



mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

NAME OF APPLICANT: MOTJOLI RESOURCES (PTY) LTD

REFERENCE NUMBER: (NC) 30/5/1/1/2/11557PR

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
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ITEM	CONSULTANT CONTACT DETAILS (If applicable)
Name	Neema Consolidated Investments (Pty) Ltd
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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.

1.1.1 Prospecting Site Locality

Province	Northern Cape
District Municipality	Frances Baard
Local Municipality	Magareng
Farm	Doornfontein No. 12
Portions	9, 12, 15, 21, and 22

The area where prospecting will be taking place is approximately; 102,439 Hectares, 70 km North of the City of Kimberley, 5 km from the town of Warrenton, and 6 km from Ikhutseng Community. The proposed prospecting area is adjacent to the

national road (N12) and also next to the Vaal River. The planned prospecting area is a flat terrain characterised by low plains of the Ghaap escarpment.

1.1.2 Socio-Economic Environment

The following section of the report provides an overview of the current socio-economic and demographic data for the Magareng Lopcal Municipal area and where appropriate, the Frances Baard District in general.

Current State

The Census 2011 Magareng Municipal Fact Sheet, published by Statistics South Africa was utilised to compile the demographic information as included in Table 1.

Table 1: Demographic Information

Population	24 205
Age Structure	
Population under 15	31.40%
Population 15 to 64	62.20%
Population over 65	6.40%
Population Growth	
Per annum	1.08%
Labour Market	
Unemployment rate (official)	41.20%
Youth unemployment rate (official) 15-34	51.80%
Education (aged 20+)	
No schooling	16.60%
Higher education	3.5
Matric	24.00%
Household Dynamics	
Households	6120
Average household size	3.9
Female headed households	41.70%
Formal dwellings	87.10%
Housing owned	58.60%
Household Services	
Flush toilet connected to sewerage	81.20%
Weekly refuse removal	63.30
Piped water inside dwelling	37.00%
Electricity for lighting	85%

The study area is located within the Magareng Local Municipality within the Frances Baard District Municipality. In the 2011 Census the population of Warrenton,

including the township of Ikutseng, was recorded as 24 205 people living in 6120 households. 80% of the residents described themselves as "Black African", 14% as "Coloured", 5% as "White", and 1% as "Indian or Asian". 67% of the residents of the town speak Setswana as their first language, while 22% speak Afrikaans, 4% speak Xhosa and 2% speak Sotho.

Municipal information published by statistics South Africa confirms that the municipality's economy is driven by livestock, irrigation farming and commercial mining. Magareng is characterised by high levels of unemployment.

Relevance of the information

In addition, in the event the proposed prospecting right application is issued, some of the surrounding people will be employed. Furthermore; if the results from the prospecting activities are viable there is a chance to apply for a mining right whereby 50-100 people may be employed

Water/ hydrology of the area

Few boreholes equipped with windpump are located on some portions of the farm. Vaal River is also used as one of the water resource around Warrenton

Cultural and Heritage Resources

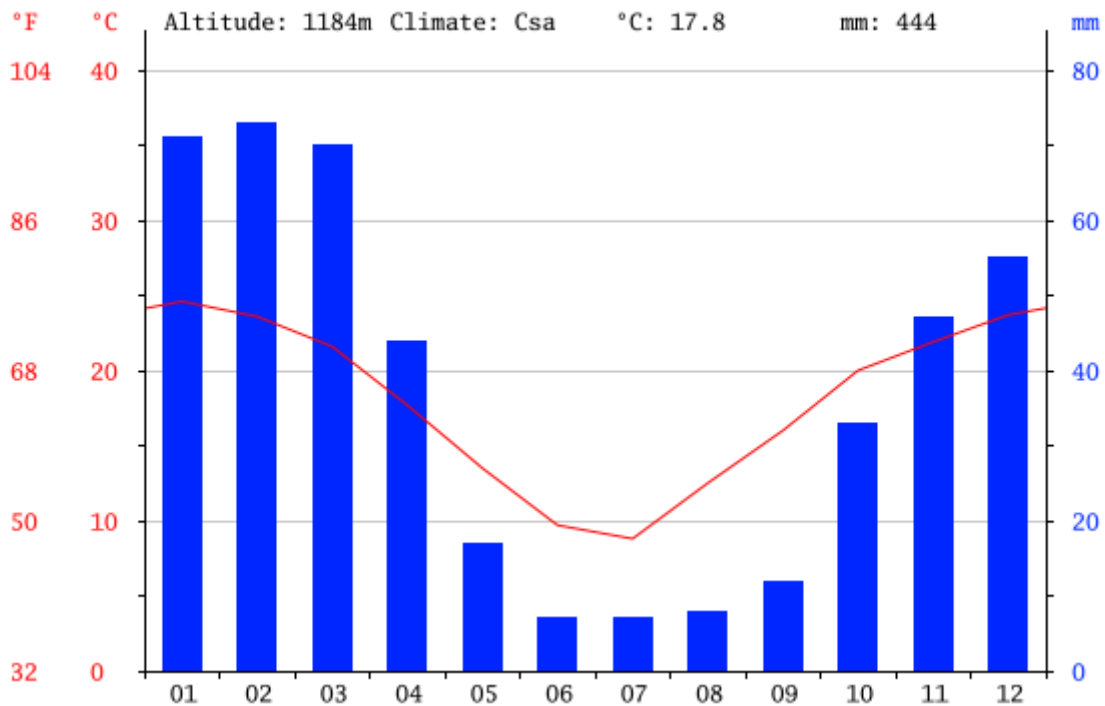
There are no known areas with a heritage resource on the proposed area under application. South African Heritage Resource Agency (SAHRA) will be consulted in order to find out if it is necessary to conduct Phase 1 of Heritage Impact assessment. If there is a need to conduct the above mentioned study, Phase 1 of Heritage Impact Assessment will be conducted before prospecting activities take place to determine if there are historical site within the prospecting area that need protection. Therefore, there won't be any impact on the heritage sites since the location of the heritage site will be avoided and no prospecting will be done 100m from any heritage resources. If any heritage resource is identified, that area will be fenced-off. Full Heritage Impact Assessment, inclusive of an Archaeological and Paleontological Impact Assessment, will be conducted prior to any bulk sampling related activities occurring within the proposed application area.

Physical and Biophysical Environment

Climate

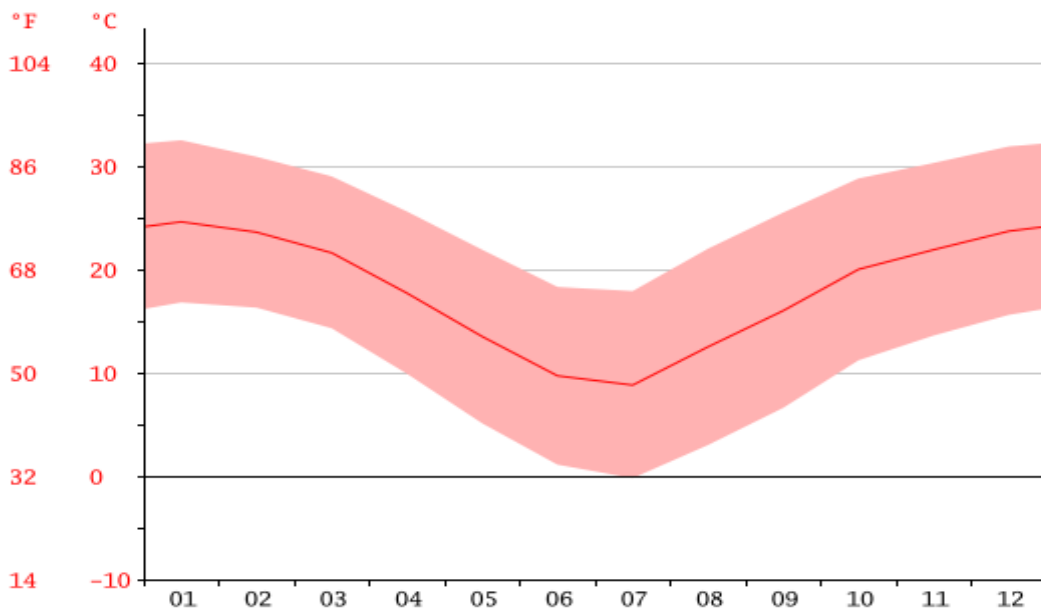
Warrenton climate is mild, and generally warm and temperate. The winter months are much rainier than the summer months in Warrenton. This climate is considered to be Csa according to the Köppen-Geiger climate classification. The temperature Warrenton averages 17.8 °C. The average annual rainfall is 444 mm

CLIMATE GRAPH



Graph 1: Warrenton climate graph

TEMPERATURE GRAPH



Graph 2: Warrenton average temperature

At an average temperature of 24.6 °C, January is the hottest month of the year. July is the coldest month, with temperatures averaging 8.8 °C.

CLIMATE TABLE

Table 1: Warrenton climate table

month	1	2	3	4	5	6	7	8	9	10	11	12
mm	71	73	70	44	17	7	7	8	12	33	47	55
°C	24.6	23.6	21.6	17.7	13.5	9.7	8.8	12.5	16.0	20.0	21.3	21.7
°C (min)	16.8	16.3	14.3	9.9	5.1	1.1	-0.2	3.0	6.6	11.2	13.5	15.6
°C (max)	32.5	30.9	29.0	25.6	21.9	18.3	17.9	22.0	25.5	28.8	30.3	31.9
°F	76.3	74.5	70.9	63.9	58.3	49.5	47.8	54.5	60.8	68.0	71.4	71.7
°F (min)	62.2	61.3	57.7	49.8	41.2	34.0	31.6	37.4	43.9	52.2	56.5	60.1
°F (max)	90.5	87.6	84.2	78.1	71.4	64.9	64.2	71.6	77.9	83.8	86.5	89.4

Between the driest and wettest months, the difference in precipitation is 66 mm. throughout the year; temperatures vary by 15.8 °C.

Fauna

During the site visits mammals, birds, reptiles, and amphibians were identified by visual sightings through random transect walks. In addition, mammals were also recognized as present by means of spoor, droppings, burrows or roosting sites. It was also observed that the farms are used for livestock farming such as cattle farming and for residential purpose. It was indicated during public participation conducted that portion 9 of Doornfontein no.12 is being utilised as a leasing land for animal grazing.

Flora

Most of the site is characterized by grasses, shrubs and few trees which are generally not clustered. There are trees that have grown along the kimberlite dyke which is indicative of the presence of water. No red data plant species were found on the site due to the state of the vegetation and physical environment of the larger area mostly not being suitable for any of the red data plant species that may be found in the area. The disturbance of vegetation in the area won't be significant since Motjoli Resources Pty (Ltd) (Motjoli) will avoid unnecessary removal of vegetation by using existing tracks.

The following is Found under the prospecting area:

Tall Tree: *Acacia erioloba* **Small Trees:** *Acacia karroo* (d), *A. mellifera* subsp. *detinens* (d), *A. tortilis* subsp. *heteracantha* (d), *Rhus lancea*.

Tall Shrubs: *Tarchonanthus camphoratus* (d), *Diospyros pallens*, *Ehretia rigida* subsp. *rigida*, *Euclea crispa* subsp. *ovata*, *Grewia flava*, *Lycium arenicola*, *L. hirsutum*, *Rhus tridactyla*. **Dense Acacia mellifera – Grewiaflava – Tarchonanthus camphorates shrubveld; Searsia lancea – Olea europaea riparian woodland;**

Low Shrubs: *Acacia hebeclada* subsp. *hebeclada* (d), *Anthospermum rigidum* subsp. *pumilum*, *Helichrysum zeyheri*, *Hermannia comosa*, *Lycium pilifolium*,

Melolobium microphyllum, Pavonia burchellii, Peliostomum leucorrhizum, Pinthus sericeus, Wahlenbergia nodosa

Succulent Shrubs: *Aloe hereroensis var. hereroensis, Lycium cinereum*
Graminoids: *Eragrostis lehmanniana (d), Aristida canescens, A. congesta, A. mollissima subsp. argentea, Cymbopogon pospischilii, Digitaria argyrograpta, eriantha subsp. eriantha, Enneapogon cenchroides, E. scoparius, Eragrostis rigidior, Heteropogon contortus, Themeda triadra*



Photo 1: Vegetation within the prospecting area

Topography

The proposed development is planned on a landscape that is flat.

Soil

The soils of the application area were classified according to the dominant soil form and family as follows:

- Shallow, calcareous soils of the Glenrosa or Mispah soil form;
- Shallow calcareous soils of the Augrabies / Glenrosa soil form (sodic areas);
- Alluvial soils (Oakleaf soil form) associated with drainage channels;
- Shallow brown apedal soils of the Hutton soil form;

Geology

Regional Geology

The north-west region of the Northern Cape Province is known for hosting diamondiferous gravels and kimberlite pipes or intrusions in South Africa. The kimberlite pipes or intrusions generally cut upwards through the country rocks, lithostratigraphy (Archaean to Phanerozoic eons), set on the Archaean Kaapvaal Craton, whilst the gravels are mainly associated with the river catchments and much younger in age (mostly Cenozoic).

The regional stratigraphy consists of the volcano-sedimentary sequence of the Ventersdorp Supergroup, which unconformably overlies the sequence of the Witswatersrand Supergroup and in turn overlain by the Transvaal Supergroup. These are generally and extensively overlain and covered by the younger Karoo Supergroup sediments with some exposures where erosion has had a role. The Kaapvaal Craton widely consists of ultramafic and mafic intrusions that spans from the Eoarchean, >3600 Ma through to the Cretaceous period, c. 65 Ma (Anhaeusser, 2006). The variation in the type of intrusions carries significant implications in the type of economic deposits emplaced. These include economic important Bushveld Complex, the Greenstone Belts and the diamondiferous Kimberlites.

The South African Kimberlites range in age from approximately 1900 to 70Ma (Skinner and Trustwell) and located both on and off the Kaapvaal Craton. In general the kimberlites off the craton are barely diamondiferous due to instability and shallow depth of the lithospheric root for diamonds be formed and preserved. The kimberlites in South Africa are divided into two groups, Group I (basaltic) and Group II

(micaceous). The distinction between the two groups is made in the mineral content and assemblages; macrocrysts or xenocrysts minerals; mantle derived xenoliths; whole rock geochemistry and isotope chemistry (Skinner and Truswell).

Occurrence of the kimberlites in the Northern Cape include that of the Kuruman Province (dated at c. 1650 Ma) that intrudes Proterzoic rocks of the Transvaal Supergroup; the Kimberley Province (~99-70 Ma) which is a cluster of kimberlites occupying the same region as the North West and the Free State provinces, in an area of 1000 by 300 km (Skinner and Truswell, 2006). Distribution of the two varieties in association with the Kaapvaal in the Northern Cape is displayed in Figure 1

(Source: <http://gemoc.mq.edu.au/Annualreport/annrep2008/images/Fig1newx.jpg>)

Local Geology

Doornfontein, the prospecting right area, is underlain by the rocks of the Ventersdorp Supergroup in interaction with the lower Vaal River System near Warrenton, Northern Cape Province.

With reference to the geological map of the South African Geological Survey 1:250 000 series, 2824 Kimberley of 1993 (Figure 2), the Doornfontein and peripheral geology is described. The lower Vaal River basin is dominated by rocks of the Ventersdorp Supergroup and the Karoo Sequence, with the Griqualand West Sequence outcropping in the VaalHarts River valley.

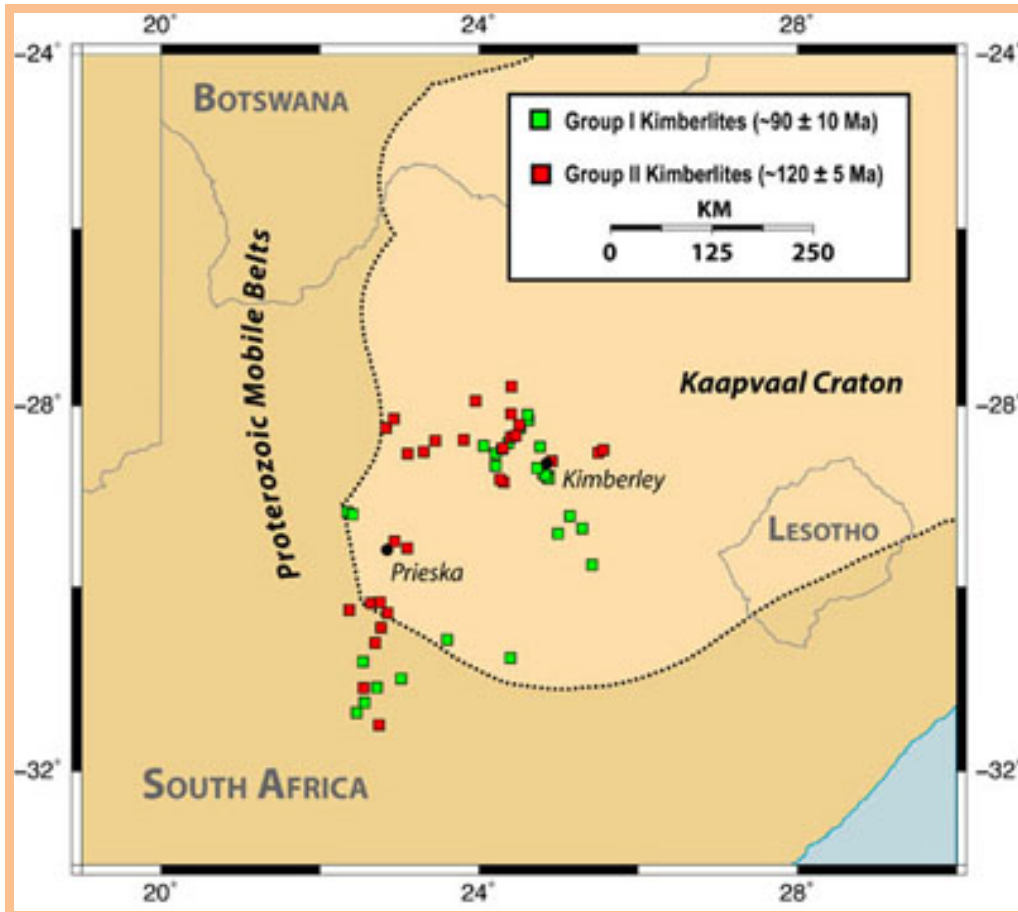


Figure1: Distribution of Kimberlite types within and off the Kaapvaal Craton in the Northern Cape and neighbour Provinces

Outcrops of the Ventersdorp Supergroup are dominated by the andesitic Allanridge Formation. The Karoo Sequence in the catchment consists of Prince Albert Formation shale and varvite and Dwyka tillite. The Karoo Sequence has been intruded in many places by Jurassic age dolerites which provide most of the relief in the landscape today due to their greater resistance to erosion.

The Ventersdorp Supergroup is underlain by the Griqualand West Sequence which in turn underlies a major Proterozoic to late Carboniferous unconformity (de Wit et al. 2000). This unconformity has been re-excavated from beneath flat-lying, easily erodible Karoo rocks exposing both the relief and structure of this ancient surface. This pre-Karoo surface is prominently exposed where the Vaal River flows over the Ventersdorp Supergroup.

Doornfontein property is in the vicinity of the Warrenton Diamond fields where exploration and mining have mainly been focused on the fluvial diamonds, diamondiferous gravel. Recent exploration by Pangea DiamondsFields Plc identified and delineated gravel-bearing channels on all their properties north of and adjacent to Doornfontein.

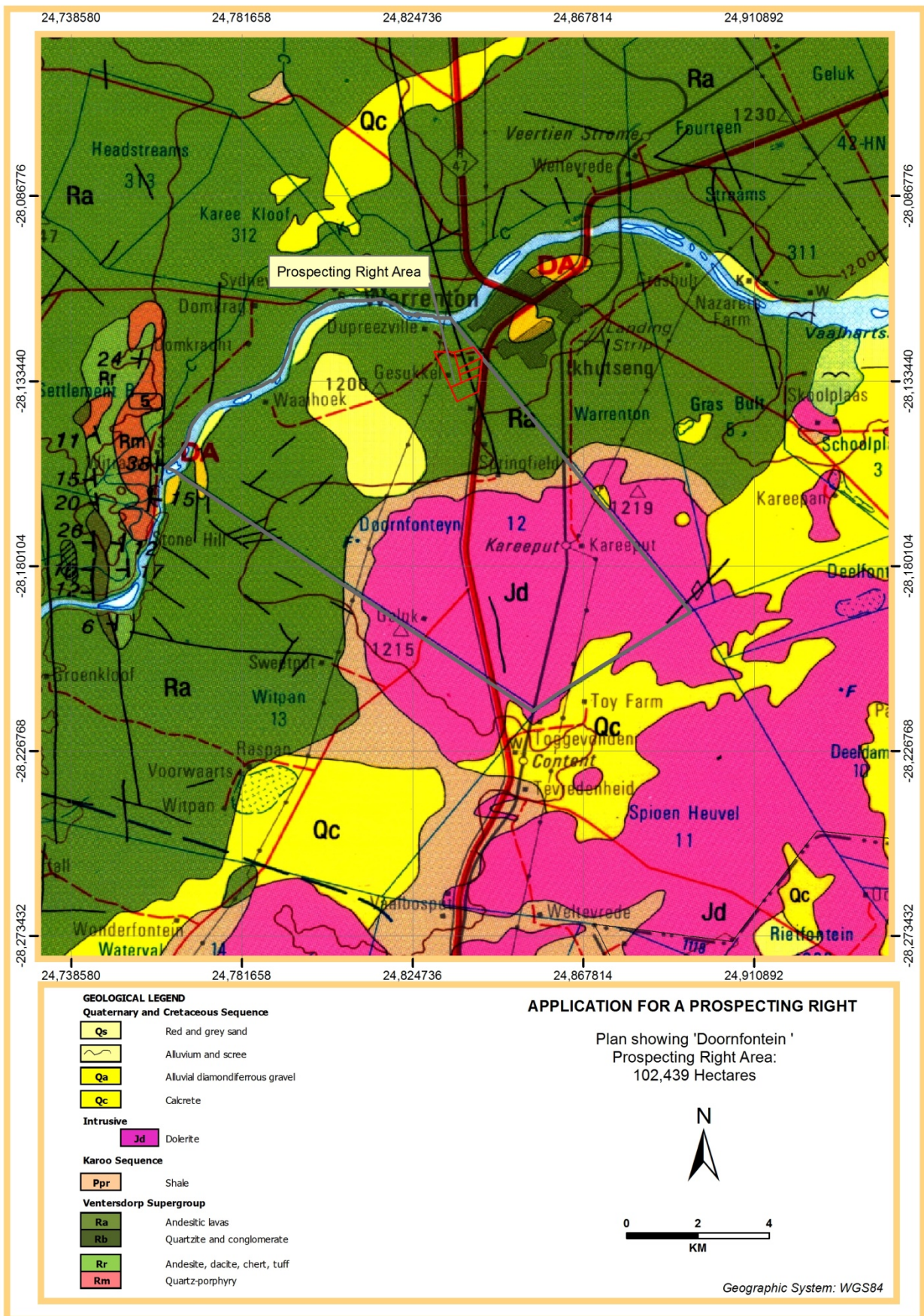


Figure 2: Regional and local geology of Doornfontein prospecting right area.

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

Soil: topsoil will be stripped and stored separately from the overburden on the high ground side of the mining area away from flood plain. The topsoil stockpile will be less than 2m in height to avoid erosion. Any contaminated soil will be treated by use of bio-sorb or oil cap and returned to its original area after being treated and tested to be oil free. Stored topsoil will be spread on top of rehabilitated area in order to promote vegetation growth.

Vegetation: Motjoli will avoid unnecessary clearance of vegetation within the prospecting areas. Existing roads will be utilised to access the prospecting area in order to avoid/minimise vegetation and surface disturbances.

Geology: the area will be rehabilitated to its original state and the overburden will be disposed within the trenches following their sequence.

River or water resource:

No drilling or bulk sampling will be done within 100m from Groot-Boetsap rivier or any water resources without authorisation from Department of Water and Sanitation. Motjoli is not planning to drill or bulk sample next or within 100m from any water resource or any wetland within the prospecting area.

Eskom power line: No drilling or bulk sampling will be done within 100m from the power line. The conditions stipulated on the response letter from Eskom will be adhered to at all times (kindly refer to the response letter of condition attached).

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

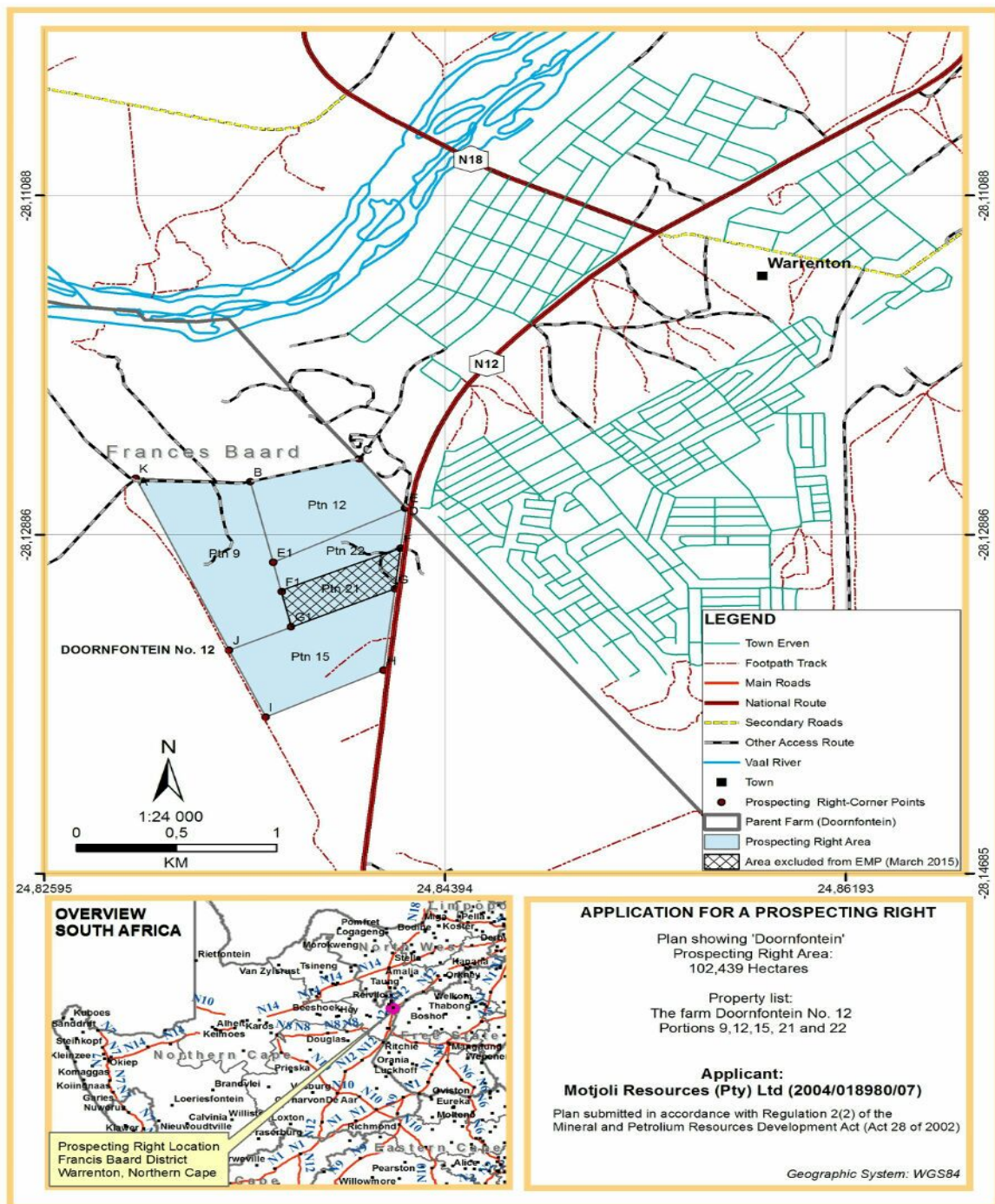


Figure 3: Spatial locality map of the proposed application area.

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,

Landowners and affected parties have been consulted in relation to the proposed prospecting activity and engagement is on-going (refer to the proof of consultation attached). Meeting and presentation has been conducted to the interested and affected parties.

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)

Access Roads

Existing access roads will be utilised, therefore no new haul roads will be constructed in order to access the prospecting area. Small tracks measuring approximately 200m and 4m wide may be formed in order to access the foot print of the trenches or borehole and they will be ripped in order to allow vegetation restoration. Farm owners will be consulted if there is a need to construct the above mentioned access roads.

Topsoil storage

In all areas where physical disturbances will occur, topsoil will be stripped and stored separately from the overburden on the high ground side of the prospecting area away from flood plain. The topsoil stockpile will be less than 2m in height to avoid erosion. The stockpiles storage will cover the area of 10mx5mx2m.

Mobile Chemical toilets

There will be two mobile chemical toilet measuring 2m X 2m to the height of 3m provided on sites. The toilets will be serviced and emptied by qualified contractor on regular basis. They will also be monitored at all times for hygiene purposes.

Storage Site

Hydrocarbon such as diesel or oil will be stored in the mobile tanks which will be brought to the site on a daily basis. Drip trays will be placed under mobile tank in order to avoid accidental spillages and precautions will be taken on the refuelling point. Lockable storage containers (10m x 5m) will be used to store any chemicals that will be utilized during the prospecting period.

Water

Water will be obtained from one borehole which will be drilled on site. The water required will be for mixing with the Kimberlite in order to create a slimes media which enables the recovery of diamonds and heavy minerals. The plant has a closed density media circuit, wherein a cyclone is utilised to dewater the slimes and tailings so as to minimize the loss of water. Purchasing or obstruction water from Vaal River in order to supply of water for prospecting purposes will be considered as alternatives.

Furthermore; the final recovery section, comprising the concentrate treatment scrubber, de-sliming screen, classifier and Grease tables, are as well in a closed circuit, any water being discarded here, is routed to the Pan plant slimes circuit. These actions ensure that every drop of water is accounted for and losses are minimized. Relevant water use authorization will be obtained from the Department of Water and Sanitation. Mobile water tanker will be used. Portable water will be purchased for drinking purpose.

Processing area

This area will be occupied by an 8ft processing plant for the processing of Diamonds in kimberlite. Processing area will be demarcated and the dimension will be 30mx20m. Gravel will be excavated using excavator, transported from four proposed trenches to the processing plant by a dump truck, wherein it will be screened and the final product will be taken for diamonds recovery.

Mini Slime Dam

One mini slimes dam will be constructed measuring 10mx10m to a depth of 5m and walls will be constructed around the slimes dam to a height of 4m. Slimes dam will be divided into two in order to avoid overflow.

Mobile Office

1 Mobile Office measuring 10mx5m will be utilized on site therefore no construction of concrete building will be done on site.

Fence

Fence (400m) will only be erected around the foot print of the proposed prospecting areas and around the processing area.

The following Equipment will be utilised during the prospecting activities includes:

- 1 X Diamond Core Drill Rig
- 1 X Reverse Circulation Drill Rig
- 1 X Excavator
- 1 X Front-End-Loader
- 1x 8ft rotatory pan
- 1 X Dump Truck
- 1 X Generator and other tools
- Vehicles and diesel trailers

2.1.2 Plan of the main activities with dimensions

Main prospecting activities will be conducted in such a way that minimal environmental damage is ensured. This will be achieved by practising concurrent rehabilitation throughout the prospecting activities and also by managing the environmental impacts. Monitoring of impacts will be conducted at all times in such a way that minimal impacts as a result of the proposed prospecting activities will occur and managed. Implementing regulations will do this and all legislations required during and after prospecting activities. The closure plans will be implemented from the start of the prospecting activities throughout the life of the mine until closure. The plan of the mine will be conducted in such a way that all mine health and safety act and regulation are complied with at all time since the prospecting area is also composed of residents and farm animals.

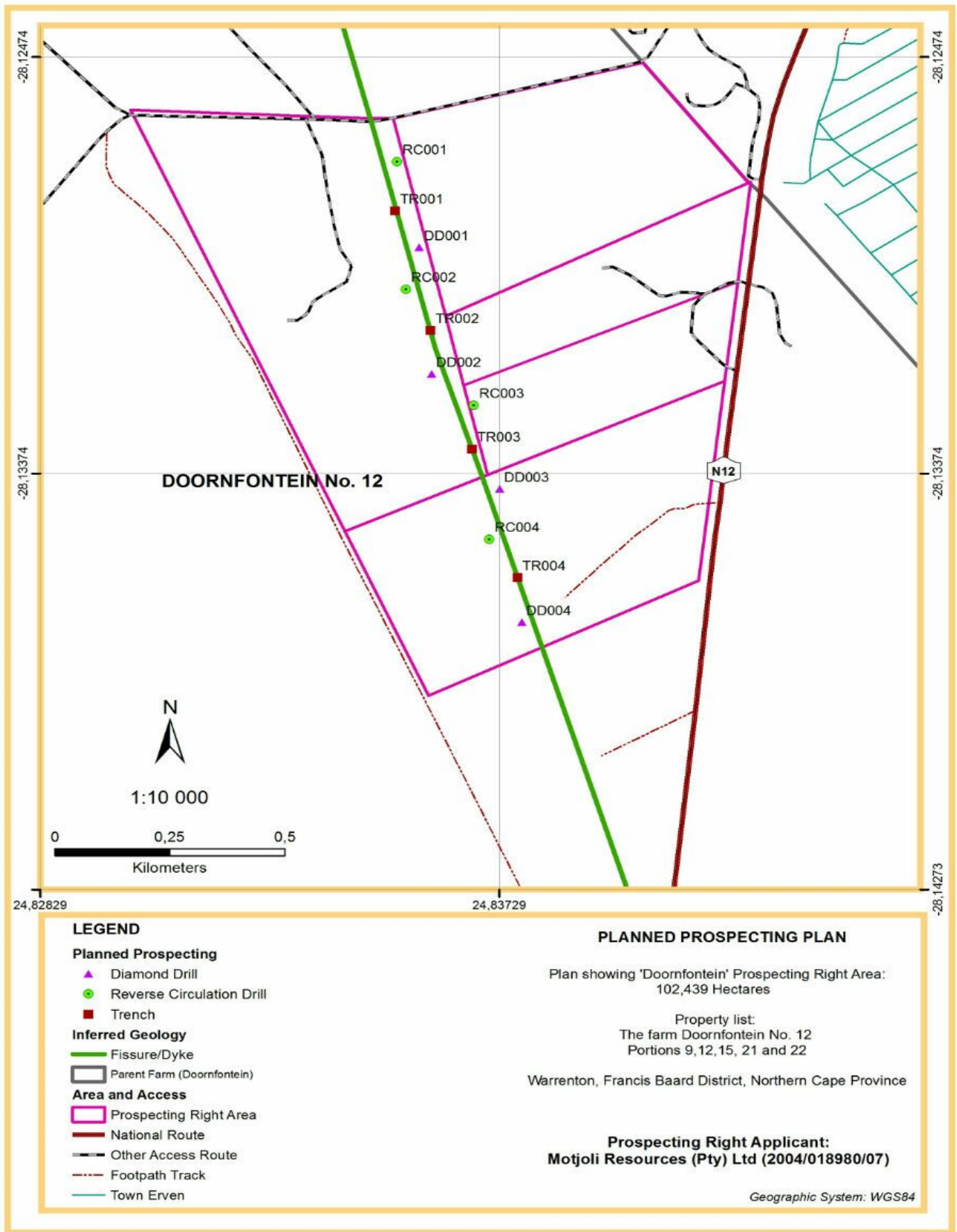


Figure 4: Plan of the main prospecting activities

The planned prospecting operations will be conducted using invasive and non-invasive prospecting and will be conducted as follows:

1- Non-invasive prospecting:

Desktop Research

Historical data, both in the public and the private domain, will be acquired, interrogated and stored in an appropriate database. Raster images i.e. topographic maps, geological maps and satellite images will be acquired, georeferenced, digitized and manipulated using ArcView® Geographical Information System (GIS) software. Systematic interpretation of these data will give a broad understanding of the regional geology and structure of the project area. The topo-cadastral maps carry information on the land usage, infrastructure and accessibility, terrain-topography and vegetation density of the project area. The above will be utilised in the understanding of the project and the preparation of geological and resource models, as well as for reporting purposes.

Aeromagnetic Survey

The survey is normally flown by the contractor FUGRO, using a Bell 206 IIIB Jet Ranger helicopter at an average airspeed of 160kph. Main geophysical instrumentation comprises a total magnetic field measuring Scintrex H8 caesium vapour magnetometer with a basic sensitivity of approximately 0.01nT at a 0.1 sec sample rate. The total field sensor is housed in a stinger rigidly mounted to the aircraft along its centerline. Magnetic data compilation is undertaken by FUGRO using the ECS software package.

Total field digital line data is gridded on a 15m square cell basis, using a bicubic spline algorithm with line-to-line correlation. The gridded data is then used to produce machine plots of standard contour plans at a scale of 1:20 000. Line and grid image data are ultimately generated using a Gaussian Conformable Projection (WGS84 spheroid/datum).

Land Survey

All new survey data (borehole collars, outcrops, etc) and all old survey co-ordinate systems will be converted to LO28, WGS84.

Computer Modeling

All input data including borehole collar coordinates, lithology, sampling data and chemical analyses, will be validated before input. Data will be modelled using Datamine/Micromine proprietary software to create plans and sections for further validation and correlation purposes, and the preliminary scoping study.

2- INVASIVE PROSPECTING

Boreholes: The total of 8 boreholes will be drilled using diamond drilling and reverse circulation methods and the area of disturbance will be 10m x 10m for each borehole site. Drilling program will be put into practice where the grid spacing will be set to 100m x 100m with an average depth of 50 m. This phase of drilling is anticipated to last for 10 months (months 8 -17). Boreholes will be drilled on portion 9 and 15 of Doornfontein far. No.12. To achieve this, the drill rod of the percussion drill will be replaced by a drill stem of concentric pipes which allow the compressed air or water to be forced down an inner pipe, exiting near the centre of the drill bit, flushing the drill cuttings up the side of the bit assembly and into slots in the drill stem above the bit.

Furthermore; the cuttings are then forced up the space between the inner drill rod and the outer drill pipe. At the surface the rapidly moving rock cuttings and drill fluid are passed through a cyclone, which vents most of the compressed air and drops the drill cuttings through a splitter, which collects a present fraction of the cuttings as a sample for assay. The collar position of all boreholes will be surveyed. During this drilling programme samples are collected every meter and logging will be done by a qualified geologist who will record the lithology. Apart from ore resources calculations the drilling information will be used to construct ore thickness, overburden thickness and basement elevation contour plans. **Concurrent rehabilitation will be implemented throughout the prospecting operation, meaning that each borehole will be rehabilitated before moving to the next area to be drilled.**

Pitting /trenching method:

Trenches: four trenches will be excavated using excavator to the dimension of 5m X 5m X 5m. Trenches to be excavated will disturb a total area of to be 100m², or 0.01 ha. Trenching will be conducted during 48-60 months. Three trenches will be excavated on portion 9 and the fourth trench will be excavated in portion 15 of the farm. Gravel will be excavated using excavator and the gravel material will be transported to the processing plant for diamond recovery. When the excavation is fully mined overburden will be deposited back to the trenches following their sequence. Puddles from the slimes dam will be spread then stored topsoil will be also spread on top of rehabilitated area in order to promote vegetation growth or plant succession. One trench will be opened at a time and rehabilitated before moving to the next area to be excavated in order to reduce environmental disturbances and also risk to human and wild life.

2.1.3 Description of construction, operational, and decommissioning phases.

Construction phase:

The prospecting site will be established during this phase whereby the dedicated areas will be demarcated. Equipment and mobile structures will be transported to the site. This phase will take a period of one month. It is during this period where topsoil will be stripped from all areas that are going to be disturbed. The area to be first prospected will be fenced off. During this phase consultation is required with the surface owners on the construction of temporary roads if there is a need during the construction phase, as well as the routes to be used by prospecting vehicles and machinery.

Operational phase:

The operational phase will consist of non-invasive and invasive prospection. The below table shows the activities to be conducted and their time frame:

Phase	Activity (what are the activities that are planned to achieve optimal prospecting)	Skill(s) required (refers to the competent personnel that will be employed to achieve the required results)	Timeframe (in months) for the activity)	Outcome (What is the expected deliverable, e.g. Geological report, analytical results, feasibility study, etc.)	Timeframe for outcome (deadline for the expected outcome to be delivered)	What technical expert will sign off on the outcome? (e.g. geologist, mining engineer, surveyor, economist, etc)
1	Non-invasive Prospecting Acquisition of historical data Stratigraphic studies Aerial photographic & satellite interpretation GIS compilation Reconnaissance and Regional geological mapping	Geologist	Month 1-12	Data library prepared and captured in GIS system Updated geological plans Annual Prospecting report for year 1	Month 6 Month 12	Geologist
2	Invasive Prospecting 4 Diamond Drillholes (240m) 4 Reverse Circulation Drillholes (240m) Non-invasive Prospecting Detailed geological mapping Data capture in GIS Data interpretation Aeromagnetic survey	Geologist Geologist/Surveyor	Month 12-48	Borehole, core and sample geological data Petrography and heavy minerals analysis Updated geological plans Updated GIS system Annual Prospecting reports for year 2, 3 and 4	Month 48 Month 48	Geologist
3	Invasive Prospecting 4 Trenches (5mx5mx5m) Non-invasive Prospecting Generation of geological model and preliminary scoping study	Geologist	Month 48-60	Borehole core data Petrography and heavy minerals analysis Geological reports 3D- Geological model Preliminary Mineral Resource statement Geological plans	Month 48 Month 60	Geologist Geologist/Surveyor /Economist
4	Non-invasive Prospecting Preparation of prospecting right renewal	Geologist	Month 48-60	Prospecting right renewal Annual report for year 5	Month 60	Geologist

NON-INVASIVE PROSPECTING

Phase 1

Desktop Research

Historical data, both in the public and the private domain, will be acquired, interrogated and stored in an appropriate database. Raster images i.e. topographic maps, geological maps and satellite images will be acquired, georeferenced, digitized and manipulated using ArcView® Geographical Information System (GIS) software. Systematic interpretation of these data will give a broad understanding of the regional geology and structure of the project area. The topo-cadastral maps carry information on the land usage, infrastructure and accessibility, terrain-topography and vegetation density of the project area. The above will be utilised in the

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All new survey data (borehole collars, outcrops, etc) and all old survey co-ordinate systems will be converted to LO28, WGS84.

Computer Modelling

All input data including borehole collar coordinates, lithology, sampling data and chemical analyses, will be validated before input. Data will be modelled using Datamine/Micromine proprietary software to create plans and sections for further validation and correlation purposes, and the preliminary scoping study.

INVASIVE PROSPECTING

Phase 2

Drilling method:

The prospecting drilling campaign will be aimed at defining the extent of mineralisation and will demonstrate geological continuity of the mineralized zone across the entire area under investigation (application area). Numerous samples will be collected and tested in a registered laboratory.

Boreholes:

The total of 8 boreholes will be drilled using reverse or percussion circulation methods and the area of disturbance will be 10m x10m for each borehole site. Drilling program will be put into practice where the grid spacing will be set to 100m x 100m with an average depth of 50 m. This phase of drilling is anticipated to last for 10 months (months 12-48). Results from this phase will be used to inform the plan and schedule of the subsequent drilling campaign. During this drilling programme samples are collected on every meter and logging will be done by a qualified geologist who will record the lithology. Apart from ore resources calculations the drilling information will be used to construct ore thickness, overburden thickness and basement elevation contour plans. **Concurrent rehabilitation will be implemented throughout the prospecting operation, meaning that each borehole will be rehabilitated before moving to the next area to be drilled.**

Phase 3

Trenches: four trenches will be excavated using excavator to the dimension of 5mx5mx5m. Trenches to be excavated will disturb a total area of to be 100m², or 0.01 ha. Trenching will be conducted during 48-60 months. Gravel will be excavated using excavator and the gravel material will be transported to the processing plant for diamond recovery. Overburden will be stored adjacent to the trenches in order to avoid delay during rehabilitation period. When the excavation is fully mined overburden will be deposited back to the trenches following their sequence. Puddles from the slimes dam will be spread then stored topsoil will be also spread on top of rehabilitated area in order to promote vegetation growth or plant succession. One trench will be opened at a time and rehabilitated before moving to the next area to be

excavated in order to reduce environmental disturbances and also risk to human and wild life.

Non-invasive prospecting: (Analytical Desktop Study)

During this phase the project geologist will monitor the programme, consolidates and processes the data and amends the programme depending on the results. This is a continuous process throughout the programme and continues even when no prospecting is done on the ground. Each physical phase of prospecting is followed by desktop studies involving interpretation and modelling of all data gathered. These studies will determine the manner in which the work programme is to proceed in terms of activity, quantity, resources, expenditure and duration. A GIS based database will be constructed capturing all exploration data.

Decommissioning phase:

The decommissioning phase will only commence once all prospected areas are rehabilitated. Industrial and domestic waste will be removed from the site to the registered licenced facility. During this phase all prospecting related infrastructure and equipment will be removed from the site and final rehabilitation of the disturbed areas will take place. All compacted area will be ripped to a depth of 300mm in order to allow vegetation to grow. Monitoring will take place to see if re-growth is taking place naturally. If re-vegetation does not take place naturally therefore seeding of the prospecting area with surrounding indigenous species will be considered. No excavation, boreholes or waste deposits will be left un-rehabilitated.

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

According to Listing Notice 1: List of activities and competent authorities identified in terms of Sections 24(2) and 24D of the National Environmental Management Act, 1998 (Act no. 107 of 1998) of Government Gazette no 33306, No. R. 983 the following activity is applicable according to NEMA EIA regulations: The proposed prospecting activities triggers (Activity 20- Any activity requiring 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.

Phases	Prospecting Activity	Potential impact	Description of the impact before mitigation.
Construction phase	Site establishment	Surface disturbances	Surface will be disturbed as a result of topsoil that will be stripped during this phase. Ground will also be compacted by the movement of vehicles within the prospecting area.
		Air pollution	Movement of trackless mobile machinery e.g. excavator, front-end loader and a truck to the site. Dust will be generated during the stripping of soil.
		Noise pollution	Noise will be generated from the prospecting equipment and may disturb inhabitants.
		Soil pollution	Contamination of soil may occur from accidental spillages from the machineries brought to the site.
		Vegetation loss	Some of the vegetation will be disturbed on areas that topsoil will be removed. In all areas where site is going to be established vegetation will be disturbed.
		Fauna disturbances	Animals within the prospecting area will move to other location because of the disturbances if precaution is not followed. Animals may also be killed by vehicles.
		Loss of authentic	The natural environment of the area will be disturbed.

Operational phase		value	
		Soil erosion	This may happen as a result of improper storage of topsoil as it may be washed away by heavy rains or by wind.
		Topography	The natural slope of the area will be disturbed.
	Drilling	Surface disturbance	The ground will be compacted and also be disturbed because of drilling activities.
		Air pollution	Dust will be generated from the drilling of boreholes. Air pollution caused by carbon and hydrocarbons from vehicles and generator using combustion of fuels.
		Noise pollution	Noise impact from the prospecting equipment will be created.
		Soil pollution	Contamination of soil may occur from accidental spillages from the machineries.
		Surface and ground Water pollution	If accidental hydrocarbons spills are not removed with immediate effect after they spill, this may lead to surface and ground water contamination. If drilling is conducted within 100m from the river or wetland area water may be contaminated. However, Motjoli company will not prospect within 100m from any water resource.
		Vegetation loss	Some of the vegetation will be disturbed during drilling period.
		Fauna disturbances	Animals within the prospecting area will move to other location or be in danger.
		Waste generation	Littering of domestic and industrial waste during exploration.
Loss of authentic value		The temporary storage of overburden will be visible to the community.	
Ground vibrations		Minor ground vibration during reverse circulation	

			drilling will occur.
		Topography	The natural slope of the area will be disturbed as a result of boreholes, stick piles and overburden during the prospecting period.
		Conflict of land use	Prospecting activities will have conflict with the current land-use which is grazing and residential purpose.
		Soil erosion	This may happen as a result of improper storage of topsoil as it may be washed away by heavy rains or blown away by winds.
		Socio-economic (positive impact)	As with all extractive industries, diamonds prospecting has the potential to generate significant economic benefits. These can be seen directly through increased employment, training, salaries and wages and government revenues (royalties and taxes). It can also provide economic stimulus to the local and broader economy through secondary industries such as retail and service sectors that supply the mine and the mine's employees.
		Veld fires	Veld fires may occur as a results of negligent by workers e.g. throwing burning cigarettes.
Operational phase	Trenching/pitting	Surface disturbance	The ground will be compacted and will also be excavated.
		Air pollution	Dust will be generated from movement of the prospecting equipment when the gravel is being excavated
		Noise pollution	Noise impact will be created during the prospecting period
		Soil pollution	Contamination of soil may occur from accidental spillages from the machineries.
		Water pollution	If accidental hydrocarbons spills are not removed with immediate effect after they spill, this may lead to surface and ground water contamination. If drilling is

			conducted within 100m from the river or wetland area water may be contaminated. However, Motjoli company will not prospect within 100m from any water resource.
		Vegetation loss	Some of the vegetation will be disturbed on these areas
		Waste generation	Littering of domestic and industrial waste during exploration.
		Fauna disturbances	Animals within the prospecting area will move to other location because of the proposed prospecting activities. Poaching of animals may occur.
		Loss of authentic value	The temporary storage areas will be visible to the surrounding community.
		Topography	The natural slope of the area will be disturbed as a result of trenches, stock piles and overburden during the prospecting period.
		Soil erosion	This may happen as a result of improper storage of topsoil as it may be washed away by heavy rains or by wind.
		Health risk to workers or general public	This can happen if worker or general public inhale excessive dust or drink contaminated water as a result of the prospecting activities. This can also occur if the Mine Health and Safety Act is not implemented
		Socio-economic (positive impact)	As with all extractive industries, diamonds prospecting has the potential to generate significant economic benefits. These can be seen directly through increased employment, training, salaries and wages and government revenues (royalties and taxes). It can also provide economic stimulus to the local and broader economy through secondary industries such as retail and service sectors that supply the mine and the mine's employees.

Decommissioning Phase		Conflict of land use	Prospecting activities will have conflict with the current land-use which is farming/ grazing.
		Heritage sites	Heritage feature may be disturbed during the trenching of the area.
		Veld fires	Veld fires may occur as a results of negligent by workers e.g. throwing burning cigarettes.
	Positive impacts	Surface disturbance	All surface disturbed will be rehabilitated to its original state. All compacted ground will be ripped to a depth of 300mm.
		Soil pollution	Contamination of soil from accidental seepage will be cleaned from the site.
		Vegetation loss	The area will be ripped to allow vegetation growth.
		Fauna disturbances	If re-vegetation occur the area will attract animals
		Loss of authentic value	Temporary slime dam will be visible to the surrounding community.
		Topography	The area will be returned to its natural slope.

2.2.2 Potential cumulative impacts.

Cumulative impacts	Description
Air pollution	Dust will be generated from movement of the prospecting equipment and when the gravel is being excavated will be cumulative since Motjoli will be using existing access roads to access the proposed prospecting sites.
Noise pollution	Noise created by adjacent activities and the proposed prospecting activities. This impact will be cumulative.
Water pollution	If accidental hydrocarbons spills are not removed with immediate effect after they spill, this may lead to surface and ground water contamination.

2.2.3 Potential impact on heritage resources

There are no known areas with a heritage resource on the proposed area under application. South African Heritage Resource Agency (SAHRA) will be consulted in order to find out if it is necessary to conduct Phase 1 of Heritage Impact assessment. If there is a need to conduct the above mentioned study, Phase 1 of Heritage Impact Assessment will be conducted before prospecting activities take place to determine if there are historical site within the prospecting area that need protection. Therefore, there won't be any impact on the heritage sites since the location of the heritage site will be avoided and no prospecting will be done 100m from any heritage resources or graves. If any heritage resource is identified, that area will be fenced-off. Full Heritage Impact Assessment, inclusive of an Archaeological and Paleontological Impact Assessment, will be conducted prior to any bulk sampling related activities occurring within the proposed application area.

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.)

Conflict of land use:

The current land use is grazing and residential land and after rehabilitation of all disturbed area as a result of prospecting activities, the area will be returned to its original state and can again be used as a grazing land. During the prospecting period the area which is going to be prospected will be fenced off in order to restrict any access of farm animals and human beings into the excavations and boreholes to be prospected. No poaching of game animals will be allowed. There will be no prospecting activities that will take place within 100m from any housed or structure and resident will be consulted when drilling will take place. Concurrent rehabilitation will take place meaning that only one trench will be excavated and rehabilitated before moving to the next trench. Time frames for prospecting will be provided to the lawful occupiers and no activities will take place during the night.

The farm owners and the adjacent farm owner may be impacted on by the visual, noise and dust generated from the proposed prospecting of diamonds. Therefore, looking at the extent of the proposed prospecting activities to be conducted and the proposed mitigations for managing the negative environmental impacts, most of the impact will be rated as low.

Noise generation is likely to be one of the biggest impacts at the site during the prospecting operation. All efforts will be made to reduce noise levels via the use of efficient, well maintained equipment and the location of any noise generating equipment in noise checked areas or at distant locations from sensitive receptors.

Petrol station on portion 21 of Doornfontein along N12 won't be disturbed since most of the prospecting will be non invasive and only one borehole will be drilled more than 300m away on the boundary of farm number 21 and 9. Therefore vibrations won't affect the filling station.

Socio-economic (Positive impact)

Some of the workers will be employed from the community and the community will be given first preference with regard to employment criteria. Training will be given to the workers meaning that some of the community members will gain skills from the proposed prospecting activities.

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 list of the potential impacts has been compiled with the participation of the landowner and interested and affected parties (refer to the attached proof of public participation). However consultation will be an on-going process throughout the prospecting period.

2.2.6 Confirmation of specialist report appended.

(Refer to guideline)

Due to the limited scope and scale of the proposed prospecting operation no specialist studies were deemed necessary or undertaken. Therefore no specialist report was appended. South African Heritage Resource Agency (SAHRA) will be consulted in order to find out if it is necessary to conduct Phase 1 of Heritage Impact assessment. If there is a need to conduct the above mentioned study, Phase 1 of Heritage Impact Assessment will be conducted before prospecting activities take place to determine if there are historical site within the prospecting area that need protection. The reports of the above mentioned studies will be submitted to DMR and SAHRA. If there is any specialist studies recommended by any of the consulted Departments, such special study will be conducted and the report will be provided.

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 assessment of the impacts has been conducted according to a synthesis of criteria required by the integrated environmental management procedure.

Nature of impact

This is an appraisal of the type of effect the activity would have on the affected environmental component. Its description should include what is being affected, and how.

Extent

The physical and spatial size of the impact. This is classified as follows:

Local

The impacted area extends only as far as the activity, e.g. a footprint.

Site

The impact could affect the whole, or a measurable portion of the property.

Regional

The impact could affect the area including the neighbouring farms, transport routes and the adjoining towns.

Cumulative

The impact could have a cumulative effect with the surrounding land uses.

Duration

The lifetime of the impact which is measured in the context of the lifetime of the proposed phase (i.e. construction or operation)?

Short term

The impact will either disappear with mitigation or will be mitigated through natural process in a short time period.

Medium term

The impact will last up to the end of the prospecting period, where after it will be entirely negated.

Long term

The impact will continue or last for the entire operational life of the mine, but will be mitigated by direct human action or by natural processes thereafter.

Permanent

The only class of impact, which will be non-transitory. Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient.

Intensity

This describes how destructive, or benign, the impact is. Does it destroy the impacted environment, alter its functioning, or slightly alter it. These are rated as:

Low

This alters the affected environment in such a way that the natural processes or functions are not affected.

Medium

The affected environment is altered, but function and process continue, although in a modified way.

High

Function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases. This will be a relative evaluation within the context of all the activities and the other impacts within the framework of the project.

Probability

This describes the likelihood of the impacts actually occurring. The impact may occur for any length of time during the life cycle of the activity, and not at any given time.

The classes are rated as follows:

Improbable

The possibility of the impact occurring is very low, due either to the circumstances, design or experience.

Probable

There is a possibility that the impact will occur to the extent that provisions must be made therefore.

Highly probable

It is most likely that the impacts will occur at some or other stage of the development.

Definite

The impact will take place regardless of any preventative plans, and mitigation measures or contingency plans will have to be implemented to contain the impact.

Determination of significance

Significance is determined through a synthesis of impact characteristics. Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. The classes are rated as follows:

No significance

The impact is not likely to be substantial and does not require any mitigatory action.

Low

The impact is of little importance, but may require limited mitigation.

Medium

The impact is of importance and therefore considered to have a negative impact. Mitigation is required to reduce the negative impacts to acceptable levels.

High

The impact is of great importance. Failure to mitigate, with the objective to reduce the impact to acceptable levels, could render the entire development option or entire project proposal unacceptable. Mitigation is therefore essential.

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

PHASES	PROSPECTING ACTIVITY	POTENTIAL IMPACT	EXTENT	DURATION	INTENSITY	PROBABILITY	SIGNIFICANCE
Construction phase	Site establishment Activities	Surface disturbance	Site	Medium	Medium	Definite	Medium
		Air pollution	Cumulative	Short term	Medium	Definite	Medium
		Noise pollution	Cumulative	Short term	Medium	Definite	Medium
		Soil pollution	Local	Medium	Medium	Definite	Medium
		Surface and Ground	Local	Medium	Medium	Probable	Medium
		Water Pollution					
		Soil erosion	Local	Medium	Medium	probable	Medium
		Vegetation loss	Site	Long-term	Medium	Definite	Medium
		Fauna disturbances	Site	Long-term	Medium	Definite	Medium
		Loss of authentic value	Site	Long-term	Medium	Definite	Medium
		Waste generation	Local	Short-term	Medium	Probable	Medium
		Topography	Regional	Medium	Medium	Definite	Medium
Operational phase	Drilling of 6 Boreholes	Surface disturbance	Site	Medium	Medium	Definite	Medium
		Air pollution	Cumulative	Medium	Medium	Definite	Medium
		Noise pollution	cumulative	Medium	Medium	Definite	Medium
		Soil pollution	Local	Medium	Medium	Definite	Medium
		Surface and Ground	Site	Medium	Medium	Probable	Medium
		Water Pollution					
		Vegetation loss	Site	Long-term	Medium	Definite	High
		Fauna disturbances	Site	Long-term	Medium	Definite	Medium
		Ground Vibrations	Local	Medium	Medium	Definite	Medium
		Loss of authentic value	Regional	Long-term	Medium	Definite	Medium

Trenching Activities	Waste generation	Local	Short-term	Medium	Probable	Medium
	Soil erosion	Local	Medium	Medium	probable	Medium
	Topography	Regional	Medium	Medium	Definite	Medium
	Health risk to workers or general public	Regional	Long-term	Medium	Probable	Medium
	Heritage sites	Local	Short-term	Medium	Probable	Medium
	Land use conflict	Regional	Long-term	Medium	Definite	High
	Surface disturbance	Site	Medium	Medium	Definite	High
	Air pollution	Cumulative	Long-term	Medium	Definite	Medium
	Noise pollution	cumulative	Medium	Medium	Definite	Medium
	Soil erosion	Local	Medium	Medium	probable	Medium
	Soil pollution	Local	Medium	Medium	Definite	Medium
	Surface and Ground Water Pollution	Site	Medium	Medium	Probable	Medium
	Vegetation loss	Site	Long-term	Medium	Definite	Medium
	Fauna disturbances	Site	Long-term	Medium	Definite	High
	Loss of authentic value	Regional	Long-term	Medium	Definite	Medium
	Waste generation	Local	Short-term	Medium	Probable	Medium
	Topography	Regional	Medium	Medium	Definite	Medium
	Health risk to workers or general public	Regional	Long-term	Medium	Probable	Medium
	Heritage sites	Local	Short-term	Medium	Probable	Mediu

		Land use conflict	Regional	Long-term	Medium	Definite	High
		Veld fires	Regional	Short term	Medium	Probable	Medium
Decommissioning phase	Final rehabilitation (removal of equipment and ripping the roads)	Noise pollution	Local	Short term	Low	Probable	Low
		Dust	Regional	Short	Medium	Definite	Medium
		Air pollution	Local	Short term	Low	probable	Low
		Soil pollution	Site	Medium	Low	probable	Medium

3.1.3 Assessment of potential cumulative impacts.

IMPACT	EXTENT	DURATION	INTENSITY	PROBABILITY	SIGNIFICANCE
Air pollution	cumulative	Long-term	Medium	Definite	Medium
Water pollution	Regional	Medium	Medium	Probable	
Noise pollution	Regional	Medium	Medium	Definite	Medium

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.

Although there are significant activities that pose a greater risk to the significance of impacts on the environment the entire invasive operation will be monitored and mitigation measures implemented to prevent any environmental degradation.

The above mentioned significant activities include:

- Drilling Process
- Trenching/Pitting Process
- Hauling Process
- Water Usage

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)

Air quality:

Air quality will be minimised by means of the following:

- Dust suppressions by means of water spraying will be implemented on haul roads and unpaved areas when there is a need.
- Avoidance of unnecessary removal of vegetation
- Vehicles will be properly serviced in order for them to minimise emission of CO²
- Re-vegetation of rehabilitated areas not occupied by plant infrastructure to take place as soon as possible.
- Keeping material in the aqueous phase
- All workers will have access to respiratory protection equipment
- Stock piles will always damped
- Speed limit of 40km/hour will be maintained at all times during the lifespan of the prospecting activities.
- Dust fall-out buckets will be installed within and outside the prospecting area in order to monitor dust emission from the prospecting activities. The buckets will be placed in areas where accurate result will be attained.

- Any complain with regards to the emission of dust from the proposed prospecting activities from interested and affected parties will be considered at all times and correct mitigation measures will be implemented.

Flora:

Vegetation will be protected by avoiding unnecessary clearance and by using existing roads at all times. All vehicles will be monitored so that they move on the existing tracks at all times. All prospected areas will be rehabilitated and re-vegetation will take place naturally. If re-vegetation do not take place naturally therefore seeding of the prospected area with surrounding indigenous species will be considered. Rehabilitated area will be monitored to avoid other disturbances on rehabilitated area until vegetation is fully grown. Open fire that will end up destroying the vegetation will be avoided at all times. Fire extinguisher will always be available on site through the prospecting period. If invader species are encountered they will be uprooted, felled or cut off and can be destroyed completely. The plants will be treated with an herbicide that is registered for use in connection therewith and in accordance with the directions for the use of such an herbicide." Valid permits from Northern Cape Nature Conservation will be obtained before any protected plant species are removed.

Fauna:

- Prospecting areas will be fenced off in order to restrict access of any animal or human.
- Speed limits of vehicles inside the application area will be strictly controlled to avoid road kills.
- No poaching will be allowed on site
- The Department of Nature Conservation will be contacted if any endangered species are encountered.
- Any form of snares or traps on the site will be removed and farm.
- Game animals will be relocated if necessary.
- Fire will not be allowed on site and workers will bring their own cooked food.

- Any area that is rehabilitated or decommissioned will be seeded with a seed mixture reflecting the natural vegetation as is currently found and which may attract back animal species.

Noise:

The company will comply with the occupational noise regulations of the Occupational Health and safety Act, Act 85 of 1993. As a minimum, ambient noise levels emanating from the mine will not exceed 82 dBA at the site boundary. The company will comply with the measures for good practice with regard to management of noise related impacts during construction and operation. The management objective will be to reduce any level of noise, shock and lighting that may have an effect on persons or animals, both inside the plant and that which may migrate outside the plant area.

Hearing protection will be available for all employees where attenuation cannot be implemented. If any complaints are received from the farm owner, the general public or state department regarding noise levels, the levels will be monitored at prescribed monitoring points. Appropriate measures will specifically be installed and or employed at the plant to act as screen and to reflect/reduce the noise. The vehicles and the equipment will be equipped with silencers on their exhaust system.

Prospecting will only take place during the day from 06h00AM-06h00PM. The site manager will be responsible for monitoring noise within the mine. No loud music will be allowed within the prospecting area. Workers will be inducted with regard to the measure to reduce noise pollution on site.

Soil pollution and surface & ground water contamination:

Topsoil will be stripped and stored separate from overburden and will not be used for building or maintenance of access roads. The stored topsoil will be adequately protected from being blown away or being eroded. The topsoil will be used during the rehabilitation of any impacted areas, after sloping in order to re-establish the same land capability. If any soil is contaminated during the life of the prospecting activities, it will be immediately scooped and stored in the enclosed containers or plastic to be removed with the industrial waste to a recognized facility or company for further treatment. Small spills will be treated on site using bio-sorb or oil cap.

Mechanical equipment:

All mechanical equipment will be in good working order/condition and vehicles will adhere to the relevant noise requirements of the Road Traffic Act. All vehicles in operation will be equipped with a silencer on their exhaust system. Safety measures, which generate noise such as reverse gear alarms on large vehicles, will be appropriately calibrated/adjusted. Hydrocarbon such as diesel or oil will be stored in the mobile tank which will be brought on site on a daily basis. Drip trays will be placed under the mobile tanker and vehicles/equipment in order to avoid accidental spills.

Ground water mitigation

During rehabilitation, one of the primary considerations is the isolation of material from the environment. This includes measures to reduce the potential long-term impact on groundwater, erosion controls to prevent surface water impacts and cover sequences to prevent biological penetration of tailings structures. Monitoring for this pathway will generally involve environmental sampling determination. However, care is required because of natural variability. In a number of cases the operational component may be far smaller than the natural background levels, the operational component will be determined and taken into account.

Visual impact:

Concurrent rehabilitation will be implemented throughout the prospecting operation, meaning that each borehole will be rehabilitated before moving to the next area to be drilled. One trench will be opened and rehabilitated at a time before moving to the other side. The area will be rehabilitated to its original state meaning that no visual impact will be left on site. All equipment will be removed from site during the decommissioning phase of the prospecting operation.

Conflict of land use

The current land use is livestock farming/grazing land and after rehabilitation of all disturbed area as a result of prospecting activities, the area will be returned to its original state and can again be used as a grazing land. During the prospecting

period all live stock or any game animal will be relocated if it is necessary and the prospecting areas will be fenced-off.

Surface disturbance and topography:

Concurrent rehabilitation will be implemented throughout the prospecting operation, meaning that each borehole and a trench will be rehabilitated before moving to the next area to be prospected. All surface disturbed will be rehabilitated at this stage. All compacted ground will be ripped to a depth of 300mm. All rehabilitated areas will be monitored and if vegetation is not growing naturally seeding of the areas will be considered.

Ground vibration

Minor vibration will take place as a result of reverse circular drilling that will take place from the proposed prospecting activities and will only affect structures that will be within 100m from the activities. No drilling will be done within 100m from any structure or building. The resident will be notified regarding the time of drilling.

Waste generation:

Wastes will be stored temporally within marked containers where they will be collected every week and deposited to a licenced facility. Industrial waste will be collected by contractors to the registered facility when there is a need. Employees must be instructed on how to tell the difference between hazardous waste and general waste. Littering will not be allowed within or outside the prospecting boundaries.

Impacts on the heritage sites:

Phase 1 of Heritage Impact assessment will be conducted before prospecting activities take place to determine if there are historical site within the prospecting area that need protection. Therefore, there won't be any impact on the heritage sites since the location of the heritage site will be avoided and no prospecting will be done 100m from any heritage resources. If any heritage resource is identified, that area

will be fenced-off. South African Heritage Resource Agency (SAHRA) will be consulted in order to find out if it is necessary to conduct the above mention study. Full Heritage Impact Assessment, inclusive of an Archaeological and Paleontological Impact Assessment, will be conducted prior to any bulk sampling related activities occurring within the proposed application area.

3.2.3 Review the significance of the identified impacts

(After bringing the proposed mitigation measures into consideration).

After bringing the proposed mitigation measures into consideration all the impact resulting from the prospecting operation will be medium to low significance. The company will always avoid the impacts to occur within the prospecting areas as a result of their prospecting activities and in areas where they cannot be avoided they will be minimised. Monitoring will be conducted in a daily basis in all areas where possible impacts may occur.

Below is the table of overall significant impacts assessment after mitigation measures being implemented successfully:

IMPACT	EXTENT	DURATION	INTENSITY	PROBABILITY	SIGNIFICANCE
Surface disturbance	Site	Short term	Low	Highly probable	Medium
Air pollution	Site	Medium	Low	Highly probable	Low
Noise pollution	Site	Medium	Low	Probable	Low
Soil pollution	Local	Medium	Low	Probable	Low
Surface and Ground Water Pollution	Regional	Short term	Low	Improbable	Low
Vegetation loss	Site	Medium	Low	Improbable	Medium
Fauna disturbances	Local	Medium	Low	Probable	Low

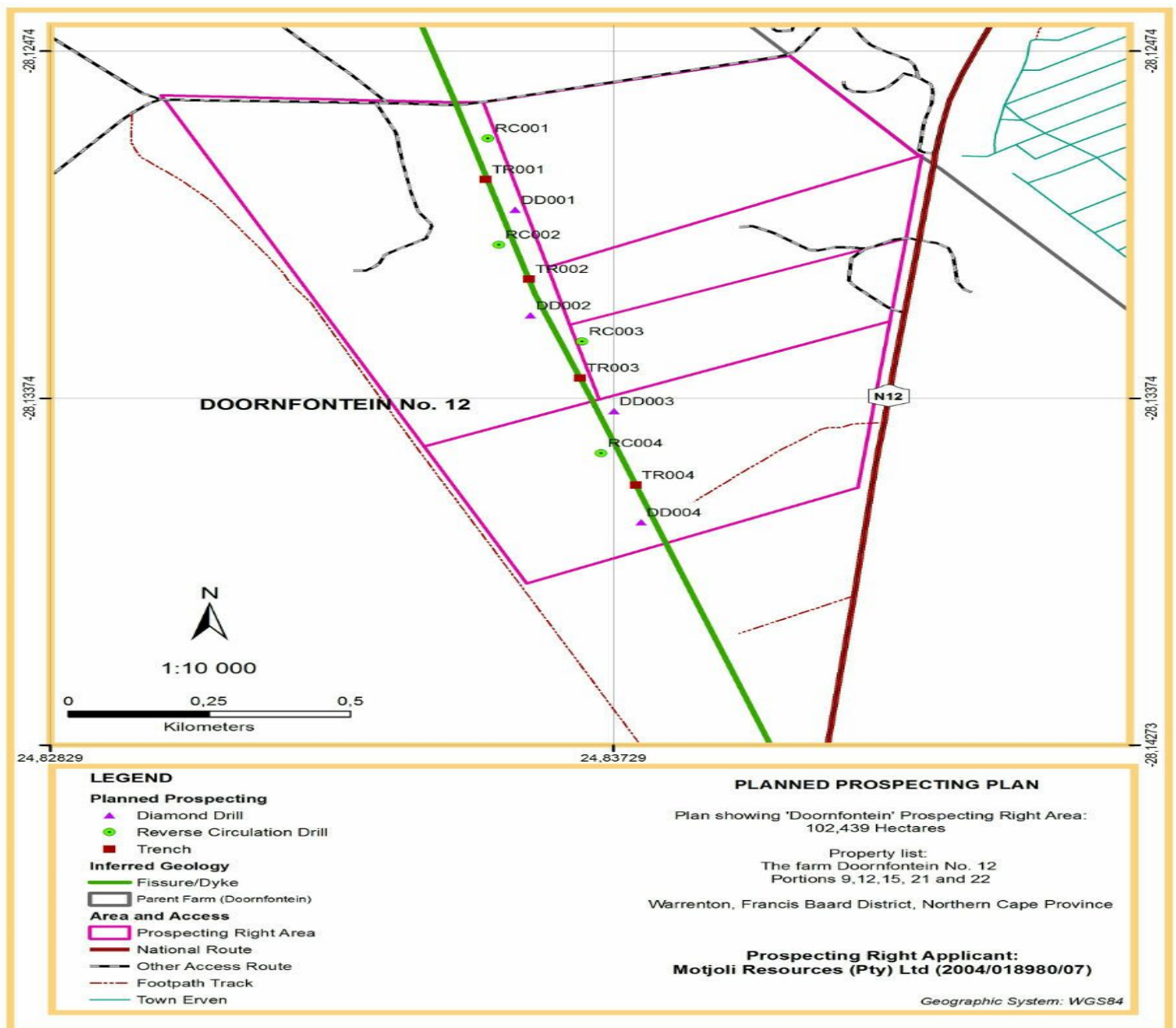
Loss of authentic Value	Site	Medium	Low	Probable	Low
Waste generation	Local	Short-term	Low	Probable	Low
Topography	Site	Short term	Low	Probable	Low
Soil erosion	Site	Short term	Low	Probable	Low
Ground Vibrations	Site	Short term	Low	Probable	Low
Health risk to workers or general public	Site	Medium	Low	Probable	Low
Heritage sites	Local	Short-term	Low	Improbable	Low
Land use conflict	Site	Medium	Low	Probable	Medium
Socio-economic (positive impact)	Cumulative	Long-term	Low	Definite	Low
Veld fires	Site	Short term	Low	improbable	Low

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).

Main planned prospecting areas



Boreholes: 8 boreholes = $10 \times 10 \times 8 / 10000 = 1.08$ ha

Trenches: 4 trenches = $5 \times 5 \times 4 / 10000 = 0.01$ ha

One mini slime dam = $10 \times 10 \text{m} = 100 \text{m}^2 = 0.01$ ha

Topsoil storage = $10 \times 10 \text{m} = 100 \text{m}^2 = 0.01$ ha

Fence = 400m

Mobile Chemical toilets: $2 \times 2 \times 2 \text{m} = 0.0008$ ha.

Storage Site-A lockable storage container = $10 \times 5 \text{m} = 50 \text{m}^2 = 0.005$ ha

Mobile Water tanker = 40m³

Access roads = 200m

Processing area = $30 \times 20 \text{m} = 1000 \text{m}^2 = 0.1$

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).

- The closure objectives are to create a post-mining state as close as possible to the pre-prospecting state of the environment. This can be accomplished by the correctness of rehabilitation and proper after-care activities.
- All waste materials shall be dumped into the trenches and boreholes and left to settle, with a layer of topsoil evenly spread over the area to ensure vegetable growth. If deemed necessary, grass seeds will be collected or obtained, sowed and watered. The area where the tailings were removed will be ripped and left for regrowth of vegetation.
- Unnecessary roads and the plant site will be cleared of foreign materials and ripped to loosen the ground for vegetation re-growth. After final rehabilitation is completed a 1 to 2 year after-care plan is initiated to ensure a satisfying vegetation re-growth rate and the successful establishment of indigenous vegetation.
- **Free draining landform:** The backfilling of the site is important for both safety reasons and also to allow vegetation to re-establish itself in the area. The aim must be to create a free draining landform that is not susceptible to erosion.

• **Self-sustaining ecosystem:** The main goal and objective of rehabilitation is to rehabilitate the area disturbed to the degree that it no longer requires much management intervention. It is important to prevent residual impacts such as erosion by water and wind. This is best achieved by re-establishing vegetation communities. Re-vegetation will occur naturally overtime as the area has a small area of disturbance and will be colonised by surrounding vegetation. However, monitoring the area to ensure weed species do not establish and recolonize is important. Due to prevailing climate it is not expected that weeds will colonise quickly and should therefore only require limited monitoring intervals. Every four (4) months for two years should be sufficient to adequately monitor the rehabilitation of the area.

The closure objectives are also include the following:

- To prevent the sterilization of any ore reserves.
- To prevent the establishment of any permanent structures or features.
- To manage and limit any impact to the surface and groundwater aquifers in such a way that an acceptable water quality and yield can still be obtained, when a closure certificate is issued.
- The mine also has the objective to establish a stable and self-sustainable vegetation cover.
- To limit and rehabilitate any erosion features and prevent any permanent impact to the soil capability of the mine.
- To limit and manage the visual impact of the mine.
- To safeguard the safety and health of humans and animals on the mine.
- The last closure objective is that the mine is closed efficiently, cost effectively and in accordance with government policy.

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).

CALCULATION OF THE QUANTUM

Applicant: **Motjoli Resources (Pty) Ltd**
 Evaluators: **Ndi Geological Consultant Services**

Ref No.: **111557PPR**
 Date: **Mar-15**

No.	Description	Unit	A Quantity	B Master Rate	C Multiplication factor	D Weighting factor 1	E=A*B*C*D Amount (Rands)
1	Dismantling of processing plant and related structures (including overland conveyors and powerlines)	m3	0	12,21	1	1	0
2 (A)	Demolition of steel buildings and structures	m2	0	170,13	1	1	0
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	250,72	1	1	0
3	Rehabilitation of access roads	m2	200	30,44	1	1	6088
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	295,49	1	1	0
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	0	161,18	1	1	0
5	Demolition of housing and/or administration facilities	m2	0	340,26	1	1	0
6	Opencast rehabilitation including final voids and ramps	ha	0,01	173174,97	0,05	1	86,587485
7	Sealing of shafts adits and inclines	m3	0	91,33	1	1	0
8 (A)	Rehabilitation of overburden and spoils	ha	0	118912,29	1	1	0
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0,01	148103,1	1	1	1481,031
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	430161,62	1	1	0
9	Rehabilitation of subsided areas	ha	0	99571,13	1	1	0
10	General surface rehabilitation	ha	0,1958	94198,59	1	1	18444,08392
11	River diversions	ha	0	94198,59	1	1	0
12	Fencing	m	400	107,45	1	1	42980
13	Water management	ha	0,02	35816,95	1	1	716,339
14	2 to 3 years of maintenance and aftercare	ha	0,02	12535,93	1	1	250,7186
15 (A)	Specialist study	Sum	0		1	1	0
15 (B)	Specialist study	Sum	0		1	1	0
			Sub Total 1				70046,76001
1	Preliminary and General		8405,611201		weighting factor 2		8405,611201
2	Contingencies			7004,676001	1		7004,676001
			Subtotal 2				85457,05
			VAT (14%)				11963,99
			Grand Total				97421

4.4 Undertaking to provide financial provision

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

The financial provision to the amount of R97, 421.00 will be provided to the Department by means of bank guarantee or cash deposit or any approved method.

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

5.1 List of identified impacts requiring monitoring programmes.

All prospecting actions, activities and processes should be monitored against the mitigation measures as stipulated above in Section 3.2.2 of this document on a regular basis.

- Dust
- Water
- Noise
- Interference with existing land uses;
- Vegetation
- Displacement, injury and death of local fauna;
- Soil erosion;
- Soil contamination and pollution;
- Waste generation and disposal.

5.2 Functional requirements for monitoring programmes.

1. Air quality (Dust) the site environmental personnel will be responsible for managing all environmental impact as results of the prospecting activities. he/she will make sure that the following measures are implemented:
 - a) Roads are sprayed by water when there is a need.

- b) This impact will be monitored throughout the day and where it is encountered it will be suppressed by means of spraying water.
 - c) Atmospheric pollution prevention Act will be followed at all times.
 - d) Dust fall-out buckets are properly located and this must also be monitored throughout the day.
 - e) Monitoring of dust exposure will include use of active air sampling, passive dust collectors.
 - f) The National Environment Management: Air Quality Act, 2004 (Act No.39 of 2004) (All Sections of this Act, except Section 21,22,36 to 49, 51 (1)(e), 51(1)(f), 51(3), 60 and 61 have taken effect on 11 September 2005); will be adhered to at all times.
 - g) The Prospecting Health and Safety Act, 1996 (Act No. 29 of 1996) as amended and other legislation or regulations will also be adhered to at all times to avoid air pollution.
2. Soil and Water Pollution- the vehicles and equipment will be monitored before the commencement of any daily prospecting activity to avoid any soil contamination which may lead to ground water contamination. Surface water will be protected by adhering to The National Water Act, 1998 (Act No. 36 of 1998).
3. Noise- Bureau of Standards Code of Practice for the Measurement and Assessment of Occupational Noise for Hearing Conservation Purposes, SABS 083 as amended, in any place at or in any mine or works where persons may travel or work, exceeds 82 dB (A), the site manager will take the necessary steps to reduce the noise below this level. Noise monitor machine will be used to find out if the noise generated from the prospecting activities is exceeding the standard. The following will be adhered to:
- a) The Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) – Section 7.
 - b) The Mine Health and Safety Act, 1996 (Act No. 39 of 1996) as amended.
 - c) The Road Traffic Act, 1997 (Act No. 93 of 1997);

4. Interference with existing land uses:
 - Inform landowners in writing of intent and comply with reasonable request to reduce the impact.
 - Negotiate compensation for interference with landowner/lawful occupier
 - Visual confirmation of rehabilitation
 - Approval of rehabilitation by landowner/lawful occupier

5. Vegetation:
 - Site clearance to be kept to a minimum and avoid unnecessary removal of Vegetation.
 - Visual inspection to make sure that vehicle utilise the existing tracks as possible.
 - No removal, disturbance or pruning of large to medium shrubs or tress
 - Visual marking of sensitive species

6. Displacement, injury and death of local fauna:
 - Site clearance to be kept to a minimum
 - Visual marking of sensitive species and areas
 - Visual inspection of fencing and/or other safety measures
 - On site log to be kept

7. Soil erosion:
 - Visual confirmation of soil erosion controls, soil profile disturbance and topsoil management where required.

8. Waste generation and disposal:
 - Visual inspection that waste does not accumulate inside or outside drill site.
 - All waste such as oil spills must be stored separately and disposed of at a registered facility
 - Proof of disposal must be kept on site.

EMP checklist will be compiled and utilised during the prospecting period.

5.3 Roles and responsibilities for the execution of monitoring programmes.

The environmental officer, geologist will be responsible for all monitoring Programs. The site manager will be responsible for the overall monitoring Programs.

5.4 Committed time frames for monitoring and reporting.

All the impacts will be monitored through-out the prospecting period on the daily basis and the Monitoring report will be submitted to the Department of Mineral Resources on the annual basis

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).

The goal of rehabilitation with respect to the area where drilling and trenching took place is to leave the area to similar to its previous state prior prospecting activity. All other equipment's and material used during operation will be removed from the area, including other waste. Removal of these materials shall be done on a continuous basis and not only at the final stage of rehabilitation and closure.

- Rehabilitation of drilled holes will be done immediately after each hole is finished to prevent degradation of the environment and to prevent injuries.
- RC drill holes will be backfilled with drill samples and cement.
- Diamond drilling holes will be capped and sealed by a cement.

- Overburden will be stored adjacent to the trenches in order to avoid any delay during rehabilitation period.
- All trenches and slime dam will be rehabilitated using overburden material following their sequence and topsoil be spread over.
- The area will be seeded with the surrounding vegetation if plant succession does not naturally occur.
- If water is encountered the drill hole will be discussed with the surface owners and if the surface owner decides to keep it the necessary arrangements will be made.
- The compacted ground will be ripped to a depth of 300mm.
- Mobile equipment will be removed from the site.
- Any waste within the area will be collected to the registered facility and the area will be left as clean as it was before prospecting activities.

The slope of the rehabilitated area will be flat after rehabilitation. Since the area will be seeded with surrounding plant species, this will attract back the animal life into the area. The final land use of the prospecting area will be returned back to livestock farming/ grazing land. The area can be used as an agricultural land after prospecting activities cease.

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

Closure objectives:

The closure objectives are to create a post-prospecting state as close as possible to the pre-prospecting state of the environment. This can be accomplished by the correctness of rehabilitation and proper after-care activities.

- To prevent the sterilization of any ore reserves.
- To prevent the establishment of any permanent structures or features.

- To manage and limit any impact to the surface and groundwater aquifers in such a way that an acceptable water quality and yield can still be obtained, when a closure certificate is issued.
- To safeguard the safety and health of humans and animals on the mine.
- The last closure objective is that the mine is closed efficiently, cost effectively and in accordance with government policy.

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 environmental objectives in relation to closure have been consulted with landowners, interested and affected parties. Letters have been sent to the interested and affected parties and meetings or presentations were done (please see the attached proof of public participation)

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)

The following interested and affected parties were identified and public participation was undertaken by giving letters to the land owners, advert on the local newspaper, and notices on the public place as well as conducting presentations. **(the proof has been attached as an appendix).**

Table of the surface owners

SURFACE OWNERS	PROPERTY	TITTLE DEED
Pietersen, Derrick Victor and Pietersen, Elaine Mildred	Portion 9 Of Doornfontein No.12	T18677/1926
Morolong, Elvis Stephy	Portion 15 Of Doornfontein No.12	T780/2005
Black Ginger 489 Pty Ltd	Portion 21 Of Doornfontein No.12	T2724/2008
Oliphant, Gaolatlhe Godfrey	Portion 12 and 22 Of Doornfontein No.12	T556/2009

Other interested and affected parties identified:

1. The Magareng Local Municipality - Local Economic Development department
2. Warrenton community
3. Warrenvale community
4. Ikhutseng community; and
5. Stasie community
6. The Department of Environmental Affairs
7. The Department of Water Affairs
8. Department of Mineral Resources
9. SAHRA

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.

Letters that served as notices and introduction of subject were sent to the landowners, community representatives and organisations. Notices for invitation for participation were plugged up on a number of “hotspot” areas inside Warrenton town. See Appendix 1(Letters) and Appendix 2 (Site notice pictures and Newspaper Notification)

A summary of the intended prospecting activity was provided in writing in great detail in the Prospecting Work Programme and also verbally (during consultation). Maps and all other supporting documents were available for the benefit of all stakeholders.

Presentations were done in Warrenton community hall on the 11 and 19 February 2015 in order to give all interested and affected parties' detailed information regarding the proposed prospecting activities. The attended parties were given opportunity to comment or to ask question regarding the proposed project.

Kindly note that public participation will be an on-going process were potential interested and affected parties are always consulted and /or notified during the prospecting application period throughout the prospecting period. All the concerns raised by the interested and affected parties will be attended to at all time.

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

The below mentioned parties were consulted:

- Magareng Local Municipality
- Pietersen, Derrick Victor
- Pietersen, Elaine Mildred
- Morolong, Elvis Stephy
- Black Ginger 489 Pty Ltd

- Warrenton community
- Warrenvale community
- Ikhutseng community; and
- Stasie community

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

No views were raised with regard to the cultural environment. However, the following views were raised regarding socio-economic and biophysical environment:

Stakeholder	Date of Consultation	Comments received
Derrick Pietersen	24 February 2015	Keen on wholly selling the property
Elvis Morolong	24 February 2015	Air pollution a major concern
Black Ginger	27 February 2015	Major concern is the Petrol station which is a major tourist stop and one of the major employer in the area Kindly also refer to the attached objection letters from the farm.
Godfrey Loliphant	February 2015	No major concerns, access will be granted for exploration purposes.
Warrenton, Ikhutseng, Stassie, Warrenvale	11 February 2015	Major concern is the high levels of unemployment, the community hopes that the proposed prospecting activities could eventual unlock opportunities once a resource has been quantified.

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.

No views were raised with regard to the cultural environment. However, the following views were raised regarding socio-economic and biophysical environment:

Stakeholder	Date of Consultation	Comments received
Derrick Pietersen	24 February 2015	Keen on wholly selling the property
Elvis Morolong	24 February 2015	Air pollution a major concern
Black Ginger	27 February 2015	Major concern is the Petrol station which is a major tourist stop and one of the major employer in the area Kindly also refer to the attached objection letters from the farm.
Godfrey Loliphant	February 2015	No major concerns, access will be granted for exploration purposes.
Warrenton, Ikhutseng, Stassie, Warrenvale	11 February 2015	Major concern is the high levels of unemployment, the community hopes that the proposed prospecting activities could eventually unlock opportunities once a resource has been quantified.

7.2.5 Other concerns raised by the aforesaid parties.

No views were raised with regard to the cultural environment. However, the following views were raised regarding socio-economic and biophysical environment:

Stakeholder	Date of Consultation	Comments received
Derrick Pietersen	24 February 2015	Keen on wholly selling the property
Elvis Morolong	24 February 2015	Air pollution a major concern
Black Ginger	27 February 2015	Major concern is the Petrol station which is a major tourist stop and one of the major employers in the area. Kindly also refer to the attached objection letters from the farm owner.
Godfrey Loliphant	February 2015	No major concerns, access will be granted for exploration purposes.
Warrenton, Ikhutseng, Stassie, Warrenvale	11 February 2015	Major concern is the high levels of unemployment, the community hopes that the proposed prospecting activities could eventual unlock opportunities once a resource has been quantified.

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

Motjoli hereby confirm that all records of the consultations are appended. If any further consultations are done after the submission of this EMP, Motjoli will

forward the record of such consultation to the Department of Minerals Resources.

7.2.7 Information regarding objections received.

Black Ginger Company which is the farm owner forwarded an objection. The major concern is the Petrol station which is a major tourist stop and one of the major employers in the area. It was indicated in the letter that they also stay within the farm. Black Ginger Company also indicated that they were not consulted properly. **Kindly also refer to the attached objection letters from the farm owner and the response letter from the company for detailed information.**

7.3 The manner in which the issues raised was addressed.

All questions, which were asked during the public meeting, were answered to the interested and affected parties and they were also requested to forward their concerns to the relevant person after the meeting for further question that they may have. Contact details were given to the affected and interested parties.

A Letter was sent to Black Ginger Company with regard to the objection. Further communications will be done with this company if required. **(Please refer to the response letters attached sent to the Black Ginger Company for more detail).**

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).

Training will be provided to all employees. Initial environmental induction and or awareness will be conducted before commencement of any daily activity to all employees.

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).

Everyday Awareness

Littering – All workers will be educated on how important is the wild animals that can be harmed or die if they litter any garbage such as plastics for example. Littering of non-degradable wastes such as plastics, glass, rubber and tyres can also pollute our environment since they will not be decomposed. Workers will be educated to separate their waste so that they can be recycled and reused. No glass, paper, plastics and cigarette duds are to be littered during the duration of the prospecting operations. Marked garbage containers will be installed and maintained to prevent littering by workers. Penalties will be communicated to the worker if they do not follow the protocol with regard to littering.

Open fires – Barkly west is an arid district with less than moderate rainfall per annum. It is however by law prohibited to start open fires. Due to the hot and dry conditions of the district is it very susceptible for runaway fires. No open fires will be tolerated during the prospecting period and as this is regarded by law as a criminal offence related penalties can be issued. The littering of self-ignitable substances or objects (e.g. matches) are also not allowed as it will always pose a danger regarding field fires, and if such happen the person responsible to the littering will be charged with arson and related penalties can be issued.

Sanitation and Personal Hygiene

Sanitation and personal hygiene is a very important subject for environmental and social health. Improper sanitation habits can lead to intestinal parasite infestations within humans and animals, endangering the overall health of the recipients. Unfortunately these infestations do not stay only within the host and will spread rapidly throughout a community or herd. Human viruses like Tubercle bacillus (TB) and Herpes simplex, both are very contagious, spread vigorously throughout a community not handling good hygiene habits/practices. Strict use and cleanliness of the toilette facilities will be enforced during the entire life of mine. Employees will further be advised and educated on the importance of consuming clean and fresh water. Several sites will be identified and water tanks will be erected for safe human water consumption.

Fauna –Mine employees will be advised to stay clear from any wild animal or reptile and not to try and provoke them in any manner. They will further be educated on dangerous and poisonous reptiles and the actions to be taken when such reptiles are encountered.

Flora- No indigenous shrubs or trees will be unnecessarily uprooted and utilized for firewood, the employees will rather be advised to utilize pioneer species and be educated on which plant species are indigenous, endangered or pioneer. If any pioneer species are observed the reporting thereof to the rehabilitation site manager will be highly recommended. Penalties will be given to individuals that damage any endangered species e.g. cutting branches/bark from a Camel/Grey Camel tree.

Work Related Awareness

- When handling chemicals make sure of non-spillage procedures are followed
- Scrap must be disposed of in the most appropriate manner
- Plastics and domestic wastes removed from the vehicles need to be discarded in the appropriate manner.
- Daily checking of oil/diesel before vehicle is operated.

- Drip pans must be installed under all stationary vehicles and equipment.
- Strict adherence to the prospecting roads and no off-road driving to prevent trampling to the vegetation.
- Driving speed must be complied with. Beware of animals, workers and other vehicles.
- During fencing/rehabilitation common fence wires may not be left scattered as these rust over time – any cuts to animals and humans (sepsis and tetanus risk) can lead to suffering or great discomfort.
- No metals may be left scattered as it pose the same thread as described directly above.
- All personnel handling work related chemicals must follow handling procedures – any spillage contaminating the ground will pose risk to environmental degradation.
- All workers must always wear protective clothing at all time to reduce health and safety risk.

8.3 Environmental awareness training.

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

ENVIRONMENTAL AWARENES TRAINING PROGRAMME PROCEDURE

Natural resources are limited and not always renewable and it is the responsibility of management to ensure that all employees are trained to understand the impacts of their tasks on the environment and to reduce them wherever possible. Environmental awareness training will be given to new employees on site and any contractors who may come onto site for a short period of time. Refresher training must be given to permanent employees on an annual basis. The objective of this procedure is to ensure that all employees on the, including contractors, are competent to perform their duties, thereby eliminating negative impacts on their safety, health and the environment.

The Environmental topics to be covered in awareness training should include the following:

Resource Management

a. The importance of saving water

- i. South Africa is a water scarce country and rivers are polluted
- ii. Do not throw litter into river or water drains
- iii. Do not dispose of oils in sewers

b. Air pollution - Climate change

- i. The use of fossil fuels is increasing the amount of greenhouse gases that are discharged to the atmosphere. Share transport or use public transport
- ii. Don't burn any rubbish, the smoke pollutes the air
- iii. Plant trees, they clean the air, provide us with oxygen and remove the greenhouse gas carbon dioxide from the air.

c. Soil conservation

- i. Prevent overgrazing of farmlands, keep vegetation on the surface of the land to prevent soil erosion
- ii. Plant trees

HAZARDOUS SUBSTANCE USE AND STORAGE

- a. Solvents, petrol, diesel, insecticides, chlorine, detergents, and chemical fertilisers are harmful to the environment and to your health. Use them sparingly and do not let them get into the water systems. Containers must be disposed of to a licensed hazardous waste disposal facility
- b. Hazardous substances must be stored and used correctly
- c. Ensure that 16 point Material Substances Safety Data Sheets (MSDS) are available at point of store
- d. Compressed gas storage requirements

- e. Flammable substances store requirements

INCIDENT & EMERGENCY REPORTING

The company must have an emergency / incident reporting system whereby environmental incidents can be reported and actioned to mitigate and follow up on.

OIL / DIESEL/ PETROL SPILL CLEAN UP

All employees who work with machines and vehicles must be instructed how to prevent and clean up an oil or diesel spill appropriately. Spill kits must be available on site, drip trays must be used when servicing vehicles or machines.

CONSERVATION OF WATER

- Campaign to save water on site
- Clean water is expensive and potable water must be used carefully
- Prevent pollution of water by preventing spills and dispose of wastes properly

CONSERVATION OF VEGETATION

Plants, grasses and trees are very important to our existence on the earth, they provide food, fuel, shelter, raw materials and they clean the air. Indigenous plants are important for medicinal purpose and the whole ecology of life. Human activities are destroying the natural forests of the earth.

- a. Vegetation cover reduces water and topsoil loss from the ground, do not clear vegetation unnecessarily
- b. Indigenous trees provide shade, attract wild birds
- c. Do not chop down indigenous trees without good reason
- d. Implement a tree planting programme
- e. Remove alien invasive trees in the area such as Prosopis, Syringa and Pepper trees, cactus plants.

WASTE MANAGEMENT

- a. Employees must be instructed on how to tell the difference between hazardous waste and general waste
- b. They must know how to separate hazardous and general waste and where to dispose of these wastes in the correct way
- c. Examples of hazardous waste which must be recycled or sent to Waste Tech for disposal:
 - i. Oil, diesel, batteries, acids, paint, thinners, electronic waste
 - ii. Pesticides, jik, handy Andy
 - iii. Old oil, old oil filters, old paint is hazardous and must not be disposed of to a general land fill. Oilkol of the Rose Foundation will collect old oil.
 - iv. Mercury in fluorescent light bulbs is hazardous, fluorescent lights must be handled with great care so as not to break the glass and release the mercury vapour into the air which you breathe.
- c. Examples of general wastes which can go to the municipal landfill:
Wood, paper, plastic, glass, old PPE
- e. Recycle, Reuse, Reduce, and Recover where ever possible

EMERGENCY PREPAREDNESS

Emergency response programmes will include procedures for:

- assigning responsibilities and accountabilities;
- assessing and classifying emergencies;
- assessing source terms and consequences;
- activating and implementing emergency responses;
- notifying and alerting site personnel and other stakeholders, including the public
- (on-site and off-site communications);

- protecting on-site and off-site emergency response personnel;
- assembling, protecting and evacuating personnel;
- responding to over-exposures, contamination incidents, injuries or fatalities;
- Post-accident monitoring and assessments of systems, effluents and conditions
- (e.g. observations, tests, measurements, collection of samples, sample preparation and analysis, reporting results of sampling, measurements and tests);
- documenting and controlling the exchange of information;
- effecting scheduled shift changes and workplace turnovers;
- controlling vehicular and human traffic;
- directing, controlling and supporting emergency responses;
- develop a plan of activities to protect personnel and the public in the case of an
- emergency situation and its consequences;
- develop an accident response plan and implement emergency preparedness measures and emergency response activities

Readiness for accident elimination

One of the main issues for readiness in limiting and eliminating emergency consequences is adequate training of the workforce and rescue service personnel.

Training for emergency situations includes the development and co-ordination of instructions and other guidance, distribution of this material to all potentially impacted organisations as well as providing the proper equipment and training for rescue services personnel. Training at the mine facilities is conducted according to a plan that is approved by the territorial

division of the authorised body. It is conducted under the supervision of the territorial division of the authorised body and results of the training exercise are documented in a report. Control over the implementation of proposals contained in the report is charged to the head of the organisation.

CONCLUSION

The company will utilize the Environmental Awareness Plan (EAP) to assure that all employees and contractors are aware of the environment and know how to manage it correctly. The company will also utilize EAP to ensure that their health and safety is protected throughout the prospecting operation.

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 R97,421.00 as calculated in Section 4.3 of this document.

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

The amount required to cover the prospecting operation was calculated to an amount of R97, 421.00 as reflecting on the 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.

<p>Full Names and Surname</p>	<p>Nchakha Darius Moloi</p>
<p>Identity Number</p>	<p>620425 5552 08 7</p>

-END-