mineral resources
Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

NAME OF APPLICANT: Makukukwe Vervoer CC

REFERENCE NUMBER: NC30/5/1/3/2/10148 MP

ENVIRONMENTAL MANAGEMENT PLAN

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

STANDARD DIRECTIVE

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

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

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

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

Status of the cultural environment that may be affected

The proposed mining area is within an intermittent stream and due to the small scale of operations will not impact on any cultural environment.

Status of any heritage environment that may be affected

No heritage resources such as built structures over 60 years old, sites of cultural significance associated with oral histories, burial grounds and graves of victims of conflict, and cultural landscapes or viewscapes are present on the small mining area applied for. Fossils that might be found within the sandy deposits on the site are of generally low paleontological significance. Although potentially more important fossils may be present deeper down, it is not anticipated that excavations will penetrate deep enough to affect the relevant deposits. Mining will take place within a drainage channel that is in flood maybe once every 5 to 10 years and mining only takes place in the top 1.5m section containing river sand. The possibility to unearth any fossils or artefacts is therefore zero and given the high cost of a visit to this site, no first phase paleontological assessment is deemed necessary.

Status of any current land uses and the socio-economic environment that may be directly affected

Approximately 90% of the region is used for livestock grazing and production, with the remainder comprising of mining and urban development. Urban development is not a major feature of the landscape, and is not expected to increase much in the coming years.

Mining will only be a temporary land use where after land use will revert back to the pre-mining land use grazing. Productivity of the land with regard to land use especially within the drainage channel where sand will be mined is very low and mining will have no impact on the productivity of the area

Most of the Northern Cape is defined as vacant or unspecified land use (Map 1).

Status of any infrastructure that may be affected

No infrastructure will be affected. Existing roads and tracks will be used and in the case of new tracks be developed it will be addressed at final closure and rehabilitation.

Status of the biophysical environment that may be affected

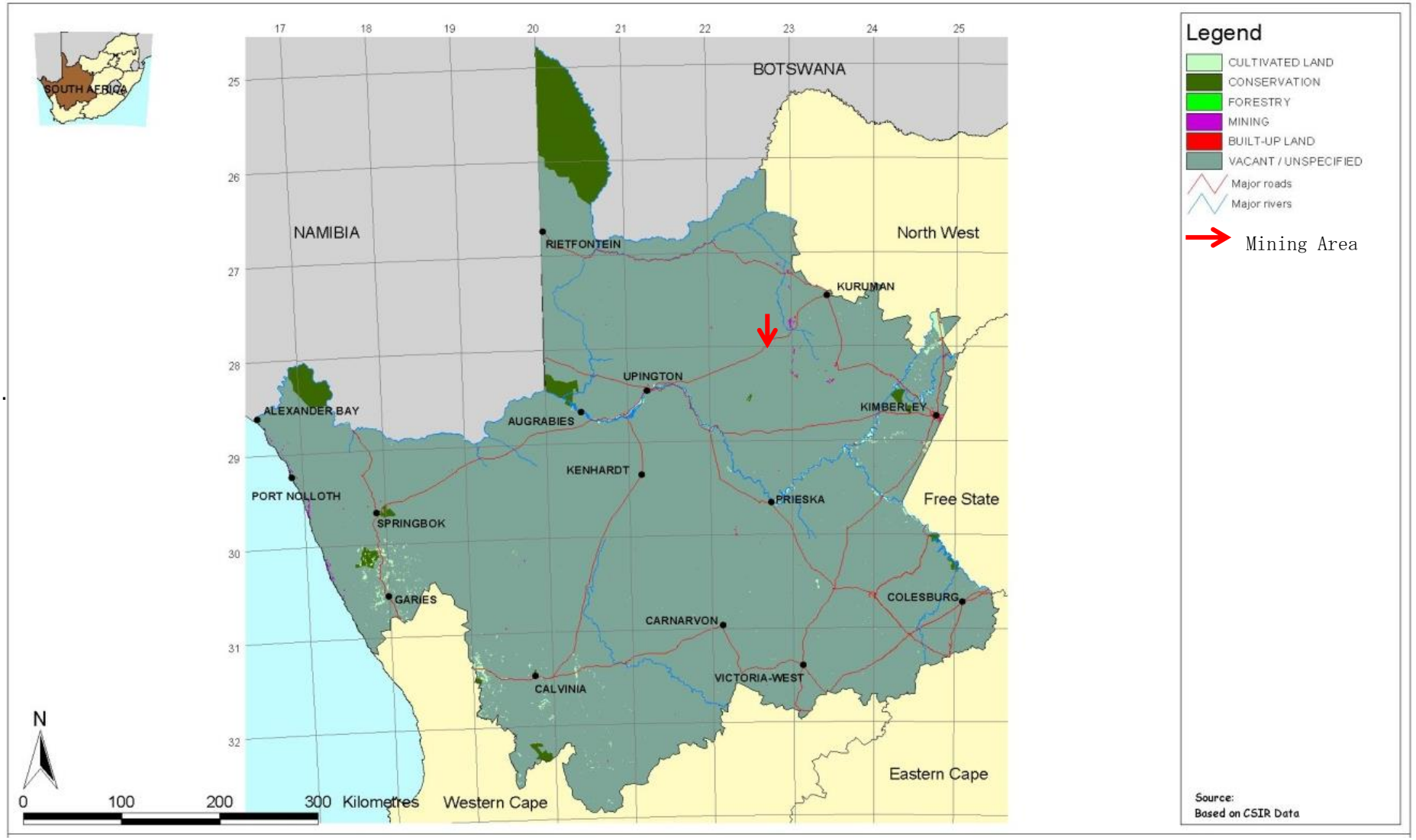
Topography

Savanna type landscape with typical grass plains and bush clumps (Refer map 2).

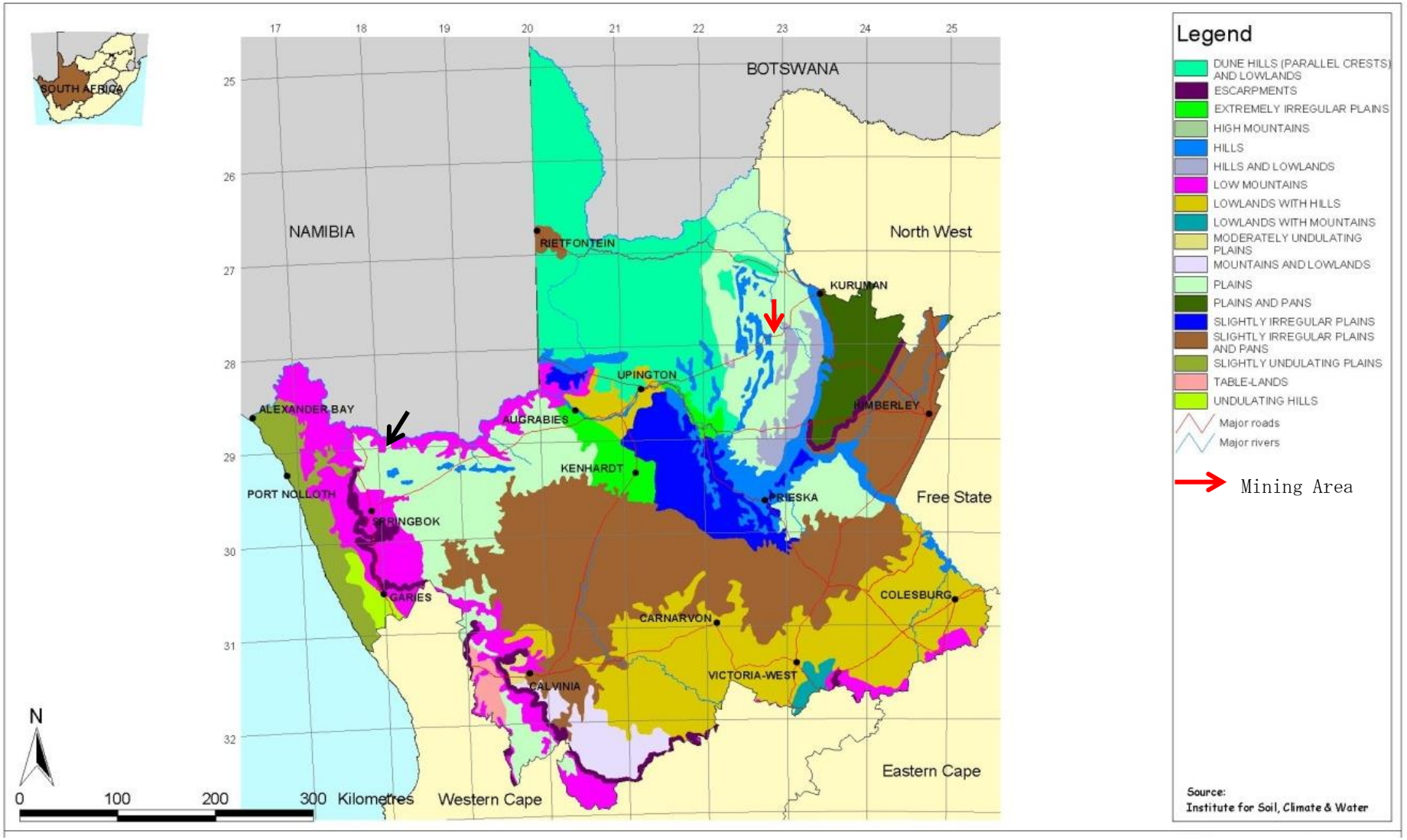
Soil

The soils are typically weakly structured with low organic content. These soils drain freely which results in a soil surface susceptible to erosion, especially wind erosion when the vegetation cover is sparse and gulley erosion in areas where storm-water is allowed to concentrate. The soils in the area are generally not suitable for dry land crop production therefore the pre-mining land capacity is categorized as Class III grazing land. The productivity of the area is low at 12Ha/SSU. The dominant soil type of the area is the Ag Landtipe, reddish soils with a high basesstatus and about 300 mm deep (Map 3).

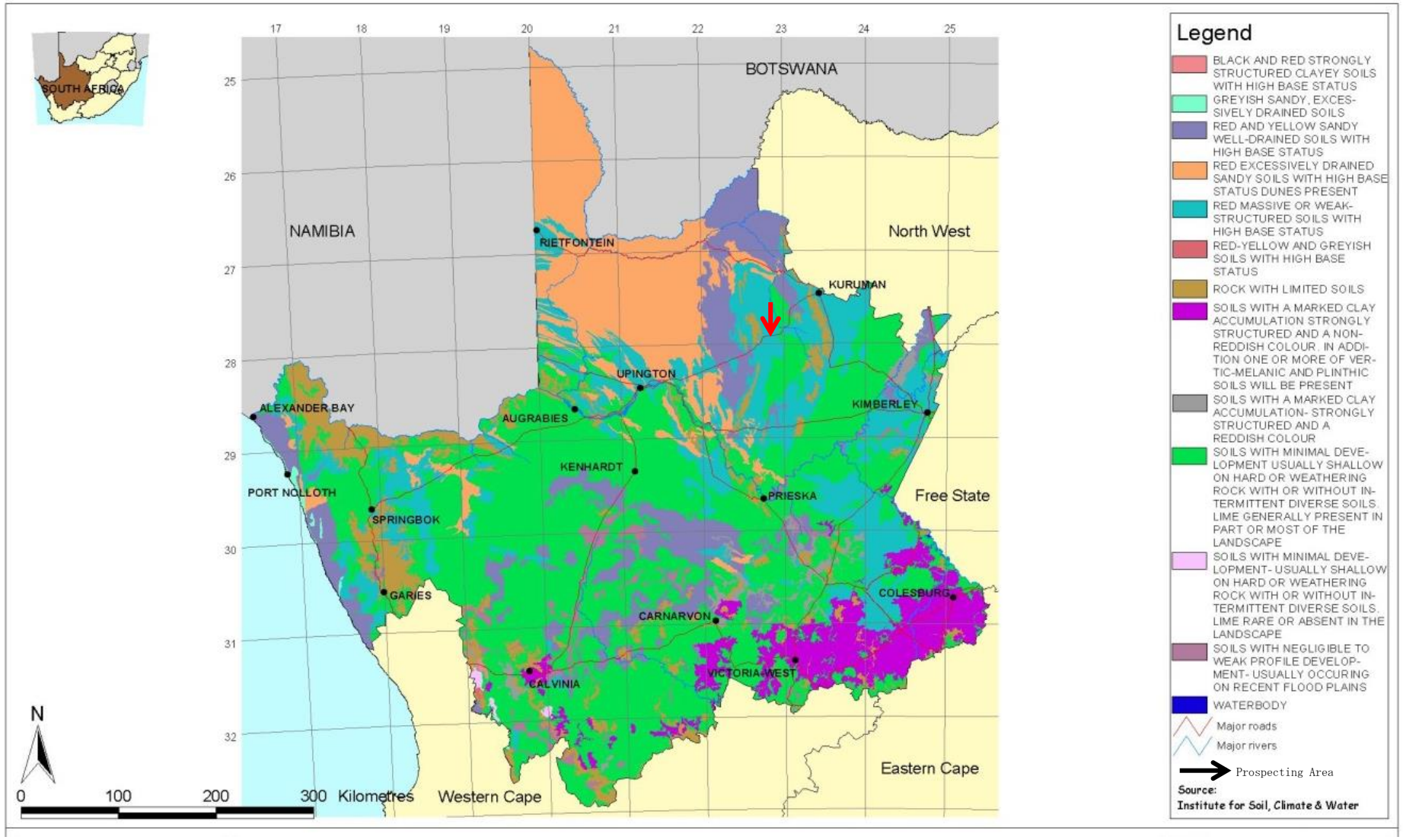
Map 1: Land use patterns of the Northern Cape



Map 2: Terrain Morphological units of the Northern Cape



Map 3: Generalised Soil Description of the Northern Cape



Land Capability

The land is classified as wilderness area with subordinate grazing. This classification is more restrictive than pure grazing classification.

The carrying capacity of the veld is approximately 10-12ha/small stock unit (dependant on the tuning with regard to the rain/drought cycle). The aim of the rehabilitation programme is to restore the veld to its wilderness rating.

Natural vegetation / plant life

The mining area form part of the Savanna Biome dominated by grasland.

This vegetation unit is classified from NSBA as least threatened. Although this vegetation unit is not conserved in statutory conservation areas, large parts of the area are well preserved.

Typical Savanna dominated by grasses including Stipagrostis ciliata, Panucum coloratum, Schmidtia kalahariensis and Eragrostis lehmanniana with the tree component represented by Acasia ereoloba, A. melifera, A. haematoxylon, Ziziphus micronata and Boscia albitrunca

Signs of serious transformation due to overgrazing occur and large stands of *Prosopis sp.* occur along the bank of some of the drainage channels.

The natural vegetation type per se is not a threatened unit and no specific botanical survey was conducted to measure the local & regional conservation worthiness, but wish to reflect on the following aspects to reduce any potential impact:

- Movement areas must be clearly demarcated and any movement outside of these areas must not be allowed
- No ad hoc roads, dumping or topsoil borrowing

Animal Life

Vast expanses of similar vegetation in the area provide a habitat suitable for species typical of the area. These include small buck, rodents (meerkat, mice, shrews etc), reptiles (snakes and tortoises) birds and insects. The large scale of the habitat type when compared to the extent of the proposed activities negates any significance of any impact in this regard.

Surface Water

All mining will take place in a riverine environment or drainage channel. The flow of the river will not be impeded in any way and damming upstream will not occur. The canalisation of the flow will not result in scouring or erosion of the river-bank. No well points or extraction pumps in use by other riparian users are present. Access to the riverbed for the purpose of conducting excavations in the river-bed, will be through the use of only one access at a time. The location of the access to the river channel across the river-bank will be at a point of the river-bank where the least excavation and damage to vegetation will occur and will not be wider than is reasonably required. Backfilling is not an option as all material in the form of river sand will be removed. Natural rocks present between the sand will be spread evenly over the bank of the channel to improve the aesthetic value of the area. The goal of rehabilitation with respect to the area where mining has taken place in the river-bed is to leave the area level and even, and in a natural state containing no foreign debris or other materials and to ensure the hydrological integrity of the river by not attenuating or diverting any of the natural flow. All scrap and other foreign materials will be removed from the bed of the river and disposed of as in the case of other refuse whether these accrue directly from the mining operation or are washed on to the site from upstream. Surface water only accumulates in the excavations after exceptional good rains. Given the variability of semi-arid rainfall, the calculation

of the mean annual runoff (MAR) would be of no use. The MAR is in any event very low given the low rainfall less than 250 mm per year occurring mainly in the summer months, high evaporation rates, and shallow grade of the slope toward the drainage channels and the permeability of the soils The surface water quality (when available) is suitable for animal consumption but not for potable water. No natural wetlands exist in the area.

Groundwater

The average water level measured at 'rest' in the region is about 80m depending on the season. No groundwater will be used during the mining operation and due to the shallow nature of excavations there will be no impact on the groundwater.

Air Quality

The wind rose for Upington is considered representative of the wind regime in the area. The implications on proposed prospecting activities of this wind regime are as follows:

- Prevailing wind direction is from the southwest and is especially strong in summer.
- Winter winds have much less speed and generally blow from the north.
- Infrequent berg winds blow during the winter months. These winds are hot and dry and carry regionally generated dust.

Existing dust sources in the area is vehicle generated dust on un-surfaced roads. During the mining operation, dust will be generated during loading and hauling of the sand along the un-surfaced roadway. These impacts are however so small as to be considered insignificant especially against the background of the small scale and isolation of the proposed mining operation.

Dust must however be minimised in terms of employee health and masks must be available at all times and the applicants must comply with the prescriptions of the Mine Health & Safety Act.

Noise

No surrounding land use or user will be impacted by noise generated from the proposed operation, given both the small scale of the operation and the isolation of the site. The following noise sources will arise as a result of the proposed operations:

Earthmoving equipment generated noise (observed estimate at ±55dBA).

Noise must however be minimised in terms of employee health and HPD s must be available to employees at all times and the applicants must comply with the prescriptions of the Mine Health & Safety Act.

Visual Impact

The only visual impact as a result of mining will be the excavations at the site and stockpiles. It must be noted that the site is incredibly remote being accessed by way of servitude road. Public roads are few and far from the mining area and carry very little traffic while farmsteads are extremely few and far between.

Sensitive Landscapes

Areas containing untransformed natural vegetation of conservation concern, high diversity or habitat complexity, Red List organisms or systems vital to sustaining ecological functions are considered potentially sensitive. In contrast, any transformed area that has no importance for the functioning of ecosystems is considered to have low sensitivity.

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

Description of potential impacts identified on the cultural heritage environment

Because of the presence of the low sensitivity washed river sands on the site, the potential impacts to fossil heritage are likely to be low. Furthermore, deep excavations into potentially more significant deposits will not take place. No built structures will be affected by the proposed development. No known graves will be affected by the proposed development.

Cultural landscape elements are lacking on the site. The sense of place will be affected, however, but, due to the relatively limited extent of the visual impacts in the area, this impact is not considered very significant. Impacts to the sense of place are likely to be generally low due to the already altered state of the local area.

As mining will be taking place within a drainage channel that is in flood once every 5 to 10 years and mining only takes place in the top 1.5m section containing river sand there is very little chance of fossils being present on the site. Should any fossils be discovered or unearthed in the process of mining, the permit holder will contact a South African Museum or University which employs palaeontologists so that the necessary palaeontological salvage operations can take place. No other heritage resources 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 are present on the mining area.

Description of potential impacts identified on the socio- economic conditions

Potential impacts arise as follows through the proposed mining activities:

Negative

- Potential impacts on farm integrity: Poaching, stock theft, stock loss (through road kill or gates being left open), security, and road condition deterioration
- Potential impacts on rural settlements: Raise false levels of expectancy, economic concerns if mine labour arc paid more than farm labour, immigration of workers, drugs etc.

Positive

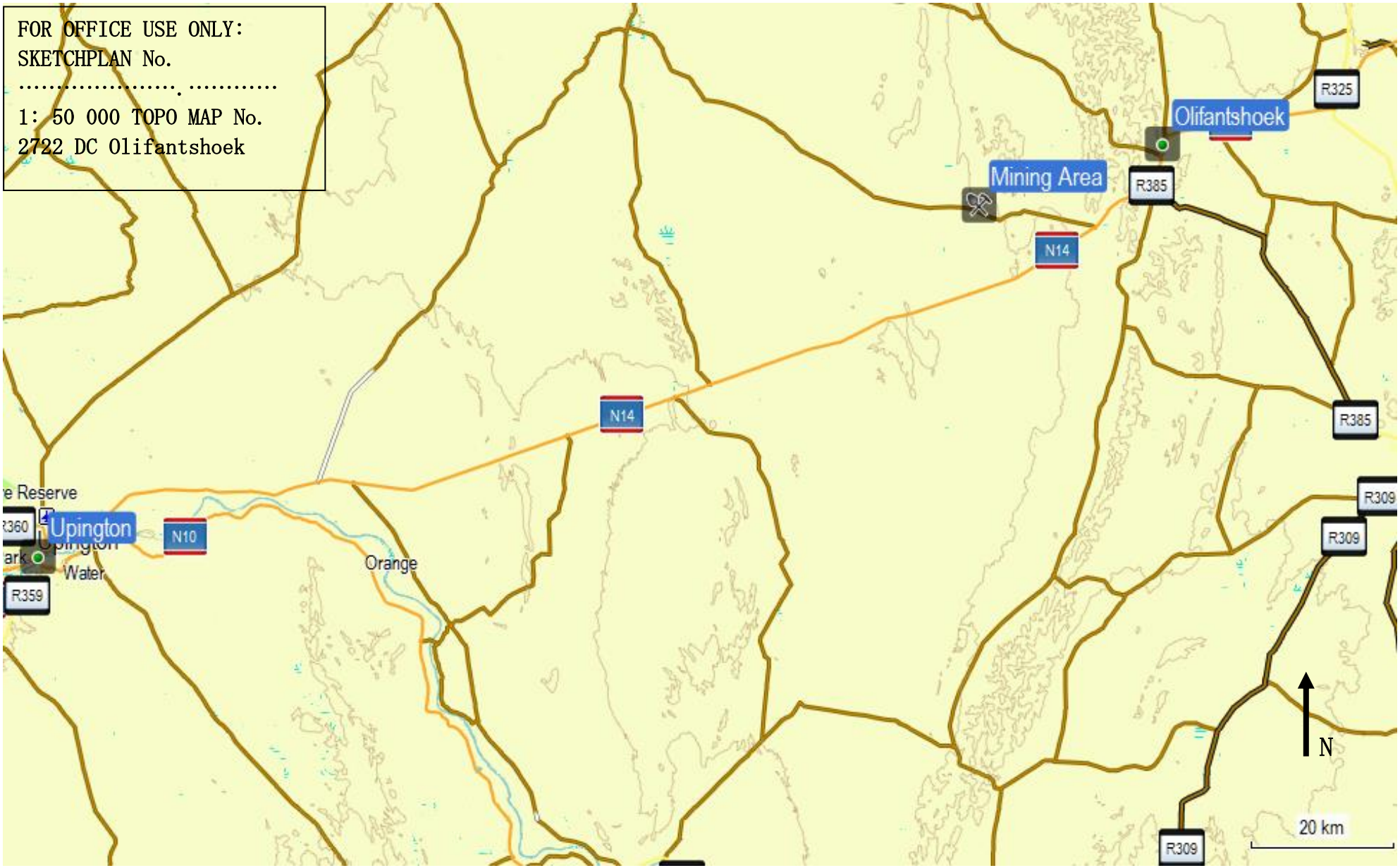
- Potential for infrastructure development
- Potential for employment opportunity.

The impact will however be insignificant due to the small scale of operations. Only one machine operator will be employed together with one part time admin clerk. The mine will be in operating from 8H00 to 18H00 that is less than from sunrise to sunset. The only other land use in the area is small stock grazing and due to the small extends of the mining operation there will be no impact on productivity.

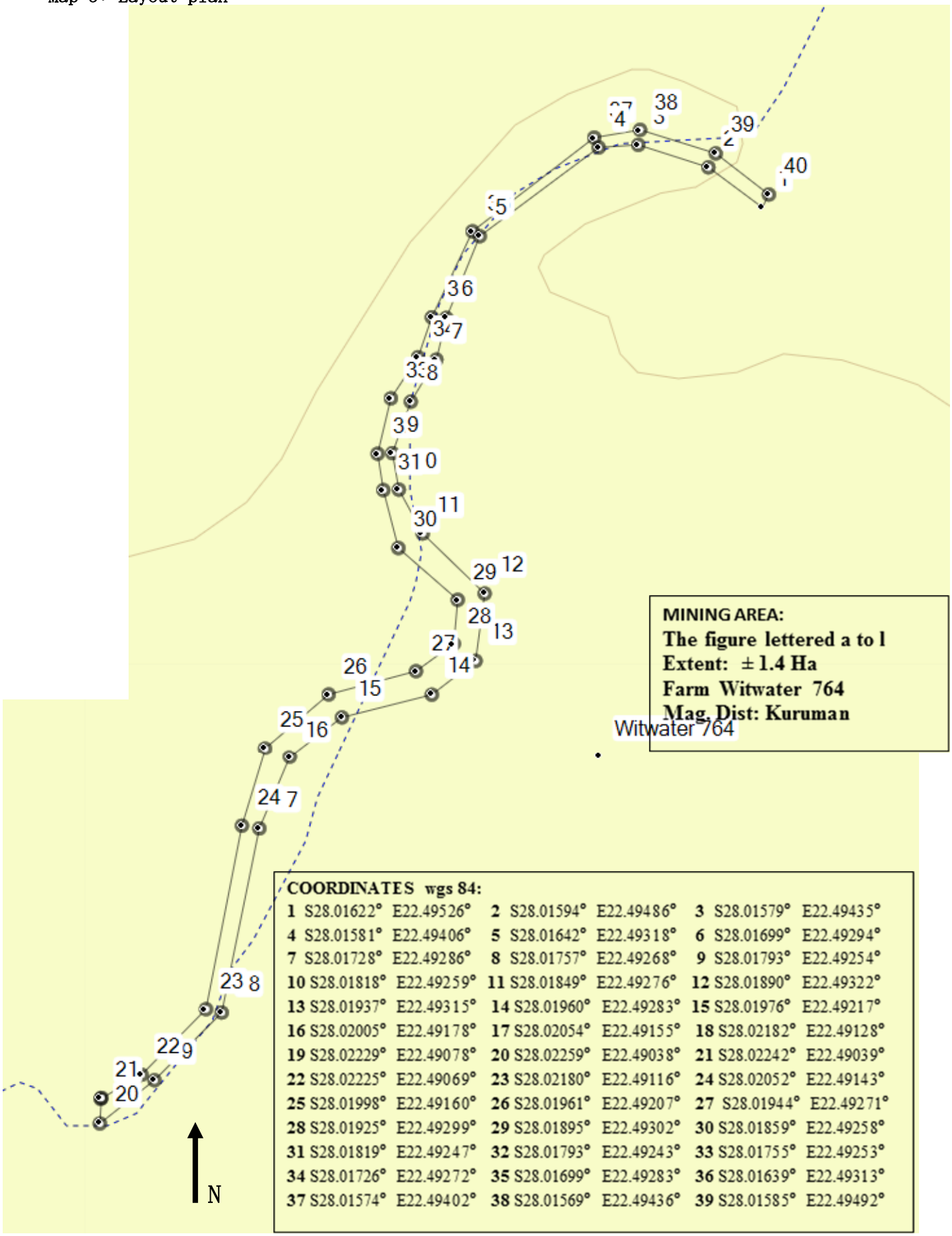
Description of potential impacts identified on: employment opportunities, community health, and community proximity

The mining operation itself will not create many employment opportunities only one machine operator will be employed together with one part time admin clerk. The mine will be in operating from 8H00 to 18H00 that is less than from sunrise to sunset. Although the mining operation itself will not create many employment opportunities but the spinoffs due to the larger infrastructure development and other building projects will contribute to employment and skills development.

Map 4: Locality of prospecting areas



Map 5: Layout plan



COORDINATES wgs 84:

1 S28.01622° E22.49526°	**2** S28.01594° E22.49486°	**3** S28.01579° E22.49435°
4 S28.01581° E22.49406°	**5** S28.01642° E22.49318°	**6** S28.01699° E22.49294°
7 S28.01728° E22.49286°	**8** S28.01757° E22.49268°	**9** S28.01793° E22.49254°
10 S28.01818° E22.49259°	**11** S28.01849° E22.49276°	**12** S28.01890° E22.49322°
13 S28.01937° E22.49315°	**14** S28.01960° E22.49283°	**15** S28.01976° E22.49217°
16 S28.02005° E22.49178°	**17** S28.02054° E22.49155°	**18** S28.02182° E22.49128°
19 S28.02229° E22.49078°	**20** S28.02259° E22.49038°	**21** S28.02242° E22.49039°
22 S28.02225° E22.49069°	**23** S28.02180° E22.49116°	**24** S28.02052° E22.49143°
25 S28.01998° E22.49160°	**26** S28.01961° E22.49207°	**27** S28.01944° E22.49271°
28 S28.01925° E22.49299°	**29** S28.01895° E22.49302°	**30** S28.01859° E22.49258°
31 S28.01819° E22.49247°	**32** S28.01793° E22.49243°	**33** S28.01755° E22.49253°
34 S28.01726° E22.49272°	**35** S28.01699° E22.49283°	**36** S28.01639° E22.49313°
37 S28.01574° E22.49402°	**38** S28.01569° E22.49436°	**39** S28.01585° E22.49492°

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

Refer maps 1 to 5 above.

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

The consultation report was made available to the landowners and all other interested parties for comment. All comments received were addressed in this EMPR.

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

2.1 Description of the proposed prospecting or mining operation.

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

Mining will only consist of loading and hauling of sand. No processing will take place. No infrastructure including roads will be constructed so there will be no work done during the construction phase except for domestic and limited industrial waste management facilities.

Diagram 4 indicate the proposed position of the activities to be conducted during the operational phase but this mine plan needs to be updated on a regular basis as mining progresses with the exact position and dimensions of the activities referred to.

2.1.2. Plan of the main activities with dimensions

The total area under application is 1.4 Ha and taking into account the buffer to be left for the protection of the bank and riparian vegetation the total area to be excavated is 10 000m^2. The average depth of the excavation will be 1.5m giving an estimated 15 000m^3 to be excavated. Refer diagram 4.

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

<u>Construction phase</u>

Several existing tracks exist on the site and these will be used whenever possible. The existing access road will be utilized in most cases, so no envisaged ground disturbance is planned or foreseen.

Any infrastructure or secure storage areas needed, will be developed in the form of mobile containers that can be readily removed at final closure.

Diagram 4: Landscape showing the main mining activities such as excavations, stockpiles and haul roads

Operational phase

An estimated total of 15 000 m³ river sand will be mined from a seasonal drainage channel for building purposes. The depth of the mining operations will be less than 1.5m as sand is never deeper. The total area under excavation will approximately be 1 Ha and sand will be removed over the total area. Backfilling is not an option as the sand is completely removed as it is washed in from upstream. No industrial or mine waste is generated during the mining process. All material consisting mainly of river sand is removed from the seasonal drainage channel to a depth of 1.5m and sold as a FoT product. No processing is taking place except for limited stockpiling so no mining waste or overburden and FRD will be created. No domestic or any other waste is generated during the mining operation. Only minor repairs are done on site. A PVC lining and drip trays are used during maintenance and accidental spills are cleaned up immediately by removing of the contaminated sand. The small volume of contaminated sand is sold with the rest of the sand to be used in the building industry. Only one front end loader is used in the mining process that is transported to the nearest town for major repairs.

Decommissioning phase

Regulations 56 to 62 outline the entire process of mine closure, both as a guide to the process to be followed for mine closure, and also to address the legal responsibility with regard to the proper closure of operations. In terms of Section 37 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002), the holder of a permit is liable for any and all environmental damage or degradation emanating from his operation, until a closure certificate is issued in terms of Section 43 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002). "An application for a closure certificate must be accompanied by an environmental risk report.

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

With regard to listed activities in terms of the Environmental Impact Assessment Regulations Listing Notice 2 of 2010, the competent authority in respect of the activities listed is the environmental authority in the province in which the activity is to be undertaken, unless - (b) the activity is to be conducted in or on a mining area or is to transform the area where the activity is to be conducted into a mining area in which case the competent authority is the Minister of Minerals and Energy. In this case all activities is to take place within an mining area therefore all activities will be covered by this EMPR.

The exception mentioned in (b) above does not apply to the following activities contained in the notice 1;2;5;8; 9; 10; 12; 13; 14; 17; 24 and 25.

The activities where environmental authorizations is required in addition to the approved EMPR are addressed below with their applicability to this specific operation

Activity Number	Activity description	Applicable
1.	The construction of facilities or infrastructure for the generation of electricity where the electricity output is 20 megawatts or more.	Not applicable
2.	The construction of facilities or Infrastructure for nuclear reaction including energy generation, the production, enrichment, processing, reprocessing, storage or disposal of nuclear fuels, radioactive products and nuclear and radioactive waste.	Not applicable
5.	The construction of facilities or infrastructure for any process or activity	Not

	which requires a permit or license in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent and which is not identified in Notice No. 544 of 2010 or included In the list of waste management activities published In terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case that Act will apply.	applicable
8.	The construction of facilities or infrastructure for the transmission and distribution of electricity with a capacity of 275 kilovolts or more, outside an urban area or industrial complex.	Not applicable
9.	The construction of facilities or infrastructure for marine telecommunication.	Not applicable
10.	The construction of facilities or infrastructure for the transfer of 50 000 cubic metres or more water per day from and to or between any combination of the following: (i) water catchments. (ii) water treatment works: or (iii) impoundments, excluding treatment works where water is to be treated for drinking purposes.	Not applicable
12	Construction of facilities, infrastructure or structures for aquaculture of – (i) finfish, crustaceans, reptiles or amphibians where the facility, infrastructure or structures will have a production output of 200 000 or more kg per annum (live round weight), (ii) mollusks where the facility, infrastructure or structures will have a production output of 150000 or more kg per annum (live round weight) (iii) aquatic plants where the facility, infrastructure or structures will have a production output of 200 000 or more kg per annum (live round weight), excluding where the construction of facilities, infrastructure or structures is for purposes of offshore cage culture In which case activity 13 in this Notice will apply.	Not applicable
13	The construction of facilities, infrastructure or structures for aquaculture of offshore cage culture of finfish, crustaceans, reptiles, amphibians, mollusks and aquatic plants where the facility, infrastructure or structures will have a production output of 100 000 or more kg per annum (live round weight).	Not applicable
14	The construction of an island, anchored platform or any other permanent structure on or along the sea bed.	Not applicable
17	The extraction or removal of peat or peat soils, including the disturbance of vegetation or soils in anticipation of the extraction or removal of peat or peat soils.	Not applicable
24	Construction or earth moving activities In the sea, an estuary, or within the littoral active zone or a distance of 100 metres Inland of the high-water mark of the sea or an estuary, whichever distance is the greater, in respect of: (i) facilities associated with the arrival and departure of vessels and the handling of cargo (ii) piers; (iii) inter- and sub-tidal structures for entrapment of sand; (iv) breakwater structures; (v) coastal marinas; (vi) coastal harbours or ports; (vii) structures for reclaiming parts of the sea;	Not applicable

	(viii) tunnels; or (ix) underwater channels; but excluding — (a) activities listed in activity 16 in Notice 544 of 2010, (b) construction or earth moving activities if such construction or earth moving activities will occur behind a development setback line; (c) where such construction or earth moving activities will occur in existing ports or harbours where there will be no increase of the development footprint or throughput capacity of the port or harbour; or (d) where such construction or earth moving activities takes place for maintenance purposes.	
25	The expansion of facilities for nuclear reaction including energy generation, the production, enrichment, processing, reprocessing, storage or disposal of nuclear fuels, radioactive products and nuclear and radioactive waste.	Not applicable

2.2 Identification of potential impacts

2.2.1. Potential impacts per activity and listed activities.

Mining will only consist of loading and hauling of sand. No processing will take place and no infrastructure including roads will be constructed. The only activity that will have a potential impact on the environment will therefore be the development of the excavation and the hauling operations. The potential impact of this activity on the different environmental aspects will be as follow:

Visual Impact - Due to the change in topography there is a potential for visual impact through the presence of stockpiles and the excavation. The earthmoving equipment and general activities on site can also cause visual impact.

Soil – The potential exist for ad hoc tracks to be developed. Soil compaction is also a possibility due to hauling and development of stockpiles. Soil pollution is also a possibility due to oil spills during routine maintenance of equipment.

Natural Vegetation – Mining can have a potential impact on the natural vegetation if mining is conducting to close to the bank of the stream where riparian vegetation in the form of endemic trees is present. Stockpile if established within 20 meters of the edge of the river channel or within the riparian corridor will also have a negative impact on vegetation. Damage to the riparian corridor can also leads to scouring of the banks during flood events.

Animal Life - The animal life around the affected area can possibly be chased away by the presence of mining activities.

Surface Water – The mining operation will take place within a perennial stream and can lead to the altering of the bed, banks or characteristics of the watercourse.

Ground water – Any mining if to continue below the water table can have a potential impact on the groundwater. Oil pollution can also have an impact on groundwater.

2.2.2. Potential cumulative impacts.

The only identified land use is small stock grazing and due to the temporarily nature of change in land use and small scale of the operation mining will not have any impact and the land will revert back to its former use grazing with no impact on production.

2.2.3. Potential impact on heritage resources

Mining can only have a potential impact on fossil heritage or other heritage resources 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.

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

Mining can have a potential impact on existing land use as it can result in the temporary loss of grazing for stock. The land is classified as wilderness area with subordinate grazing. This classification is more restrictive than pure grazing classification. In any event, the carrying capacity of the veld is between 8-10ha/small stock units, but the aim of the rehabilitation programme is to restore the veld to its wilderness rating. If the whole area will be mined, then a total of 1.5 ha will be temporarily lost as a wilderness area (and as grazing). The impact on grazing can be quantified and mining will result in the temporary loss of grazing for less than 0.25 small stock units.

Duration of impact	Life of mine
Probability of impact	Definite
Significance of impact	Insignificant and temporary (until full rehabilitation)

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

The consultation report was made available to the landowners and all other interested parties for comment. All comments received were addressed in this EMPR.

2.2.6. Confirmation of specialist report appended.

No specialist reports are deemed necessary as no sensitive areas are included in the proposed area and due to the small scale and non-invasive nature of the proposed project.

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 on each of the aspects is measured according to the following table of significance:

Negative	
Significant	Recommended level always exceeded with associated widespread community action Disturbance to areas that are pristine, have conservation value, are important resource to humans and will be lost forever Complete loss of land capability Destruction of rare or endangered specimens May affect the viability of the project
Moderate	Moderate measurable deterioration and discomfort Recommended level occasionally violated - still widespread complaints Partial loss of land capability Complete change in species variety or prevalence May be managed Is Insignificant if managed according to EMP provisions
Minor/Insignificant	Minor deterioration Change not measurable Recommended level will rarely if ever be violated Sporadic community complaints Minor deterioration in land capability Minor changes in species variety or prevalence
Positive	
Minor	Improvements in local socio-economics
Significant	Major improvements in local socio-economics with some regional benefits

Criteria used for the significance rating

- All surface disturbances are rated high
- Dust is rated low if only minimal dust is expected to accumulate over the permit period, medium if it is expected to require dust suppression such as watering, and high if there is a risk that it will migrate beyond the permit area.
- Noise is rated no machinery is to be used, medium if machinery is to be used, and high if there is a potential for complaints from public and neighbours.
- All drainage is rated high
- All blasting is rated high
- All dust and noise from loading, hauling and transport is rated high
- Drainage from ablution facilities are rated high.

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

Visual Impact

The inherited impact of excavations on topography will be through the pit development and the temporary stockpiles. When quantifying the visual impact of the operation, such quantification must be conducted with complete isolation of the site in mind. The few roads in the area suffer little traffic. Due to the change in topography visual impact will thus occur through the visibility of stockpiles and the earthmoving equipment and general activities on site. The absence of a domestic waste management program can also have a visual impact.

Duration or impact:	Life of mine - only as traffic passes the site on average 2 vehicles per day
Probability of impact:	Definite
Significance of impact:	Significant

Soil

The development of ad hoc tracks to be developed for hauling and the development of stockpiles will lead to soil compaction. Soil pollution is also a possibility due to oil spills during routine maintenance of equipment. Topsoil borrowing from the virgin areas to cover disturbed areas can increase the mine footprint. If tracks are not maintained that tracks quickly become degraded to such an extent to be impassable with the result that drivers develop new tracks next to the affected tracks thereby exacerbating the damage.

Duration of impact:	Life of mine
Probability of impact:	Definite
Significance of impact:	Significant

Natural Vegetation

Mining into the riparian corridor will lead to scouring of the bank and promote erosion and flood damage. Stockpile if established within 20 meters of the edge of the river channel or within the riparian corridor will also have a negative impact on vegetation. Established trees will also be disturbed if mining of sand took place below the clay layer as the root system of the trees will be damaged.

Duration of impact:	Life of mine
Probability of impact:	Definite
Significance of impact:	Insignificant when considered separately but increases when the cumulative impact is considered

Animal Life

The animal life around the affected area will be chased away by the presence of such activities. There is a vast expanse of similar habitat type around every proposed activity area and it is unlikely that any impact on animal life will occur from the proposed activities. Should any impact occur it would be insignificant.

Duration of impact	Life of operation
Probability of impact:	Probably
Significance of impact:	Insignificant

Surface Water

Although a water use licence is required for "Altering the bed, banks or characteristics of a watercourse" section 22(a)(iii) of the National Water Act, 1998 (Act 36 of 1998) states that a person may use water without a license if that water use is permissible in terms of a general authorization issued under section 39. The following General Authorisations, in terms of Section 39 of the National Water Act 1998 was publish in the Gazette - Government Notice 398 (2004) quoted below

The authorizations permitted in terms of this schedule replace the need for a water user to apply for a license in terms of the National Water Act.

Schedule 1: Impeding or diverting the flow of water in a watercourse (Section 21(c)).

Schedule 2: Altering the bed, banks or characteristics of a watercourse (Section 21(i)).

Schedule 3: Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people (Section 21(j)).

Only the bed of the watercourse will be slightly altered by removing the sand and no mining will take place on the banks. The applicant also complies with the requirements set by the general authorisation in that:

- The applicant lawfully has access to land.
- The alteration will not impact on a water resource or on another person's water use, property or land; and is not detrimental to the health and safety of the public in the vicinity of the activity.
- The natural migration patterns of aquatic biota and the sustainable ecological functioning of the system will not be interfered with.
- The flow is not reduced and erosion control measures will be taken.
- The water quality will not be detrimentally affected; and all necessary measures will be taken to stabilize the area including rehabilitation of disturbed and degraded riparian areas to restore and upgrade the riparian habitat integrity to sustain a bio-diverse riparian ecosystem and removal and control of alien vegetation.
- No structures will be build.

Duration of impact	Life of mine
Probability of impact:	Possibly
Significance of impact	Insignificant

Ground water

Due to the shallow nature of operations the impact on the groundwater is considered insignificant. The absence of a waste handling program can however have a potential significant impact through oil/fuel leaks but the mitigating measures under soil will address this impact.

Duration of impact:	Life of mine
Probability of impact:	Unlikely
Significance of impact:	Insignificant

3.1.3. Assessment of potential cumulative impacts.

The only identified land use is small stock grazing and due to the temporarily nature of change in land use and small scale of the operation mining will not have any impact and the land will revert back to its former use grazing with no impact on production.

3.2. Proposed mitigation measures to minimise adverse impacts.

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

As mining will place within a drainage channel that is in flood once a year and mining only takes place in the top 1.5m section containing river sand the significant impact will be minimal. The only environmental aspects that will require mitigating and or management actions are as follow:

- Visual impact
- Soil pollution and topsoil handling
- Natural Vegetation especially the riparian corridor along the bank of the perennial drainage channel

3.2.2. Concomitant list of appropriate technical or management options

Visual Impact

The inherited impact of excavations on topography will be through the pit development and the temporary stockpiles. Mining will only take place on an ad hoc basis if and when new sand is washed in from upstream. The depth of the operation will therefore be determined by the volume of new sand washed in from upstream after flood events. Mining will not take place during such flood events and will continue only after the perennial stream has run dry again. Mining will never continue into the natural clay floor that form the bed of the stream and only the top layer of clean sand can be used in the building industry. The layer of clean sand washed in from upstream is on average never deeper than 1 meter and as the natural slope of the bank were no mining is going to take place is on a gradient of 30% slope will not be an issue at a mining depth of 1 meter.

No mining waste or tailings will be generated. Tailings in the form of boulders, rocks or oversized gravel will be spread over as wide a portion of the mined river bed as possible or, if buried, shall be covered by a minimum of 500 mm of sand, if at all practically possible.

Very little domestic waste will be generated as only one front end loader operator that doubles up as haul truck driver will be present on the site for short periods while loading the truck.
No waste will be buried or burned on the site and waste washed in from upstream will be collected and removed from the mining site on a regular basis
All scrap, and other foreign materials shall be removed from the bed of the river and disposed of as per other refuse whether these accrue from the mining operation or are washed on to the site from upstream.
The owner will instruct the employees in the need for procedure/tasks as well as the actual handling of domestic waste, relating to domestic waste management.
Domestic waste (lunch wrappers, containers, food tins, bottles) of daily workers as well as the domestic waste from the mining logistics will be provided for and handled as follows:

- Provide waste collection drums at strategic points.
- Instruct staff on the distinction between domestic refuse and industrial waste

The inherited impact of the mining pit excavations will be on all road users using the seldom used un-surfaced farm tracks. The mine pit will straddle this track but traffic on this road is on average 2 vehicles per day. Impact mitigation of this impact is not feasible but it must be noted that:

- The impact is insignificant given the small scale of the activities and the isolation of the site
- The impact is temporary and the excavations will be backfilled naturally with sand washed in from upstream during flood events and allowed to re-vegetate naturally resulting in no residual impact.

<u>Soil</u>
No topsoil is present within the drainage channel and all material will be removed to a depth of 1.5m. Available topsoil will be removed prior to the development of the stockpile areas outside the riparian buffer.
All removed topsoil will be placed in heaps not exceeding 1.5m. The purpose of such restriction is an attempt to retain a viable seed bank within the stockpiled topsoil. Topsoil borrowing from the virgin areas to cover disturbed areas will not take place and movement of vehicles will be restricted to demarcated areas so as to keep the footprint of the mining operation to the absolute minimum. The stockpile area needs to be demarcated to restrict operations to within the demarcated area. At final closure all product needs to be removed from the stockpile areas and where product is mixed in with the subsoil the subsoil will also be removed. The stockpile areas and areas compacted due to hauling then needs to be ripped with erosion control measures before the topsoil previously stored area replaced.
Only one front end loader will be used on site and only emergency repairs will be done on site. A PVC lining and drip trays will be used during maintenance and accidental spills will be cleaned up immediately by removing of the contaminated sand. The small volume of contaminated sand will be sold with the rest of the sand to be used in the building industry.

Refuelling of equipment from the trailer bowser and all repairs which are to take place on site will be conducted using a PVC facility to collect any oil contaminated run-off and channel it to the oil trap where separated oil will be collected and disposed of in the oil recycling container. Any oil spills is to be treated with Spillsorb or equivalent as per the product instructions.
Equipment used in the mining process, particularly in the bed of the river, will be adequately maintained, such that during operation they do not spill oil, diesel, fuel or hydraulic fluid. No oil, fuel and chemicals will be used or stored in the mining area
Staff will require instruction in the:

- deleterious effects of oil /fuel on the environment
- identification of oil leaks
- the operation of the oil trap (including the disposal of trapped oil)
- use of Spillsorb (or equivalent) products

Use of existing roads is emphasized. Formal roads (i.e. with imported material) will only be developed over short distances if at all where traffic exceeds a very nominal amount, as experience by farmers has shown that tracks quickly become degraded to such an extent to be impassable with the result that drivers develop new tracks next to the affected tracks thereby exacerbating the damage. Access requirements will generally be catered for by narrow tracks (with no topsoil removal).

Natural Vegetation

The applicant acknowledges that the preservation of the natural riparian vegetation buffer protecting the banks against scouring during flood events is of outmost importance. The riparian vegetation together with the banks also plays an important role in the protection against flood damage. Therefore special management and mitigating measures to prevent or rehabilitate any possible impact on the riparian vegetation include the following:

- No infrastructure or camp sites will be constructed
- No processing will take place only limited stockpiling
- Stockpile shall not be established within 20 meters of the edge of the river channel outside the riparian corridor.
- Tailings in the form of boulders, rocks or oversized gravel will be spread over as wide a portion of the mined river bed as possible or, if buried, shall be covered by a minimum of 500 mm of sand, if at all practically possible.
- Access roads or paths into the river will be minimise and erosion protection measures will be put in place
- Although more than one farm road leads up the river bank only one access point will be established and maintained at a time.
- Access points will be rehabilitated as mining continue downstream.
- In the event of damage from an occurrence where high flood waters scour and erode access points in the process of rehabilitation over the river-bank or an access point currently in use, repair of such damage shall take place immediately by reinstating the original profile of the river bank after such event has occurred and the river has subsided to a point where repairs can be undertaken.
- If necessary the rehabilitated part of the bank will be planted with endemic trees that occur in the adjacent undisturbed riparian corridor.

- When constructing the access across the bank of the river, the top seed-bearing layer of soil will be removed to a depth of 500 mm and stored in a soil dump not less than 20 m away from the channel of the river.
- When rehabilitating the access point, the original profile of the river bank will be re-established through backfilling the access point with the original material excavated or other suitable material.
- The flow of the river will not be impeded in anyway and damming upstream will not occur. Redirection of the flow will not occur.
- The mining of sand shall only take place within the approved demarcated mining area.
- A buffer of 5 meter will be maintained for the protection of the bank and riparian vegetation from the bank where no mining will take place.
- No mining will take place in the bank or the buffer zone and no riparian vegetation will be removed.
- Mining of sand will only takes place up to the clay layer so the root system of the trees will not be damaged.
- An effective control programme for the eradication of invader species and other alien plants will be implemented
- Employees will not prepare food on the site or collect firewood.

Ancillary mining requirements

The following are other aspects of the operation that could result in environmental impact if not properly controlled or specified.

Roads & Tracks

a) Formal roads: Farm tracks quickly deteriorate should they experience more than the minimum traffic. The result is that drivers leave the deteriorated track and drive in the veld next to the track, causing extensive damage to the veld. In order to prevent such damage, these "well-travelled' routes will have to be armoured with imported material. No new roads are likely be affected by such armouring. The following roads will experience regular traffic as follows:

- Haul roads between the sandpit and public road. This approximate 2km route is already a well-established road and no more formalization of the road will be required.
- Access to each of the stockpile areas will be directly from the established road and no further roads or tracks will be required for these. Should a formal road be developed, then such road will / may require the importing of foreign material for surfacing (likely to be existing coarse tailings from the mining area). Should such material be required and the landowner does not wish to retain the road, then the rehabilitation of such road must take place as follows:

1. Before developing the road, remove all topsoil to berms to the side of the road for re-use in rehabilitation of the road
2. During the rehabilitation of the road the following must occur:
    a. Scarify hardened road area
    b. Return and spread stockpiled topsoil

b) Tracks are less formal than roads and will result where very little traffic will be required. Existing farm tracks will be used where possible. Any new tracks will not have topsoil removed but will be rehabilitated through a single pass of a 2 toothed scarifier (avoiding disturbance of the "middelmannetjie") only after consultation with the landowner.

Domestic Waste Management Facilities:

Each loading area must be provided with a refuse bin. Refuse will be removed daily from that bin for transport to the dumping site of the local municipality.

Oil/Fuel Leak Management:

Fuel receipt, storage and dispensing:

In the management of fuel supply, receipt, storage and use, the following procedures will be followed, cautions taken and facilities built to properly manage this operational sector:

- The fuel delivery bowser driver will be cautioned to adhere to safe driving speeds and drive cautiously on the gravel roads.
- During dispensing of fuel to field vehicles via tanker, the dispensing vehicle is to be fitted with suitable pumps and funnel extensions to reduce the risk of spillage in the transfer of fuels.

On site repairs

No workshops will be required at the mining area and all scheduled equipment servicing will take place at workshops in Olifantshoek.

Emergency repairs on site:

In the event of a breakdown repair being required in the field, the staff should be trained in use of drip trays and suitable funnels (not to drain oil into the sand) for filling and draining of lubricants and the staff shall be provided with such equipment to prevent oil contamination.

In addition:

- Used/replaced filters, hoses, belts, cloths, etc. are to be placed in a bin for return to the used oil and lubricant storage area at the workshop in town. Used filters are not to be buried at the site of repair (nor discarded in the excavation to be backfilled).
- In the event of soil contamination, the soils are to be treated with a suitable decontaminant such as the OT8 product range or Spillsorb or similar product.

All staff involved in mobile plant operation and maintenance is to be made aware of these oil and lubricant procedures. Staff will require instruction in the:

- Deleterious effects of oil / fuel on the environment
- Use ofOT8/Spillsorb products.

General Provisions

- All operators are to check their equipment for leaks and report such leaks on a daily basis.
- No used oils are to be used as dust suppressants on manoeuvring areas.

Potable Water

Potable water will be bottled and brought to site by the employees as required as the water on site is not potable.

3.2.3. Review the significance of the identified impacts

As mining will place within a drainage channel that is in flood once a year and mining only takes place in the top 1.5m section containing river sand the impact will be minimal.

The implementation of the mitigating and management measures prescribed above will address all the impacts and after implementation of the mitigating measures all impacts can be classified as insignificant

4. REGULATION 52 (2) (d): Financial provision.

4.2. Plans for quantum calculation purposes.

Refer diagram 4 above.

4.3. Alignment of rehabilitation with the closure objectives

The goal of rehabilitation with respect to the area where mining has taken place in the drainage channel is to leave the area level and even, containing no foreign debris or other materials and to ensure the hydrological integrity of the river by not attenuating or diverting any of the natural flow.

When rehabilitating the access point the original profile of the riverbank will be re-established by back filling the access point with the original material excavated or other suitable material.

The rest of the bank will be profiled to promote re-vegetation and prevent erosion.

All scrap and other foreign materials will be removed from the bed of the river and disposed of as in the case of other refuse, whether these accrue directly from the mining operation or are washed on to the site from upstream.

Removal of these materials shall be done on a continuous basis and not only at the start of rehabilitation.

An effective control program for the eradication of invader species and other exotic plants shall be instituted on a regular basis over the entire mining area under the control of the holder of the mining permit, both during mining and at the stage of final rehabilitation. All roads used will be repaired or rehabilitated if not needed by the landowner.

The area will be profiled to blend in with the topography of the surrounding environment. The mitigating measures described in paragraph 3 are compatible with these closure objectives.

4.4. Quantum calculations.

The area will be rehabilitated with the original land use namely small stock farming in mind and the productivity of the area after closure will be the same as before prospecting operations started. Rehabilitation cost is estimated with the proposed end-state in mind and although the applicant has his own equipment and rehabilitation will take place concurrent with production the tariffs for equipment was based on local hiring tariffs in Olifantshoek the closest major town 30Km to the east.

The provision for rehabilitation of the site will be supplied by means of a bank guarantee to be supplied to the Department of Minerals Resources. The purpose of such a fund provision is to provide for rehabilitation of the site by State nominated contractors should the applicant for any reason be unable to complete the rehabilitation activities or complete them insufficiently.

<u>Rehabilitation of access roads</u>

No access roads or infrastructure will be constructed only existing farm roads will be used. Existing access roads will be used and maintained by the applicant. The road will not be decommissioned as it will still be needed by the landowner

<u>Rehabilitation of the office/camp site</u>

No infrastructure will be required as mining will only consist of loading and hauling of sand on an ad hoc basis. No permanent structure will be build and

all operations will be run from Olifantshoek and by providing for mobile containers for secure storage of equipment and materials.

Rehabilitation of vehicle maintenance yard and secured storage areas

No vehicle maintenance yard or secure storage areas will be constructed as major repairs and services will be done in Olifansthoek. Emergency repairs will be done according to the prescripts provided for in the EMP paragraph 3 and no infrastructure will be required.

Rehabilitation of surface disturbance excavations

After mining the whole excavation area can be regarded as part of the dry river-bed. The goal of rehabilitation with respect to the area is to leave the area level and even, and in a natural state containing no foreign debris or other materials and to ensure the hydrological integrity of the river by not attenuating or diverting any of the natural flow. All scrap and other foreign materials will be removed from the bed of the river and disposed of as in the case of other refuse whether these accrue directly from the mining operation or are washed on to the site from upstream.

No reeds or other riverine vegetation occur in the proximity of the dry river bed except for *Accasia karoo* trees that can be seen as riparian vegetation.

An effective control programme for the eradication of invader species and other exotic plants shall be instituted on a regular basis over the entire mining area under the control of the holder of the mining permit, both during mining and at the stage of final rehabilitation. Rocks and coarse material removed from the excavation will be spread evenly over the bed of the river.

Extent:	1.5Ha
Duration of rehabilitation:	16 hours
Equipment required:	
Front end loader for removal of stockpile Ripping and profiling	
8 h X R500.00/h	R 4 000.00
Levelling and profiling stream bed	
16 h X R500.00/h	R 8 000.00
Cost of rehabilitation:	R12 000.00

Rehabilitation of processing areas

No processing areas will be present only limited stockpiling areas. The existing stockpile area will be used and no new virgin area will be disturbed by stockpiling.

The stockpiling area will form part of rehabilitation.

Final rehabilitation

All equipment and other items used during the mining period will be removed from the site. Waste material of any description, including receptacles, scrap, rubble and tyres, will be removed entirely from the mining area and disposed of at a recognised landfill facility. It will not be buried or burned on the site.

Extent:	1.5 Ha
Duration of rehabilitation:	4 hours
Equipment required:	
Manual labour for removal of material and containers	R 5 000.00
Transport of material	R 2 000.00
Cost of rehabilitation:	**R 7 000.00**

The applicant is willing to escalate the total estimated amount of R 19 000.00 that is needed for rehabilitation to R20 000.00 that is more than is needed for the rehabilitation of damage to be caused by the operation, both at sudden closure during the normal operation of the project or at final, planned closure.

4.5. Undertaking to provide financial provision

Financial provision required under Regulation 54 for the amount of R 20 000.00 will be furnish to DME. The quantum will be updated again within a year or at a shorter interval if there is any deviation from the prospecting work program.

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

5.1 List of identified impacts requiring monitoring programmes.

None of the impacts identified required specific monitoring programs but inspections and monitoring shall be carried out on both the implementation of the program and the impact on the natural and cultural environment. Visual inspections on erosion and physical pollution shall be carried out on a regular basis together with fixed point photography.

5.2. Functional requirements for monitoring programmes.

Every aspect of the operation must be checked against the prescriptions given in this document and if find that certain aspects are not addressed or impacts on the environment are not mitigated properly, the identified inadequacies will be rectified immediately.

Regular monitoring of all the environmental management measures and components shall be carried out to ensure that the provisions of this program are adhered to.

Layout plans will be updated on a regular basis and updated copies will be submitted on an annual basis to the Regional Manager.

Reports confirming compliance with various points identified in this program will be submitted to the Regional Manager on an annual basis together with an update of the rehabilitation cost. 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 program was compiled shall be carried out and added as a corrective action.

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

The mine manager will be responsible for monitoring and Reports confirming compliance with various points identified in the environmental management program.

5.4. Committed time frames for monitoring and reporting.

The mine manager must on a bi-monthly basis, check every aspect of the operation against the prescriptions given in this document and, if find that certain aspects are not addressed or impacts on the environment are not mitigated properly, the project manager must rectify the identified inadequacies immediately.

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

6.1. Rehabilitation plan

The goal of rehabilitation with respect to the area where mining has taken place in the drainage channel is to leave the area level and even, containing no

foreign debris or other materials and to ensure the hydrological integrity of the river by not attenuating or diverting any of the natural flow.
When rehabilitating the access point the original profile of the riverbank will be re-established by back filling the access point with the original material excavated or other suitable material.
The rest of the bank will be profiled to promote re-vegetation and prevent erosion.
All scrap and other foreign materials will be removed from the bed of the river and disposed of as in the case of other refuse, whether these accrue directly from the mining operation or are washed on to the site from upstream.
Removal of these materials shall be done on a continuous basis and not only at the start of rehabilitation.
An effective control program for the eradication of invader species and other exotic plants shall be instituted on a regular basis over the entire mining area under the control of the holder of the mining permit, both during mining and at the stage of final rehabilitation. All roads used will be repaired or rehabilitated if not needed by the landowner.
The area will be profiled to blend in with the topography of the surrounding environment. The mitigating measures described in paragraph 3 are compatible with these closure objectives.

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

The environment affected by the mining operations shall be rehabilitated, as far as is practicable, to its natural state. Land use will be the same as before mining with the same production with regard to grazing by livestock. 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.

6.3. Confirmation of consultation

A copy of the consultation report that includes environmental objectives in relation to closure was made available to the landowner and all other interested parties for comment. All comments received were addressed in this EMPR.

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

7.1. Identification of interested and affected parties.

The only interested and affected party is deemed to be the landowner, the local authority and the community of Olifantshoek.

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

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

The consultation report and a copy of the draft EMP were made available to all interested and affected parties.

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

The landowners and local authority are deemed the only affected party and consultation has taken place by means of registered letters and/or personal communication. The community of Olifantshoek were also consulted by means of an advertisement in the local press

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

No views or comment received

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

No views or comment received

7.2.5. Other concerns raised by the aforesaid parties.

No views or comment received

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

The consultation report together with copies of the communication with interested and affected parties were uploaded on the SAMRAD system as part of this application.

7.2.7. Information regarding objections received.

No objections against the proposed mining operation that need to be dealt with by the REMDEC committee were received. All comments received were addressed as part of the EMP.

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

No objections or issues raised against the proposed mining operation received.

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

8.1. Employee communication process

General environmental awareness will be fostered among the project's workforce to encourage the implementation of environmentally sound practices throughout its duration. This will ensures that environmental accidents are minimized and environmental compliance maximized.
Environmental awareness will be fostered in the following manner:

a) Induction course for all workers on site, before commencing work on site.
b) Refresher courses as and when required
c) Daily toolbox talks at the start of each day with all workers coming on site, where workers can be alerted to particular environmental concerns associated with their tasks for that day or the area/habitat in which they are working.
d) Taking part in national and international environmental campaigns like National Marine Week, National arbour day, National Wetlands day exacta.
e) Displaying of information posters and other environmental awareness material in the general assembly points.

8.2. Description of solutions to risks

Specific environmental awareness performance criteria will form part of the job descriptions of employees, to ensure diligence and full responsibility at all levels of the organisational work force.
General environmental awareness will be fostered among the project's workforce to encourage the implementation of environmentally sound practices throughout its duration. This will ensures that environmental accidents are minimized and environmental compliance maximized.

8.3. Environmental awareness training.

The goal of training is to enable a shared understanding and common vision of the environment, the impact of a mining operation on the environment (and why this is important) and the role of mining personnel in terms of environmental management and compliance.
The induction course will compose of the following steps:

- The first step will include background discussion of the environment concept: of what it comprises and how we interact with it.
- The second step will be a description of the components and phases of the specific mining operation.
- The third step will be a general account of how the mining operation and its associated activities can affects the environment, giving rise to what we call Environmental Impacts.
- The fourth and most important step will be a discussion of what staff can do in order to help prevent the negative environmental impacts from degrading our environment. This is known as Environmental Impact Management.

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.

Refer to section 4 that covers regulation 52 (2) (d) that handles with financial provision.

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

This amount was provided for in the cost estimate of the financial and technical competence template submitted as part of the application for a mining permit and proof of access to the necessary funds were supplied with the application. A bank guarantee for the amount necessary for rehabilitation of environmental damage will be provided to DMR on request.

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	**Martinus Hendrik Spangenberg**
Identity Number	**8111205229088**

-END-