mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

NAME OF APPLICANT: INKOSI PLATINUM (PTY) LTD

REFERENCE NUMBER: NW 30/5/1/1/3/2/1/150 PR

ENVIRONMENTAL MANAGEMENT PLAN for various portions of the farm HARTEBEESPOORT B 410 JQ (Greater Inkosi Area)

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

STANDARD DIRECTIVE

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

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

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

Information in this section was sourced from the existing approved prospecting EMPlan, on site observations as well as the participation of interested and affected parties, including landowners, (refer to Appendix C).

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

Topography

The topography of the proposed project area and surrounding area is characterised by gentle undulating plains and flat terrain with prominent hills. The altitude ranges from between approximately 1080 and 1445 metres above mean sea level.

Current land use

Land use within the proposed project area and surrounds is a mixture of natural bushveld and agricultural activities for which the farms are divided into plots for small-scale farming. These farming activities include cash crops (vegetables, lucerne and sunflowers) grown under irrigation in the flat lying areas as well as grazing for cattle and other livestock. In addition to this there are several granite mining and quarrying operations around the proposed project area. These generate a significant amount of disturbing noise.

Soil types

Soils types characteristic of the project area and surrounds consist of strongly structured black soils, commonly referred to as “black turf”. The topsoil depth is approximately 700 mm.

According to a specialist soil study conducted by GCS (Pty) Ltd in 2005, in the adjacent property Leeuwkop 402JQ, major soil types include those of the orthic phase Mispah along with the structured forms, including Milkwood, Bonheim and Arcadia. The structure of these soils varies

from moderate crumby and moderate blocky structure to strong vertic where the soils are either colluvially derived or associated with the more basic dolerite parent materials. The soils range from sandy clay loams to sandy clays.

Vegetation

The study area falls within the Savanna Biome as classified by Rutherford & Westfall (1986). Within this biome, over 5700 plant species exist. According to a Floral Assessment carried out on the adjacent property Leeuwkop 402JQ by Knight Piesold in 2005, the study area falls within the Rustenburg Gabbro Thornveld. The Rustenburg Gabbro Thornveld covers approximately 1.56% of the North West Province with over 40% of it transformed through cultivation, mining and industry. There is minimal floristic variation in this habitat type and is therefore considered to be low in species richness. Vegetation composition includes the following species:

Trees: *Acacia karroo* (Sweet Thorn), *A. tortilis* (Umbrella Thorn), *A. nilotica* (Scented Thorn), *Ziziphus mucronata* (Buffalo Thorn).

Shrubs: *Diospyros lycioides* (Transvaal Bluebush), *Grewia flava* (Wild Raisin).

Grasses: *Aristida bipartita, Bothriochloa insculpta, Digitaria eriantha* (Finger Grass), *Ischaemum afrum, Panicum maximum* (Guinea Grass), *Cymbopogon plurinodis, Eragrostis curvula, Sehima galpinii, Setaria incrassate*.

Forbs: *Abutilon austro-africanum, Aptosimum depressum, Heliotropium ciliatum, Hibiscus trionum, Hirpicium bechuanense, Nidorella hottentotica, Kalanchoe rotundifolia, Pavonia burchellii, Rhynchosia minima, Solanum panduriiforme, Talinum caffrum*

Although large parts of the proposed project area are cultivated and/or used for cattle grazing and granite mining and are therefore already disturbed, there are areas where this natural vegetation still occurs.

Animals

Animals that occur in the area include rodents, bats, monkeys, baboons, rabbits, porcupines, jackals, small antelope. Bird species include heron, egret, ibis, geese, duck, vultures, eagle, buzzards, hawks, kesteres, francolin, korhaan, hornbill, woodpecker, lark swallows, cisticola, flycatcher, pipit, shrike, sparrow, weaver and doves. Reptiles included tortoises, lizards, gecko, and snakes such as adders, pythons and cobras, however few are remaining because various activities in the area. The proposed project area is already used for cultivation and grazing, therefore natural animal life is limited to small animals and bird life given that the natural vegetation has already been disturbed in most parts of the project area.

According to a biodiversity study carried out by Dr. U.H. Schwaibold (University of the Witwatersrand) in the adjacent property Leeukop 402JQ, it was reported that 92 mammalian species may occur or are likely to occur in the area. Of these species the Short-eared trident bat is classified and being “critically endangered” while the Oribi and White-tailed Rat are Red Data listed as “endangered”. In addition to this, three species of the order Carnivora, six species of the order Chiroptera, one species of the order Insectivora and one species of the order Pholidota are classified as “vulnerable”. Given that a considerable amount of the project area has already been disturbed by agricultural activities as well as granite mining, it is not expected that the drilling will cause an additional threat to the above listed species.

Surface water

In general, the greater region is characterised by perennial and non-perennial streams. These include the northwards draining Kareespruit River as well as several small tributaries (river/wetland systems) which traverse the project area. In addition, there are also some naturally occurring vleis located within the project area. The project area falls within the Crocodile (West) catchment area.

While many of the proposed prospecting boreholes are located within close proximity to the above mentioned surface water resources, no prospecting activities will take place within 100 m of these areas. Refer to Appendix A, Figure 2 for the proposed location of the boreholes in relation to surface water resources.

Heritage Resources

A recent heritage study conducted by heritage specialist Julius Pretorius identified several heritage resources within the project area. Appendix 1, Figure 3 provides an overview of the heritage resources identified and their proximity to the proposed borehole sites. The heritage sites identified include Late Iron Age sites (HAR01-HAR33), as well as two graveyards (GY01-GY02). All graveyards are considered to be of high significance. All of the sites identified are protected in terms of the National Heritage Resources Act (NHA) (No 25 of 1999). Proposed borehole sites 10, 12 and 22 are located within close proximity to Late Iron Age Sites. In such instances, these sites will be demarcated clearly and these areas will be avoided. In addition to this, workers will be educated on the historical importance of these sites and will stay away from these areas.

The full heritage study is included in Appendix F.

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

The Kareespruit River, small tributary streams as well naturally occurring vleis are all environmental features which have been identified within the proposed project area and will require protection. As such, these areas will be treated as environmentally sensitive areas and in accordance with the existing EMPlan, Inkosi Platinum is committed to not undertaking any prospecting activities within 100 m of any of these water resources.

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

Please refer to Appendix A, Figure 1 for a locality plan. Through the participation of community members, landowners and other IAPs it was suggested that there may be heritage resources on the farm Hartebeesport B 410 JQ. Impala (on behalf of Inkosi) has commissioned a heritage specialist to conduct a specialist study and this has been verified. The findings of this heritage report are attached as Appendix F. All heritage sites identified are mapped in Appendix A, Figure 3.

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,

Refer to the background information document (BID) in Appendix C used for information sharing purposes, which included information on the baseline environment, and the record of consultation included in Appendix C for confirmation that the community, landowner and IAPs were given the opportunity to comment on the BID.

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

2.1 Description of the proposed prospecting operation.

Inkosi is in the process of amending its existing approved prospecting EMPlan (NW30/5/1/1/3/2/2/1/150 PR) for various portions of the farm Hartbeespoort B 410 JQ (referred to as the Greater Inkosi Area). This farm is located near Brits in the North West Province.

The amendment caters for 32 boreholes which were previously drilled or are currently in progress. These are currently undergoing rehabilitation. Previously drilled boreholes are currently under care and maintenance.

In addition to this, this EMP caters for 12 new boreholes which Inkosi plans to drill between 2012 and 2015. With regard to the 12 proposed new boreholes (Appendix A, Figure 2), the following activities will take place:

- temporary accommodation and ablution facilities for contractors;
- the establishment of temporary access tracks;
- plastic lined sumps;
- temporary storage of hazardous and non-hazardous waste;
- concrete drilling slab and drill rig; and
- the demarcation of the prospecting sites.

Further to this, due to the close proximity of the proposed activities to IAPs, operating times will be limited to a single shift (i.e. drilling activities will be limited to the day time only) and no drilling will take place on a Sunday.

Closure objectives, applying to all drilled and planned boreholes include the following:

- all prospecting related infrastructure will/has been removed;
- boreholes will/have been sealed and capped;
- plastic lining will/has been removed from sumps;
- sumps will/have been backfilled with subsoil;
- no spills or waste will be/is present on site;
- the concrete drilling slabs will/have been demolished and removed;
- stripped topsoil will/has been placed back in its original location; and
- all the sites will/have been levelled and the topsoil has been raked to allow for rooting and re-vegetation.

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

Refer to Table 1.

Table 1 Description of prospecting activities

Activity		Project Phase
Geophysics and planning		
1	Contact landowner to arrange site access	Design
2	Purchase and review of existing information	Design
3	Detailed aerial photography and orthographic interpretation	Design
4	Aeromagnetic reconnaissance and interpretation	Design
5	Delineate borehole locations in consultation with landowner, allowing for buffer zones from watercourses, residences and heritage sites	Design
Establish contractor's camp		
6	Set-up portable containers, chemical portable toilet, core tray storage area and stripping of topsoil	Construction and operation
7	Set-up the diamond core-recovering drilling machine with drip trays and tarpaulins	Construction
Drilling site establishment		
8	Access the drill site using a new access track	Construction
9	Strip vegetation and topsoil in an area of approximately 30 m x 20 m and to a maximum depth of 300 mm and stripping topsoil from access tracks (approximately 150m) and drill pads	Construction
10	Excavate water sumps lined with PVC (1m x 3 m and 1m depth)	Construction
11	Stockpile the topsoil adjacent to the drilling site	Construction
12	Establish temporary fencing around the drill site	Construction
13	Set-up chemical portable toilet and core trays	Construction
14	Set-up fuel and lubricants storage area	Construction
Drilling		
15	Drill borehole using water from the Leeuwkop pipeline and brought to site via bowser	Operation
16	Contain all drilling water in the PVC lined sump and allow to settle – use biodegradable drilling oils where possible	Operation
17	Log the drill core and place on core trays	Operation
18	Empty portable chemical toilets as required - using an approved contractor	Operation

Activity		Project Phase
Closure and rehabilitation of drill site		
19	Remove water from the sump and drip trays	Decommissioning
20	Remove oils and silt from PVC lining and drip trays and store until disposal to permitted hazardous landfill site	Decommissioning
21	Backfill the sump once it has dried out (dome to allow for subsidence) and plug borehole	Decommissioning
22	Move drill core trays, chemical toilet, water bowser, stores and drill rig from the site	Decommissioning
23	Dispose of any general waste to a permitted landfill site	Decommissioning
24	Remove temporary fencing	Decommissioning
25	Rip and plough compacted areas	Decommissioning
26	Replace topsoil over disturbed area (30 x 20 m)	Decommissioning
27	Re-vegetate disturbed area (where necessary)	Decommissioning
28	Send core samples to laboratory for testing	Decommissioning
29	Monitoring of rehabilitated boreholes	Closure
30	Dismantle contractor’s camp and rehabilitate	Decommissioning
31	Rehabilitate access track	Decommissioning
32	Monitor and maintain rehabilitated area	Closure

2.1.2 Plan of the main activities with dimensions

Refer to Appendix B, Figure 4

2.1.3 Description of construction, operational, and decommissioning phases.

Refer to Table 1.

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

No listed activities are triggered in terms of NEMA.

2.2 Identification of potential impacts

2.2.1 Potential impacts per activity and listed activities.

Refer to Table 2 below for a list of potential impacts per activity as described in Table 1.

Table 2: Potential Impacts

Activity		Potential Impact	Description of potential impacts
Geophysics and planning			
1	Contact landowner to arrange site access	None	None
2	Purchase and review of existing information	None	None
3	Detailed aerial photography and orthographic interpretation	None	None
4	Aeromagnetic reconnaissance and interpretation	None	None
5	Delineate borehole locations in consultation with landowner, allowing for buffer zones from watercourses, residences and heritage sites	None	None
Establish contractor's camp			
6	Set-up portable containers, chemical portable toilet, core tray storage area and stripping of topsoil	Air quality deterioration	Dust generation through the establishment of an access track. Air pollution through vehicle entrainment is expected to be negligible due to the small scale of the project. Air pollution from exhaust fumes. Air pollution through vehicle emissions and drill rig is expected to be negligible due to the small scale of the project
		Loss of topsoil	Topsoil could be compacted and sterilised by the movement of workers and vehicles (very limited area)
		Biodiversity	Loss of natural vegetation and habitat for fauna (very small scale). In addition to this, possible harvesting of fauna and flora by workers as well as road kills could result in a loss of biodiversity.
		Land use	Loss of economic function of disturbed area during prospecting activities and potential loss of land capability post prospecting (very limited area)
		Heritage	Prospecting activities could result in possible damage to/destruction of heritage resources if these resources are not protected.

Activity		Potential Impact	Description of potential impacts
		Socio-economic and community safety (Positive and negative)	The proposed activity may have the potential to result in an increase in crime Extension of existing employment contracts with drilling contractors. Given that access to drill sites may be gained through the use of community access roads, this could pose a threat to community safety
Drilling site establishment			
7	Access the drill site using new access track (approximately 150m)	Air quality deterioration	Dust generation through the establishment and use of an access track. Air pollution through vehicle entrainment is expected to be negligible due to the small scale of the project. Air pollution from exhaust fumes. Air pollution through vehicle emissions and drill rig is expected to be negligible due to the small scale of the project
		Noise pollution	Noise generated by the establishment of a new access track. This is particularly relevant to IAPs that reside in close proximity to the borehole site
		Loss of topsoil	Topsoil could be compacted and sterilised by movement of staff and vehicles (very limited area)
		Biodiversity	Loss of natural vegetation and habitat for fauna (very small scale). Possible road kills and worker's harvesting of flora and fauna could also result in a loss of biodiversity.
		Land use	Loss of economic function of disturbed area during prospecting activities and potential loss of land capability post prospecting (very limited area)
		Heritage	Prospecting activities could result in possible damage to/destruction of heritage resources if these resources are not protected.

Activity		Potential Impact	Description of potential impacts
		Community safety	Given that access to drill sites may be gained through the use of community access roads, this could pose a threat to community safety
8	Strip vegetation and topsoil in an area of approximately 30 m x 20 m and to a maximum depth of 300 mm and stripping topsoil from access track and drill pads	Loss of topsoil	Vegetation will be cleared exposing topsoil to erosion. Topsoil could be compacted and sterilised by movement of staff and vehicles if not stripped prior to establishment of infrastructure (very limited area)
		Biodiversity	Loss of natural vegetation and habitat for fauna at the drill site (very small scale)
		Land use	Loss of economic function of disturbed area during prospecting activities and potential loss of land capability post prospecting (very limited area)
		Noise pollution	Noise generated by the clearing of topsoil and vegetation at the drill site
9	Excavate water sump lined with PVC (1 m x 3 m and 1 m depth)	Loss of topsoil	Vegetation will be cleared exposing topsoil to erosion. Topsoil could be compacted and sterilised by movement of staff and vehicles if not stripped prior to establishment of infrastructure (very limited area)
10	Stockpile the topsoil adjacent to the drilling site	Biodiversity	Loss of natural vegetation and habitat for fauna (very small scale) In addition to this, possible harvesting of fauna and flora by workers could result in a loss of biodiversity.
		Land use	Loss of economic function of disturbed area during prospecting activities and potential loss of land capability post prospecting (very limited area)
		Heritage	Prospecting activities could result in possible damage to/destruction of heritage resources if these resources are not protected.
11	Establish temporary fencing around the drill site	None	Not applicable (n/a)

Activity		Potential Impact	Description of potential impacts
12	Set-up chemical portable toilet and core trays	Contamination of soil resources	Soil pollution from toilet spills could result if portable toilet buckets are not handled carefully. If not managed correctly, this soil pollution could result in water pollution.
13	Set-up fuel and lubricants storage area	Contamination of soil resources	Soil pollution from spillage during handling and storage. This could also contaminate soils.
14	Set-up the diamond core-recovering drilling machine with drip trays and tarpaulins	Visual	Visual impact of the drilling machine on site
		Noise pollution	Noise generated from establishing the drilling machine on site
Drilling			
15	Drill borehole using water from the Leeuwkop pipeline and brought to site via bowser	Contamination of soil	Soil pollution from use of hydro-carbon lubricants and the refuelling of drill rigs
		Surface water contamination	Surface water could become polluted due to spillages of pollutants during handling and use
		Groundwater contamination	Groundwater could become polluted due to pollutants entering aquifers via surface water infiltration
		Air quality deterioration	Dust generation through the use of a access track. Air pollution through vehicle entrainment is expected to be negligible due to the small scale of the project. Air pollution from exhaust fumes. Air pollution through vehicle emissions and drill rig is expected to be negligible due to the small scale of the project
		Noise generation	Noise generated by the drill could disturb nearby residences. This is particularly relevant to IAPs that reside in close proximity to the proposed borehole sites
16	Contain all drilling water in the PVC lined sump and allow to settle – use biodegradable drilling oils where possible	Surface water contamination	The spillage of lubricants or fuel. This could also result in soil pollution

Activity		Potential Impact	Description of potential impacts
		Groundwater contamination	Groundwater could become polluted due to pollutants entering aquifers via surface water infiltration
17	Log the drill core and place on core trays	None	n/a
18	Empty portable chemical toilets as required - using an approved contractor	Contamination of soil	Soil pollution from toilet spills
		Contamination of surface water	Surface water resources could be polluted as a result of spillages. This could result in groundwater pollution
		Land use	Potential loss of land use and capability (very limited area)
Closure and rehabilitation of drill site			
19	Remove water from the sump and drip trays	Contamination of soil	Soil pollution from spills during handling
		Surface water contamination	Surface water resources could be polluted as a result of spillages
20	Remove oils and silt from PVC lining and drip trays and store until disposal to permitted hazardous landfill site	Contamination of soil	Soil pollution from spills during handling
		Surface water contamination	Surface water resources could be polluted as a result of spillages
		Groundwater contamination	Groundwater could become polluted due to pollutants entering aquifers via surface water infiltration
21	Backfill the sump once it has dried out (dome to allow for subsidence) and plug borehole	None	n/a
22	Move drill core trays, chemical toilet, water bowser, stores and drill rig from the site	Air quality deterioration	Dust generation through the establishment of a access track. Air pollution through vehicle entrainment is expected to be negligible due to the small scale of the project. Air pollution from exhaust fumes. Air pollution through vehicle emissions and drill rig is expected to be negligible due to the small scale of the project

Activity		Potential Impact	Description of potential impacts
		Noise pollution	Noise generated by the drill rig could disturb nearby residences. This is particularly relevant to IAPs that reside in close proximity to the proposed borehole site
		Contamination of soil	Soil pollution from toilet spills
		Contamination of surface water	Surface water resourced could be polluted as a result of spillages
23	Dispose of any general waste to a permitted landfill site	None	n/a
24	Remove temporary fencing	None	n/a
25	Rip and plough compacted areas	Restoration of soils potential	The ripping, raking/ploughing of compacted areas will prepare the soil for re-vegetation to take place.
26	Replace topsoil over disturbed area (30 x 20 m)	Restoration of soils potential	Replacement of top soil will increase the success of re-vegetation
27	Re-vegetate disturbed area (where necessary)	Restoration of soils potential	Re-vegetation of previously disturbed soil will assist in returning the site as close as possible to its pre-prospecting state
28	Send core samples to laboratory for testing	Air quality deterioration	Dust generation through the use of an access track. Air pollution through vehicle entrainment is expected to be negligible due to the small scale of the project. Air pollution from exhaust fumes. Air pollution through vehicle emissions and drill rig is expected to be negligible due to the small scale of the project. In addition to this road kills could result should speed limits not be adhered to.
29	Monitoring of rehabilitated boreholes	None	n/a
30	Dismantle contractor's camp and rehabilitate	Air quality deterioration	Dust generation by vehicle movement and replacing of soil. Air pollution through vehicle entrainment is expected to be negligible due to the

Activity		Potential Impact	Description of potential impacts
			small scale of the project.
		Contamination of soils	Pollution of soils and surface water as a result of spillage of waste from the contractor's camp
31	Rehabilitate new access track	Air quality deterioration	Dust generation by vehicle movement and replacing of soil. Air pollution through vehicle entrainment is expected to be negligible due to the small scale of the project.
		Soil erosion	Erosion of soils if vegetation does not re-establish
32	Monitor and maintain rehabilitated area	None	n/a

2.2.2 Potential cumulative impacts.

Due to the small scale and the temporary nature of the prospecting activities, the cumulative impacts are regarded as insignificant.

2.2.3 Potential impact on heritage resources

Through the participation of community members, landowners and other IAPs it was suggested that there may be heritage resources on the farm Hartebeesport B 410 JQ. In order to verify this, Impala (on behalf of Inkosi) commissioned a heritage specialist to conduct a specialist study which confirmed the assertions of these IAPs. The heritage report is attached as Appendix F.

Should any additional evidence of archaeological sites or graves, artefacts or other heritage resources be found during the proposed operation, work will be stopped and SAHRA and an accredited archaeologist will be alerted immediately.

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.)

Potential impacts with regards to communities, individuals or competing land uses are listed below:

- Increase in disturbing noise levels. This will be localised;
- Increase in dust generation. This will be localised;
- Loss of current land use such as grazing and crops. This is expected to be negligible due to the small scale of the project;
- Potential increase in petty crime;
- Potential loss of heritage resources;
- Potential pollution of soil resources through spills. This will be localised;
- Potential pollution of surface water resources through spills. This is unlikely as the site will not be located near any surface water resources; and
- Potential groundwater pollution through spills. This is unlikely as mitigation measures as set out in Table 3, will be implemented.

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

Please refer to the record of consultation and background information document included in Appendix C for the proof that landowners and other IAPs were given an opportunity to comment on the BID and the potential identified impacts.

2.2.6 Confirmation of specialist report appended.

(Refer to guideline)

Due to the small scale of the project and the temporary nature of the proposed prospecting activities, no significant impacts are expected to occur (See Section 3.1). With the exception of the heritage study which was carried out (see Appendix F), no further specialist studies were conducted.

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 impact rating for each potential impact listed in Table 2 is provided in the section below. The criteria used to rate each impact is attached in Appendix D. The significance of the potential impacts included in Table 2 have been assessed in the mitigated scenario.

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

(Refer to Table 3).

3.1.3 Assessment of potential cumulative impacts.

Due to the small scale of the project and the temporary nature of the prospecting activities, the cumulative impacts are regarded as insignificant and are therefore no cumulative impacts were assessed.

3.2 Mitigation measures to minimise adverse impacts.

(Refer to Table 3)

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

(Refer to Table 3)

Table 3: List of potential environmental impacts including their significance and mitigation options.

Activity		Potential Impact	Impact description	Impact rating	Project phase	Mitigation
Geophysics and planning						
1	Contact landowner to arrange site access	None	None	n/a	Design	n/a
2	Purchase and review of existing information	None	None	n/a	Design	n/a
3	Detailed aerial photography and orthographic interpretation	None	None	n/a	Design	n/a
4	Aeromagnetic reconnaissance and interpretation	None	None	n/a	Design	n/a
5	Delineate borehole locations in consultation with landowner, allowing for buffer zones from watercourses, residences and heritage sites	None	None	n/a	Design	n/a
Establish contractor's camp						
6	Set-up portable containers, chemical portable toilet, core tray storage area and stripping of topsoil	Air quality deterioration	Dust generation through the establishment of a new access track.	Low	Construction	This impact is expected to be of low significance due to the following: • The movement of drilling related vehicles on the unpaved access track will be on a small scale • Vehicle speeds will be limited to 40km/h on site • Contractor camp establishment will be temporary (approximately 1 week)
			Air pollution from exhaust fumes	Low	Construction	This impact is expected to be of low significance due to the following factors: • Vehicle speeds will be limited to 40km/h on site • The project will be small scale and temporary • Vehicles and the drilling rig will be maintained in good working order
		Loss of topsoil	Topsoil could be compacted and sterilised by the movement of	Low	Construction	This impact is expected to be of low significance due to the following: • Topsoil will be stripped and stored separately

Activity		Potential Impact	Impact description	Impact rating	Project phase	Mitigation
			workers and vehicles			• Topsoil stockpiles will be demarcated. • Areas where topsoil is to be placed will be ripped. • The disturbed area will be allowed to re-vegetate.
		Biodiversity	Loss of natural vegetation and habitat for fauna as well as loss of biodiversity through harvesting of flora and fauna	Low	Construction	This impact is expected to be of low significance due to the following • The contractor camp will be situated so that limited or no natural vegetation need be removed. • As far as possible, the camp site will be established in an already disturbed area. Sensitive ecological areas as will be avoided. • If the prospecting site must be established in undisturbed/natural areas, prior to delineating the site an ecological specialist will be appointed to survey the site. If required additional measures such as search and rescue or relocation of specific species with conservation value will be undertaken prior to prospecting activities commencing. • Inkosi will take a zero tolerance approach to harvesting/harming of flora and fauna • Workers will be educated on sensitive areas such as watercourses • Speed limits will be enforced so as to prevent road kills.
		Land use	Loss of economic function of disturbed area during prospecting activities and potential loss of land capability post prospecting	Low	Construction	This impact is expected to be of low significance due to the following • Delineate contractor camp locations in consultation with landowner and land users. • Disturbed areas will be rehabilitated to pre-disturbed potential.
		Heritage	Loss of heritage	n/a	Construction	Prospecting activities could result in possible

Activity		Potential Impact	Impact description	Impact rating	Project phase	Mitigation
			resources			damage to/destruction of heritage resources if these resources are not protected.
		Socio-economic	Positive and negative socio-economic impacts	n/a	Construction and operation	• Keep open communication with the landowner and potentially affected IAPs. • Make use of reputable contractors.
Drilling site establishment						
7	Access the drill site using new access track (approximately 150m)	Air quality deterioration	Dust generation through the establishment of a new access track.	Low	Construction	This impact is expected to be of low significance due to the following factors: • The movement of drilling related vehicles on the unpaved access track will be on a small scale. • Vehicle speeds will be limited to 40km/h on site. • Route establishing activities will be temporary (± 1 week).
			Air pollution form exhaust fumes	Low	Construction	This impact is expected to be of low significance due to the following factors: • Vehicle speeds will be limited to 40km/h on site. • The project will be small scale and temporary. • Vehicles will be maintained in good working order
		Noise pollution	Noise generated by the possible establishment of a new access road	Low	Construction	Noise impacts are expected to be of low significance due to the following: • Route establishing will only be conducted during the day. • Route establishing activities will be temporary (± 1 week). • A limited number of nearby receptor sites. • Current presence of granite mining and farming activities in the area already generate some noise, and additional noise generated from drilling will not be significant
		Loss of topsoil	Topsoil could be compacted and sterilised	Low	Construction	This impact is expected to be of low significance due to the following:

Activity		Potential Impact	Impact description	Impact rating	Project phase	Mitigation
			by movement of staff and vehicles			• Topsoil will be stripped and stored separately • Topsoil stockpiles will be demarcated and allowed to re-vegetate. • Areas where topsoil is to be placed will be ripped. • The disturbed area will be allowed to re-vegetate.
		Biodiversity	Loss of natural vegetation and habitat for fauna	Low	Construction	This impact is expected to be of low significance due to the following: • The new access track will be delineated so that no trees need be removed. • As far as possible, the access track will be established in already disturbed areas. Sensitive ecological areas will be avoided. • If the prospecting site must be established in an undisturbed/natural area, prior to delineating of this site an ecological specialist will be appointed to survey the site. If required additional measures such as search and rescue or relocation of specific species will be undertaken prior to prospecting activities commencing. • Inkosi will take a zero tolerance approach to harvesting/harming of flora and fauna • Workers will be educated on sensitive areas such as watercourses • Speed limits will be enforced so as to prevent road kills.
		Land use	Loss of economic function of disturbed area during prospecting activities and potential loss of land capability post prospecting	Low	Construction	This impact is expected to be of low significance due to the following: • Delineate the location of the new access track location in consultation with landowner. • Disturbed areas will be rehabilitated to pre-disturbed potential.

Activity		Potential Impact	Impact description	Impact rating	Project phase	Mitigation
		Heritage	Loss of heritage resource	n/a	Construction	Prospecting activities could result in possible damage to/destruction of heritage resources if these resources are not protected.
		Community safety	Potential threat to safety of pedestrians and community members due to increased traffic	Low	Construction	This impact is expected to be of low significance due to the following: • Speed limits will be enforced strictly adhered to • Warning signs will be placed on roads where community safety may be threatened.
8	Strip vegetation and topsoil in an area of approximately 30 m x 20 m and to a maximum depth of 300 mm and stripping topsoil from access track and drill pads	Loss of topsoil	Vegetation will be cleared exposing topsoil to erosion. Topsoil could be compacted and sterilised by movement of staff and vehicles if not stripped prior to establishment of infrastructure	Low	Construction	This impact is expected to be of low significance due to the following: • The removal of vegetation will be kept to a minimum. • Topsoil will be stripped (where possible) and stockpiled for use during the rehabilitation process. • Upon completion of the project, all disturbed areas will be rehabilitated: ○ Stockpiled topsoil will be replaced and raked. ○ The area will be allowed to re-vegetate
9	Excavate drilling water sumps lined with PVC (1 m x 3 m and 1 m depth)	Loss of topsoil	Vegetation will be cleared exposing topsoil to erosion. Topsoil could be compacted and sterilised by movement of staff and vehicles if not stripped prior to establishment of infrastructure	Low	Construction	
10	Stockpile the topsoil adjacent to the drill site and allow to re-vegetate	Biodiversity	Loss of natural vegetation and habitat for fauna	Low	Construction	This impact is expected to be of low significance due to the following: • Drilling sites will be delineated so that no trees need be removed. • As far as possible, the access track will be established in already disturbed areas. Sensitive ecological areas will be avoided. • If the prospecting site must be established in an undisturbed/natural area, prior to delineating of

Activity		Potential Impact	Impact description	Impact rating	Project phase	Mitigation
						this site an ecological specialist will be appointed to survey the site. If required additional measures such as search and rescue or relocation of specific species with conservation value will be undertaken prior to prospecting activities commencing. • Inkosi will take a zero-tolerance approach to harvesting/harming of flora and fauna
		Land use	Loss of economic function of disturbed area during prospecting activities and potential loss of land capability post prospecting	Low	Construction	This impact is expected to be of low significance due to the following: • Delineate new access track location in consultation with landowner. • Disturbed areas will be rehabilitated as close as possible to pre-disturbed potential.
		Heritage	Loss of potential heritage resources	High	Construction	Prospecting activities could result in possible damage to/destruction of heritage resources if these resources are not protected.
11	Establish temporary fencing around the drill site	None	n/a	n/a	Construction	n/a
12	Set-up chemical portable toilet and core trays	Contamination of soil resources	Soil pollution from toilet spills	Low	Construction	This impact is expected to be of low significance due to the following: • Chemical toilets to be serviced and emptied by qualified contractor on regular basis.
13	Set-up fuel and lubricants storage area	Contamination of soil resources	Soil pollution from spillage during handling and storage	Low	Construction	This impact is expected to be of low significance due to the following: • Environmental awareness training of contractor. Management measures need to be incorporated into contractor's contract. • Fuel and lubricants will be stored in sealed containers on containment trays with a 110% capacity. • If spillages do occur the contaminated soils will be rehabilitated by either: ○ In situ organic treatment; or

Activity		Potential Impact	Impact description	Impact rating	Project phase	Mitigation
						○ removal and disposal of contaminated soils at an appropriately licensed facility (Certificates of disposal will be obtained for recording purposes).
14	Set-up the diamond core-recovering drilling machine with drip trays and tarpaulins	None	n/a	n/a	Construction	n/a
Drilling						
15	Drill borehole using water from the Leeuwkop pipeline and brought to site via bowser	Contamination of soil	Soil pollution from use of hydro-carbon lubricants and the refuelling of drill rigs	Low	Operation	This impact is expected to be of low significance due to the following: • Environmental awareness training of contractor • The drill rig will be underlain with drip trays and tarpaulins to contain any spills or leaks of lubricants. • The refuelling of vehicles will take place on an impermeable tarpaulin surface. • Vehicles will not be serviced on site. • The use of drip trays and/or tarpaulins underneath leaking vehicles and equipment until such a time as these machines can be removed from the site for repair. • If spillages do occur the contaminated soils will be rehabilitated by either: ○ In situ organic treatment; or ○ removal and disposal of contaminated soils at an appropriately licensed facility (Certificates of disposal will be obtained for recording purposes). • Spills will be contained and cleaned up immediately
		Surface water contamination	Surface water could become polluted due to spillages of pollutants during handling and use.	Low	Operation	This impact is expected to be of low significance due to the following: • Environmental awareness training of contactor. • A PVC lined sump will be used for collection of

Activity		Potential Impact	Impact description	Impact rating	Project phase	Mitigation
						oils and silt contained in the drilling water • The drill rig will be underlain with drip trays and tarpaulins to contain any spills or leaks of lubricants • The refuelling of vehicles will take place on an impermeable tarpaulin surface • Vehicles will not be serviced on site • Any spills will be contained and cleaned up immediately • No drilling will occur within 100m of water courses or vlei areas.
		Groundwater contamination	Groundwater could become polluted due to pollutants entering aquifers via boreholes or surface water infiltration	Low	Operation	• Non-toxic and biodegradable drilling lubricant will be used • A PVC lined sump will be used for collection of oils and silt contained in the drilling water
		Air quality deterioration	Dust generation by vehicle movement on the access track Air pollution form exhaust fumes	Low	Operation	This impact is expected to be of low significance due to the following factors: • The movement of drilling related vehicles on unpaved access track will be on a small scale. • Vehicle speeds will be limited to 40km/h on site. • Drilling at each site will be temporary • Vehicles and drill rigs will be maintained in good working order
		Noise generation	Noise generated by the drilling could disturb nearby residences	Low	Operation	This impacts is expected to be of low significance due to the following: • Drilling will only be conducted during the day. • Drilling at each site will be temporary • A limited number of nearby receptor sites.
16		Community safety	Potential threat to safety of pedestrians and community members due to increased traffic	Low	Operation	This impact is expected to be of low significance due to the following: • Speed limits will be enforced strictly adhered to • Warning signs will be placed on roads where

Activity		Potential Impact	Impact description	Impact rating	Project phase	Mitigation
			carting water to site			community safety may be threatened.
17	Contain all drilling water in the PVC lined sump and allow to settle – use biodegradable drilling oils where possible	Surface water contamination	The spillage of lubricants of fuel	Low	Operation	This impact is expected to be of low significance due to the following: • Environmental awareness training of contractor • A PVC lined sump will be used for collection of oils and silt contained in the drilling water • No drilling will occur within 100m of water courses • Any spills will be contained and cleaned up immediately
		Groundwater contamination	Groundwater could become polluted due to pollutants entering aquifers via boreholes or surface water infiltration	Low	Operation	This impact is expected to be of low significance due to the following: • Non-toxic and biodegradable drilling lubricant will be used • A PVC lined sump will be used for collection of oils and silt contained in the drilling water • Upon completion of drilling, oils and silt collected in the sump lining and drip trays will be stored and disposed at a permitted hazardous landfill. • Any spills will be contained and cleaned up immediately
18	Log the drill core and place on core trays	None	n/a	n/a	Operation	n/a
19	Empty portable chemical toilets as required - using an approved contractor	Contamination of soil	Soil pollution from toilet spills	Low	Operation	This impact is expected to be of low significance due to the following: • Chemical toilets to be serviced and emptied by recognised contractor on regular basis • Any spills will be contained and cleaned up immediately
Closure and rehabilitation of drill site						
20	Remove water from the sump	None	n/a	n/a	Decommissioning	n/a

Activity		Potential Impact	Impact description	Impact rating	Project phase	Mitigation
	and drip trays					

21	Remove oils and silt from PVC lining and drip trays and store until disposal to permitted hazardous landfill site	Contamination of soil	Soil pollution from spills during handling	Low	Decommissioning	This impact is expected to be of low significance due to the following:
						• Environmental awareness training of contractor
						• Removed oils and silts will be stored in sealed containers and placed on tarpaulins to catch any spills.
						• The use of drip trays and/or tarpaulins underneath leaking vehicles and equipment until such a time as these machines can be removed from the site for repair.
						• If spillages do occur the contaminated soils will be rehabilitated by either:
						  ○ In situ organic treatment; or
						  ○ removal and disposal of contaminated soils at an appropriately licensed facility (Certificates of disposal will be obtained for recording purposes).
						• Any spills will be contained and cleaned up immediately

22	Backfill the sump once it has dried out (dome to allow for subsidence) and plug borehole	None	n/a	n/a	Decommissioning	n/a
23	Move drill core trays, chemical toilet, water bowser, stores and drill rig from the site	Air quality deterioration	Dust generation by vehicle movement on gravel access track Air pollution from exhaust fumes	Low	Decommissioning	This impact is expected to be of low significance due to the following factors: • The movement of drilling related vehicles on unpaved access track will be on a small scale. • Vehicle speeds will be limited to 40km/h on site. • Site de-establishment will be temporary
		Noise pollution	Noise generated by the drill rig could disturb nearby residences	Low	Decommissioning	This impacts is expected to be of low significance due to the following: • Drilling related activities will only be conducted during the day.

Activity		Potential Impact	Impact description	Impact rating	Project phase	Mitigation
						• Site de-establishment will be • A limited number of nearby receptor sites. • Existing granite mining and farming activities already generate a significant level of noise, therefore the noise generated through the moving of site infrastructure will be negligible.
		Contamination of soil	Soil pollution from toilet spills	Low	Decommissioning	This impact is expected to be of low significance due to the following: • Chemical toilets to be serviced and emptied by qualified contractor prior to being moved between drill sites. • All spills will be contained and cleaned up immediately
		Contamination of surface water	Contamination of surface water resources from toilet spills and the stores	Low	Decommissioning	This impact is expected to be of low significance due to the following: • Environmental awareness training of contractor • All spills will be contained and cleaned up immediately
24	Dispose of any general waste to a permitted landfill site	None	n/a	n/a	Decommissioning	n/a
25	Remove temporary fencing	None	n/a	n/a	Decommissioning	n/a
26	Rip and plough compacted areas	Restoration of soils ability	Areas compacted by movement of staff and vehicles will be ripped and raked/ploughed	Low	Decommissioning	This impact is expected to be of positive significance due to the following: • Topsoil will be ripped before use in rehabilitation so as to allow for re-vegetation to take place effectively
27	Replace topsoil over disturbed area (30 x 20 m)	Restoration of soils ability	Topsoil will be replaced	Low	Decommissioning	This impact is expected to be of positive significance due to the following: • Topsoil replacement will allow for the soils capability to be restored in order for the area to re-vegetate and be returned as close as it practically possible to its pre-prospecting state.
28	Re-vegetate disturbed area	Restoration of	Disturbed area will be	n/a	Decommissioning	This impact is expected to be of positive significance

Activity		Potential Impact	Impact description	Impact rating	Project phase	Mitigation
	(where necessary)	soils ability	allowed to re-vegetate			due to the following: • The area will be allowed to re-vegetate therefore restoring the land capability (as far as is practically possible) to its pre-prospecting state
29	Send core samples to laboratory for testing	Air quality deterioration	Dust generation by vehicle movement on gravel access track Air pollution form exhaust fumes	Low	Decommissioning	This impact is expected to be of low significance due to the following factors: • The movement of drilling related vehicles on unpaved access track will be on a small scale. • Vehicle speeds will be limited to 40km/h on site (this will also reduce the likelihood of fauna road kills). • The project will be temporary.
30		Community safety	Potential threat to safety of pedestrians and community members due to increased traffic	Low	C	This impact is expected to be of low significance due to the following: • Speed limits will be enforced strictly adhered to and drivers trained in pedestrian safety • Warning signs will be placed on roads where community safety may be threatened.
31	Monitoring of rehabilitated boreholes	None	n/a	n/a	Closure	n/a
32	Dismantle contractor's camp and rehabilitate	Air quality deterioration	Dust generation by vehicle movement and replacing of soil	Low	Decommissioning	This impact is expected to be of low significance due to the following: • this activity will be on a small scale and will be short-lived, • and is needed for the rehabilitation process.
33	Rehabilitate access track	Air quality deterioration	Dust generation by vehicle movement and replacing of soil	Low	Decommissioning	
34	Monitor and maintain rehabilitated area	None	n/a	n/a	closure	n/a

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)

Refer to Appendix E for the EMP commitments. Where required, commitments have been revised to cater for the scale of the prospecting operation, these are indicated in *italics* in Appendix E.

3.2.3 Review the significance of the identified impacts

After bringing the proposed mitigation measures into consideration, the identified impacts, if managed correctly and in compliance with the EMPlan commitments included in Table 3 and Appendix E, can be reduced to negligible levels.

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 prospecting actions, activities, or processes, for each of the construction operational and closure phases of the operation).

Refer to Appendix A, Figure 1 for the location of the proposed prospecting activities and Appendix B, Figure 4 for the conceptual layout of the drill site.

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 rehabilitation and closure objective is to rehabilitate the proposed prospecting site to reflect that of its surrounding environment and to return all disturbed land to its pre-prospecting state as far as practically possible.

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 regulation54 (1) in respect of each of the phases referred to).

The financial provision provided below caters for rehabilitation work still in progress in terms of boreholes that have previously been drilled and are currently under care and maintenance as well as the inclusion of additional boreholes.

	Drilled and Proposed Boreholes
Boreholes and associated drill site (including camp site)	24* + 6** + 14***
New access road	150m

* Borehole has been previously rehabilitated
** Borehole has been recently or partially rehabilitated
*** Borehole still to be rehabilitated (currently drilled/to be drilled).
The site (drill and camp site) and access track will require rehabilitation and re-vegetation on completion.

The quantum of the financial provision required to manage and rehabilitate the environment takes the following into account:

- drilling, sealing and rehabilitation of 14 core borehole sites, related camp sites and access tracks (12 planned and 2 in progress);

- aftercare and maintenance (post closure management) of the 24 previously or partially rehabilitated sites (including related camp sites and access tracks);
- aftercare and maintenance of the six recently rehabilitated sites (including related camp sites and access tracks).

This estimate assumes that any rehabilitation and monitoring of the rehabilitation work will be done according to the requirements of the EMP.

Prospecting Operations on the farm Haartbeespoort B 410 JQ					
Rehabilitation work in progress					
Item	Description	Quantity	Unit	Rate	Amount
1	Sealing of boreholes (6 borehole)	6.00	No.	R 850.00	R 5 100.00
2	Demolish and backfill sumps (1m x 3m x 1m x 6)	6.00	No.	R 600.00	R 3 600.00
Item	Description	Quantity	Unit	Rate *	Amount
3	General surface rehabilitation (rip and vegetate) of current drilled sites (not applicable)	0.00	ha	R 80 284.78	R 0.00
5	General surface rehabilitation of recently rehabilitated boreholes (15m x 20m x 6)	0.18	ha	R 80 284.78	R 14 451.26
5	General surface rehabilitation of previously rehabilitated sites (5m x 5m x 24)	0.06	ha	R 80 284.78	R 4 817.09
6	General surface rehabilitation (rip and vegetate) of current access tracks (not applicable)	0.00	ha	R 80 284.78	R 0.00
7	General surface rehabilitation of recently rehabilitated access tracks (110 m x 6)	0.10	ha	R 80 284.78	R 7 948.19
8	General surface rehabilitation of previously rehabilitated access tracks (160m x 24)	0.58	ha	R 80 284.78	R 46 244.03
9	Demobilise and general surface rehabilitation (rip and vegetate) of current camp site (not applicable)	0.000	ha	R 80 284.78	R 0.00
	General surface rehabilitation of recently rehabilitated camp sites (12m x 12m x 6)	0.086	ha	R 80 284.78	R 6 936.61
10	General surface rehabilitation of previously rehabilitated camp sites (3m x 3m x 24)	0.02	ha	R 80 284.78	R 1 734.15
11	2 to 3 years of maintenance & aftercare (this covers all current and previously rehabilitated sites listed above)	1.02	ha	R 10 684.28	R 10 930.02
				SUB TOTAL 1	R 101 761.35
12	Preliminary and General	12.00	%	of Sub Total 1	R 12 211.36
13	Contingencies	10.00	%	of Sub Total 1	R 10 176.14
				SUB TOTAL 2	R 124 148.85
14	VAT	14.00	%	of Sub Total 2	R 17 380.84
				GRAND TOTAL	R 141 529.69

* Rates have been taken from "DMR Master Rates for Financial Provision 2010" provided to SLR by the DMR on 5 April 2011. These rates have been inflated by 7.6% to account for escalation since January 2010.

Reputable consultant: The entire closure calculation (including rates) was provided by SLR Consulting (Africa) (Pty) Ltd (SLR) (previously Metago Environmental Engineers (Pty) Ltd). SLR is a specialist environmental engineering and consulting company with over ten years experience in this field.

Prospecting Operations on the farm Haartbeespoort B 410 JQ					
Rehabilitation work yet to commence					
Item	Description	Quantity	Unit	Rate	Amount
1	Sealing of boreholes (14 borehole)	14.00	No.	R 850.00	R 11 900.00
2	Demolish and backfill sumps (1m x 3m x 1m x 14)	14.00	No.	R 600.00	R 8 400.00
Item	Description	Quantity	Unit	Rate *	Amount
3	General surface rehabilitation (rip and vegetate) of current drill site (30m x 20m x 14)	0.84	ha	R 80 284.78	R 67 439.22
4	General surface rehabilitation of (rip and vegetate) current access tracks (150m x 14)	0.32	ha	R 80 284.78	R 25 289.71
5	Demobilise and general surface rehabilitation (rip and vegetate) of current camp site (15m x 15m x 14)	0.315	ha	R 80 284.78	R 25 289.71
6	2 to 3 years of maintenance & aftercare	1.47	ha	R 10 684.28	R 15 705.89
				SUB TOTAL 1	R 154 024.52
7	Preliminary and General	12.00	%	of Sub Total 1	R 18 482.94
8	Contingencies	10.00	%	of Sub Total 1	R 15 402.45
				SUB TOTAL 2	R 187 909.92
9	VAT	14.00	%	of Sub Total 2	R 26 307.39
				GRAND TOTAL	R 214 217.31

* Rates have been taken from "DMR Master Rates for Financial Provision 2010" provided to SLR by the DMR on 5 April 2011. These rates have been inflated by 7.6% to account for escalation since January 2010.

Reputable consultant: The entire closure calculation (including rates) was provided by SLR Consulting (Africa) (Pty) Ltd (SLR) (previously Metago Environmental Engineers (Pty) Ltd). SLR is a specialist environmental engineering and consulting company with over ten years experience in this field.

PROSPECTING OPERATIONS ON THE FARM HAARTBEESPOORT B 410 JQ	
DMR REFERENCE NUMBER: NW 30/5/1/1/2/150 PR	
Financial guarantee submitted to the DMR in 2005	R 10 784.40
Financial Re-assessment calculated by SLR in April 2012	189 670.32
Annual reassessment calculated by SLR in June 2012 - rehabilitation work to commence	R 214 217.31
Annual reassessment calculated by SLR in June 2012 - rehabilitation work in progress	R 141 529.69
Surplus	-R 166 076.68
Shortfall	R 166 076.68

4.4 Undertaking to provide financial provision

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

As itemised above, Inkosi submitted a financial guarantee of R10 784.40 to the DMR for this prospecting project in 2005. The financial guarantee as part of the renewal in 2010 amounted to R30 887. 80. Based on the estimated rehabilitation and closure costs estimated for the prospecting EMP amendment, the updated financial provision is calculated at R141 529.69 (including VAT) for work in progress and R214 217.31 (including VAT) for work yet to commence . With reference to the financial re-assessment calculated in April 2012, there is a shortfall of R166 076.68. This will be provided in a format acceptable to the DMR.

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

5.1 List of identified impacts requiring monitoring programmes.

Due to the small scale and temporary nature of the proposed prospecting operations as well as the low significance of the identified impacts, no formal monitoring programmes are required. On-going and regular reporting on the progress of the implementation of the EMPlan will be done. In addition to this inspections and monitoring will be carried out on the implementation of the EMPlan, this includes the impacts on plant and animal life erosion and physical pollution.

5.2 Functional requirements for monitoring programmes.

As a general approach, Inkosi will ensure that the inspections and monitoring as outlined in Section 5.1 comprise the following:

- inspections and monitoring will be conducted by suitably qualified personnel
- results from the inspections and monitoring will be compiled into a report by a competent person on a regular basis
- these reports will be kept on record for the life of the prospecting activities.

5.3 Roles and responsibilities for the execution of monitoring programmes.

Monthly inspections will be carried out by the project geologist. Quarterly inspections will be carried out by the environmental officer. The results of these inspections will be documented and kept on record for the life of the prospecting operation.

5.4 Committed time frames for monitoring and reporting.

During prospecting operations, monitoring and reporting will take place as described in Section 5.3 above. Once the site has been rehabilitated quarterly monitoring for a period of 2 to 3 years is typically allocated for areas disturbed by prospecting operations. This period may be reduced depending on the monitoring results.

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).

Refer to Appendix A, Figure 1 for the location of the proposed prospecting activities and Appendix B, Figure 4 for the conceptual layout of the drill site.

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

The objective of closure is to return the environment back to its pre-prospecting state as far as practically possible.

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).

Refer to Appendix C for the record of consultation. Landowners and other IAPs were given an opportunity to comment on the BID.

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 stakeholder engagement process commenced with a stakeholder analysis that was aimed at identifying parties to be involved during the environmental process and associated consultation process. This was done through a deeds search of the relevant properties within the proposed prospecting site and immediately adjacent portions of land, social scans including a site visit in the surrounding areas, and direct discussions with IAPs. Key stakeholders identified for the proposed prospecting operation include:

IAPs
- Landowners and land users in the prospecting right area where drilling or other surface disturbance is planned and immediate surrounds
- Surrounding community structures (Gotsube Le Thotwe Communal Property Association and the Ngwanadirane Communal Property Association)
- Sonop Laerskool.

Regulatory authorities
- Department of Economic Development, Environment, Conservation and Tourism (DEDECT);
- Department of Water Affairs (DWA);
- South Africa Heritage Resource Agency (SAHRA);
- Department of Agriculture, Forestry and Fishery (DAFF);
- Bojanala Platinum District Municipality; and
- Rustenburg Local Municipality

7.2 The details of the engagement process.

Stakeholder engagement is an integral component of any development process. The goal of stakeholder engagement is to facilitate and improve communication between stakeholders (including the applicant) in the interest of facilitating better decision-making. By consulting with authorities and IAPs, the range of environmental issues to be considered has been given specific context and focus. Included below is an outline of the process followed, and the people engaged.

Table 4: Consultation process with IAPs and authorities

Task	Description
Notification of the land claims commissioner	On the 5th April 2012, SLR submitted an enquiry to the Land Claims Commission requesting information on whether any land claims had been lodged on Hartebeespoort B410 JQ. The response letter from Land Claims Commission (dated 18 May 2012) confirmed that 1 claim had been lodged to date. In an attempt to obtain the details of this land claim, SLR has corresponded with the relevant project coordinator Mr Ramere Serumula both telephonically and by email, however has not been provided with the details thereof. Proof of this correspondence with the Land Claims Commissions is included in Appendix C.
Social scan	A social scan of the proposed prospecting site was conducted on 19 June 2012 by SLR Africa. The purpose of the social scan was: • to identify relevant landowners, land occupiers, community structures, and other interested and affected parties; • to obtain contact details for IAPs; • to identify appropriate communication structures; and

Task	Description
	• to inform IAPs of the project. As part of the social scan, direct consultation with landowners on and immediately adjacent to the proposed drill sites site took place through informal and telephonic discussions. To date, no issues have been raised by IAPs. Those comments/issues raised by Regulatory Authorities have been included in Table 5. SLR will allow a 4 week comment period after the submission of the EMP Amendment report following which all comments/issues raised by IAPs and other Regulatory Authorities will be forwarded to the DMR.
Distribution of background information document (BID)	A BID was compiled and distributed to IAPs by via hand-delivery, email and post using contact details obtained during the social scan and previously compiled stakeholder databases. The BID was also sent by fax and/or e-mail to the regulatory authorities (Refer to Appendix C for the record of distribution). A copy of the BID is attached in Appendix C. The purpose of the BID was to inform IAPs and authorities about the proposed prospecting renewal, the environmental process, a description of the current environment, possible identified environmental impacts and how IAPs can have input into the environment process. Attached to the BID was a registration and response form, which provided IAPs with an additional opportunity to submit their names, contact details and comments on the proposed prospecting amendment process.
Advertisement and site notices	An advert was published in the Brits Pos on 28 June, and site notices were placed in conspicuous locations on the same day. Please refer to Appendix C for a copy of the advertisement and photos of the site notices.
Compilation of Issues report	Following the distribution of the BID, authorities and IAPs were given an opportunity to review and comment on the BID. An issues report which included all comments and issues raised to date was compiled and is included in Table 5. Where a response was provided, this has also been included. SLR will allow a period of 4 weeks following submission of this EMP amendment for public comments. Any comments received in this time will be included in the Issues Report and forwarded to the DMR at the end of this period.

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

Refer to the background information document in Appendix C for the information that was provided to IAPs and regulatory authorities. A summary of the information provided is outlined below:

- Background information on the existing prospecting right;
- Description of the environmental process and timeframes;
- The relevant parties involved in the environmental process;
- The role of IAPs into the environmental process and how IAPs can provide input;
- A project overview of the proposed activities;
- The current environment that could potentially be affected by the proposed prospecting activities;
- Potential environmental impacts that were identified; and
- Proposed closure objectives.

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

With reference to Section 7.1 all parties that were identified were consulted and have been provided below:

- Landowners and users on and surrounding the proposed drill sites
- Surrounding community structures (Gotsube Le Thotwe Communal Property Association, Ngwadanirane Communal Property Association)
- Department of Economic Development, Environment, Conservation and Tourism (DEDECT);
- Department of Water Affairs (DWA);
- South Africa Heritage Resource Agency (SAHRA);
- Department of Agriculture, Forestry and Fishery (DAFF);
- Bojanala Platinum District Municipality;
- Rustenburg Local Municipality; and
- Sonop Laerskool.

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

All issues raised by IAPs/Regulatory Authorities are provided in Table 5. Responses have also been provided. SLR will allow a period of four weeks following submission of this EMP amendment to the DMR for public comments. Any comments received in this time will be included in the Issues Report and forwarded to the DMR at the end of this period.

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 operation.

To date, no issues have been raised by IAPs. Comments from Regulatory Authorities SAHRA and Land Claims and DLA have been included in the Comments and Response report in Table 5. Proof of correspondence with these Regulatory Authorities has also been included in Appendix C. SLR will allow a period of four weeks following submission of this EMP amendment to the DMR for public comments. Any comments received in this time will be included in the Issues Report and forwarded to the DMR at the end of this period.

7.2.5 Other concerns raised by the aforesaid parties.

To date, no issues have been raised by IAPs. Comments from Regulatory Authorities SAHRA and Land Claims and DLA have been included in the Comments and Response report in Table 5. Proof of correspondence with these Regulatory Authorities has also been included in Appendix C. SLR will allow a period of four weeks following submission of this EMP amendment to the DMR for public comments. Any comments received in this time will be included in the Issues Report and forwarded to the DMR at the end of this period.

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

The record of consultation is included in Appendix C.

7.2.7 Information regarding objections received.

Refer to Table 5 for objections raised by IAPs/Regulatory Authorities including the responses thereto.

Table 5: Issues and response report

Issues raised	By whom and when	Response given by the project team
Land claim issues		
According to our database there is a land claim lodged on Hartebeespoort B 410 JQ	Ramere Serumula, Regional Land Claims Commission, fax dated 18 May 2012	SLR followed up several time (both telephonically and by email) requesting further information on this land claim. Proof of this correspondence is included in Appendix C. SLR awaits a response from the Land Claims Commission
Heritage Issues		
The Background Information Document sent to SAHRA indicates that an archaeologist will be commissioned to compile a report on the heritage resources of the proposed development area. Any other heritage resources that may be impacted such as built structures over 60 years old, sites of cultural significance associated with oral histories, burial grounds and graves, graves of victims of conflict, and cultural landscapes or viewscapes must also be assessed. SAHRA looks forward to receiving the Heritage Impact Assessment for the proposed development	Kathryn Smuts, SAHRA, email dated 22 June 2012	As indicated in the record of distribution (final page of this report) SLR will provide SAHRA with an electronic copy of the Prospecting EMP Amendment Report complete with the Heritage Study.

7.3 The manner in which the issues raised were addressed.

Telephonic conversations and correspondence by means of fax and email provided IAPs an opportunity to comment on the baseline environment and potential impacts of the project (including social and cultural impacts). To date, no issues have been raised by IAPs. Comments from Regulatory Authorities SAHRA and DLA have been included in the Comments and Response report in Table 5 above. Proof of correspondence with these Regulatory Authorities has also been included in Appendix C. SLR will allow a period of four weeks following submission of this EMP amendment to the DMR for public comments. Any comments received in this time will be included in the Issues Report and forwarded to the DMR at the end of this period.

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).
Inkosi will provide environmental awareness training (either by means of video or presentation) to individuals at a level of detail specific to the requirements of their job, but will generally comprise:

- General environmental awareness training will be given to all employees and contractors as part of the Safety, Health and Environment induction programme.
- Work activities that can have a negative impact on the environment (e.g. waste handling and disposal) will be dealt with by trained specialised contractors.

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).

The general procedure in which a risk must be dealt with is summarised below:

- Applicable geologist must be notified of an incident upon discovery;
- Take photographs and samples as necessary to assist in investigation;
- Projects environmental department must comply with Section 30 of the National Environmental Management Act (107 of 1998) such that the environmental department must immediately notify the Director General of the Department of Mineral Resources (DMR) and the regional Department of Water and Affairs (DWA) and any persons whose health may be affected of;
    - The nature of the incident;
    - Any risks posed to public health, safety and property;
    - The toxicity of the substances or by-products released by the incident; and
    - Any steps taken to avoid or minimise the effects of the incident on public health and the environment.
- The exploration department in consultation with the environmental department must as soon as is practical after the incident:
    - Take all reasonable measures to contain and minimise the effects of the incident including its effects on the environment and any risks posed by the incident to the health, safety and property of persons;
    - Undertake clean up procedures;
    - Remedy the effects of the incident; and
    - Assess the immediate and long term effects of the incident (environment and public health);
    - Within 14 days the environmental department must report to the Director-General DMR and the regional DWA office such information as is available to enable an initial evaluation of the incident, including:
        - The nature of the incident;
        - The substances involved and an estimation of the quantity released;
        - The possible acute effects of the substances on the persons and the environment (including the data needed to assess these effects);
        - Initial measures taken to minimise the impacts;
        - Causes of the incident, whether direct or indirect, including equipment, technology, system or management failure; and
        - Measures taken to avoid a recurrence of the incident.

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 awareness training will be conducted as outlined in Section 8.1. Emergency response training will be conducted as outlined in Table 6.

Table 6: Emergency response procedures

Item	Emergency Situation	Response in addition to general procedures
1	Spillage of chemicals, and waste	Where there is a risk that contamination will contaminate the land (leading to a loss of resource), surface water and/or groundwater, Inkosi will: • Notify residents/users downstream of the pollution incident.

Item	Emergency Situation	Response in addition to general procedures
		• Identify and provide alternative resources should contamination impact adversely on the existing environment. • Cut off the source of the spill • Contain the spill (e.g. construct temporary earth bund around source) • Pump excess hazardous liquids on the surface to temporary containers (e.g. 210 litre drums, mobile tanker, etc.) for appropriate disposal. • Remove hazardous substances from damaged infrastructure to an appropriate storage area before it is removed/repaired.
2	Discharge of dirty water to the environment	Apply the principals listed for Item 1 above. To stop spillage from the dirty water system Inkosi will: • Redirect excess water to other dirty water facilities where possible; • Carry out an emergency discharge of clean water and redirect the spillage to the emptied facility. • Apply for emergency discharge as a last resort.
3	Pollution of surface water	• Personnel discovering the incident must inform the environmental department of the location and contaminant source. • Apply the principals listed for Item 1 above. • Absorbent booms will be used to absorb surface plumes of hydrocarbon contaminants. • Contamination entering the surface water drainage system should be redirected into the dirty water system. • The environmental department will collect in-stream water samples downstream of the incident to assess the immediate risk posed by contamination.
4	Groundwater contamination	• Investigate the source of contamination and implement control/mitigation measures.
5	Veld fire	• Evacuate employees from areas at risk. • Notify downwind residents and industries of the danger. • Assist those in imminent danger/less able individuals to evacuate until danger has passed. • Provide emergency fire fighting assistance with available trained personnel and equipment.
6	Uncovering of graves and sites	• Personnel discovering the grave or site must inform the environmental department immediately. • Prior to damaging or destroying any of the identified graves, permission for the exhumation and relocation of graves must be obtained from the relevant descendants (if known), the National Department of Health, the Provincial Department of Health, the Premier of the Province and the local police. • The exhumation process must comply with the requirements of the relevant Ordinance on Exhumations, and the Human Tissues Act, 65 of 1983.

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)

TABLE 7: ESTIMATED COSTS FOR THE FOLLOWING FOUR YEARS FOR IMPLEMENTING TECHNICAL AND MANAGEMENT

Potential impact	Mitigation measures	Estimated costs
		Once off
Construction cost	Includes facilities and activities that will be established during the development of the site (construction of sumps and waste storage area)	R500
Loss of soil resources	In-situ treatment of contaminated soils Removal of contaminated soils Ripping and levelling topsoil Chemical toiles will be serviced and emptied by qualified contractor	R500 R1 500 R250 R250
Biodiversity	Re-vegetation of disturbed areas	R250
Surface water pollution	Lining the sumps Cleaning up any spillages	R1 000 R2 000
Groundwater pollution	Disposal of drilling oils and silt collected in the sump lining and drip trays at a permitted hazardous landfill. Lined the sumps	R500 R750
Land uses	Compensation for economic loss (No agricultural or grazing land will be impacted by the proposed prospecting activities. Inkosi does however have a policy in place to compensate if damages are caused).	R0
Total (relating to 1 borehole)		R7 500
Total relating to 14 boreholes (2 in progress and 12 planned)		**R105000**

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

This amount is provided for in Table 9.1 of the prospecting works programme.

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

Herewith I, the person whose name and identity number is stated below, confirm that I am the person authorised to act as representative of the applicant in terms of the resolution submitted with the application, and confirm that the above report comprises EIA and EMP compiled in accordance with the guideline on the Departments official website and the directive in terms of sections 29 and 39 (5) in that regard, and the applicant undertakes to execute the Environmental management plan as proposed.	
Full Names and Surname	Catharina Susanna Engelbrecht
Identity Number	7201170161084

-END-

Appendix A: Locality Plan

Figure 1: Locality map of the Inkosi EMP Amendment area
Figure 2: Locality map showing the completed and proposed prospecting sites
Figure 3: Locality map showing the location of heritage sites within the project area

Appendix B: Conceptual layout of drill site

Figure 4: Layout of surface infrastructure at the drill site

Appendix C: Proof of consultation

- Background information document
- Distribution of background information document: Regulatory Authorities and IAPs
- Advertisement placed in Brits Pos
- Site notice
- Photographs of placement of site notices
- Response letter from SAHRA following receipt of BID
- Response letter from Land Claims Commission (following enquiry lodged on 5 April 2012)
- Letter(s) to Land Claims Commission requesting information on land claim
- IAP database

Appendix D: Criteria used to assess environmental impacts

PART A: DEFINITION AND CRITERIA		
Definition of SIGNIFICANCE		**Significance = consequence x probability**
Definition of CONSEQUENCE		**Consequence is a function of severity / nature, spatial extent and duration**
Criteria for ranking of the SEVERITY/NATURE of environmental impacts	**H**	Substantial deterioration (death, illness or injury). Recommended level will often be violated. Vigorous community action. Irreplaceable loss of resources.
	M	Moderate/ measurable deterioration (discomfort). Recommended level will occasionally be violated. Widespread complaints. Noticeable loss of resources.
	L	Minor deterioration (nuisance or minor deterioration). Change not measurable/ will remain in the current range. Recommended level will never be violated. Sporadic complaints. Limited loss of resources.
	L+	Minor improvement. Change not measurable/ will remain in the current range. Recommended level will never be violated. Sporadic complaints.
	M+	Moderate improvement. Will be within or better than the recommended level. No observed reaction.
	H+	Substantial improvement. Will be within or better than the recommended level. Favourable publicity.
Criteria for ranking the DURATION of impacts	**L**	Quickly reversible. Less than the project life. Short term
	M	Reversible over time. Life of the project. Medium term
	H	Permanent. Beyond closure. Long term.
Criteria for ranking the SPATIAL SCALE/ EXTENT of impacts	**L**	Localised - Within the site boundary.
	M	Fairly widespread – Beyond the site boundary. Local
	H	Widespread – Far beyond site boundary. Regional/ national

PART B: DETERMINING CONSEQUENCE					
SEVERITY / NATURE = L					
DURATION	Long term	**H**	**Medium**	**Medium**	**Medium**
	Medium term	**M**	**Low**	**Low**	**Medium**
	Short term	**L**	**Low**	**Low**	**Medium**
SEVERITY / NATURE = M					
DURATION	Long term	**H**	**Medium**	**High**	**High**
	Medium term	**M**	**Medium**	**Medium**	**High**
	Short term	**L**	**Low**	**Medium**	**Medium**
SEVERITY / NATURE = H					
DURATION	Long term	**H**	**High**	**High**	**High**
	Medium term	**M**	**Medium**	**Medium**	**High**
	Short term	**L**	**Medium**	**Medium**	**High**
			L	**M**	**H**
			SPATIAL SCALE / EXTENT		

PART C: DETERMINING SIGNIFICANCE					
PROBABILITY (of exposure to impacts)	Definite/ Continuous	**H**	**Medium**	**Medium**	**High**
	Possible/ frequent	**M**	**Medium**	**Medium**	**High**
	Unlikely/ seldom	**L**	**Low**	**Low**	**Medium**
			L	**M**	**H**
			CONSEQUENCE		

PART D: INTERPRETATION OF SIGNIFICANCE	
Significance	**Decision guideline**
High	It would influence the decision regardless of any possible mitigation.
Medium	It should have an influence on the decision unless it is mitigated.
Low	It will not have an influence on the decision.

***H = high, M= medium and L= low and + denotes a positive impact.**

Appendix E: EMP Commitments

Note: With reference to Section 3.2.2, commitments that have been revised are written in italics

EMP COMMITMENTS
F 1 GENERAL REQUIREMENTS
F 1.1 MAPPING AND SETTING OUT
F 1.1.1 LAYOUT PLAN
A copy of the layout plan as provided must be available at the prospecting site for scrutiny when required. Plan must show co-ordinates of the area being applied for; north point; scale; name, number and location of the area covered by the application; size and shape of area; boundaries of area; layout of operations; surface structures and servitudes; and topography of the land.
The plan must be updated on a regular basis with regard to the actual progress of the establishment of surface infrastructure and rehabilitation (a copy of the updated plan shall be forwarded to the Regional Manager on a regular basis).
F 1.1.2 DEMARCATING THE PROSPECTING AREA
The prospecting area must be clearly demarcated by means of beacons at its corners, and along its boundaries if there is no visibility between the corner beacons.
Permanent beacons as indicated on the layout plan or as prescribed by the Regional Manager must be firmly erected and maintained in their correct position throughout the life of the operation.
Prospecting and resultant operations shall only take place within this demarcated area.
F 1.2 RESTRICTIONS ON PROSPECTING
On assessment of the application, the Regional Manager may prohibit the conducting of prospecting operations in vegetated areas or over portions of these areas
In the case of areas that are excluded from prospecting, no operations shall be conducted within 5 m of these areas.
F 1.3 RESPONSIBILITY
The environment affected by the prospecting operations shall be rehabilitated by the holder, as far as is practicable, to its natural state or to a predetermined and agreed to standard or land use which conforms with the concept of sustainable development. The affected environment shall be maintained in a stable condition that will not be detrimental to the safety and health of humans and animals and that will not pollute the environment or lead to the degradation thereof.
It is the responsibility of the holder of the prospecting right to ensure that the manager on the site and the employees are capable of complying with all the statutory requirements which must be met in order to mine, which includes the implementation of this EMP.
If operations are to be conducted in an area that has already been disturbed, the holder must reach specific agreement with the Regional Manager concerning the responsibilities imposed upon himself/herself pertaining to the rehabilitation of the area and the pollution control measures to be implemented.

EMP COMMITMENTS
F 2 INFRASTRUCTURAL REQUIREMENTS
F 2.1 TOPSOIL
Topsoil shall be removed from all areas where physical disturbance of the surface will occur.
All available topsoil shall be removed after consultation with the Regional Manager prior to the commencement of any operations.
Where the topsoil removed will be stored for periods longer than one month, it shall be stored in a bunded area on the high ground side of the prospecting area outside the 1:50 flood level within the boundaries of the prospecting area.
Topsoil shall be kept separate from overburden and shall not be used for building or maintenance of access track.
Where the topsoil is stored in the bunded area (for periods longer than one month) it shall be adequately protected from being blown away or being eroded.
F 2.2 ACCESS TO THE SITE
F 2.2.1 ESTABLISHING ACCESS TRACK ON THE SITE
The access road to the prospecting area and the camp-site/site office must be established in consultation with the landowner/tenant and existing tracks shall be used as far as practicable.
Should a portion of the access road be newly constructed the following must be adhered to: The route shall be selected that a minimum number of bushes or trees are felled and existing fence lines shall be followed as far as possible. Water courses and steep gradients shall be avoided as far as is practicable. *Adequate drainage and erosion protection in the form of humps shall be provided where necessary.*
If imported material is used in the construction or upgrading of the access track this must be listed in C 2.17
The erection of gates in fence lines and the open or closed status of gates in new and existing positions shall be clarified in consultation with the landowner/tenant and maintained throughout the operational period.
No other routes will be used by vehicles or personnel for the purpose of gaining access to the site.
NOTE: The design, construction and location of access to provincial roads must be in accordance with the requirements laid down by the Provincial or controlling authority.
F 2.2.2 MAINTENANCE OF ACCESS TRACK
In the case of dual or multiple use of access track by other users, arrangements for multiple responsibility must be made with the other users. If not, the maintenance of access track will be the responsibility of the holder of the prospecting right.
Newly constructed access track shall be adequately maintained so as to minimise dust, erosion or undue surface damage.

EMP COMMITMENTS
F 2.2.3 DUST CONTROL ON THE ACCESS TRACK
The speed of haul trucks and other vehicles must be strictly controlled to avoid dangerous conditions, excessive dust or excessive deterioration of the road being used.
F 2.2.4 REHABILITATION OF ACCESS TRACK
Whenever a prospecting right is suspended, cancelled or abandoned or if it lapses and the holder does not wish to renew the permit or right, any access road or portions thereof, constructed by the holder and which will no longer be required by the landowner/tenant, shall be removed and/or rehabilitated to the satisfaction of the Regional Manager.
Any gate or fence erected by the holder which is not required by the landowner/tenant, shall be removed and the situation restored to the pre-prospecting situation.
Access tracks shall be ripped or ploughed, and if necessary, appropriately fertilised (based on a soil analysis) to ensure the regrowth of vegetation. Imported road construction materials which may hamper regrowth of vegetation must be removed and disposed of in an approved manner prior to rehabilitation.
If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the prospecting operation, be corrected and the area be seeded with a seed mix to the Regional Manager's specification.
F 2.3 CAMP SITES
F 2.3.1 ESTABLISHING CAMP SITES
Camp sites shall be established, as far as is practicable, outside the flood plain, above the 1 in 50 flood level mark within the boundaries of the prospecting area.
The area chosen for these purposes shall be the minimum reasonably required and which will involve the least disturbance to vegetation. Topsoil shall be handled as described in F 2.1 above
No camp shall be located closer than 100 metres from a stream, river, spring, dam or pan.
No trees or shrubs will be felled or damaged for the purpose of obtaining firewood, unless agreed to by the landowner/tenant.
Fires will only be allowed in facilities or equipment specially constructed for this purpose. If required by applicable legislation, a fire-break shall be cleared around the perimeter of the camp and office sites.
Artificial lighting and noise disturbance or any other form of disturbance that may have an effect on the landowner/tenant/persons lawfully living in the vicinity shall be kept to a minimum.

EMP COMMITMENTS
F 2.3.2 TOILET FACILITIES, WASTE WATER AND REFUSE DISPOSAL
As a minimum requirement, the holder of a prospecting right shall, at least, provide pit latrines for employees and proper hygiene measures shall be established.
Chemical toilet facilities or other approved toilet facilities such as a septic drain shall preferably be used and sited on the camp site in such a way that they do not cause water or other pollution.
The use of existing facilities must take place in consultation with the landowner/tenant.
In cases where facilities are linked to existing sewerage structures, all necessary regulatory requirements concerning construction and maintenance should be adhered to.
Only domestic type wash water shall be allowed to enter this drain and any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognised facility.
Spills should be cleaned up immediately to the satisfaction of the Regional Manager by removing the spillage together with the polluted soil and by disposing of them at a recognised facility.
Non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc., shall be stored in a container at a collecting point and collected on a regular basis and disposed of at a recognised disposal facility. Specific precautions shall be taken to prevent refuse from being dumped on or in the vicinity of the camp site.
Biodegradable refuse generated from the camp site, storage area or any other area shall either be handled as indicated above or be buried in a pit excavated for that purpose and covered with layers of soil, incorporating a final 0,5 metre thick layer of topsoil (where practicable). Provision should be made for future subsidence of the covering.
F 2.3.3 REHABILITATION OF THE CAMP SITE
On completion of operations, all structures or objects on the office site shall be dealt with in accordance with section 44 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002), which states: (1) When a prospecting right, is cancelled or is abandoned or when any prospecting operation comes to an end, the holder of any such right may not demolish or remove any structure, object - (a) which may not be demolished in terms of any other law; (b) which has been identified in writing by the Minister for purposes of this section; or (c) which is to be retained in terms of an agreement between the holder and the owner or occupier of the land, which agreement has been approved by the Minister in writing. (2) The provision of subsection (1) does not apply to bona fide prospecting equipment which may be removed.
Where camp sites have been rendered devoid of vegetation/grass or where soils have been compacted owing to traffic, the surface shall be scarified or ripped.

EMP COMMITMENTS
The site shall be seeded with a vegetation seed mix adapted to reflect the local indigenous flora.
If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the prospecting operation be corrected and the area be seeded with a vegetation seed mix to his or her specification.
Photographs of the camp site, before and during the prospecting operation and after rehabilitation, shall be taken at selected fixed points and kept on record for the information of the Regional Manager.
F 2.4 SECURED STORAGE AREAS
F 2.4.1 ESTABLISHING SECURED STORAGE AREAS
The secured storage area will be established as far as is practicable, outside the flood plain, above the 1 in 50 flood level mark within the boundaries of the prospecting area.
The area chosen for these purposes shall be the minimum reasonably required and involve the least disturbance to tree and plant life. Topsoil shall be handled as described in F 2.1 above.
The storage area shall be securely fenced and all hazardous substances and stocks such as diesel, oils, detergents, etc., shall be stored therein. Drip pans, a thin concrete slab or a facility with PVC lining, shall be installed in such storage areas with a view to prevent soil and water pollution.
The location the storage area is to be indicated on the layout plan.
No vehicle may be extensively repaired on site
F 2.4.2 MAINTENANCE OF VEHICLES AND EQUIPMENT
The maintenance of vehicles and equipment used for any purpose during the prospecting operation will take place at a maintenance yard off-site
Equipment used in the prospecting process must be adequately maintained so that during operations it does not spill oil, diesel, fuel, or hydraulic fluid.
Machinery or equipment used on the prospecting area must not constitute a pollution hazard in respect of the above substances. The Regional Manager shall order such equipment to be repaired or withdrawn from use if he or she considers the equipment or machinery to be polluting and irreparable.
F 2.4.3 WASTE DISPOSAL
Suitable covered receptacles shall be available at all times and conveniently placed for the disposal of waste.
All used oils, grease or hydraulic fluids shall be placed therein and these receptacles will be dealt with as part of Inkosi's waste management plant
All spills should be cleaned up immediately to the satisfaction of the Regional Manager by removing the spillage together with the polluted soil and by disposing of them at a recognised facility.
On completion of the prospecting operations, the above areas shall be cleared of any contaminated soil, which must be dumped as referred to in section F 2.4.3 above.

EMP COMMITMENTS
The surface shall then be ripped or ploughed to a depth of at least 300mm and the topsoil previously stored adjacent the site, shall be spread evenly to its original depth over the whole area. The area shall then be fertilised if necessary (based on a soil analysis).
The site shall be seeded with a vegetation seed mix adapted to reflect the local indigenous flora.
If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the prospecting operation be corrected and the area be seeded with a seed mix to his or her specification.
F 3 GENERAL OPERATING PROCEDURES IN THE PROSPECTING AREA
F 3.1 LIMITATIONS ON PROSPECTING
The prospecting for precious stones shall take place only within the approved demarcated prospecting area.
Prospecting may be limited to the areas indicated by the Regional Manager on assessment of the application.
The holder of the prospecting right shall ensure that operations take place only in the demarcated areas as described in section F 1.1.2 above.
F 3.2 EXCAVATIONS
F 3.2.1 ESTABLISHING THE EXCAVATION AREAS
Whenever any excavation is undertaken for the purpose of locating and/or extracting ore bodies of all types of minerals, including precious stone-bearing gravels, the following operating procedures shall be adhered to: Topsoil shall, in all cases (except when excavations are made in the river-bed), be handled as described in F 2.1 above. Excavations shall take place only within the approved demarcated prospecting area. Overburden rocks and coarse material shall be placed concurrently in the excavations or stored adjacent to the excavation, if practicable, to be used as backfill material once the ore or gravel has been excavated. Trenches shall be backfilled immediately if no ore or precious stone-bearing gravel can be located.
F 3.2.2 REHABILITATION OF EXCAVATION AREAS The following operating procedures shall be adhered to:
The excavated area must serve as a final depositing area for the placement of tailings during processing.
Rocks and coarse material removed from the excavation must be dumped into the excavation simultaneously with the tailings.
Waste, as described in paragraph F 2.3.2 above, will not be permitted to be deposited in the excavations.
Once excavations have been refilled with overburden, rocks and coarse natural materials and profiled with acceptable contours and erosion control measures, the topsoil previously stored, shall be returned to its original depth over the area.
The area shall be fertilised if necessary to allow vegetation to establish rapidly. The site shall be seeded with a local or adapted indigenous seed mix in order to propagate the locally or regionally occurring flora.

EMP COMMITMENTS
If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the prospecting operation, be corrected and the area be seeded with a vegetation seed mix to his or her specification.
F 3.3 FINAL REHABILITATION
All infrastructure, equipment, camp site and other items used during the prospecting period will be removed from the site (section 44 of the MPRDA)
Waste material of any description, including receptacles, scrap, rubble and tyres, will be removed entirely from the prospecting area and disposed of at a recognised landfill facility. It will not be permitted to be buried or burned on the site.
Final rehabilitation shall be completed within a period specified by the Regional Manager.
F.4 MONITORING AND REPORTING
F 4.1 INSPECTIONS AND MONITORING
Regular monitoring of all the environmental management measures and components shall be carried out by the holder of the prospecting right in order to ensure that the provisions of this programme are adhered to.
On-going and regular reporting of the progress of implementation of this programme will be done.
Various points of compliance will be identified with regard to the various impacts that the operations will have on the environment.
Inspections and monitoring shall be carried out on both the implementation of the programme and the impact on plant and animal life.
Visual inspections on erosion and physical pollution shall be carried out on a regular basis.
F 4.2 COMPLIANCE REPORTING / SUBMISSION OF INFORMATION
Layout plans will be updated on a regular basis and updated copies will be submitted on a biannial basis to the Regional Manager
Reports confirming compliance with various points identified in the environmental management programme will be submitted to the Regional Manager on a regular basis and as decided by the said manager.
Any emergency or unforeseen impact will be reported as soon as possible.
An assessment of environmental impacts that were not properly addressed or were unknown when the programme was compiled shall be carried out and added as a corrective action.
F 5 CLOSURE
F 5.1 ENVIRONMENTAL RISK REPORT
When the holder of a prospecting right intends closing down his/her operations, an environmental risk report shall accompany the application for closure. The requirements of such a risk report is contained in Regulation 60 of the Regulations promulgated in terms of the Act.

EMP COMMITMENTS
F 5.2 CLOSURE OBJECTIVES
Closure objectives form part of this EMPlan and must- (a) identify the key objectives for mine closure to guide the project design, development and management of environmental objectives; (b) provide broad future land use objective(s) for the site; and (c) provide proposed closure cost.
F 5.3 CONTENTS OF CLOSURE PLAN
See EMP commitments for contents of closure plan
F 5.4 TRANSFER OF ENVIRONMENTAL LIABILITIES TO A COMPETENT PERSON
Should the holder of a prospecting right wish to transfer any environmental liabilities and responsibilities to another person or persons, the following will pertain: (1) An application to transfer environmental liabilities to a competent person in terms of section 48) of the Act, must be completed on Form O as set out in Annexure 1 to the Regulations and be lodged to the Minister for consideration. (2) The holder of a prospecting right may transfer liabilities and responsibilities as identified in the environmental management plan and the required closure plan to a competent person as contemplated in Regulation 58. (3) When considering the transfer of environmental liabilities and responsibilities in terms of section 48) of the Act, the Minister must consult with any State department which administers any law relating to matters affecting the environment. (4) No transfer of environmental liabilities and responsibilities to a competent person may be made unless the Chief Inspector of Mines and the Department of Water Affairs and Forestry have confirmed in writing that the person to whom the liabilities and responsibilities is transferred to, have the necessary qualifications pertaining to health and safety and management of potential pollution of water resources.

EMP COMMITMENTS
F 5.5 NOTES ON LEGAL PROVISIONS
NOTE: The holder of a prospecting right must also take cognisance of the provisions of other legislation dealing with matters relating to conservation, and which include, inter alia, the following: * National Monuments Act, 1969 (Act 28 of 1969). * National Parks Act, 1976 (Act 57 of 1976) * Environmental Conservation Act, 1989 (Act 73 of 1989) * National Environmental Management Act, 1998 (Act No. 107 of 1998) * Atmospheric Pollution Prevention Act, 1965 (Act 45 of 1965) * The National Water Act, 1998 (Act 36 of 1998) * Mine Safety and Health Act, 1996 (Act 29 of 1996) * The Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983).

Appendix F: Heritage Specialist report

RECORD OF REPORT DISTRIBUTION

SLR Reference:	SLR Ref: 710.09004.00003
Title:	PROSPECTING ENVIRONMENTAL MANAGEMENT PLAN AMENDMENT FOR VARIOUS PORTIONS OF THE FARM HARTEBEESTPOORT B 410 JQ
Report Number:	1
Proponent:	Inkosi Platinum (Pty) Ltd

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Josephine Krzyzanowska	Impala	7	July 2012	C Pringle
Phumlani Dlamini	Impala	8	July 2012	C Pringle
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