DEPARTMENT OF MINERAL RESOURCES

ENVIRONMENTAL MANAGEMENT PLAN

Submitted in support of an application for a prospecting right.


Reference Number:  (WC) 30/5/1/1/2/ 10202PR
Application: PROSPECTING RIGHT
Applicant: K2014053426 (Pty) Ltd
Properties: Cape Farms 656 RE, 657, 658, 659 RE, 659/3, 665 RE, 665/1, 666, 667, 669/1, 669/3, 669/4, 671, 672, 720 and 721
Division: Cape Registration Division
Magisterial District: Wynberg
Province: Western Cape
Mineral: Silica sand and sand
Date: 4 August 2014
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INTRODUCTION

This document has been compiled in order to meet the requirements of Section 39 and Regulation 52 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002)(MPRDA).

The appropriate Regulation Numbers from the Mineral and Petroleum Resources Development Regulations (Government Gazette No. 7949, Vol. 466, No. 26275, dated 23 April 2004, Pretoria) are included where appropriate below each section heading in this Report).

The document has also been compiled in accordance with the SAMRAD on line application system guideline document entitled “Guideline for the Compilation of an Environmental Management Plan” (2011).

The Environmental Management Plan (EMP) describes the mitigation measures required to avoid, minimise or rectify potential environmental impacts arising from the proposed prospecting activities.

Compliance with the provisions of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) and its Regulations does not necessarily guarantee that the applicant is in compliance with other regulations and legislation. Other legislation that may be applicable includes, but is not limited to:

- The Land Use Planning Ordinance (LUPO) (Ordinance 15 of 1985).

All references in this Environmental Management Plan to “The Company” refer to the Applicant i.e. K2014053426 (Pty) Ltd.
DETAILS OF THE APPLICANT AND THE LAND

Full particulars of the applicant:

<table>
<thead>
<tr>
<th>ITEM</th>
<th>COMPANY CONTACT DETAILS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of the Company</td>
<td>K2014053426 (Pty) Ltd</td>
</tr>
<tr>
<td>Company Registration Number</td>
<td>2014/053426/07</td>
</tr>
<tr>
<td>Name of contact person</td>
<td>Clinton Halsey</td>
</tr>
<tr>
<td>Tel no</td>
<td>011 463 2489</td>
</tr>
<tr>
<td>Fax no</td>
<td>086 647 2922</td>
</tr>
<tr>
<td>Cellular no</td>
<td>083 289 5422</td>
</tr>
<tr>
<td>E-mail address</td>
<td><a href="mailto:clinton@2tp.co.za">clinton@2tp.co.za</a></td>
</tr>
<tr>
<td>Postal address</td>
<td>Postnet Suite 50, Private Bag X9, Benmore, 2010</td>
</tr>
<tr>
<td>Physical address</td>
<td>210 Cumberland Avenue, Bryanston, Gauteng, 2191</td>
</tr>
</tbody>
</table>

Description of the land in the application area:

Cape Farms 656 RE, 657, 658, 659 RE, 659/3, 665 RE, 665/1, 666, 667, 669/1, 669/3, 669/4, 671, 672, 720 and 721 located in the Cape Registration Division, Wynberg Magisterial District, City of Cape Town.

Details of the properties are listed in the following table.

Table 1: Property details

<table>
<thead>
<tr>
<th>Farm No.</th>
<th>Title Deed</th>
<th>Area (Hectares)</th>
<th>Landowner</th>
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</tr>
<tr>
<td>CA657</td>
<td>T21680/1995</td>
<td>4.2827</td>
<td>Elizabeth Elena Bock</td>
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<tr>
<td>CA658</td>
<td>T21680/1995</td>
<td>8.5653</td>
<td>Elizabeth Elena Bock</td>
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<tr>
<td>CA659RE</td>
<td>T42800/2002</td>
<td>6.1914</td>
<td>Erhard Johann Ernst Buhr</td>
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<td>CA665RE</td>
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<td>0.8589</td>
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<td>T33127/1990</td>
<td>0.0181</td>
<td>City of Cape Town</td>
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<td>CA669-1</td>
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<td>9.7526</td>
<td>Hildegard Dorothea Rix - Trustees</td>
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<tr>
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<td>Helmut Otto Mohr Rix</td>
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<tr>
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<tr>
<td>CA671</td>
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<td>Clare Gwenda Ions</td>
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<td>Total</td>
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<td>82.4024</td>
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</tr>
</tbody>
</table>
PLANS AND MAPS

Figure 1: Locality plan of the proposed prospecting area
Regulation 2(2) Plan: Philippi Horticultural Area (all land applied for is located within the Cape Registration Division)

The prospecing area is subject to the provisions of Section 48 of the Mineral & Petroleum Resources Development Act, 2002 (Act 28 of 2002) and excludes residential areas, public roads and cemeteries.

- Application area boundary
- Cadastral boundary
- Cadastral boundary (additional)
- Contour (5m interval)
- Application area corner point
- Application area total: 82,4024 ha

Applicant:

Signature

Date

Coordinate systems:
Y & X - WGS84 (m)
Lat & Long - WGS84 Decimal Degrees

<table>
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<tr>
<td>U</td>
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</table>

Scale 1:6,000 @ 44

Figure 2: Plan of the land as required by Regulation 2 (2) of the MRPDA
1. ENVIRONMENT LIKELY TO BE AFFECTED BY THE PROSPECTING OPERATION

(Regulation 52(2)(a) – A description of the environment likely to be affected by the proposed prospecting operation)

DMR Guideline Document
1.1 Describe the environment on site relative to the environment in the surrounding area.
1.2 Describe the specific environmental features on the site applied for which may require protection, remediation, management or avoidance.
1.3 Include a map showing the spatial locality of all environmental, cultural/heritage and current land use features identified on site.
1.4 Confirm specifically in this section whether or not the description of the environment has been compiled with the participation of the community, the landowner and interested and affected parties.
1.5 If the description of the environment has not been compiled with the participation of any of the community, the landowner or interested and affected parties, a detailed explanation must be provided why not and how description of the baseline environment was arrived at if the landowner did not afford access thereto.

1.1 Introduction
The application for a Prospecting Right was accepted by the Department of Mineral Resources (DMR) on 6 June 2014.

The Company was instructed to:
- Submit the Environmental Management Plan (EMP) on or before 5 August 2014;
- To notify in writing and consult with the landowners and any other affected party; and
- To submit the results of such consultation on or before 4 July 2014.

The consultation report was updated and is included as Appendix 1.

1.2 Location
The prospecting area is located in the northern part of the Philippi Horticultural Area (PHA) some 14km to the south-east of the centre of Cape Town (see Figures 1 and 2).

1.3 Topography
The application area is flat and the average elevation is 20 m above mean sea level.

1.4 Geology
High-grade silica sand is present in the Late Pliocene to Holocene Springfontyn Formation on the Cape Flats. A comprehensive study of the silica sands was completed by Hill and Theron (1981) in Geological Survey Bulletin 69. This was based on data from numerous boreholes (Henzen, 1973), as well as a number of deep boreholes drilled by the Geological Survey of South Africa between 1970 and 1973.

They calculated an inferred resource of 405 million tons of high-grade sand with an average thickness of 15 metres. This resource lies between Lansdowne Road (M9) in the north, Strandfontein Road (M17) in the west, Weltevreden Road (M7) in the east and north of the northern boundary of Strandfontein in the south. This forms the western and central portions of an area that was proclaimed in 1968 (Proclamation No. 1760 of 1968) for the purpose of protecting the high-grade silica sand from urban encroachment (Hill and Theron, 1981). The eastern portion of this proclaimed area, east of Weltevreden Road (M7), now forms part of the Mitchells Plain urban area and the proclamation has since been withdrawn.
Cole (2011) reassessed the findings of the Hill and Theron (1981) study, and delineated the distribution of the remaining accessible high-grade silica sand. Cole (2011) concluded that a large deposit of high-grade silica sand occurs beneath the remaining open land of the Philippi Horticultural Area. It occurs from the surface to a depth of at least 15 metres and has an inferred resource of 315 million tons. A small portion of the silica sand has been mined mostly for glass manufacture since 1925 in the northern part of the area and it is important to preserve this resource for future mining, since there are no comparable deposits elsewhere in South Africa and other sources of silica are limited to quartzite deposits in Gauteng and Northwest Province and a quartz vein near Polokwane.

Figure 3: Distribution of silica sand of the Springfontyn Formation greater than 15 metres in thickness
(Note: The above map is Figure 5 in Cole (2011))
1.5 Soil
Shallow topsoil overlying Springfontyn Formation sand. The topsoil has been extensively reworked by farming (horticultural) activity.

1.6 Climate
Philippi is located within the Mediterranean climate region of the South-western Cape, which is a characteristically winter rainfall area.

The climate for the area is described in Mucina and Rutherford (2006) as follows: “Exclusive winter-rainfall regime with mean annual rainfall varying from approximately 350mm in the north to 560mm in the south. The winter rains are accompanied by strong north-westerly winds and cooler temperatures. Mean daily maximum and minimum temperatures 26.7°C and 7.5°C for February and July, respectively. Winds are southerly or southeasterly in summer. Frost is very infrequent.”

As is to be expected, the prevailing wind patterns in the Philippi area reflect those of the Cape Peninsula; that is south-easterly during summer and north-westerly during the winter months. The area is rural and is located fairly close to the False Bay coast. The area does not have any particular problems associated with air quality that are not apparent in other parts of Cape Town as well.
1.7 Groundwater

As the Philippi Horticultural Area overlies the Cape Flats Aquifer, Umvoto Africa (Pty) Ltd was appointed to undertake a hydrogeological specialist study on the potential impacts of silica sand prospecting in the northern part of Philippi Horticultural Area (PHA). The specialist report is included as Appendix 2.

The Cape Flats Aquifer is a large heterogeneous, stratified, intergranular or primary (i.e. porous sedimentary/sandy) aquifer. The Cape Flats Aquifer is composed of saturated sands, with water levels within a few metres of ground level (1-3 mbgl), and in some cases in above ground level e.g. in parts of the northwestern portion of the PHA, where groundwater levels of 15-20 mamsl or <1 mbgl to surface are present. “Flooding” in the Cape Flats in winter is sometimes actually the result of the groundwater table rising above surface level, due to the aquifer being fully saturated.

The Cape Flats Aquifer transmits water relatively rapidly (as with most primary aquifers, due to the presence of well sorted and rounded, medium grained loose sands). Local hydraulic conductivity and transmissivity for the PHA North prospecting area is likely to range from 30-40 m/day and 50-100 m²/day respectively. Borehole yields range from ~0.5-20 l/s for registered/licenced groundwater use in the PHA (including the PHA North prospecting area), with an average yield of ~1.5-5 l/s.

Water use data indicates that the three largest registered groundwater users inside and within 1 km of the edge of the PHA North prospecting area are Mr. J. F. Bock of Rietvlei 771 (300 000 m³/a; ~0.6 km south of the southern corner of the prospecting area) and Rondevlei 657 (297 500 m³/a; within the prospecting area), and the G. A. Rix Trust of Rietvlei 779 (100 000 m³/a; ~0.1 km south of the southwestern edge of the prospecting area).

The hydrogeological and hydraulic properties that have resulted in the relatively high yielding Cape Flats Aquifer cause it to be equally as vulnerable to groundwater contamination i.e. high water tables, high hydraulic conductivity, unconfined surface for the transmission of pollutants, low clay and organic carbon contents (therefore low sorption potential), and low topographical gradients (in association with low intensity rainfall and high recharge).

The Cape Flats Aquifer in the vicinity of the PHA North prospecting area (and in general) is at a low to moderate risk from non-point/diffuse contaminant sources (e.g. informal settlement stormwater and sanitation runoff, polluted inland surface water systems, and PHA agricultural runoff and agrochemical infiltration), and at a moderate to high risk from point/nodal contaminant sources (e.g. WWTWs, waste disposal sites, cemeteries, illegal dumping/disposal and livestock grazing sites near non-perennial wetlands, petrol stations and industries).

The specific high salinities, sodium, chloride and fluoride concentrations, and microbiological contamination, in contrast to low agricultural pollutants (such as nitrate, ammonia and phosphate) reported in the northwestern PHA could either be a result or combination of the factors described above, as well as:

- stormwater in the Lotus River canal infiltrating the aquifer system as a result of overflow or being used for irrigation;
- possible local groundwater overabstraction over time causing upwelling of poorer quality groundwater from basement rocks into the Cape Flats Aquifer.
1.8 Biodiversity
There are no Critical Biodiversity Areas (CBAs) mapped on the site.

![Figure 5: Critical Biodiversity Areas map of the site (fine scale mapping)](image)

**Note:** The CBA map was obtained from www.bgis.sanbi.org and includes the fine scale mapping in the City of Cape Town’s Biodiversity Network 2013.

The original natural vegetation on the site would have been Cape Flats Sand Fynbos, however there is no natural habitat remaining on the site.

A BGIS Land Use Decision Support (LUDS) Report was generated for the area. There are no National Freshwater Priority Areas (NFEPAs) units mapped on the site. The LUDS Report did not reveal any other specific concerns related to biodiversity in this area.
1.9 Land use and planning considerations

The proposed prospecting area is shown in relation to the 2012 Spatial Development Plan for the Cape Flats District in Figure 6.

Figure 6: Extract from the Spatial Development Plan

The proposed prospecting area is located in the northern part of the Philippi Horticultural Area, immediately to the south of an industrial corridor that occurs to the south of the M9 or Japtha K Masemola Road (previously called Lansdowne Road).

There are large warehouses for supermarkets (e.g. Spar and Pick & Pay) in this industrial corridor. The silica sand mine operated by Consol Glass is located at Sand Industria to the north of the industrial corridor.
The existing land use in the prospecting area is as follows:

- Cape Farms RE/656, 667 and 672 are all unimproved farmland with vegetable crops.
- Cape Farms 657, 658 and 666 are under crops and irrigation. There is a farmhouse and other buildings on Cape Farm 657.
- Cape Farm 659 is low lying and is used for holding and grazing of cattle and sheep.
- Cape Farms RE665 and 669/4 has a house, farm buildings and is used for the keeping of livestock.
- Cape Farm 669/1 is low lying and is used for cultivation of crops. There is also a cottage and an open warehouse.
- Cape Farm 669/3 is improved with a farmhouse, warehouse and cattle pens. The western end of the land is low lying.
- Cape Farm 671 is low lying land that is improved by a small cottage and horse stables.
- Cape Farm 721 is improved by a cottage, garage and small warehouse. The balance of the land is not being actively farmed.

The prospecting area is zoned as Agricultural (AG) in terms of the Cape Town Zoning Scheme (CTZS).

Prospecting consists of a phased series of short-term activities and will not affect the current land use. Only after the prospecting work has been completed will it be possible to analyse the data in order to decide if an application for a mining right should be submitted or not. A mining application would require a further comprehensive Scoping and EIA process.

1.10 Socio-economic conditions

The Strategic Development Information and GIS Department (SDI&GIS) of the City of Cape Town compiled a profile of the Philippi Horticultural area in July 2013. This is based on the 2011 Census data supplied by Statistics South Africa.

![Figure 7: Map showing area defined as Philippi Small Holdings in 2011 Census](image-url)
The population of 2011 Census suburb Philippi Small Holdings was 6 618 and the number of households was 1 791. The average household size was 3.70.

A household is defined as a group of persons who live together, and provide themselves jointly with food or other essentials for living, or a single person who lives alone (Statistics South Africa).

Key results for the 2011 Census Suburb Philippi Small Holdings are as follows:
The population is predominantly Coloured (71%).
- 29% of those aged 20 years and older have completed Grade 12 or higher.
- 81% of the labour force (aged 15 to 64) is employed.
- 59% of households have a monthly income of R3 200 or less.
- 67% of households live in formal dwellings.
- 68% of households have access to piped water in their dwelling or inside their yard.
- 22% of households have access to a flush toilet connected to the public sewer system.
- 64% of households have their refuse removed at least once a week.
- 67% of households use electricity for lighting in their dwelling.

The prospecting area is located within the Philippi Horticultural Area in Ward 80 of the City of Cape Town. Ward 80 is a part of the Rondevlei Sub Council. Mitchells Plain is situated to the east and Strandfontein and the False Bay Coast to the south. The suburbs of Pelican Park, Lotus River and Grassy Park are west of the Philippi Horticultural Area. The M9 (Japhta K Masemola Road / Lansdowne Road) and the M7 (Vanguard Drive) effectively terminate the Horticultural Area to the north and the east. The suburbs of Wetton, Hanover Park and Manenberg are located north of the M9.

This prospecting project will contribute to the local economy through the purchase of goods and services in Cape Town. The prospecting programme will also provide a few short-term job opportunities.

If it can be confirmed that there is an economically viable resource of silica sand in the prospecting area, then this could have a significant positive impact on the socio-economic environment (however, this would be subject to a separate EIA process required for a mining right application).

1.11 Cultural heritage
The proposed prospecting activities will not change the character of the area or result in significant impacts on heritage resources.

There are no known cultural or heritage features in the application area. However, if any heritage resources, including graves or human remains, are encountered, these must be reported to Heritage Western Cape.
2 ASSESSMENT OF THE POTENTIAL IMPACTS ON THE ENVIRONMENT

(Regulation 52(2)(b) – An assessment of the potential impacts of the proposed prospecting operation on the environment, socio-economic conditions and cultural heritage, if any).

2.1 Description of the proposed prospecting operation

<table>
<thead>
<tr>
<th>DMR Guideline Document</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Describe the proposed prospecting operation, which description must:</td>
</tr>
<tr>
<td>2.1.1 include a list of all the main prospecting activities (e.g. access roads, topsoil storage sites and any other basic prospecting design features)</td>
</tr>
<tr>
<td>2.1.2 include a plan showing the spatial location and aerial extent of the aforesaid main activities with dimensions or a conceptual plan of a drill site including dimensions and all potential infrastructure.</td>
</tr>
<tr>
<td>2.1.3 include an indication of the phases (construction, operational, decommissioning) and estimated time frames in relation to the implementation of these activities and infrastructure. The potential impacts must be identified per activity/process or infrastructure in the relevant phases.</td>
</tr>
<tr>
<td>2.1.4 include any listed activities (in terms of the NEMA EIA regulations) which will be occurring within the proposed project.</td>
</tr>
</tbody>
</table>

2.1.1 Proposed prospecting activities

The proposed activities in the planned prospecting programme are described in this section before an assessment of the potential impacts is made.

The proposed prospecting programme has been divided into five distinct phases which are sequential. Each phase is designed to provide an increasing level of geological knowledge and confidence in the mineral resource. Mining and economic factors will also be taken into account in order to determine if the silica sand deposit is economically viable.

The proposed prospecting phases are as follows:

- Phase 1: Prospect Examination
- Phase 2: Prospect Drilling
- Phase 3: Target Definition – Concept Study
- Phase 4: Target Evaluation – Preliminary Economic Assessment
- Phase 5: Reserve Definition – Feasibility Study

The progress of the project depends on the results achieved during each phase. The prospecting programme could be terminated at particular milestones should the results of a preceding phase prove to be negative.

Description of planned non-invasive activities

(These prospecting activities do not disturb the land e.g. aerial photography, desktop studies, geophysical surveys, etc)

Site establishment: Involves the establishment of a locally based manager, location for storage of equipment, samples and borehole core and the finalisation of access agreements with land owners.

Literature review, aerial photograph interpretation and mapping: Includes the consolidation of all known relevant information with respect to the target area.

Groundwater survey and monitoring: As the target area is underlain by the Cape Flats Aquifer, a baseline groundwater survey will be undertaken and this will be followed by groundwater level and water quality monitoring throughout the prospecting period.
Borehole logging, sampling and sample analysis: Borehole cores will be logged in detail to record sediment types and mineralogy. The borehole cores will be sampled and submitted to an accredited laboratory for particle size analysis as well as major and trace element analyses.

Geophysical survey: The geophysical survey will be aimed at determining the topography of the bedrock (Malmesbury Formation) in the target area.

Specialist studies: Specialist studies will include mineralogy in order to determine the detailed characteristics of the silica sand and the presence of any accessory minerals such as tourmaline, ilmenite, zircon and apatite. Geotechnical studies will be aimed at determining the optimum mining method, whilst mineral processing testwork will be aimed at provided information on recoveries, processes and equipment that could be used.

Description of planned invasive activities

Drilling: The planned invasive activities consist of the drilling of boreholes in three separate phases. It is planned to drill these unconsolidated sediments using sonic drilling (a detailed description is provided in Appendix 2). Sonic drilling utilizes resonant sonic energy to achieve fast, clean, low-impact drilling in a wide variety of geotechnical, geothermal, environmental and mineral drilling and sampling applications. Sonic rigs can drill and sample many unconsolidated materials without the need for drilling fluids achieving high productivity and superior sample quality.

A sonic drill head works by sending high frequency resonant vibrations down the drill string to the drill bit, while the operator controls these frequencies to suit the specific conditions of the soil/rock geology. Vibrations may also be generated within the drill head. Resonance magnifies the amplitude of the drill bit, which fluidizes the soil particles at the bit face, allowing for fast and easy penetration through most geological formations.

Air core drilling may be used for some of the boreholes. Hardened steel or tungsten blades are used to bore a hole into unconsolidated ground. The rods are hollow and contain an inner tube which sits inside the hollow outer rod barrel. The drill cuttings are removed by injection of compressed air into the hole via the annular area between the inner tube and the drill rod. The cuttings are then blown back to surface up the inner tube where they pass through the sample separating system and are collected if needed. Drilling continues with the addition of rods to the top of the drill string.

Phase 2 Prospect Drilling: This will consist of an initial 6 boreholes that will be used to confirm the presence of the silica sand target horizon.

Phase 3 Target Definition Drilling: These boreholes will be drilled in order to outline the extent of the silica sand deposit and will be drilled to the base of the target horizon i.e. 25 metres.

Phase 4 Target Evaluation Drilling: These infill boreholes will be drilled in order to increase the confidence level of the estimated silica sand resources. These will also be drilled to a depth of 25 metres.

Description of Preliminary Economic Assessment and Feasibility Study (Activities in this section include but are not limited to: initial, geological modelling, resource determination, possible future funding models, etc.)

Orebody modelling, Geostatistics, Resources and Reserves: The information obtained from the drilling programme and other specialist studies will be used to generate a geological model of the high-grade silica sand orebody. A mineral resources and reserve statement will be prepared.
Proposed mining and processing methods: Information will be provided about the proposed mining and processing methods, scheduling and costing.

Preliminary Economic Assessment and Mine Valuation: The economic evaluation of the project will require:
- economic data
- technical data
- capital expenditure
- operating costs
- start-up costs
- working capital requirements
- sales projections
- marketing and selling expenses
- tax

Decision-making
The Applicant will make a decision regarding the way forward. The Applicant will have three possible options to choose from regarding the proposed way forward, namely:
- Submit a Mining Right Application: Should prospecting yield positive results, then a Mining Right Application may be lodged with the DMR.
- Continue prospecting: If the prospecting results are non-conclusive, the Applicant might decide to continue prospecting. Should such a course of action be chosen, an application for a Prospecting Right Renewal may have to be lodged with the DMR, if required. Continued prospecting could include drilling as well as mineral processing testwork.
- Discontinue the entire operation: If the results of the prospecting activities are negative, the Applicant will most likely decide to discontinue the entire operation. Should this option be chosen, then the Applicant will be required to conduct full rehabilitation of the drill sites. A Closure Application will, in this event, be lodged with the DMR.

Rehabilitation
Each drill hole will be rehabilitated as prospecting proceeds. Rehabilitation will be in accordance with the requirements described in the EMP.

Rehabilitation will not be left as the final activity. Rehabilitation will take place concurrently with prospecting.
2.1.2 Plans showing the location and extent of prospecting activities

The location and extent of the proposed prospecting activities is illustrated in Figures 1, 2 and 8.

Non-invasive prospecting (mapping, aerial photo interpretation etc.) will take place over the entire prospecting area.

The initial 6 prospecting boreholes have all been sited to minimise disturbance to the farming activities. These boreholes have been sited on or immediately adjacent to existing farm tracks, fence lines or farm fields.

![Google Earth image showing the positions of the first 6 proposed borehole sites](image)

**Figure 8: Google Earth image showing the positions of the first 6 proposed borehole sites**

The coordinates of these six proposed boreholes (N1 to N6) are as follows:

**Table 2: Coordinates of the proposed boreholes**

<table>
<thead>
<tr>
<th>Borehole No</th>
<th>Latitude (S)</th>
<th>Longitude (E)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N1</td>
<td>-34.00837</td>
<td>18.53154</td>
</tr>
<tr>
<td>N2</td>
<td>-34.01095</td>
<td>18.53055</td>
</tr>
<tr>
<td>N3</td>
<td>-34.00824</td>
<td>18.53904</td>
</tr>
<tr>
<td>N4</td>
<td>-34.01087</td>
<td>18.53833</td>
</tr>
<tr>
<td>N5</td>
<td>-34.00825</td>
<td>18.53511</td>
</tr>
<tr>
<td>N6</td>
<td>-34.01133</td>
<td>18.53574</td>
</tr>
</tbody>
</table>

*Note: The ellipsoid is WGS84, and the coordinates are in degrees and decimal degrees.*
2.1.3 Estimated time-frames

This prospecting work programme is divided into phases. The progress of the project depends on the results achieved during each phase. The prospecting programme could be terminated at particular milestones should the results of a preceding phase prove to be negative. There are many other factors such as drill rig availability, laboratory turn-around time and the weather which could affect the actual timing. Each drill site will be rehabilitated directly after drilling has been completed.

The phases and estimated timing of the prospecting programme is shown in the following table. The actual prospecting programme only commences after the prospecting right is granted. The total estimated time to complete the prospecting activities is 5 years.

Table 3: The phases and estimated timing of the prospecting programme

<table>
<thead>
<tr>
<th>PHASE</th>
<th>ACTIVITIES</th>
<th>TIME-FRAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1</td>
<td>Site establishment and prospect examination: Site establishment, Literature review, Aerial photograph interpretation, Geological mapping, Base-line groundwater survey, Interpretation and reporting</td>
<td>1 year</td>
</tr>
<tr>
<td>Phase 2</td>
<td>Prospect Drilling: Drill preparation, Aircore or sonic drilling, Borehole logging &amp; sampling, Laboratory analyses, Geophysical survey, Groundwater monitoring, Interpretation and reporting</td>
<td>1 year</td>
</tr>
<tr>
<td>Phase 3</td>
<td>Target Definition: Outline airecore or sonic drilling, Borehole logging &amp; sampling, Laboratory analyses, Specialist studies, Initial mineral process testwork, Groundwater monitoring, Interpretation and reporting</td>
<td>1 year</td>
</tr>
<tr>
<td>Phase 4</td>
<td>Target Evaluation: Infill airecore or sonic drilling, Borehole logging &amp; sampling, Laboratory analyses, Geotechnical / mining studies, Mineral processing testwork, Groundwater monitoring, Orebody modelling and geostatistics, Interpretation and reporting</td>
<td>1 year</td>
</tr>
<tr>
<td>Phase 5</td>
<td>Reserve Definition Groundwater monitoring, Resource and reserve statement, Mining: scheduling and costing, Mineral Processing: processes &amp; costing, Valuation, Feasibility Study Report</td>
<td>1 year</td>
</tr>
</tbody>
</table>
2.1.4 Listed activities in terms of NEMA

Listing Notice 1 of 2010 as published under GN R544 (as amended by GN R660):
Activity No. 19: Any activity which requires a prospecting right in terms of the MPRDA.
[Provisions related to mining or prospecting activities will come into operation on 7 December 2014 i.e. 18 months after the data of commencement of the MPRDA Amendment Act on 7 June 2013]

Listing Notice 2 of 2010 as published under GN R545 (as amended by GN R660):
No listed activities will be undertaken.

Listing Notice 3 of 2010 as published under GN R546
No listed activities will be undertaken.

The significance of the impact of the listed NEMA activity (Activity 19 in GN R544) is assessed in this report.
2.2 Potential Environmental Impacts of the Prospecting Activities

DMR Guideline Document
2.2 Identify the potential impacts which identification must:-
2.2.1 include a list of the potential impacts of each of the aforesaid main prospecting and listed activities.
2.2.2 describe all potential cumulative impacts.
2.2.3 Include a specialist report with regards to the investigation, assessment and evaluation of cultural and heritage resources, in consultation with regional organs of state e.g. SAHRA, tasked with a cultural and heritage mandate and in cognisance of local knowledge (community and landowner)
2.2.4 include a list of potential impacts on communities, individuals or competing land uses in close proximity to the proposed prospecting activity. If no such impacts are identified this must be specifically stated together with a clear explanation why this is not the case.
2.2.5 confirm specifically in this section whether or not the list of potential impacts has been compiled with the participation of the landowner and interested and affected parties,
2.2.6 include a detailed explanation why not, in cases where the list of potential impacts has not been compiled with the participation of the landowner, considering that the prerogative to accept such explanation or not remains with the State.
2.2.7 include a specialist report relating to the investigation, in line with the baseline information and proposed activities.

Potential environmental impacts associated with each of the proposed prospecting activities are listed in the following table. Although this section is focussed on the natural environment, potential impacts on the socio-economic and cultural environment are also listed.

Table 4: Potential environmental impacts of the proposed prospecting activities

<table>
<thead>
<tr>
<th>Proposed Activity</th>
<th>Potential Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desktop analysis</td>
<td>No impacts on site</td>
</tr>
<tr>
<td>Mapping and surveying</td>
<td>Low impacts from short-term staff and vehicle access to the site</td>
</tr>
</tbody>
</table>
| Drilling                                         | Access tracks
Disturbance of horticultural land and topsoil
Groundwater quantity and quality
Oil & fuel spills
Dust & noise
Labour issues
Litter                                             |
| Sample analyses / mineral process testwork / evaluation / decision making | No impacts on site. |
3 ASSESSMENT OF POTENTIAL IMPACTS AND PROPOSED MITIGATION MEASURES

(Regulation 52(2)(c) – A summary of the assessment of the significance of the potential impacts, and the proposed mitigation and management measures to minimise adverse impacts and enhance benefits)

3.1 Environmental Impact Assessment

(Regulation 52(2)(c) – A summary of the assessment of the significance of the potential impacts...)

<table>
<thead>
<tr>
<th>DMR Guideline Document</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1 Assessment of the significance of the potential impacts which includes:</td>
</tr>
<tr>
<td>3.1.1 The criteria of assigning significance to potential impacts</td>
</tr>
<tr>
<td>3.1.2 a list of the potential impacts identified in respect of each of the aforesaid main prospecting activities during the different phases together with the corresponding significance assessment</td>
</tr>
<tr>
<td>3.1.3 a summary of the assessment of potential cumulative impacts.</td>
</tr>
</tbody>
</table>

The criteria for the assigning of significance to potential impacts is included in Appendix 3.

The nature, extent, duration, probability and significance of the identified potential impacts were assessed. These have all been summarised in Table 5. The table also lists the appropriate mitigation measures for all of the significant impacts associated with the prospecting operation. The mitigatory measures are fully described in the EMP.

Table 5: Environmental Impact Assessment (EIA) summary table (see next page)
## Philippi North: Environmental Management Plan

<table>
<thead>
<tr>
<th>Element</th>
<th>Aspects and Impacts</th>
<th>Mitigation</th>
<th>Impact (post-mitigation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soils</td>
<td>There will be minor disturbance of the soil at the proposed drill sites.</td>
<td>Rehabilitate each site as soon as the drilling is completed.</td>
<td>Low</td>
</tr>
<tr>
<td>Vegetation</td>
<td>There is no remaining natural vegetation in the prospecting area.</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Animal life</td>
<td>Animal life will be affected in the immediate vicinity of the drilling rig. It is</td>
<td>Environmental awareness training for workers. If any animals are encountered (e.g. snakes)</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>anticipated that the noise and general activity will keep the animal life away from</td>
<td>they must not be killed or injured, but should rather be removed or chased away from the site.</td>
<td>Short Term</td>
</tr>
<tr>
<td></td>
<td>the site while the prospecting is ongoing.</td>
<td></td>
<td>Definite</td>
</tr>
<tr>
<td>Ground water</td>
<td>The prospecting area is underlain by the Cape Flats Aquifer. The hydrogeological</td>
<td>Implement requirements of drilling EMP included in the hydrogeological specialist report.</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>specialist report is included in <strong>Appendix 2.</strong></td>
<td>Establish EMP procedures to minimise hydrocarbon spills.</td>
<td>Short Term</td>
</tr>
<tr>
<td>Air quality</td>
<td>Dust may be created during by vehicles on dirt roads and during drilling</td>
<td>Establish EMP procedures to minimise the generation of dust.</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>operations.</td>
<td>Ensure vehicles drive slowly.</td>
<td>Short Term</td>
</tr>
<tr>
<td>Noise</td>
<td>Noise will be created by the drilling rig and vehicles. However, this is a rural</td>
<td>Ensure vehicles and equipment are maintained. Silencers should be fitted on all engines.</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>area, and the drilling sites are not located close to a residential area</td>
<td></td>
<td>Definite</td>
</tr>
<tr>
<td>Cultural</td>
<td>There are no known important heritage resources on the site.</td>
<td>If any heritage resources, including graves or human remains, are encountered these must be</td>
<td>Low</td>
</tr>
<tr>
<td>Heritage</td>
<td></td>
<td>reported to Heritage Western Cape immediately.</td>
<td>Short Term</td>
</tr>
<tr>
<td>Visual</td>
<td>The prospecting activity will not change the visual character of the area.</td>
<td>Rehabilitate drill sites and access tracks.</td>
<td>Low</td>
</tr>
</tbody>
</table>
### Aspects and Impacts

<table>
<thead>
<tr>
<th>Element</th>
<th>Aspects and Impacts</th>
<th>Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Socio-Economic</td>
<td>The effect of this prospecting activity for employment would be positive, but very limited in extent and duration. The effect of this prospecting activity on the socio-economic regime of this area would be positive, but very limited in extent and duration. If an economically viable silica sand resource is delineated this could have a significant positive socio-economic impact, however a mining right application would be subject to a separate EIA process. Some boreholes may be drilling in fields used for growing vegetables.</td>
<td>Environmental awareness training will be provided to all workers. Maximise procurement of goods and services from local providers. If drilling results in the loss of production of vegetables or any other crop then compensation will be paid to the land owner.</td>
</tr>
<tr>
<td>Social (Neighbours)</td>
<td>The prospecting operations should not impact on the neighbours due to the distance and low intensity of the prospecting operation.</td>
<td>Ensure compliance with the EMP. Ensure workers do not trespass onto neighbours’ property. Maintain communications and keep a “Complaints Register” on site.</td>
</tr>
<tr>
<td>Waste</td>
<td>All waste will be disposed of at an appropriate waste disposal facility.</td>
<td>Ensure compliance with the EMP. Include in environmental awareness training. Workers will not stay overnight at the site.</td>
</tr>
<tr>
<td>Traffic and access</td>
<td>Prospecting activities will generate very limited additional traffic. Prospecting vehicles are to access the property via existing roads and tracks only.</td>
<td>Comply with traffic regulations. Keep to speed limits. Ensure compliance with the EMP.</td>
</tr>
<tr>
<td>Cumulative Impacts</td>
<td>There are no significant cumulative impacts associated with this prospecting programme.</td>
<td>No mitigation required for prospecting.</td>
</tr>
</tbody>
</table>
3.2 Proposed mitigation and management measures

(Regulation 52(2)(c) - ...the proposed mitigation and management measures to minimise adverse impacts and enhance benefits)

DMR Guideline Document
3.2 Proposed mitigation measures to minimise adverse impacts. The applicant must in suitably cross referenced format provide:
3.2.1 A list of actions, activities, or processes that have sufficiently significant impacts to require mitigation.
3.2.2 List of appropriate technical or management options chosen and a concomitant list of options chosen to modify, remedy, control or stop any action, activity, or process which will cause significant impacts on the environment, socioeconomic conditions and historical and cultural aspects as identified. (Attach details of each technical or management option as appendices)
3.2.3 A review the significance of the identified impacts in relation to mitigation measures proposed (i.e., the impact rating after bringing mitigation into consideration).

INTRODUCTION
This section contains guidelines, operating procedures and rehabilitation/pollution control requirements which will be binding on the holder of the prospecting right after approval of the Environmental Management Plan. It is essential that this portion be carefully studied, understood, implemented and adhered to at all time.

The applicant shall ensure that this Environmental Management Plan is provided to the Project Manager and any other person or organisation who may work on the site. The Company shall ensure that any person or organisation that works on the site complies with the requirements of this Environmental Management Plan.

3.2.1 Responsibility

- The environment affected by the prospecting operations shall be rehabilitated, as far as is practicable, to its existing state.
- The environment affected by prospecting shall be maintained in a stable condition that will not be detrimental to the safety and health of humans and animals.
- The prospecting shall not result in the pollution of the environment or lead to the degradation thereof.
- It is the responsibility of the Company to ensure that the Project Manager, employees and contractors are capable of complying with all the statutory requirements which must be met in order to prospect, which includes the implementation of this EMP.
- The Project Manager will be responsible for the practical implementation of this EMP.

Schedule
Ongoing, during the prospecting period.

3.2.2 Community relations

The Company shall notify the neighbouring landowners two weeks before prospecting operations commence. The notice shall include contact details for any complaints about the actual prospecting activities.

The Company shall keep a “Complaints Register” on site. The Register shall contain the contact details of the person who made the complaint, and information regarding the complaint itself. The Company shall respond to all complaints within seven days. Copies of all responses should be kept together with the Register.
3.2.3 Layout Plan

A copy of the layout plan as provided for in Regulation 2(2) must be available at the prospecting site for scrutiny when required.

Schedule
Ongoing, during the prospecting period.

3.2.4 Workers

Environmental awareness training must be provided to all workers. Workers will not be allowed to trespass onto neighbouring properties.

Schedule
Ongoing, during the prospecting period.

3.2.5 Protection of flora and fauna

Except to the extent necessary for carrying out the prospecting activities, flora shall not be removed, damaged or disturbed nor shall any vegetation be planted.

It is anticipated that the noise and general activity will keep the animal life away from the site whilst drilling is taking place. If animals are encountered during the prospecting operations they must not be killed or injured. Trapping, poisoning and / or shooting of animals is strictly prohibited. No domestic pets are permitted on site.

Schedule
Ongoing, during the prospecting period.

3.2.6 Road safety and access

The access road to and routes in the prospecting area must be established in consultation with the landowners and existing roads and tracks shall be used as far as practicable. The erection of temporary gates in fence lines and the open or closed status of farm gates shall be clarified in consultation with the landowners.

Employees must comply with all speed and traffic regulations on public roads and should not exceed 40km/hour on farm tracks.

Schedule
Ongoing, during the prospecting period.

3.2.7 Water

Water for the drilling programme will be obtained from the landowner or brought in using a water bowser. The volume of water required for drilling operations is negligible (see Appendix 2). No groundwater will be abstracted during the drilling programme. Employees will bring in their own drinking water on a daily basis.

Schedule
Ongoing, during the prospecting period.

3.2.8 Groundwater monitoring

Groundwater monitoring (including water level, abstraction rates and hydrochemistry) is to be initiated and implemented as described in the specialist hydrogeological report (Appendix 2).
**3.2.9 Contractor’s Camp**

The contractor’s camp is the area of operation including the drill-rig, supporting vehicles, storage for construction material and storage for drilled material.

The boundaries of the site must be kept to a minimum. The area must be enclosed with temporary fencing.

All workers will stay offsite. The workers will drive to the site every day when drilling operations are in progress.

A security company may be contracted to protect the drilling equipment overnight or over weekends if the drill contractors have a weekend off.

**Schedule**
Ongoing, during the prospecting period.

**3.2.10 Vehicles and Fuel**

Vehicles will be kept to the absolute minimum required to complete the prospecting tasks. This will consist of 4WD vehicles (bakkies), a drilling rig and a fuel bowser.

All servicing and refuelling of the support vehicles will take place outside of the prospecting area.

If emergency maintenance is required in the field, the Company must ensure that no pollution occurs. When servicing equipment, drip trays shall be used to collect the waste oil, hydraulic fluid and other lubricants. Drip trays shall be provided in the prospecting area for stationary plant (such as the drill rig).

Vehicles and equipment used in the prospecting operation must be adequately maintained so that no spillage of oil, diesel, petrol or hydraulic fluid occurs.

Only the drilling rig will need to be refuelled in the prospecting area. The surface under the refuelling point shall be protected against pollution by means of carefully placed drip trays.

If any hazardous substances such as fuels and oils etc. are brought to the site and left overnight then they shall be securely stored in an open area with temporary fencing in a previously disturbed area. This area should be located on a facility with a PVC lining in order to prevent soil and groundwater pollution.

The Company shall ensure that there is always a supply of absorbent material available to absorb / breakdown / encapsulate minor hydrocarbon spills. The quantity of such materials shall be able to handle a minimum of a 200 litre hydrocarbon spill.

Used oil should be collected in a suitable container and this should then be removed from the site, either for resale or for recycling. (Oilkol collects used oil on behalf of the Rose Foundation and can be contacted at: 0860 107107 to find out the location of the nearest collection point).

Any effluents or waste containing oil, grease or other industrial substances must be collected in a suitable container and removed from the site, either for resale, recycling or for appropriate disposal at a recognised facility.

**Schedule**
Ongoing, during the prospecting period.
3.2.11 Toilet facilities
Portable chemical toilets must be brought to the site when drilling operations are in progress. These toilets must be serviced regularly.

Schedule
Ongoing, during the prospecting period.

3.2.12 Waste management
Suitably covered containers shall be available at the drilling rig at all times and conveniently placed for the disposal of waste.

Biodegradable waste and non-biodegradable waste (e.g. glass bottles, plastic bags, metal scrap, etc.) shall be disposed of in different containers. All waste must be removed from the site on a daily basis and disposed of at a recognised waste disposal facility (e.g. nearest municipal waste site). Specific precautions shall be taken to prevent waste from being dumped on or in the vicinity of the prospecting site.

If any hazardous waste is generated, then this must be transported to the Vissershok Landfill Site.

Schedule
Ongoing, during the prospecting period.

3.2.13 Effluents
Any effluents or waste containing oil, grease or other industrial substances must be collected in a suitable container and removed from the site, either for resale, recycling or for appropriate disposal at a recognised facility.

Schedule
Ongoing, during the prospecting period.

3.2.14 Drilling
The following procedures at each drilling site must be complied with:
- Every effort must be made to minimise the area needed at each drilling site.
- A temporary fence must be placed around the drilling site.
- Crops should not be disturbed unless absolutely essential.
- If any crops are damaged, then adequate compensation must be paid to the landowner.
- The area that was disturbed by the drilling operation at each site shall be rehabilitated, as far as is practicable, to its original state as soon as the drilling is completed.
- Photographs, for monitoring purposes, should be taken before drilling commences and after each drilling site has been rehabilitated. These photographs should be included in the required Performance Assessment Reports.

Schedule
Ongoing, during the prospecting period.

3.2.15 Heritage Resources
If any heritage resources, including graves or human remains, are encountered these should be reported to Heritage Western Cape immediately.

Schedule
Ongoing, during the prospecting period.
3.2.16 Windblown sand and dust
During prospecting operations all reasonable measures must be taken to minimise the generation of dust and to prevent wind blown sand. These measures include:
- Removal or clearing of crops shall be avoided unless absolutely essential.
- Vehicles should not exceed 40 km/hour along farm roads.

Schedule
Ongoing, during the prospecting period.

3.2.17 Noise
The noise levels on the site should be limited by taking the following measures:
- Vehicles and equipment should be regularly maintained.
- Silencers should be installed and maintained on machinery, trucks and prospecting equipment.
- No loud music should be played in the prospecting area.

Schedule
Ongoing, during the prospecting period.

3.2.18 Rehabilitation
All equipment and any waste produced is to be removed from the site. The area must be cleaned and the surface should be returned to the same condition as it was prior to drilling. If the land was previously cultivated (e.g. with vegetables), then the land must be returned to the landowner in a condition that allows for the immediate re-planting of the drill site area.

Schedule
Rehabilitation of the drilling sites - immediately after each drilling phase.

3.2.19 Environmental Related Emergencies and Remediation
The Company will operate on the principle that “prevention is better than cure” and so will institute procedures to reduce the risk of emergencies taking place. These will include ensuring that all contracts specify that the contractor is required to comply with all the environmental measures specified in this EMP, environmental awareness training, on-going risk assessment and emergency preparedness.

Emergency telephone numbers
All employees shall have the telephone numbers of emergency services, including the local ambulance and fire fighting service. All employees must be made aware of procedures to be followed during the environmental awareness training course.

Fire
The Company shall ensure that there is basic fire fighting equipment available on Site at all times. This shall include at least two rubber beaters and at least one fire extinguisher.

The Company shall advise the relevant authority of a fire as soon as one starts and shall not wait until the fire is out of control.

Hydrocarbon spills
The Company shall ensure that all employees are aware of the procedures to be followed for dealing with hydrocarbon spills. The Company shall ensure that the necessary materials and equipment for dealing with hydrocarbon spills and leaks is available on Site at all times.

The Company shall ensure that there is always a supply of absorbent material readily available to absorb/ breakdown and where possible is designed to encapsulate minor hydrocarbon spillage.
The quantity of such materials shall be able to handle a minimum of 200 l of hydrocarbon liquid spill.

There are a number of different products on the market, which can be used as absorbents and encapsulators of hydrocarbons. The following are examples of these products:

- Spill-Sorb
- Drizzit
- Enretech
- Peat Moss

In the event of a significant hydrocarbon spill, the following procedure is required:

- The source of the spillage shall be isolated.
- The spillage must be contained using sand berms, sandbags, pre-made booms, sawdust or absorbent materials.
- The area shall be cordoned off, secured and made safe.
- If a serious spill has occurred in a sensitive environment, then the Department of Environmental Affairs and Development Planning: Directorate Pollution & Waste Management must be notified (Telephone: 021 483 2798).

Treatment and remediation of spill areas shall be undertaken to the satisfaction of the Project Manager. Remediation may include in-situ bioremediation using appropriate products (e.g. Enretech-1 and / or the removal of the spillage together with the contaminated soil and the disposal at a recognised facility (e.g. Vissershok)).
4 FINANCIAL PROVISION

(Section 41, Regulation 52(2)(d), Regulation 53 and Regulation 54 in this case specifically Regulation 52 (2) (d) that states that Financial Provision must include (i) the determination of the quantum of the financial provision and (ii) details of the method providing for the financial provision)

DMR Guideline Document
4.1 Identify the disturbance for which financial provision must be made.
4.1.1 Provide a plan showing the location and aerial extent of the aforesaid main mining actions, activities, or processes anticipated, which plan must include all the items referred to in the guideline for the calculation of the quantum, for each of the construction operational and closure phases of the operation.
4.1.2 Align rehabilitation with the closure objectives
4.1.2.1 Ensure that the rehabilitation plan is compatible with the closure objectives determined in accordance with the baseline study as prescribed.
4.1.3 Calculate the quantum.
4.1.3.1 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.
4.1.4 Undertake to provide financial provision
4.1.4.1 indicate that the required amount will be provided should the right be granted.

4.1 The Quantum of the Financial Provision

(Regulation 54 and Regulation 52(2)(d)(i))

The Company is required to make the prescribed financial provision for the rehabilitation or management of negative environmental impacts. If the Company fails to rehabilitate or manage any negative impact on the environment, the DMR may, upon written notice to the Company, use all or part of the financial provision to rehabilitate or manage the negative environmental impact in question.

The Company will specify that the drilling contractor is required to comply with all the environmental measures specified in the EMP. This will include avoiding unnecessary disturbance of horticultural land and the rehabilitation of each drill site, immediately after drilling has been completed.

The financial provision provides for the final checking of all sites before site clearance.

Table 6: Itemisation of the quantum of the financial provision

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rehabilitation of drill sites</td>
<td>R 40,000</td>
</tr>
<tr>
<td>Labour &amp; supervision</td>
<td>R 10,000</td>
</tr>
<tr>
<td><strong>Total (including VAT)</strong></td>
<td><strong>R 50,000</strong></td>
</tr>
</tbody>
</table>

The quantum of the financial provision required is therefore: R50 000. The Company must annually update and review the quantum of the financial provision (Règulation 54 (2)).

4.2 The Method of Providing for the Financial Provision

(Regulation 53 and Regulation 52(2)(d)(ii))

The Company undertakes to provide financial provision and a Bank Guarantee will be the method of providing for the financial provision.
5 MONITORING AND PERFORMANCE ASSESSMENT

(Regulation 52(2)(e) – Planned monitoring and performance assessment of the environmental management plan)

DMR Guideline Document
5.1 Provide a list of identified impacts which will require monitoring programmes.
5.2 Describe the functional requirements for the said monitoring programmes.
5.3 Define the roles and responsibilities for the execution of the monitoring programmes.
5.4 Commit to time frames for monitoring and reporting.

5.1 Environmental performance assessment reports

Regular monitoring of all the environmental management procedures and mitigation measures shall be carried out by the Company in order to ensure that the provisions of this EMP are adhered to.

Formal monitoring and performance assessment of the EMP will be undertaken annually. A framework for a monitoring and performance assessment report is included in Appendix 4.

Site photographs taken before drilling commences and after each drilling site has been rehabilitated must be included in the performance assessment reports.

Schedule
Formal monitoring and performance assessment of the EMP will be undertaken annually. The Project Manager will monitor compliance with the EMP on an on-going basis.

5.2 Progress reports

The required progress report in respect of prospecting in terms of Section 21(1)(b) and Regulation 8 will be submitted to the DMR by the Company every year.

The contents of the progress report are specified in Regulation 8, but the progress report is to include inter alia:
- An updated Regulation 2(2) surface plan;
- Details of expenditure;
- Details of the prospecting operations and results obtained; and
- Details with regard to the execution and compliance with the approved EMP etc.

Schedule
Every 12 months from the date of the granting of the prospecting right, within 30 days of the expiry of such period.
6 CLOSURE AND ENVIRONMENTAL OBJECTIVES
(Regulation 52(2)(f) – Closure and environmental objectives)

DMR Guideline Document
6.1 Include a rehabilitation plan showing the areas and aerial extent of the main prospecting activities, including the anticipated prospected area at the time of closure.
6.2 Include an identification of the closure objectives and the extent to which they have been aligned to the baseline environment described under Regulation 52 (2) (a) described herein.
6.3 Confirm specifically that the environmental objectives in relation to closure have been consulted with landowner and interested and affected parties.

6.1 Closure and Environmental Objectives
For a prospecting operation such as this, the primary closure and environmental objectives are to:
- Minimise the area to be disturbed and to ensure that the areas disturbed during the prospecting activities are rehabilitated and stable, as per the commitments made in the EMP.
- Sustain the pre-prospecting land use, namely agriculture.
- To record and communicate the results of the monitoring programme during decommissioning to the participating stakeholders.
- To receive an effective closure certificate (should the prospect indicate that the resource(s) would not support a sustainable mining operation).

6.2 Proposed end-state of the prospecting area
Should the prospecting yield negative results, then the end use for area will revert to its pre-prospecting land use i.e. agriculture. The end-use of the area will therefore not be changed by the prospecting operations.

However, should the prospecting operation yield positive results, then the farm could be subject to a mining rights application and another more comprehensive Public Participation, Scoping, EIA and EMP development process.

If a mining right is granted then the area will be rehabilitated according to the requirements of the approved Environmental Management Programme that would apply throughout the life of the mine.

6.3 Closure
(Section 43 and Regulations 56 to 62)

Regulations 56 to 62 outline the entire process of prospect closure. The Company will comply with all of these requirements including the preparation of:
- A closure plan (Regulation 62);
- An environmental risk report (Regulation 60); and
- A final performance assessment report (Regulation 55(9)).

The possible risk factors that could be considered in the risk report are the rehabilitation of the drilling sites and impacts to horticultural land. Therefore close attention will be paid to these factors during the operational life of the project.

The Company is aware that the holder of the prospecting rights is liable for any and all environmental damage or degradation emanating from the prospecting operation until a closure certificate is issued in terms of Section 43 of the MPRDA.
7 PUBLIC PARTICIPATION
(Regulation 52(2)(g) – A record of the public participation undertaken and the results thereof)

DMR Guideline Document
7.1 Identification of interested and affected parties.
7.2 The details of the engagement process.

The record of the public participation undertaken and the results thereof was provided to the DMR in the “Report on the Results of Consultation” submitted 30 days after the acceptance of the application.

The consultation report was updated to include additional comments received up to 30 July 2014 and is included as Appendix 1. This report also includes copies of all the comments received.

The issues and concerns that were raised during the public participation process as well as the responses to these issues are summarised in Table 7, below.

Table 7: Comments – response summary table

<table>
<thead>
<tr>
<th>NAME</th>
<th>ISSUES AND CONCERNS</th>
<th>RESPONSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAND OWNERS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>City of Cape Town Property Management</td>
<td>No Comment</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Elizabeth Bock</td>
<td>No Comment</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Erhard Buhr</td>
<td>No Comment</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Isghak Damon</td>
<td>No Comment</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Velocity Trust</td>
<td>Comment form received on 30 July 2014</td>
<td>All landowners are registered as I&amp;APs.</td>
</tr>
<tr>
<td></td>
<td>Mr Shaheed Essa registered the Velocity Trust as an I&amp;AP</td>
<td></td>
</tr>
<tr>
<td>Clare Ions</td>
<td>I have no clue what this all means. Is it going to affect my farming?</td>
<td>An application for a prospecting right has been submitted to the DMR.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Should this be approved, a number of sites would be selected for drilling.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>These may or may not be located on your farm.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The drilling activities would be planned to minimise impacts on agricultural production.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If any crops are damaged then compensation would be arranged with the affected farmer.</td>
</tr>
<tr>
<td></td>
<td>Please keep me informed.</td>
<td>As a landowner, you are a key interested and affected party (I&amp;AP) and will be kept informed throughout the process.</td>
</tr>
<tr>
<td></td>
<td>What is it for me?</td>
<td>Prospecting serves to determine whether there is an economically viable silica sand resource in the area.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Should this be the case on your farm, the applicant will discuss the way forward with you.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mining would require a</td>
</tr>
<tr>
<td>NAME</td>
<td>ISSUES AND CONCERNS</td>
<td>RESPONSE</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-------------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Am I obliged?</td>
<td>totally new application and consultation process.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>You are not obliged to sell your farm. You will be kept abreast of the</td>
</tr>
<tr>
<td></td>
<td></td>
<td>process in terms of the MPRDA and will be provided the opportunity to</td>
</tr>
<tr>
<td></td>
<td></td>
<td>comment on the EMP.</td>
</tr>
<tr>
<td>Anita Mohr</td>
<td>Comment form dated 30 July 2014 Registered as an</td>
<td>All landowners are registered as I&amp;APs.</td>
</tr>
<tr>
<td></td>
<td>I&amp;AP</td>
<td></td>
</tr>
<tr>
<td>Helmut Rix</td>
<td>No comment</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Hildgard Rix Trust</td>
<td>No Comment</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

**NEIGHBOURING LAND OWNERS:**

<table>
<thead>
<tr>
<th>NAME</th>
<th>ISSUES AND CONCERNS</th>
<th>RESPONSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allie Abrahams</td>
<td>No Comment</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Johanna Buhr</td>
<td>No Comment</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Barosma Prop PTY</td>
<td>No Comment</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>E &amp; T Meyer Boerdery</td>
<td>No Comment</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>DLM Trust</td>
<td>No Comment</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Alieda Freiboth</td>
<td>No Comment</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Gerhard Freiboth</td>
<td>No Comment</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Greystone Trading</td>
<td>No Comment</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Searle Jacobs</td>
<td>No Comment</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Edgar Meyer</td>
<td>No Comment</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Regional Services Council</td>
<td>No Comment</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Cape Metropole</td>
<td>No Comment</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Spar</td>
<td>No Comment</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Transnet</td>
<td>No Comment</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>True Corp Prop Inv cc</td>
<td>No Comment</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Ebrahim Valsadia</td>
<td>No Comment</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Walter van Boom</td>
<td>No Comment</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

**AUTHORITIES:**

<table>
<thead>
<tr>
<th>NAME</th>
<th>ISSUES AND CONCERNS</th>
<th>RESPONSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department of Environmental Affairs &amp; Development Planning Rondine Isaacs</td>
<td>Letter dated 26 June 2014 “This Department will act as a commenting authority regarding the proposed prospecting right for silica sand in the northern district of the Phillipi Horticultural Area. Mr Alvan Gabriel of the Directorate: Land Management (Region 2) of this Department must therefore be provided with a copy of the Environmental Management Plan that will be submitted to the Department of Mineral Resources”</td>
<td>Noted. The DMR is responsible for distributing the EMP to various state departments for comment.</td>
</tr>
<tr>
<td>Heritage Western Cape</td>
<td>E-mail dated 1 July 2014 You are requested to make a payment and submit NID, should you have any queries regarding NID speak to Mr Zwelibanzi Shiceka 0214839533 Your case number is: 14070110</td>
<td>A NID was compiled by Klipberg Consulting (Pty) Ltd and submitted to Heritage Western Cape on 22 July 2014.</td>
</tr>
<tr>
<td>Cape Nature</td>
<td>No Comment</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Department of Mineral Resources</td>
<td>No Comment</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>City of Cape Town: Environmental Resource Management Rashad Samaai</td>
<td>E-mail dated 19 June 2014 The application falls in the Cape Flats District and I will co-ordinate the City’s comment on the proposal. We will integrate comments.</td>
<td>The DMR will provide the EMP to the City of Cape Town for comment.</td>
</tr>
</tbody>
</table>
### NAME

**ISSUES AND CONCERNS**

from various line function whose ‘operations” may be affected by the proposal.

**RESPONSE**

<table>
<thead>
<tr>
<th>NAME</th>
<th>ISSUES AND CONCERNS</th>
<th>RESPONSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Cape Town: Property Management</td>
<td>No Comment</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>City of Cape Town (District Office and Ward Councillor)</td>
<td>No Comment</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Western Cape Department of Agriculture Cor van der Walt</td>
<td>Letter dated 30 June 2014</td>
<td>Noted, the Department of Agriculture has been registered as an I&amp;AP.</td>
</tr>
</tbody>
</table>

#### INTERESTED PARTIES:

<table>
<thead>
<tr>
<th>NAME</th>
<th>ISSUES AND CONCERNS</th>
<th>RESPONSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vusana Boqwana</td>
<td>E-mail dated 24 June 2014</td>
<td>This comment refers to the mining of silica, which is not the subject of this prospecting application.</td>
</tr>
<tr>
<td>Simon Fogarty Cape Bird Club Conservation Committee</td>
<td>E-mail dated 22 June 2014</td>
<td>You have been registered as an Interested and Affected Party (I&amp;AP) and will therefore continue to be notified of progress.</td>
</tr>
<tr>
<td>Gavin Lawson</td>
<td>E-mail dated 22 June 2014</td>
<td>You have been registered as an Interested and Affected Party (I&amp;AP) and will therefore continue to be notified of progress.</td>
</tr>
<tr>
<td>D.A Whitelaw Cape Bird Club Conservation Committee</td>
<td>E-mail dated 22 June 2014</td>
<td>Thank you for your interest in the project. You have been registered as an Interested and Affected Party (I&amp;AP) and will therefore continue to be notified of progress.</td>
</tr>
<tr>
<td>Die Kaapse Landbou Vereniging</td>
<td>No Comment</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>PHA 4 Food &amp; Farming Nazeer Sonday</td>
<td>No Comment</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>
8 ENVIRONMENTAL AWARENESS PLAN

(Section 39(3)(c) – An applicant must develop an environmental awareness plan describing the manner in which the applicant intends to inform his or her employees of any environmental risks which may result from their work and the manner in which the risks must be dealt with in order to avoid pollution or the degradation of the environment)

DMR Guideline Document
The environmental awareness plan must:
8.1 describe how the applicant intends to inform his or her employees of any environmental risk which may result from their work,
8.2 describe the manner in which the risk must be dealt with in order to avoid pollution or degradation of the environment,
8.3 describe the general environmental awareness training and training on dealing with emergency situations and remediation measures for such emergencies.

General environmental awareness will be fostered among everyone working on this project (including consultants and contractors) to encourage the implementation of environmentally sound practices throughout its duration. This will ensure that environmental incidents are minimised and environmental compliance maximised.

Environmental awareness will be fostered in the following manner:
- Environmental awareness training for all workers, before commencing work on site.
- Refresher courses as and when required
- Displaying of information posters and other environmental awareness material.

The aim of the training is to enable a shared understanding and common vision of the environment, the potential impact of the prospecting operation on the environment (and why this is important) and the role of personnel in terms of environmental management and compliance.

An environmental awareness handout has been developed for all workers. This is included as Appendix 5.

All persons working on the site must be provided with environmental awareness training to inform them of any environmental risks which may result from their work and the manner in which the risks must be dealt with in order to avoid pollution or the degradation of the environment.

Schedule
Employees and especially the drilling contractors should be provided with environmental awareness training before prospecting operations start. All new employees should be provided with environmental awareness training.
9 CAPACITY TO REHABILITATE AND MANAGE NEGATIVE IMPACTS ON THE ENVIRONMENT

(Section 39(4)(a)(ii) – if, the applicant has the capacity, or has provided for the capacity, to rehabilitate and manage negative impacts on the environment.

Section 37(2) – Any prospecting operation must be conducted in accordance with generally accepted principles of sustainable development by integrating social, economic and environmental factors into the planning and implementation of prospecting projects in order to ensure that exploitation of mineral resources serves present and future generations.)

DMR Guideline Document

Section 39(4)(a)(iii) of the Act, read together with section 37(2) of the Act, requires that the applicant must have the capacity, or have provided for the capacity, to rehabilitate and manage negative impacts on the environment.

This requirement is not the same as that for financial provision, which concerns the financial risk to the State and, which may not necessarily be accessible to the applicant to fund rehabilitation or manage the environment.

The applicant is required to:

9.1 State the amount it requires to both manage and rehabilitate the environment, and provide a detailed explanation as to how the amount was derived

9.2 Specifically confirm that the stated amount has been adequately provided for in the corresponding budget reflected in the Prospecting Work Programme as required in Accordance with Regulation 7(1)(j)(ii).

This information has already been provided in the Prospecting Work Programme that was submitted to the DMR.

The contracts for the drilling will specify that the contract work includes the rehabilitation of the drill sites.
10 UNDERTAKING

(Regulation 52(2)(h) – an undertaking by the applicant regarding the execution of the environmental management plan)

DMR Guideline Document
The Environmental Management Plan will, should it comply with the provisions of section 39 (4)(a) of the Act and the right be granted, be approved and become an obligation in terms of the right issued. As part of the proposed Environmental Management Plan, the applicant is required to provide an undertaking that it will be executed as approved.

I, the undersigned, Clinton Halsey, have studied and understand the contents of this Environmental Management Plan in its entirety. I, in my capacity as duly authorised representative of K2014053426 (Pty) Ltd, hereby duly undertake to adhere to the conditions as set out therein including any amendment(s) agreed to by the Regional Manager.

Signed at Bryanston on this 4th August 2014

........................................
Signature of applicant
Clinton Halsey
ID No: 7512095086085
(For and on behalf of K2014053426 (Pty) Ltd)