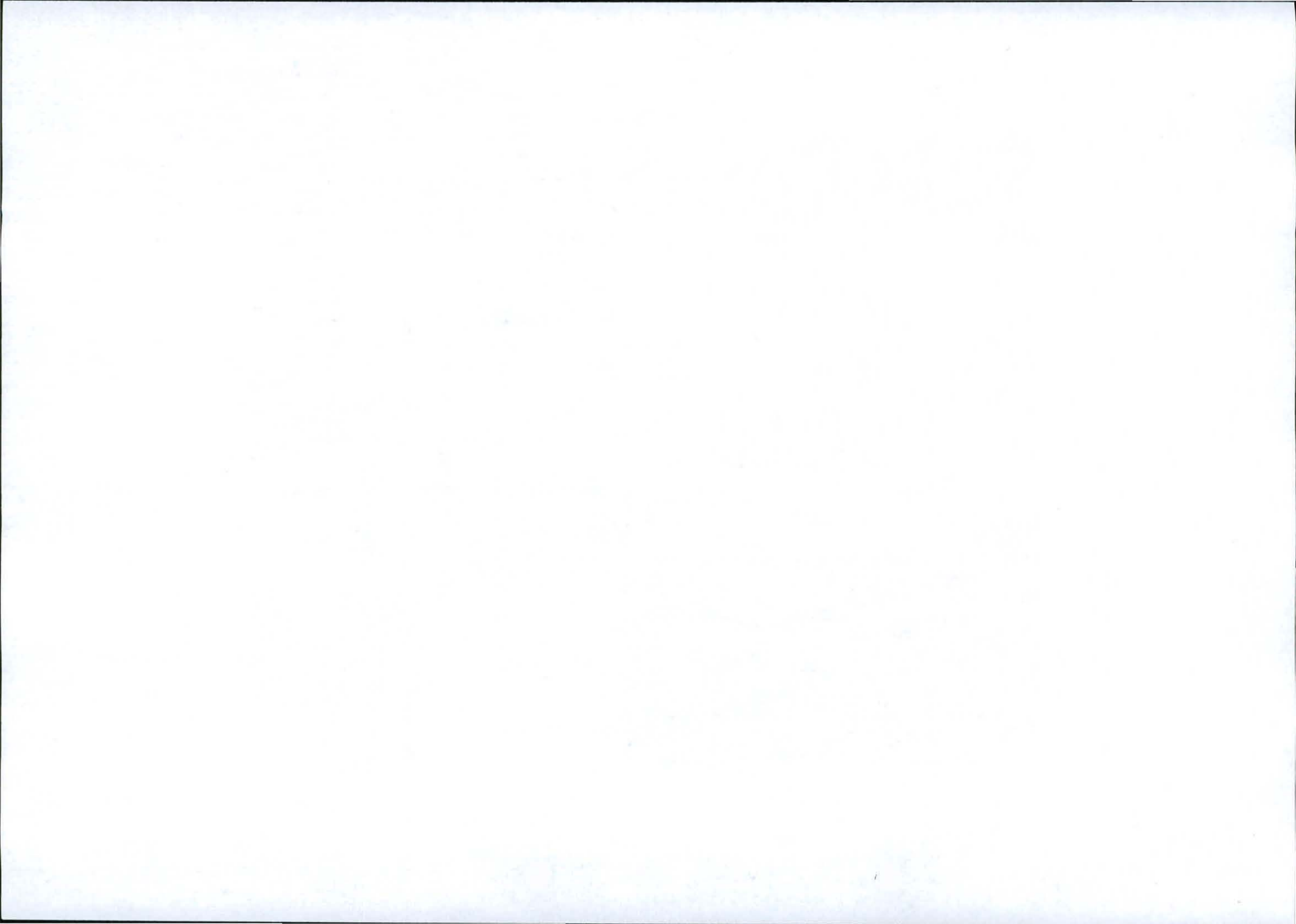
ACTIVITY	YEAR 1 Expenditure (R')	YEAR 2 Expenditure (R')	YEAR 3 Expenditure (R')	YEAR 4 Expenditure (R')	YEAR 5 Expenditure (R')
<b>PHASE 1 (e.g. 12 months)</b>					
Geophysical Survey	R 60 000.00	R 0.00	R 0.00	R 0.00	R 0.00
Literature Survey	R 40 000.00	R 0.00	R 0.00	R 0.00	R 0.00
Sampling	R 30 000.00	R 40 000	R 0.00	R 0.00	R 0.00
<b>PHASE 2 (e.g. 24 months)</b>					
Drilling	R 0.00	R 852 000.00	R 697 500.00	R 0.00	R 0.00
Trenching	R 50 000.00	R 29 000.00	R 0.00	R 0.00	R 0.00
Excavations	R 15 000.00	R 10 000.00	R 0.00	R 0.00	R 0.00
Sampling & Laboratory Analysis	R 0.00	R 0.00	R 40 000	R 0.00	R 0.00
<b>PHASE 3 (e.g. 12 months)</b>					
Legal and Community Costs	R 30 000.00	R 30 000.00	R 35 000.00	R 35 000.00	R 35 000.00
Environmental Management Costs	R 20 000.00	R 20 000.00	R 30 000.00	R 40 000.00	R 40 000.00
Analytical Desktop Studies	R 0.00	R 0.00	R 0.00	R 400 000.00	R 300 000.00
Rehabilitation	R 30 000.00	R 15 000.00	R 0.00	R 0.00	R 0.00
<b>Annual Total</b>	<b>R 275 000.00</b>	<b>R 946 000.00</b>	<b>R 802 500.00</b>	<b>R 475 000.00</b>	<b>R 340 000.00</b>
				<b>Total Budget</b>	<b>R 2 750 500.00</b>

The Total cost for the prospecting activities will be R2,750.500.00

### 2.1.2 Plan of the main activities with dimensions

The planned prospecting work is summarised in the Table below:

Type of prospecting activities planned	Dimensions
Trenches	A total of four trenches are planned. However, this might change as the number is controlled by anomalies identified from geophysical, geochemical and geological mapping. But in general will not be more than 2 m in depth and 1 m width.
Boreholes	A total of 6290 m of drilling is



	planned. An average depth is 370 m. Drill rigs producing core of NQ diameter will be utilised.
Access roads	Decision not yet made. Plan is to make use of existing access roads, however this is subject to approval by the landowner/s and other affected parties and if access roads have to be constructed they will be similar to existing roads in width (generally less than 4 m). Length will be determined by condition of existing access roads.
Ablution facilities	Chemical toilet facilities will be utilised if use of existing facilities is not possible (number of toilets will be controlled by the project phase and number of employees and contractors on-site).

### 2.1.3 Description of construction, operational, and decommissioning phases.

Categorisation of activity

Activity	Construction	Operational	Closure	Post closure
Mineral prospecting		x	x	x

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

Activity 1: Mineral prospecting (refer to 2.1 above)

Activity 2: Access

Activity 3: Topsoil removal

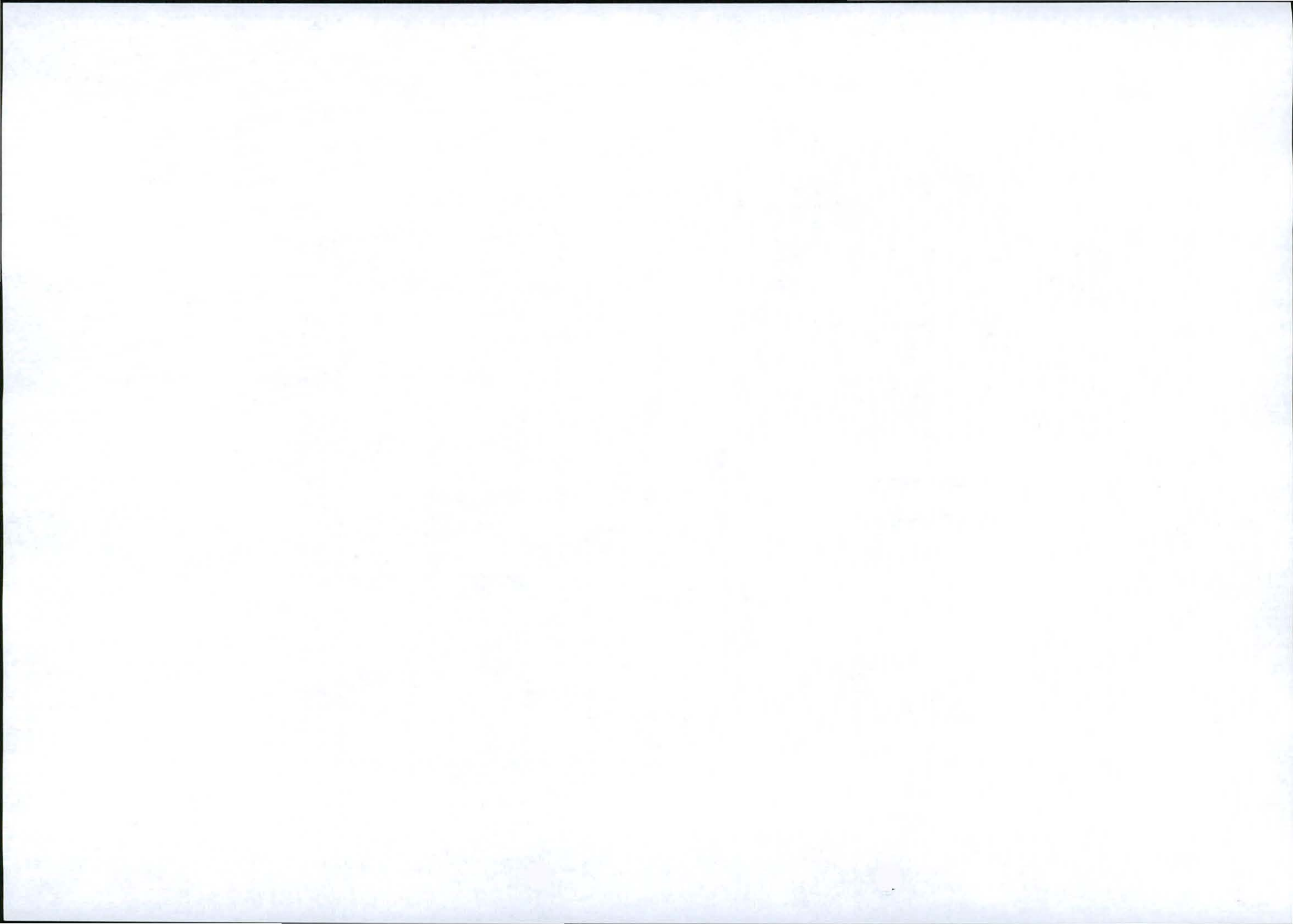
## 2.2 Identification of potential impacts

(Refer to the guideline)

### 2.2.1 Potential impacts per activity and listed activities.

Based on the studies conducted, no significant environmental impacts are expected from the proposed project. Impacts associated with all activities and phases of the project are discussed in the sections that follow and they include

- a. Surface disturbance
- b. Dust generation
- c. Noise generation
- d. Waste generation





### Geological mapping, geochemical (soil and/outcrop) sampling and geophysical surveys

First steps in mineral prospecting projects involve the evaluation of available geological information from all sources (i.e. Geological Surveys; published and unpublished papers and reports and maps; Universities and mining and/or exploration companies). This is mainly followed by geological mapping in order to understand the geology of the project area. It is common practice to collect rock and soil samples during mapping. These are taken for geochemical analyses and petrological/microscope studies. Geophysical surveys are also conducted to assist geological mapping. At the end of the above mentioned investigations, targets areas for further investigations are identified. These investigations have no or minor impacts on the environment.

### Trenching

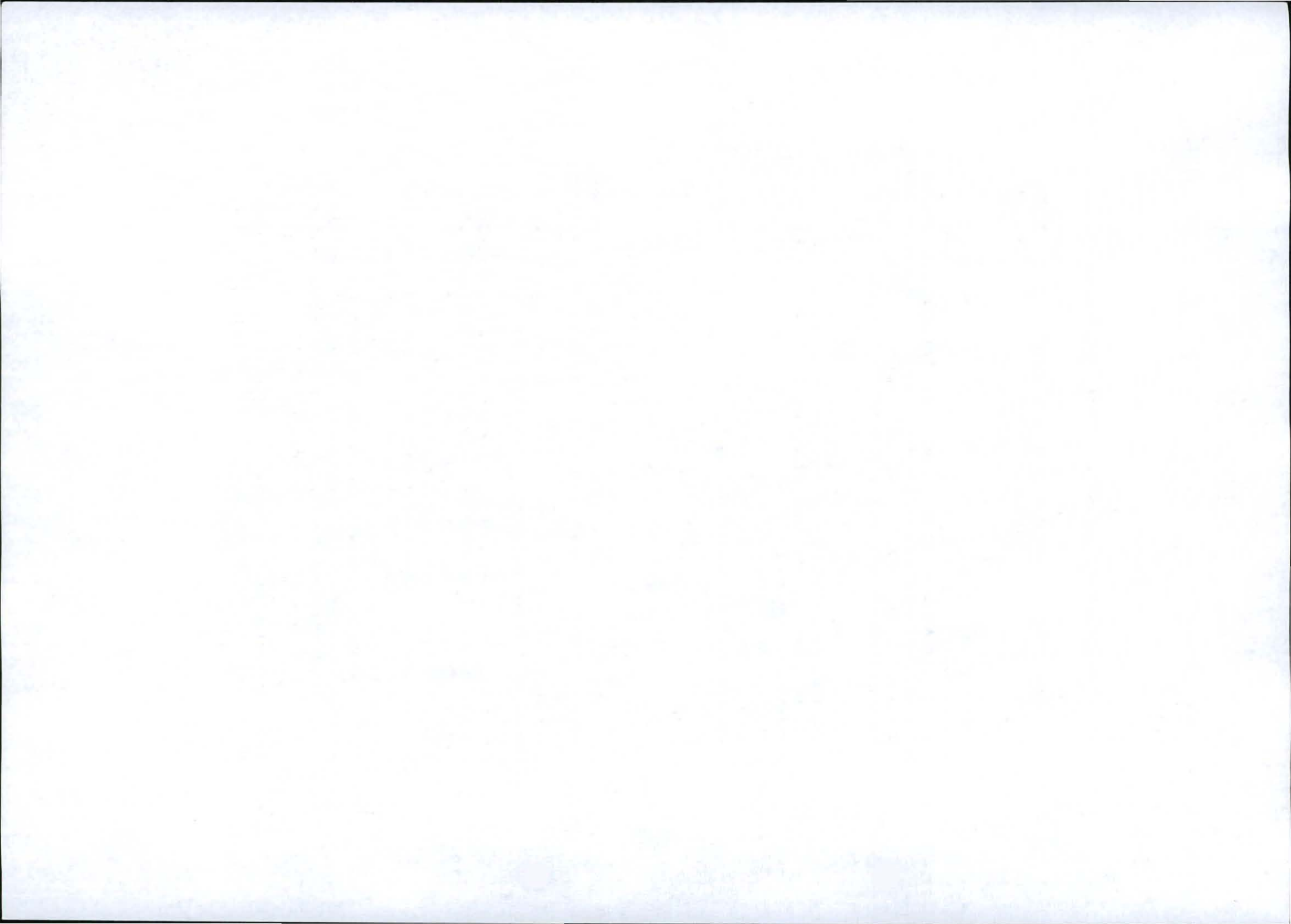
Once targets for detailed follow up have been identified, trenching will be conducted in order to test the continuity of the anomaly/mineralization. It should be noted that this is mainly applied in areas of poor outcrops. Impacts expected from this activity include surface disturbance, dust and noise generation. Trenching is temporary as such the potential impacts are expected to be temporary. Care will be taken to minimise the impacts.

### Core/diamond drilling

Removal and loss of vegetation: Removal of vegetation might be required to allow the entry of heavy vehicles mounted with drilling rigs into the project area/drilling sites. No significant impacts are expected on the biophysical environment. Clearing of vegetation for construction of access roads will be limited to areas where there are no existing roads, if there are existing roads the projects will use them and if required, the access roads will be upgraded using local materials. As part of the rehabilitation plan indigenous vegetation will be planted. Topsoil removed will be stored and used during rehabilitation.

Dust and noise will be generated. Dust emissions are expected as a result of movement of traffic at the project site; as such dust control measures will be implemented. Noise pollution may include noise from vehicle engines, etc. To reduce noise impacts, drilling activities will utilise machines producing less noise (i.e. noise level equivalent to that produced by agricultural tractor). Speed limits within the project area will also help in reducing the noise from on-site traffic. To reduce or avoid the impact of noise to people, employees who are at risk to noise exposure will be required to use personal hearing protection devices, known as noise clippers. Drilling will be done during the day-making the impact temporary and if required to drill at night arrangements and permission will be required from all those who will be affected.

Generation of domestic waste: Generation of domestic waste is expected during the project mainly during trenching drilling phases of the project. Dust bins will be provided for domestic waste and these will be emptied at approved disposal sites.





Soil pollution: soil pollution can occur as a result of accidental oil spills. Vehicles and equipment used during the project; mainly during trenching and drilling might cause soil pollution due to accidental spillages. If this occurs, contaminated soil will be cleaned up immediately and disposal done at approved site.

Impacts on air quality: Cars that transport employees, and heavy vehicles used mainly during drilling can be the source of air pollutants. The level of polluting emissions from these sources depends on the fuel and condition of the equipment.

Fire prevention measures will include prohibition on smoking in certain areas; positioning of heat sources to prevent contact with combustible material; control of contractors or employees using blowlamps; cutting or welding equipment. Maintenance programmes for electrical wiring and appliances; adequate cleaning of work areas and special engineering solutions such as to make it impossible for a fire to begin by controlling the presence of oxygen, fuel or energy. Implementation of practical and appropriate mitigation measures can help to minimised or avoided potential impacts identified.

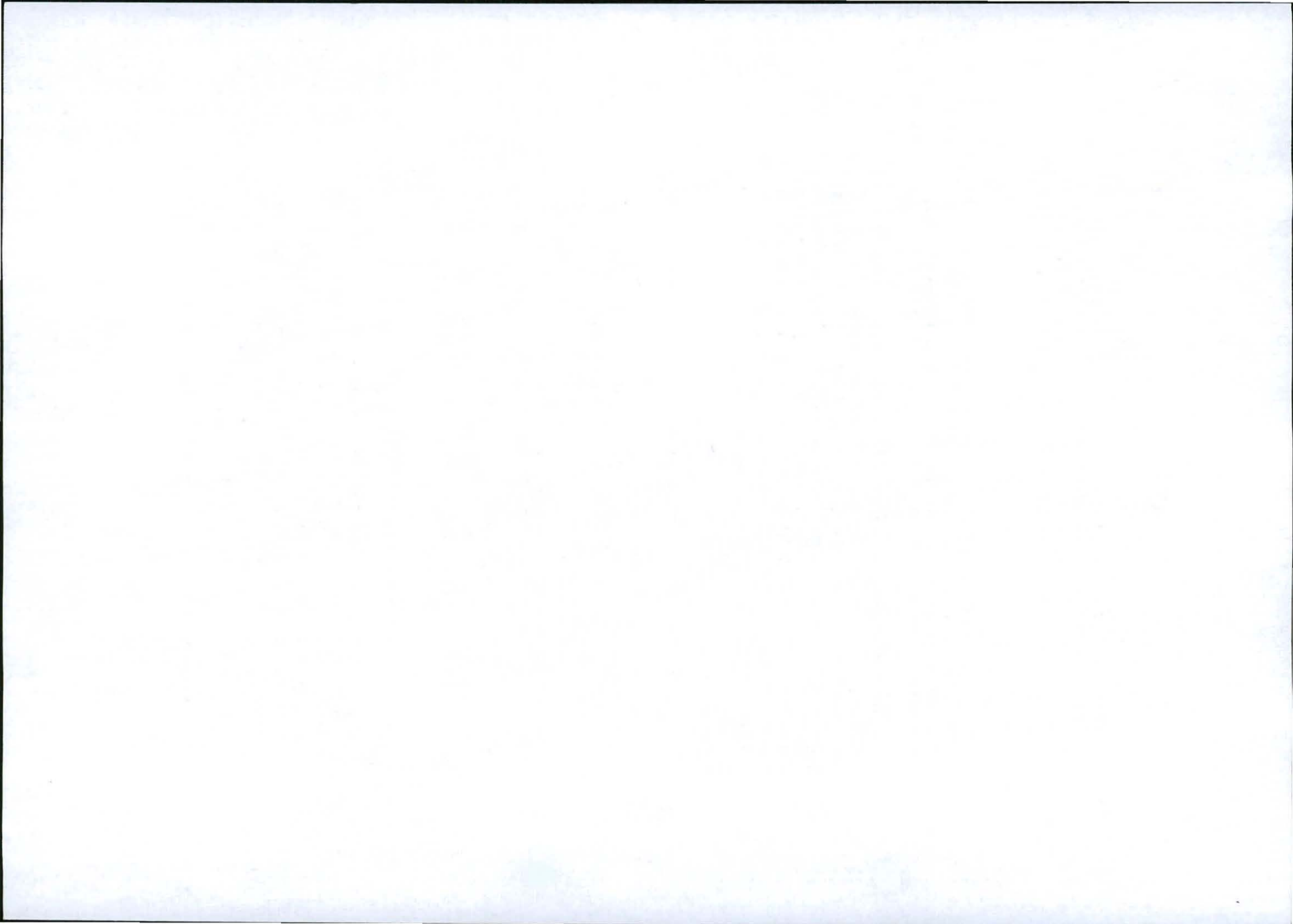
### **2.2.2 Potential cumulative impacts.**

Clearing of vegetation (in preparation of trenching and drilling activities) if not well managed can cause soil erosion. This can lead to recurring loss of habitat in areas that are disturbed and re-disturbed over an extended periods. Soil erosion will wash chemicals in soils (mainly from fertilisers) into nearby water bodies. This has the potential to cause water pollution and might also negatively affect the organisms in the affected water bodies. Contaminated sediments may also lower the pH of soils to the extent that vegetation and suitable habitat are lost.

The ongoing development of employment opportunities and enhancement of local labour skills base as successive projects come on stream.

### **2.2.3 Potential impact on heritage resources**

The heritage resources that have been identified in the proposed project area are the graves and burial grounds. These graveyards are associated with Villages in the project area. The Limpopo Heritage Resources Authority indicated that the proposed development may have serious impact on heritage resources as such they recommended that phase one heritage scoping investigation be conducted before any drilling, trenching or mining takes place. To avoid or minimise the impacts on the heritage resources all Mile Investments 384 (Pty) Ltd employees and other Contractors involved in the project will be briefed in their induction to report any sign of buildings, structures or evidence of cultural sites of any sort and to stop work until the site has been investigated by an accredited person.





#### **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.)

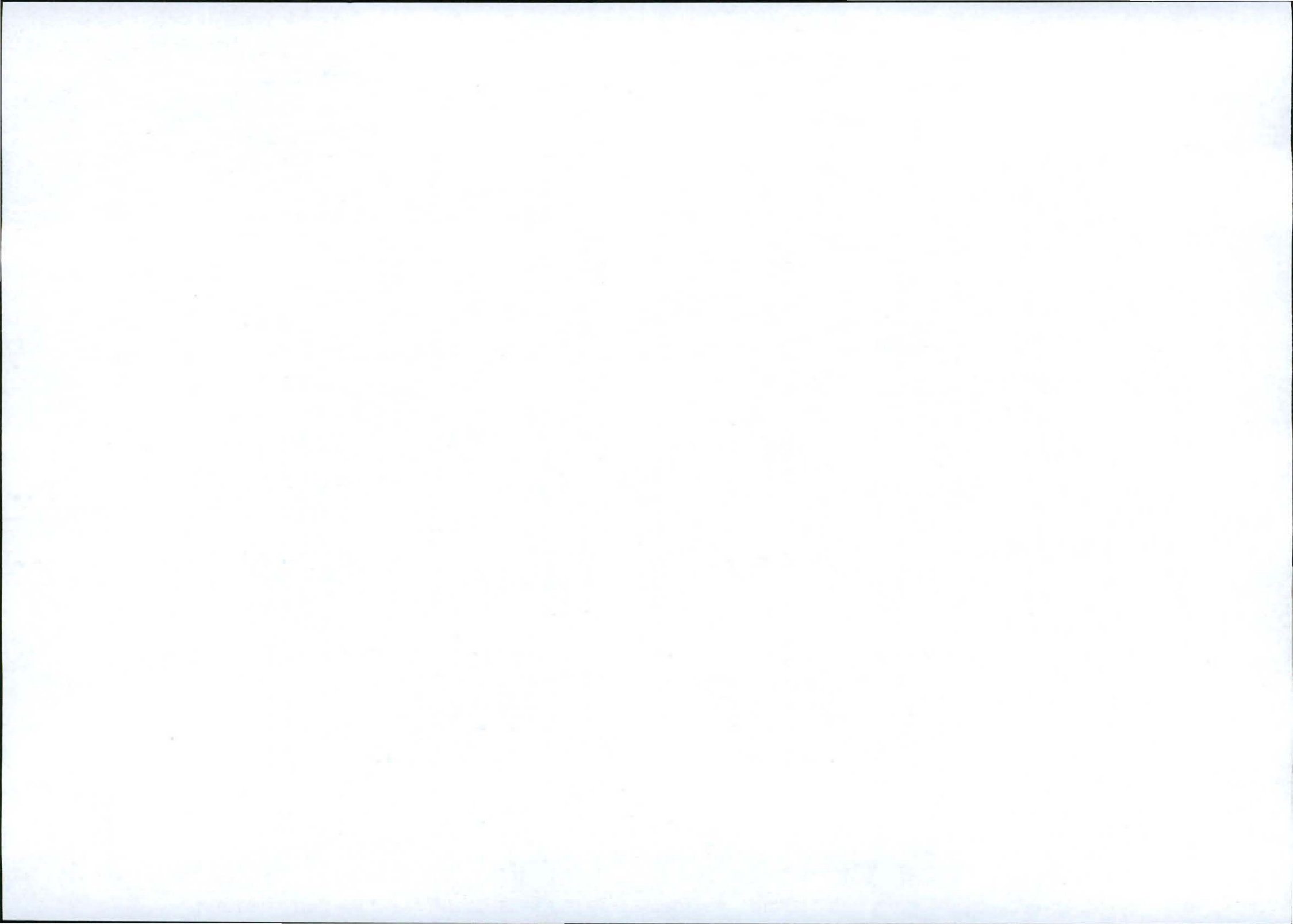
Impacts on Communities: This project may create jobs, roads, schools, and also increase the demands of goods and services in the affected area/s. The applicant intends to involve the communities affected by the project when making important decisions. This will avoid cases where the communities feel that they are being unfairly treated or inadequately compensated because this can lead to social tension and violent conflicts.

People from local communities will be given first preference when employment opportunities arise. If the required skills are not available in the affected areas, people from other areas might be appointed to work for the applicant during the implementation of the approved prospecting work programme. They will not work full time in the area. When they are in the area better accommodation will be arranged for them ensuring that their families can be able to visit them. Providing better accommodation for the employees will reduce cases where employees get involved in relationships (sexual) with local people mainly because they can not be able to accommodate their families in houses provided/arranged by the employer. And this will also help in reducing unwanted pregnancies and also reduce the spread of sexually transmitted diseases. The leaders in the community will be notified of their presence in the area.

The conditions of roads and other infrastructures in the area might also be improved if the project is implemented. This will be done after consultation with the communities and the local municipality concerned. Projects implemented by the community for the benefit of the entire community (i.e. Youth Training Programmes; ABET and Environmental awareness) might receive support from the project.

Impacts on individuals: The project has the potential to improve the living standard of people living in and around affected communities. This is because the proposed prospecting project has the potential to create jobs for the locals. Although the jobs created might be temporary, permanent jobs will be created once the project has proved to be viable and a decision to open a mine is made. These people will also be given opportunities to gain experience in the field of mineral exploration and this will enable them to get better jobs in the mining industry which in turn will help in reducing the poverty levels. Businesses offering accommodation and catering services will benefit from the proposed operation because people from outside the project area who will be involved in the project will require their services and as such increasing the income or profits of the said businesses.

Impacts on competing land uses: The area is mainly used for settlement and agricultural activities. There is no alternative land use/s that may be affected by the proposed mining operation.





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

We confirm that consultations were done with affected and/or interested parties and they also participated in the compilation of the list of potential impacts. However, we are still waiting for written comments from some affected and interested parties (See attached confirmations of consultations and responses received).

**2.2.6 Confirmation of specialist report appended.**  
(Refer to guideline)

No specialist report/s and report/s on specialised processes has been appended.

**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**

Impact assessment involves determining the significance of impacts and the potential for mitigation of negative impacts. There are numerous criteria which may be used to assign the significance of impacts. For the purpose of this investigation, only the most important and relevant criteria were used.

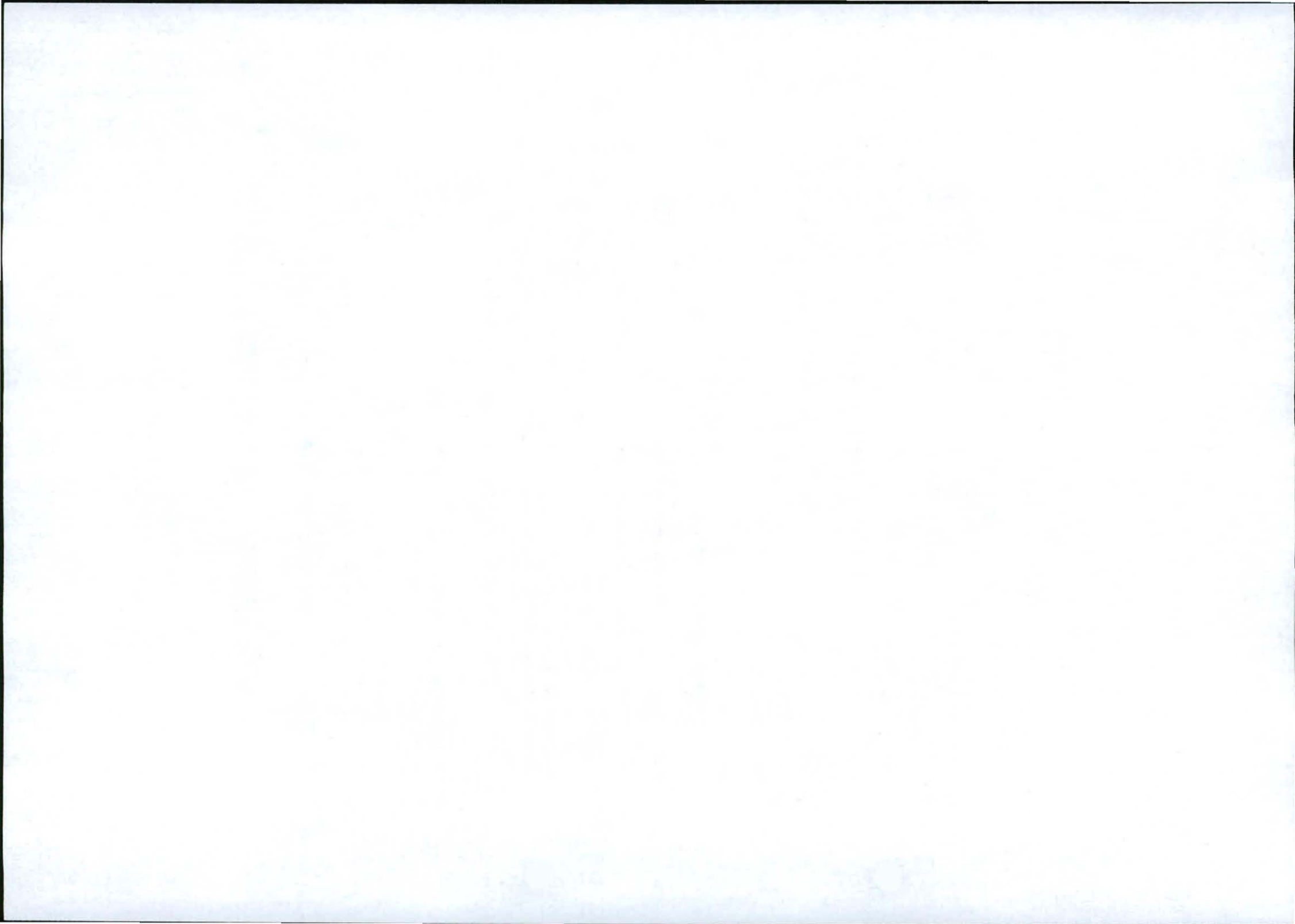
**3.1.1 Criteria of assigning significance to potential impacts**

The criteria for assigning significance to potential impacts took into consideration the following:

- a. probability
- b. Extent
- c. Duration and
- d. Potential for mitigation

Details of the impact assessment criteria used are provided in Table below:

Criteria	Categories
Probability	Almost certain
	Likely
	Possible



	Unlikely
	Rare
Extent	Large (> 3 stakeholders or many people)
	Medium (2-3 stakeholders or some people)
	Short (1 stakeholder or few people)
Duration	Short term (< 1 year)
	Medium term (1-3 years)
	Long term (> 3 years)
Potential for mitigation	High (strategy identified and possible)
	Medium (Strategy identified but difficult)
	Low (No strategy identified/possible)

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

Main activity					Significance	
					Without mitigation	
Geological; geochemical and geophysical mapping					Ins	
Trenching						
Pollution of in-situ soil due to spillage of hazardous substances such as fuel, oil and cement					L	
Noise impacts to people					VL	
Dust emission					L	
Surface disturbance					H	
Drilling						
Pollution of in-situ soil due to spillage of hazardous substances such as fuel, oil and cement					H	
Noise impacts to people					VH	
Dust emission					L	
Surface disturbance					M	
Transportation						
Dust generation					L	
Noise impact					L	
VH=Very High	H=High	M=Medium	L=Low	VL= Very Low	Ins= insignificant	n/a= not applicable

### 3.1.3 Assessment of potential cumulative impacts.

The objective of the cumulative impact assessment is to identify those environmental and/or socio economic aspects that may not on their own





constitute a significant impact but when combined with impacts from past, present or reasonably foreseeable future activities associated with this and/or other projects, result in a large and more significant impact/s. Examples of these kind of impacts are:

- i). The recurring loss of habitat in areas that are disturbed and re-disturbed over an extended periods and
- ii). The ongoing development of employment opportunities and enhancement of local labour skills base as successive projects come on stream.

#### Water quality

Surface water may be contaminated due to erosion that might result from excavation to be carried out during the project. Sedimentation may occur in the river water. Oil and grease spills may contaminate surface waters if they are not handled properly. The level of cumulative impact is rated as low because the extent of the impact is low and the severity is moderate.

#### Employment opportunities

Apart from the negative impacts resulting from mineral prospecting projects, there are also positive impacts such as employment opportunities for local people. General workers appointed will be from local communities. In addition to positive impacts on the livelihoods and standards of living people, this increase in the employment rates will contribute indirectly to development of the local economy. If the project continues to a mining stage, the improvement in the local economy and development will be valid in a wider geographic area.

### **3.2 Proposed mitigation measures to minimise adverse impacts.**

Prospecting activities will be monitored on a continuous basis. Potential impacts will be identified timeously, and corrective measures put in place, with environmental management plan amended to reflect such additional measures.

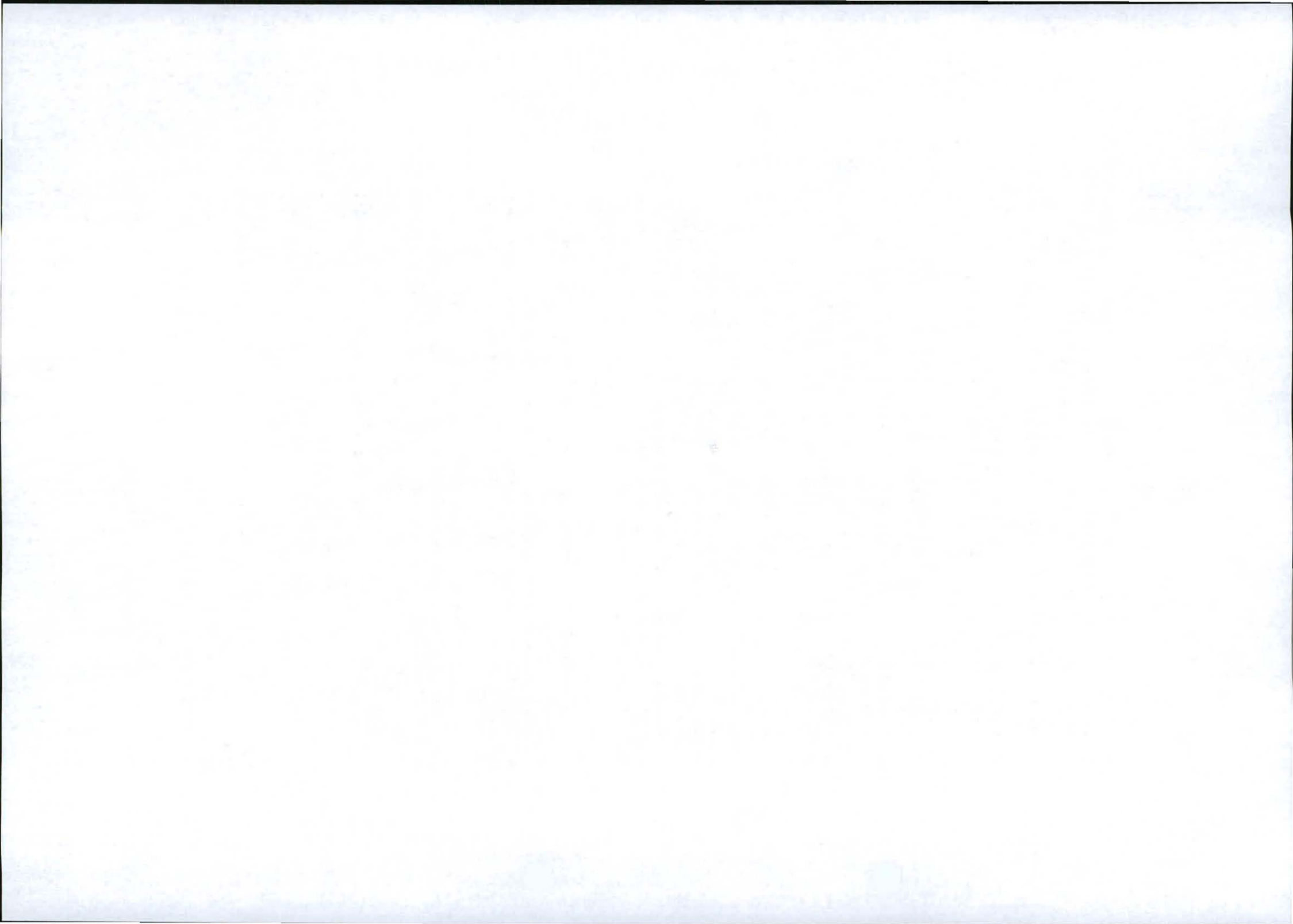
#### **3.2.1 List of actions, activities, or processes that have sufficiently significant impacts to require mitigation.**

Trenching and drilling activities have potential to cause significant impact to the environment as such mitigation measures are required.

#### **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)

Trenching causes primary surface impact by removal of vegetation and soil cover to expose bedrock. Trenching activities substantially impact the ground surface. These activities are likely to impact buried archaeological sites and paleontological sites. Their impacts increase proportionally to the area or extent



of the ground disturbed. The following be done to control or minimise the impact of trenching to the environment:

- a). Construct trenches across slopes where reasonable to minimise the potential for erosion and ensure that the ends of the trench are slopped so that animals can escape
- b). Trenches must be refilled with previously stockpiled material, once prospecting is complete, to ensure the safety of humans and wildlife
- c). Trenching will not be done in areas of high heritage potential
- d). The project will also use backhoe equipment for trenching where possible to minimise ground disturbance; and
- e). Trenching will also be limited to areas of poor outcrop.

Drilling results in only minor localised ground impact and is generally not of concern for impacts to heritage resources. The following be done to control or minimise the impact of drilling to the environment:

- a). Areas cleared and levelled for drill platforms will be minimised as much as possible
- b). For the purpose of drilling, drill pads would be constructed by removing vegetation (where necessary) and levelling the ground surface. Soil stripped in the process would be stockpiled as a berm for sediment control and would be available for redistribution during rehabilitation process
- c). Sumps would be excavated and the resulting material and growth media would be stockpiled on site for use in backfilling and rehabilitation

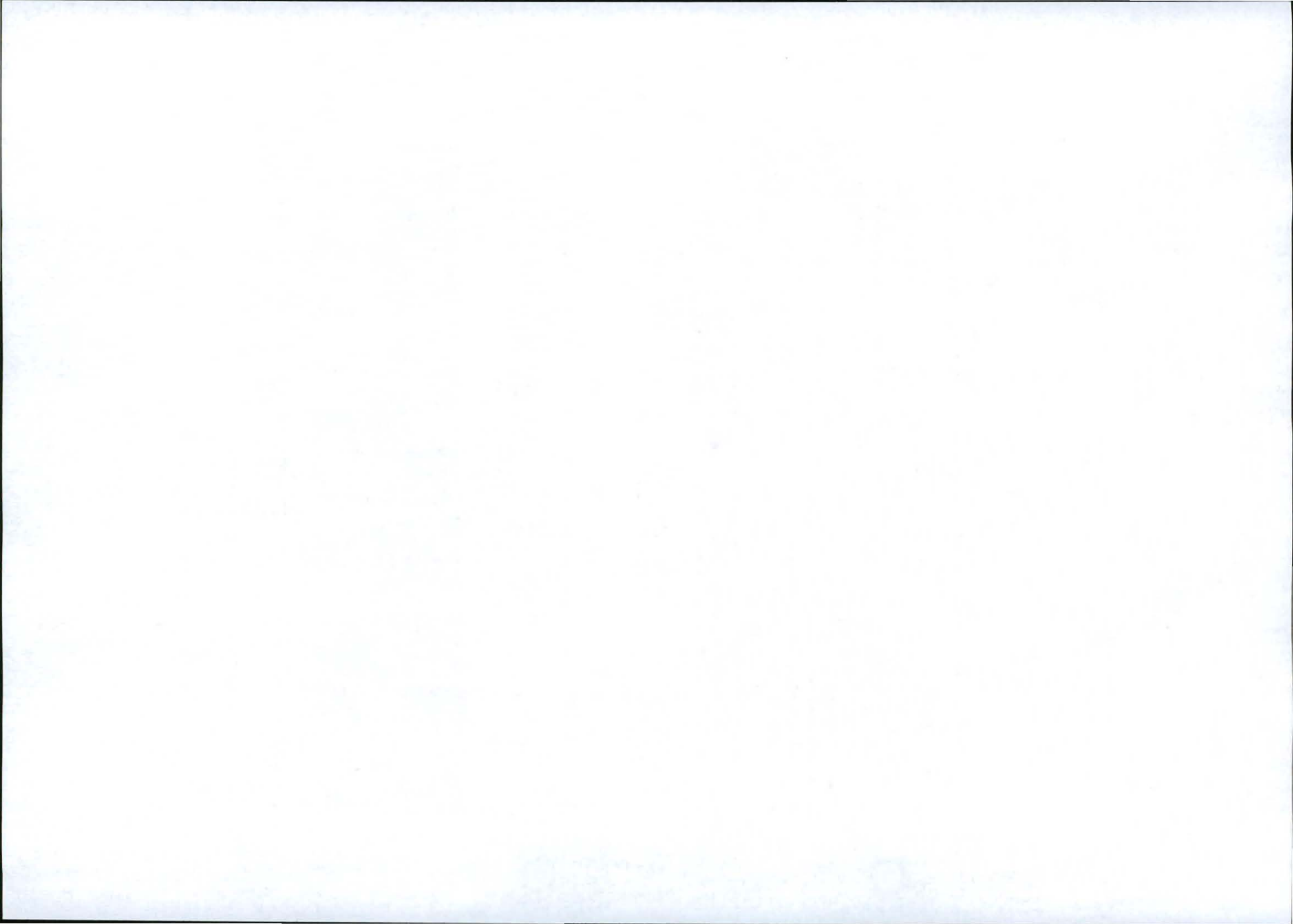
On completion of excavation and filling, the topsoil will be spread over the excavated area to encourage revegetation. If there is a need stockpiles will be protected by temporarily seeding, no more than 30 days after the formation of the stockpile.

See appendix for other details

### 3.2.3 Review the significance of the identified impacts

(After bringing the proposed mitigation measures into consideration).

Main activity	Significance	
	Without mitigation	With mitigation
Geological; geochemical and geophysical mapping	Ins	Ins
Trenching		
Pollution of in-situ soil due to spillage of hazardous substances such as fuel, oil and cement	L	VL
Noise impacts to people	VL	Ins
Dust emission	L	VL
Surface disturbance	H	VL
Drilling		





Pollution of in-situ soil due to spillage of hazardous substances such as fuel, oil and cement				H	VL	
Noise impacts to people				VH	VL	
Dust emission				L	VL-Ins	
Surface disturbance				M	VL	
Transportation						
Dust generation				L	VL-Ins	
Noise impact				L	VL-Ins	
VH=Very High	H=High	M=Medium	L=Low	VL= Very Low	Ins= insignificant	n/a= not applicable

#### 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 Appendix

##### 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).

Closure objective is to ensure return of prospecting area to pre-prospecting condition or as close as possible to pre-prospecting. Prospecting activities will cause minor or no impacts on the current land use as such post-mining land use for the project area would remain consistent with pre-prospecting land use. The affected areas will be rehabilitated as soon as possible. If vegetation was cleared, revegetated will be done to control erosion and restore the site's natural condition. Trenches shall be backfilled immediately if no mineralization has been located. If necessary the area will be fertilised to allow rapid establishment of vegetation. The characteristics of the planted vegetation should resemble that of the natural environment. Infrastructure build specifically for the project will be dismantled unless they are necessary to achieve and maintain the satisfactory condition or to support the area's socioeconomic development. Any waste material including scrap, rubble and tyres will be removed entirely from the prospecting area and disposed of at a recognised landfill facility.

##### 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).





**Table 4.1: Financial provision for environmental rehabilitation**

Item	Cost (in Rands)
1. Transportation/establishment of all equipment	6000
2. Cost of decommission and associated infrastructure	10000
3. Labour cost	16000
4. Cost of profiling disturbed areas	4000
5. Cost of replacing top soil*	0
6. Cost of revegetation	3000
7. Aftercare and maintenance	6000
<b>Total</b>	<b>45000</b>

N.B. \* Top soil from trenching and sampling sites will be stacked to one side, used for cover and rehabilitation.

#### **4.4 Undertaking to provide financial provision**

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

**MILE INVESTMENTS 384 (PTY) LTD** hereby declares that it will provide the finances necessary for the rehabilitation of damage caused by the prospecting operations should be prospecting right be granted.

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

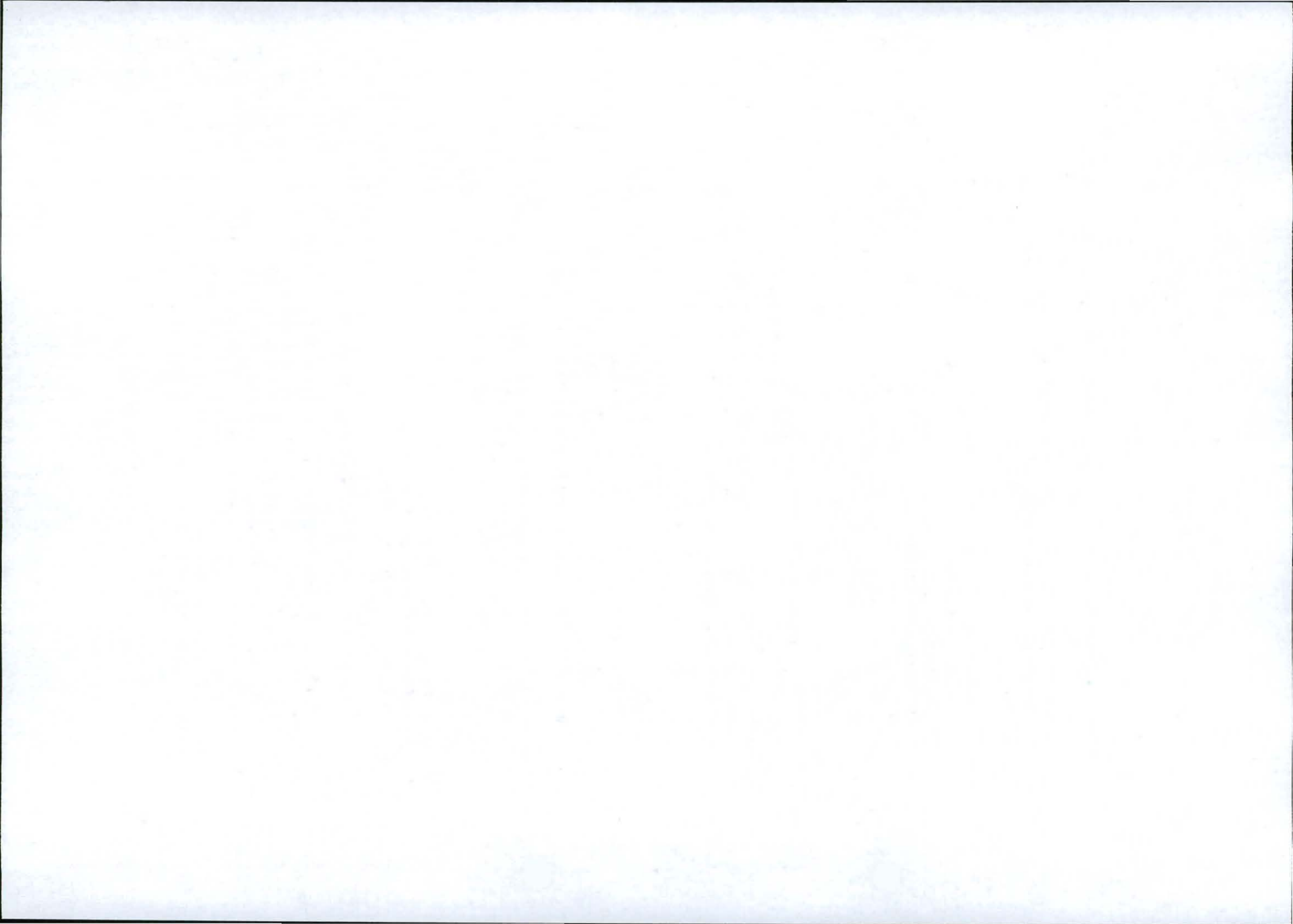
#### **5.1 List of identified impacts requiring monitoring programmes.**

Impacts required monitoring programmes include the following:

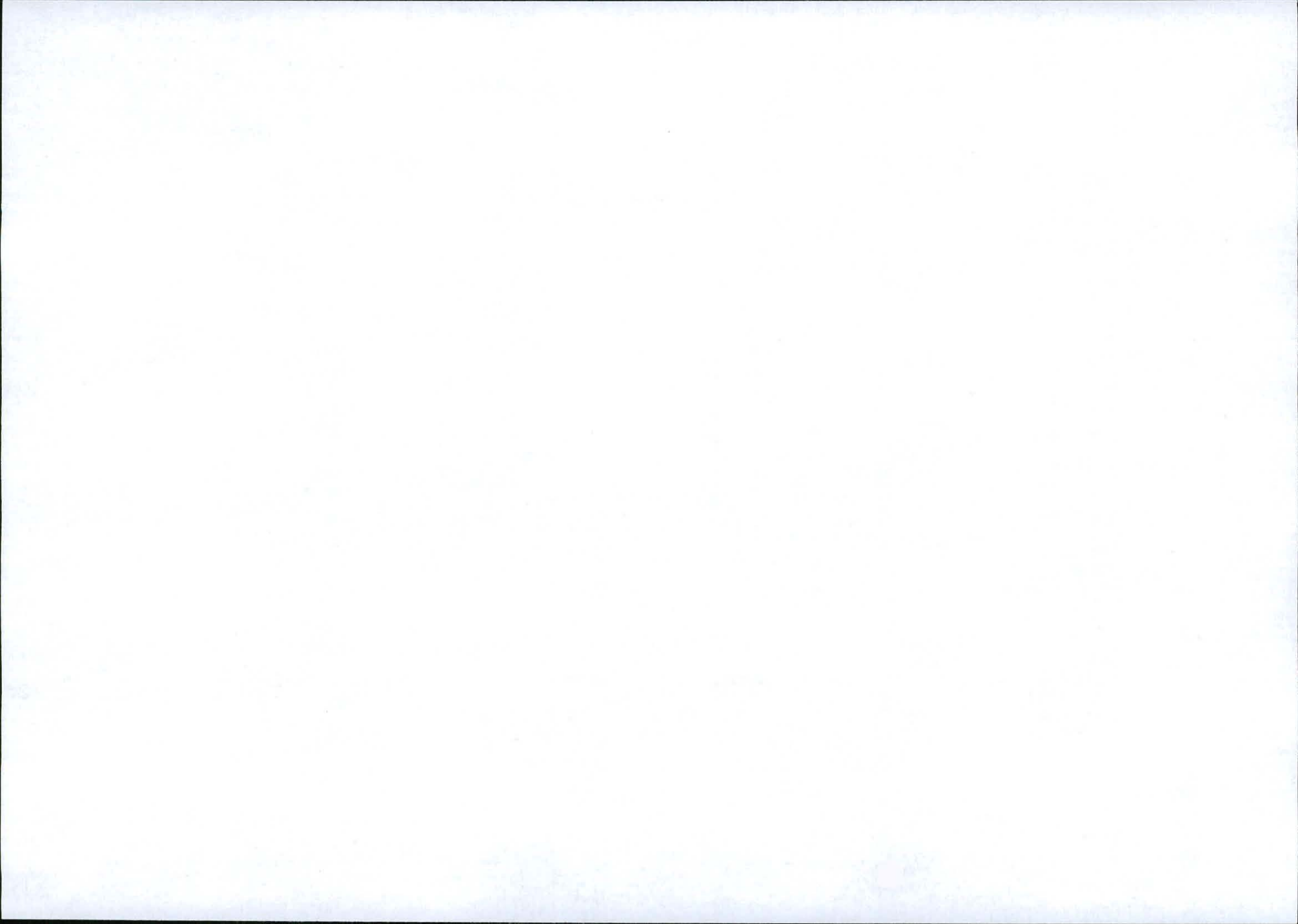
- Soil pollution from accidental spillages
- Noise impacts
- Dust emission
- Soil erosion
- Generation of domestic waste
- Surface water contamination; and
- Impacts on cultural/heritage resources

#### **5.2 Functional requirements for monitoring programmes.**

Mile Investments 384 (Pty) Ltd will take full responsibility to ensure that all employees and contractors involved in the prospecting project conduct their work in such a way that all avoidable impacts are avoided and also ensuring that all regulations and legislation is complied with. The employees and contractors involved in prospecting projects normally work in teams and each team will have a team leader who will ensure that all the employees conduct work in accordance with the approved Environmental Management Plan. All employees and contractors have the responsibility to report any suspected



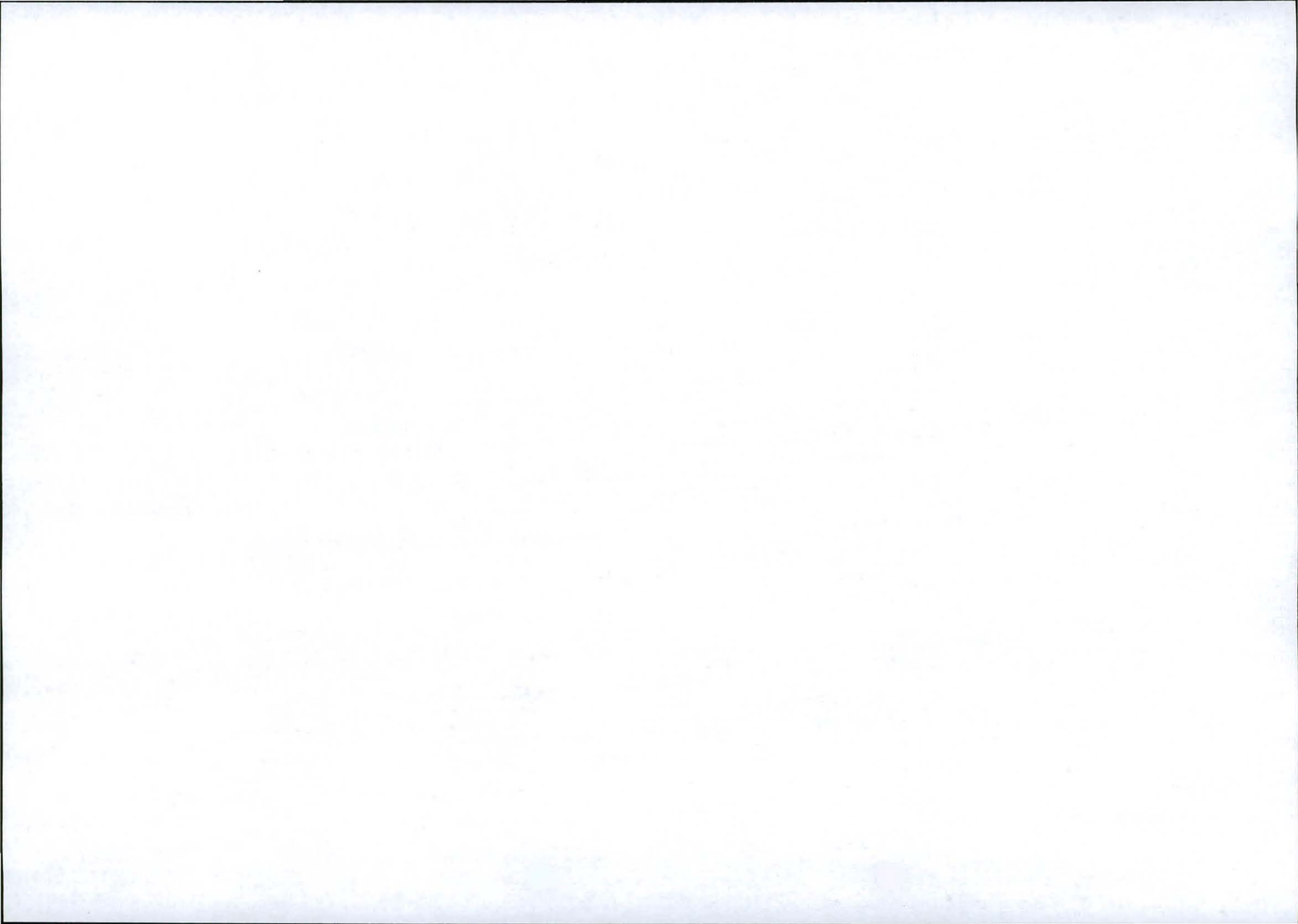
impact/s to the environment to their immediate supervisor/or team manager who will ensure that corrective measures are put in place if a problem is identified after conducting initial investigations. The applicant will also appoint specialist (i.e. environmental scientists and archaeologist/anthropologist) to monitor compliance to the approved EMP.





### 5.3 Roles and responsibilities for the execution of monitoring programmes.

Mitigation: Action/mitigation	Responsibility	Timeframe
Soil pollution from spillages: Drill pans will be in place under all stationary machinery. Servicing of vehicles and other equipment will be done regularly to avoid spillages. No equipment shall be extensively repaired in any place other than in the maintenance yard. Rehabilitation of disturbed areas should be undertaken as soon as possible and properly monitored. Disposal of contaminated soils will be done at approved sites.	Mile Investments 384 (Pty) Ltd/ Supervision Consultant on behalf of Mile Investments	Full duration of the project
Noise impacts to people: Make use of personal hearing devices (i.e. noise clippers). Drilling activities will also utilise machines producing less noise (i.e. noise level equivalent to that produced by agricultural tractor). Drilling will also be done during the day and this will not be done throughout the life of the project, thereby making the impacts temporary. If there is a need to drill at night, arrangements will be done with all affected parties and drilling will also be far from residential areas to ensure that no or minor impacts are caused by such activities.	Mile Investments 384 (Pty) Ltd/ Supervision Consultant on behalf of Mile Investments	Drilling phase and when working close to equipment generating high noise levels (i.e. core cutting machine).
Dust emission: Control speed of vehicles entering and leaving the project area.	Mile Investments 384 (Pty) Ltd/ Supervision Consultant on behalf of Mile Investments	Full duration of the project
Soil erosion: Rehabilitation of disturbed areas will be undertaken as soon as possible and properly monitored. Rehabilitation will involve the replacement of suitable and adequate topsoil and the encouragement of indigenous local vegetation to stabilise the soil.	Mile Investments 384 (Pty) Ltd/ Supervision Consultant on behalf of Mile Investments	Full duration of the project
Generation of domestic waste: Dust bins will be provided for domestic waste. These bins will be emptied at approved disposal sites.	Mile Investments 384 (Pty) Ltd/ Supervision Consultant on behalf of Mile Investments	Full duration of the project
Surface water contamination: Erosion will be avoided to ensure that washing of chemicals from soils into the nearby water bodies does not occur. Water samples will be taken from these water bodies for analyse in order to ensure that the water is still in condition similar to that before prospecting. If there are some changes, corrective action will be taken.	Mile Investments 384 (Pty) Ltd/ Supervision Consultant on behalf of Mile Investments	Full duration of the project
Impacts on cultural/heritage resources: Prospecting activities have potential to cause serious impacts on heritage/cultural resources. Before any trenching or drilling is conducted the applicant will appoint a specialist to do phase 1 heritage scoping assessment which involves identification of archaeological sites and assessing their significance and; phase 2 which involves recording, sampling and saving sites that are to be destroyed. This will enable identification of available resources and the appointed specialist will give advice on how the identified resources should be protected.	Mile Investments 384 (Pty) Ltd/ Supervision Consultant on behalf of Mile Investments	Full duration of the project



#### **5.4 Committed time frames for monitoring and reporting.**

The Applicant will as part of the terms and conditions for a prospecting right ensure compliance with the approved environmental management plan (EMP) and to assess the adequacy of the EMP. The following will be done:

- i). Conducting monitoring on a continuous basis in order to ensure that the provisions of the programme are adhered to.
- ii). Conduct performance assessment of the EMP, and to compile and submit the assessment report every two years to the relevant Department.
- iii). Ongoing and regular reporting of the progress of implementation of the approved environmental management plan and
- iv). Conducting visual inspections on erosion and physical pollution on a regular basis.

The applicant is committed to adhere to all relevant legislation (including national, provincial and local) is complied with during the prospecting operations.

### **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 Appendix

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

All buildings and surface infrastructures will be dismantled unless they are necessary to achieve and maintain the satisfactory condition or to support the area `s socioeconomic development. Any waste material including scrap, rubble and tyres will be removed entirely from the prospecting area and disposed of at a recognised landfill facility. The affected areas will be revegetated to control erosion and restore the site `s natural condition. Trenches shall be backfilled immediately if no mineralization has been located. If necessary the area will be fertilised to allow rapid establishment of vegetation. The characteristics of the planted vegetation should resemble that of the natural environment. Rapid re-establishment of natural vegetation and restoration of site ecology will also be promoted.

#### **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).

Prospecting work will cause minor or no impacts on the current land uses as such the post-prospecting land use for the project area would remain consistent





with pre-exploration/prospecting land use. During the consultation meetings it was indicated to the land owners and other affected and/or interested parties that the prospecting activities will be conducted in such a way that possible environmental impacts will be avoided or minimised and that there will be no significant impacts on the current land uses. However, it should be noted that if a decision is taken to continue to a mining stage some land uses might be significantly affected but this will be determined once a decision is made to continue to a mining stage.

## **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)

Notification letter was sent to all the identified interested and/or affected parties. A total of one comment has been received and the received comment is from the commenting authority.

### **7.2 The details of the engagement process.**

Details of the public participation process, meetings with interested and/or affected parties, as well as responses are attached.

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

Project details such as the prospecting work programme (in a simplified format to ensure that they have a better understanding of what is planned); applicant details (telephone; email, mobile contact number, postal address and Company registration number, etc); details of the minerals applied for were given to the Community, landowners and interested and affected parties. Some of the affected and/or interested parties (i.e. Land owners, communities, etc) were visited and they were also offered the opportunity to ask questions. Most of them have indicated that they will send us their comments and if they need clarity they will contact us since they have our contact details.

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

The following have been consulted:

- (a). Darel Knoetje (Walter Security) –Land Owner





- (b) Northern Cape Department of Agriculture, Land Reform and Rural Development
- (c) Land Claims Commission
- (d) South African Heritage Resources Agency

The applicant is in the process of consulting with the following:

- (a) Tsantsabane Garib Local Municipality

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

We have not yet received comments from most of the consulted parties

**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.**

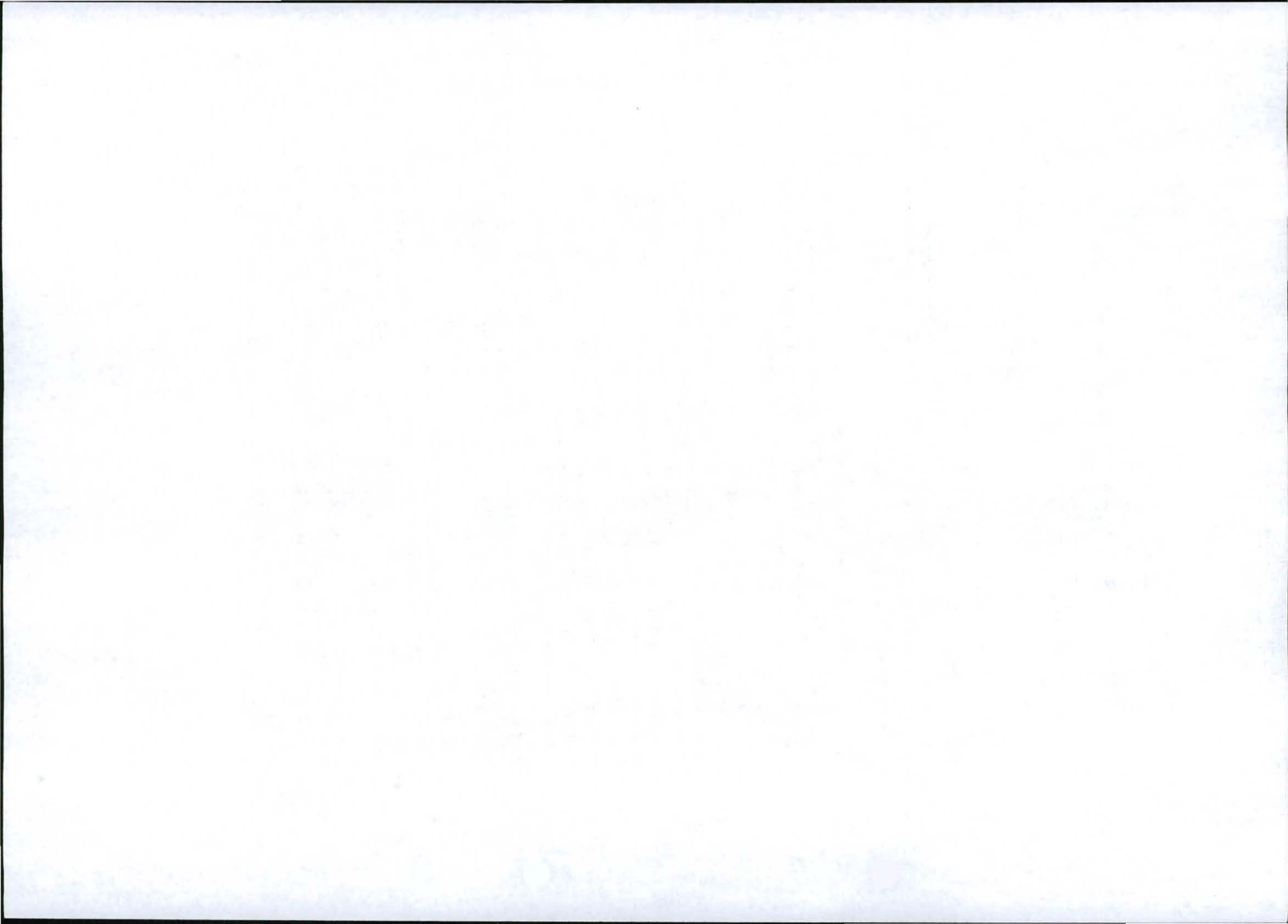
The socio-economic conditions of persons on and non-adjacent properties will be affected by the proposed prospecting operation. This is because the project has a potential of creating jobs and as such reducing the poverty levels in the area. Also the infrastructure development (i.e. roads, etc) will be improved. Community based Organisations will also receive financial support from the proposed project. If the project continues to a mining stage, people from surrounding communities will receive support (bursaries, etc) from the mine to study at Universities and further education and training mostly in areas of science and technology. This will enable them to get good and better paying jobs as such improving their lives.

People from the area will gain experience in the field of mineral exploration and this will enable them to get better jobs in the mining industry which in turn will help in reducing the poverty levels in the Province.

Businesses providing accomodation and catering services will benefit from the proposed operation because people from outside the project area who will be involved in the project will require their services and as such increasing the income or profits of the said businesses.

Job creation: the proposed prospecting project has the potential to create jobs for the locals. Although the jobs created might be temorary, permant jobs will be created once the project has proved to be viable and the mine opens.

Infrastructure development: the conditions of roads and other infrastructures in the area will be improved.



Projects implemented by the community for the benefit of the entire community (i.e. Youth Training Programmes; ABET and Environmental awareness) might receive support from the project.

**7.2.5 Other concerns raised by the aforesaid parties.**

Not applicable

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

I confirm that minutes and records of the consultations are attached.

**7.2.7 Information regarding objections received.**

No objection/s has been received.

**7.3 The manner in which the issues raised were addressed.**

The Heritage Resources Authority has indicated that the proposed mineral prospecting project may have a serious impact on heritage resources. It has been decided that Phase one Heritage Scoping Investigation will have to be conducted before any prospecting drilling or trenching takes place. The applicant will appoint an accredited specialist to provide Phase 1 Archaeological Impact Assessment Report before any activity that has the potential to damage the Heritage Resources commences. For identification of graves, the communities affected by the project will be involved.

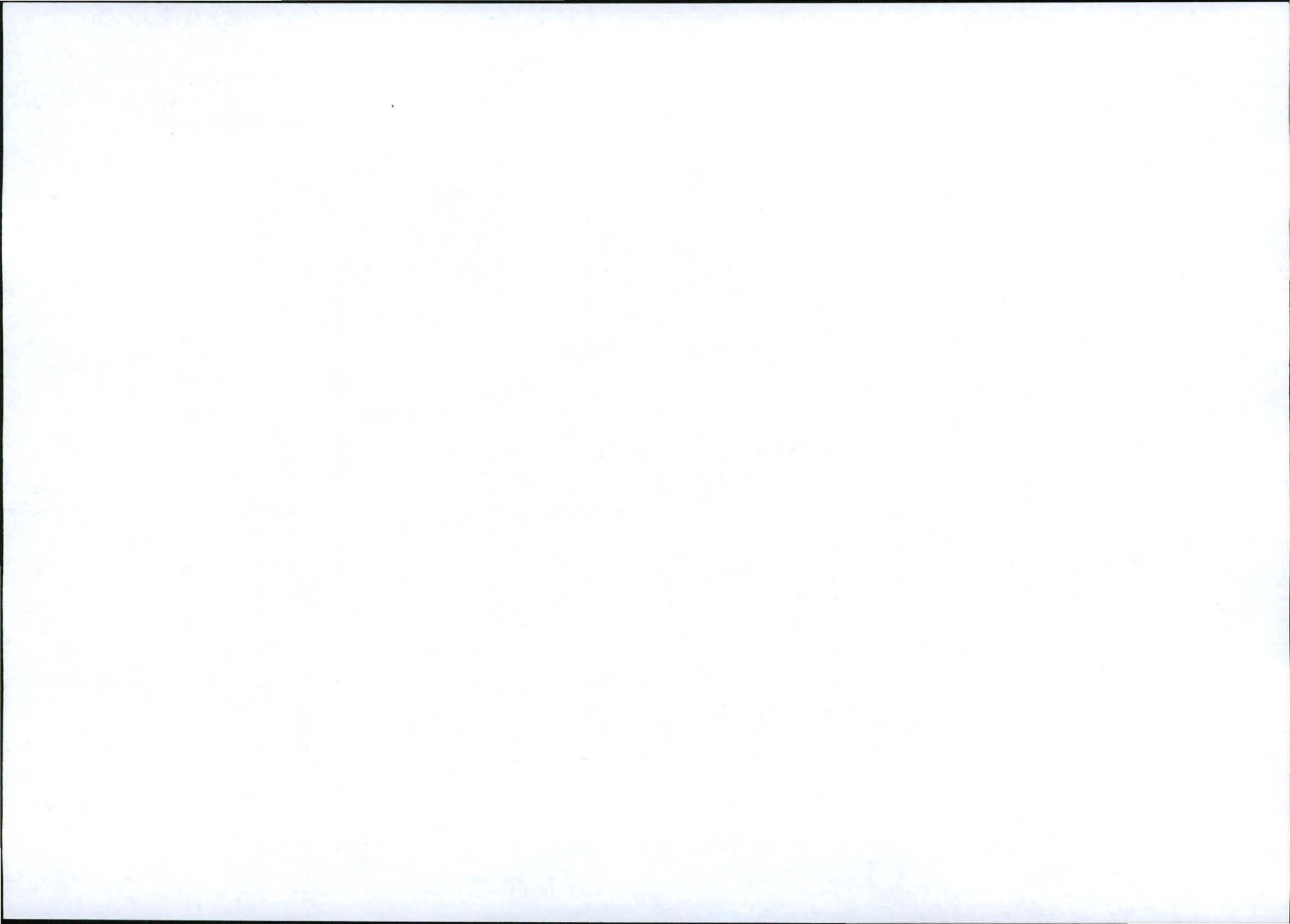
Employment opportunities: It was also indicated that there are problems in other parts of the Province where locals are not benefiting (employment opportunities) from projects operating in their areas. The Applicant will give first preference to locals (the community leaders will also be involved in the process) and if the required skills are not available in the area, then the Applicant will consider employing people from other areas.

**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).

Prospecting work subjects employees to hard physical work that includes frequent lifting of heavy objects, using potentially dangerous equipment and being exposed to heat, cold, etc. Therefore it becomes essential that employees





be in good physical condition and in good health when they begin field work. Employees will be reminded that they should be free of communicable diseases that may rapidly spread through a field camp. Exploration workers will also be trained in basic first aid skills. In order to inform employees of dangers in the workplace, and how to avoid them, Mile Investments 384 (Pty) intends to do the following:

- a. Providing them with information about the materials health effects for all the materials that will be used.
- b. The employer will also motivate workers and also provide resources necessary to conduct all prospecting activities in a safe and healthful manner. Each employee must understand that safety is their responsibility and everyone's involvement is needed for success including participation of safety committees in hazard identification and control.
- c. The employer will also inform the employee of the location of the nearest medical treatment facility.
- d. Instructing employees of specific hazards associated with their workplace and duties and ensure use of appropriate personal protective equipment.
- e. Train employees in the safe use of all equipment to be used in the project.

### **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).

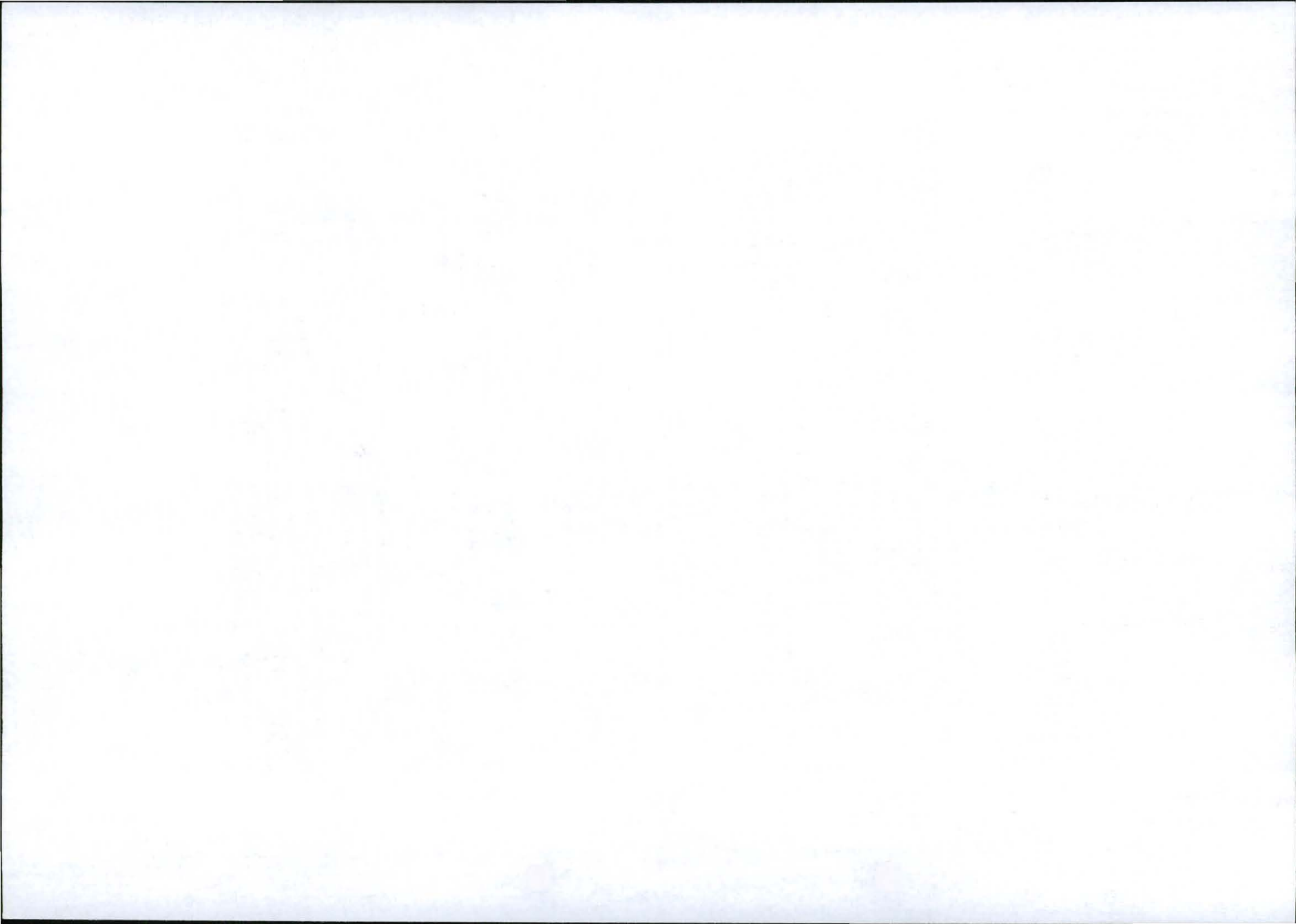
Responsibilities could come in many different forms, they include testing machinery regularly, providing adequate safety equipment, personal protective equipment required, fire fighting measures and decomposition products of the material, chemical reactivities and incompatibilities, spill and leak handling procedures and disposal procedures.

To avoid or minimise the impacts on the heritage resources all Mile Investments 384 (Pty) Ltd employees and other Contractors involved in the project will be briefed in their induction to report any sign of buildings, structures or evidence of cultural sites of any sort and to stop work until the site has been investigated by an accredited person.

### **8.3 Environmental awareness training.**

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

Emergency procedures and communications will be carefully planned and tested before field work commences. The applicant will also provide exploration employees with a safety manual that addresses the issues of the region (project location) where they work. A comprehensive safety manual will form the basis for camp orientation meetings, training sessions and routine safety meetings throughout the field season.



**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 annual amount required to manage and rehabilitate the environment is R 15000. Details of how the R 15000.00 was determined is shown in Table below:

**Table 9.1: Financial provision for environmental rehabilitation**

Item	Cost (in Rands)
1. Transportation/establishment of all equipment	2000
2. Cost of decommission and associated infrastructure	3333
3. Labour cost	5333
4. Cost of profiling disturbed areas	1334
5. Cost of replacing top soil*	0
6. Cost of revegetation	1000
7. Aftercare and maintenance	2000
<b>Total</b>	<b>15000</b>

N.B. \* Top soil from trenching and sampling sites will be stacked to one side, used for cover and rehabilitation.

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

The Applicant confirms that the stated amount of **R 15000.00** in 9.1 is correctly reflected in the submitted prospecting work programme.

**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. Monde Dhladhla
Identity Number	7103155945087

-END-

