mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

BASIC ASSESSMENT REPORT

AND

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

SUBMITTED FOR ENVIRONMENTAL AUTHORIZATIONS IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 AND THE NATIONAL ENVIRONMENTAL MANAGEMENT WASTE ACT, 2008 IN RESPECT OF LISTED ACTIVITES THAT HAVE BEEN TRIGGERED BY APPLICATIONS IN TERMS OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (MPRDA) (AS AMMENDED)

NAME OF APPLICANT:	**PITSO 7STAR SAND EN KLIP (PTY) LTD**
TEL NO:	**072 259 0605**
FAX NO:	**086 503 6494**
POSTAL ADDRESS:	**13 VAN REENEN STREET, KROONHEUVEL, KROONSTAD, 9599**
PHYSICAL ADDRESS:	**13 VAN REENEN STREET, KROONHEUVEL, KROONSTAD, 9599**
FILE REFERENCE NUMBER SAMRAD:	**FS 30/5/1/3/2/10224 MP**

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1. IMPORTANT NOTICE:

In terms of the Mineral and petroleum Resources Development Act (Act 28 of 2002 as amended), the Minister must grant a prospecting or mining right if among others the mining "will not result in unacceptable pollution, ecological degradation or damage to the environment".

Unless and Environmental Authorization can be granted following the evaluation of an Environmental Impact Assessment and an Environmental Management Programme report in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA), it cannot be concluded that the said activities will not result in unacceptable pollution, ecological degradation or damage to the environment.

In terms of section 16(3)(b) of the EIA Regulations, 2014, any report submitted as part of an application must be prepared in terms of section 17(1)(c) the competent Authority must check whether the application has taken into account any minimum requirements applicable or instructions or guidance provided by the competent authority to the submission of application.

It is therefore an instruction that the prescribed reports required in respect of applications for an environmental authorization for listed activities triggered by an application for a right or a permit are submitted in the exact format of, and provide all the information required in terms of, this template. Furthermore please be advised that failure to submit the information required in the format provided in this template will be regarded as a failure to meet the requirements of the Regulation and will lead to the Environmental Authorization being refused.

It is furthermore an instruction that the Environmental Assessment Practitioner must process and interpret his/her research and analysis and use the findings gathered to compile the information required herein. (Unprocessed supporting information may be attached as appendices). The EAP must ensure that the information required is placed correctly in the relevant sections of the Report, in the order, and under the provided headings as set out below, and ensure that the report is not cluttered with un-interpreted information and that it unambiguously represents the interpretation the applicant.

2. OBJECTIVE OF THE BASIC ASSESSMENT PROCESS

The objective of the basic assessment process is to, through a consultative process –

(a) Determine the policy and legislative content within which the proposed activity is located and how the activity complies with the responds to the place and legislative context;

(b) identify the alternatives considered , including the activity, location, and technology alternatives;

(c) describe the need and desirability of the proposed alternatives,

(d) through the undertaking of an impact and risk assessment process inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on these aspects to determine

  (i) the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and

  (ii) the degree to which these impacts –
  (aa) can be reversed

  (bb) may cause irreplaceable loss of resources; and

  (cc) can be managed, avoided or mitigated;

(e) through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to –

  (i) identify and motivate a preferred site, activity and technology alternative;

  (ii) identify suitable measures to manage, avoid or mitigate identified impacts; and

  (iii) identify residual risks that need to be manage and monitored.

PART A

SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

1. Contact person and correspondence address

1.1 Details of

1.1.1 Details of the EAP

Name of the Practitioner: Lindie Wiehahn
Tel no: 053 831 7634
Fax No: 086 606 6315
e-mail address: lindie@liwico.co.za

1.1.2 Expertise of the EAP

1.1.2.1 The qualification of the EAP

Current qualifications in this field were obtained through short courses at the University of Potchefstroom, which is the following:

- Introduction to Environmental Management (2002)
- Environmental Impact Assessment (2002)
- The Legal Framework for Managing Water in South Africa (2002)

1.1.2.2 Summary of the EAP's past experience.

(In carrying oath the Environmental impact Assessment Procedure)

During the year 2002 Lindie assisted with two Environmental Impact Assessments for a Golf Course development in Modder Rivier (today known as the Magersfontein Memorial Golf Course) and a Cottage development on the farm Avoca in the Douglas district. Later the same year she successfully completed her first sole Environmental Impact Assessment for the development of a filling station on the N12 at Warrenton.

Lindie was employed since then as an Environmental Consultant. Experiences obtained during these years were the drafting of Environmental Management Programmes, Environmental Management Programme Reports, Environmental Monitoring and Compliance Reports and Environmental Risk Reports. She also conducted several Environmental Impact Assessments for Mining Rights on La Reysstryd 53 IO, Lichtenburg (2004), Longlands, Barkly West (2004) and Lohatlha 673, Postmasburg (2009, 2011) and on the farm Groot Derm 10, Alexanderbay (2012).

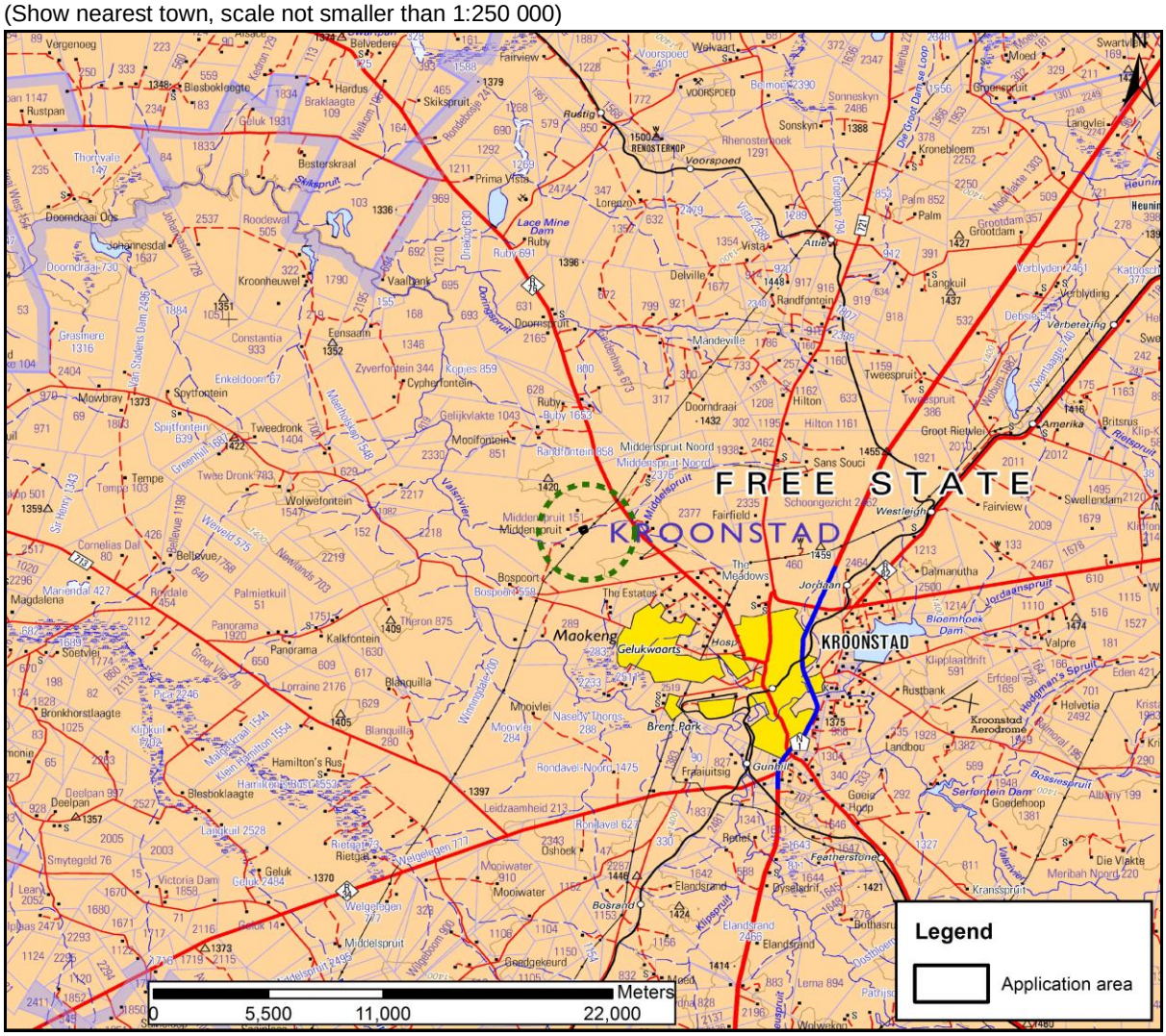
The latest EIA conducted under the new DMR and NEMA regulations is Roodepan 70 (2015) and Kafferspan 273 (2017)

2. Location of the overall Activity

Farm Name	A portion of the Remainder of the farm Bospoort 558
Application area (Ha)	4.9554 ha (Four comma nine five five four hectares)
Magisterial district:	Kroonstad
Distance and direction from nearest town	The application area is situated 16.2 km west of Kroonstad and 67.8 km south east of Bothaville.
21 digit Surveyor General Code for each farm portion	F02000000000055800000

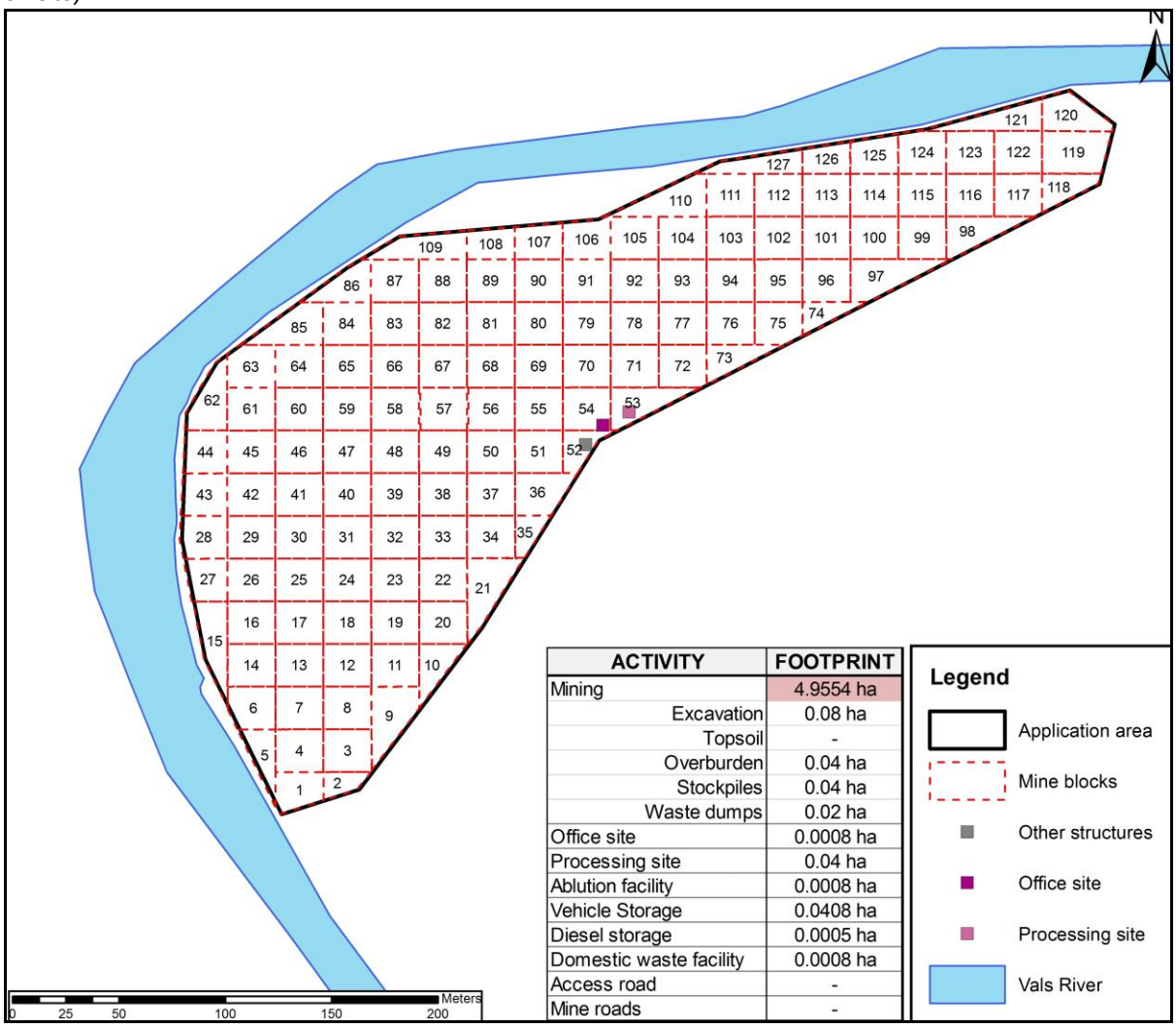
3. Locality map

(Show nearest town, scale not smaller than 1:250 000)



4. Description of the scope of the proposed overall activity

(Provide a plan drawn to a scale acceptable to the competent authority but not less than 1:10 000 that shows the location, and area (hectares) of all the aforesaid main and listed activities, and infrastructure to be placed on site)



ACTIVITY	FOOTPRINT
Mining	4.9554 ha
Excavation	0.08 ha
Topsoil	-
Overburden	0.04 ha
Stockpiles	0.04 ha
Waste dumps	0.02 ha
Office site	0.0008 ha
Processing site	0.04 ha
Ablution facility	0.0008 ha
Vehicle Storage	0.0408 ha
Diesel storage	0.0005 ha
Domestic waste facility	0.0008 ha
Access road	-
Mine roads	-

4.1 Listed and specified activities

NAME OF ACTIVITY **(E.g. For prospecting –** drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route **etc … etc … etc** **E.g. For mining –** excavations, blasting, stockpiles, discard dumps or dams, loading, hauling and transport, water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors **etc … etc … etc.)**	ARIAL EXTENT OF THE ACTIVITY HA OR M²	LISTED ACTIVITY **Mark with an X where applicable or affected.**	APPLICABLE LISTING NOTCE **(GNR 544, GNR 545 or GNR 546)**
Excavation	0.08 ha	X	GNR 327, Listed 1, Activity 21
Topsoil	0.04 ha	X	GNR 327, Listed 1, Activity 21
Overburden	0.04 ha	X	GNR 327, Listed 1, Activity 21
Stock piles	0.04 ha	X	GNR 327, Listed 1, Activity 21
Waste dumps	0.04 ha	X	GNR 327, Listed 1, Activity 21
Office site	0.0008 ha	X	GNR 327, Listed 1, Activity 21
Processing site	0.04 ha	X	GNR 327, Listed 1, Activity 21
Ablution Facility	0.0008 ha	X	GNR 327, Listed 1, Activity 21
Vehicle storage	0.0408 ha	X	GNR 327, Listed 1, Activity 21
Chemical storage	0.0025 ha	X	GNR 327, Listed 1, Activity 21
Diesel storage	0.0005 ha	X	GNR 327, Listed 1, Activity 21
Domestic waste facility	0.0008 ha	X	GNR 327, Listed 1, Activity 21
Access road	0.2 ha	X	GNR 327, Listed 1, Activity 21
Mine road		X	GNR 327, Listed 1, Activity 21

4.2 Description of the activities to be undertaken

(Describe Methodology or technology to be employed, including the type of commodity to be prospected / mined and for a linear activity, a description of the route of the activity)

- Construction

  During the construction for the mining operations will an area of ± 30 x 30 m (862 m^2) cleared for the processing, storage and office sites. This site will also be clearly demarcated as well as the different structures.

  Attached to this document within the proposed prospecting plan/site the location of such structures is indicated, but the actual location of such structures can only be determined once the right has been issued and an in-depth environmental study conducted to ensure the least environmental damage possible.

- Operational

  During the operation phase will mining activities occur in a block format as far as possible with rehabilitation forming and integral part of the operations. Each block is estimated to have a dimension of 20 x 20 meters. The sand material removed will be screened to acceptable sizes and sold. The following methodology process will be implemented to ensure cost effective mining activities as well as successful rehabilitation:

  - The sand material will be removed and screened. The sand is stockpiled in their different sizes.

  - Waste dust material is discarded back into the excavations and sloped to the acceptable standard of 45° or less.

  - After backfilling of the waste material the overburden and topsoil is spread over the area to finalize rehabilitation

  - Continuous inspections to the rehabilitated area will be conducted to monitor the re-vegetation rate as well as to remove all invader/pioneer plant species that may also establish themselves in the area.

- Decommissioning

  Once the mining activities have been completed the mine will start with the decommissioning and closure phase. During such will all infrastructure and equipment be removed and the compacted ground ripped and rehabilitated. Also will all the mine roads and trampled areas be ripped, rehabilitated and inspected for vegetation re-growth.

5. Policy and Legislative Context

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (a description of the policy and legislative contect within which the development is proposed including an identification of all legislation, policies, plants, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process)	**REFERENCE WHERE APPLIED**	**HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLTATION AND POLICY CONTEXT.** (E.g. In terms of the National Water Act a Water Use License has / has not been applied for)
No person may … mine … for and produce any mineral .. or commence with any work indidental thereto on any area without – a ….mining permit…	Section 5 (4)(b) of Act 28 of 2002 (MPRDA, 2002 read together with Section 5A (b) of Act 49 of 2008 (MPRDA, 2008)	An application has been lodged with the Department of Mineral Resources.
No person may … mine … for and produce any mineral … or commence with any work incidental thereto on any area without – an approved environmental management programme or approved environmental management plan, …	Section 5 (4)(a) of Act 28 of 2002 (MPRDA, 2002)	This document serves as the Basic Environmental Assessment and Environmental Management Programme
An environmental impact assessment report must contain all information that is necessary for the competent authority to consider the application and to reach a decision contemplated in regulation 35, an must include - …	Regulation 31(2) of Act 107 of 1998 (NEMA, 1998)	These guidelines and provided template is used in conducting this assessment.
Waste resulting from … mining … and physical .. treatment of minerals	Section 18 (Category A) of Act 26 of 2014 (NEMWA, 2014)	In te process of conduction the Basic Environmental Assessment and Environmental Management Programme

6. Need and desirability of the proposed activities

(Motivate the need and desirability of the proposed development including the need and desirability of the activity in the context of the preferred location).

The proposed project is situated approximately 16.2 km west of Kroonstad in the bend of the Vals River and includes an un-rehabilitated previously mined area, which needs to be rehabilitated properly, but the geological indicated sand body that can be used.

The Kroonstad community is known for their poverty. The development of a mine will aid in job creation for local people. The mine further will aid in an income influx for both employees as well as local businesses aiding in an economic growth within the area.

7. Motivation for the overall preferred site, activities and technology alternative

The proposed project area is demarcated to include the sand body as well as enough space for the construction of the offices and processing plan outside the 100m floodline. Although the river gorge is so deep that when the river is in flood, it is not foreseen that the water will reach the top banks and flood into the indicated 100 year flood line. An alternative office and/or plant site will result in the transportation of dump material creating more noise disturbance and possible air quality loss.

The activities and technology used is planned and designed to created and cause the minimal disturbance possible. Working hours is also kept within standard office hours for the purpose of minimizing noise disturbance.

No other alternatives in regard to preferred site, activities and technology is considered as the current planning is be best possible option at this stage to ensure minimal environmental disturbance and cost effective mining operations.

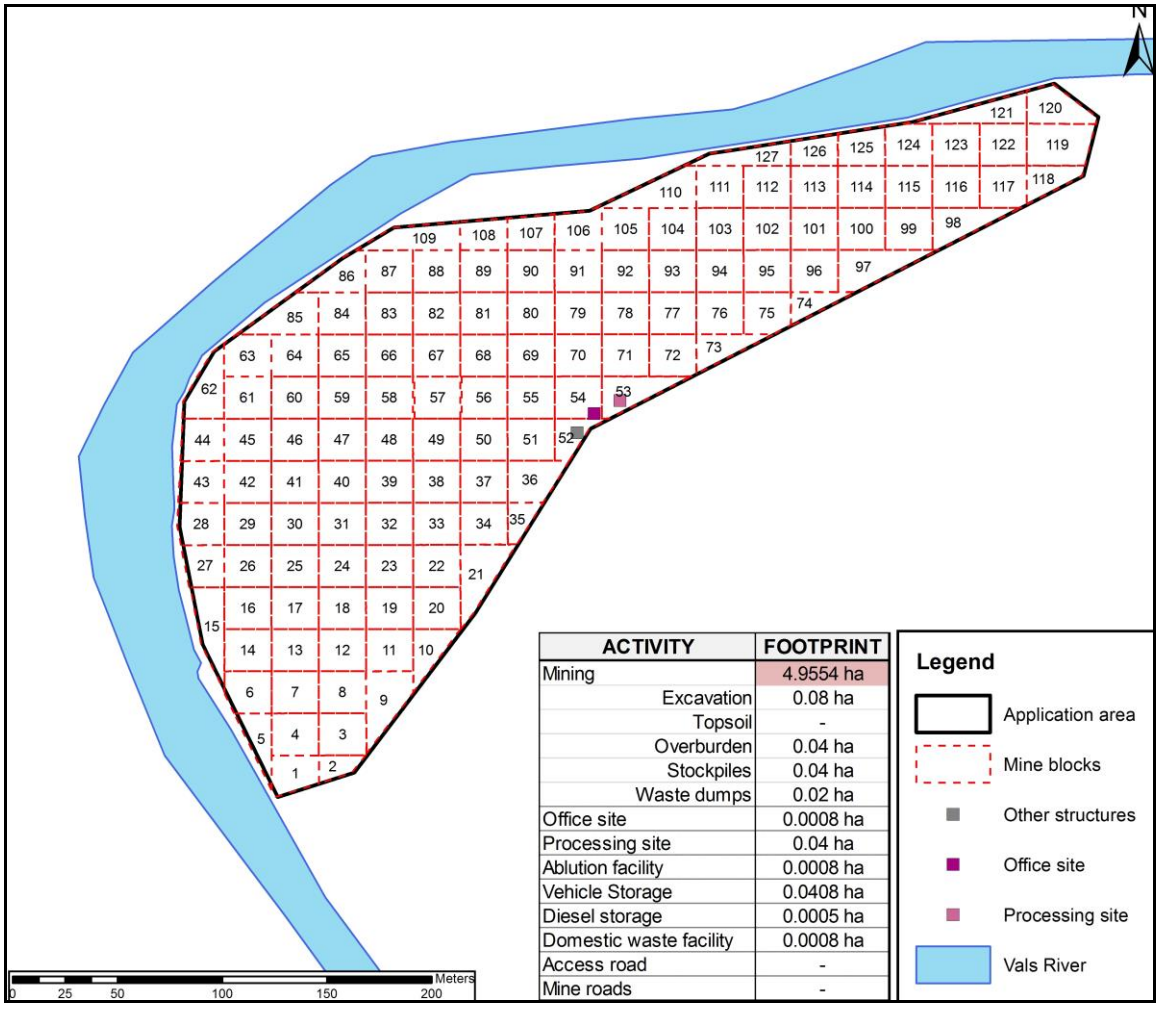
8. Full description of the process followed to reach the proposed preferred alternatives within the site

NB!! – This section is about the determination of the specific site layout and the location of infrastructure and activities on site, having taken into consideration the issues raised by interested and affected parties and the consideration of alternatives to the initially proposed site layout.

8.1 Details of the development footprint alternatives considered

With reference to the site plan provided and the location of the individual activities on site, provide details of the alternatives considered with respect to:

8.1.1 the property on which or location where it is proposed to undertake the activity
8.1.2 the type of activity to be undertaken
8.1.3 the design or layout of the activity
8.1.4 the technology to be used in the activity
8.1.5 the operational aspects of the activity; and
8.1.6 the option of not implementing the activity



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Domestic waste facility	0.0008 ha
Access road	-
Mine roads	-

All of the following mining and mining related activities will occur and have its specified footprint within the project area as applied for at the Department of Mineral Resources.

Details and more accurate plans will be submitted to all relevant Departments before commencement or construction of any of the activities described below.

- Excavations
  - One block of 20 x 20 m is proposed situated over the sand body.
  - The technology used in this activity will be an excavator, and dumper truck to transport the excavated material from the excavation to the plant site.
  - Sand material is excavated for selling purposes. The topsoil and overburden is removed where necessary and stored near the excavation for easier rehabilitation activities. The sand is excavated and transported to the processing site for processing.
  - This activity is necessary to extract the commodity for processing. This activity is the most critical part of the proposed mining activities and therefore the option of not implementing the activity cannot be considered.
- Topsoil and overburden dumps
  - All topsoil and overburden material removed is stored in close proximity of the excavation for rehabilitation purposes.
  - No technology will be used in this activity other than dumper trucks transporting the material from the excavation and back during rehabilitation
  - If this activity is not implemented the excavation activities cannot continue and/or rehabilitation activities haltered. For this reason the option of not implementing the activity cannot be considered.
- Stockpiles
  - All sand material removed and screened will be stockpiled for the selling thereof.
  - No technology will be used in this activity other than dumper trucks transporting the material to the stockpile.
  - If this activity is not implemented mining activities cannot continue fluently affecting the cost effectiveness of the mining operations. For this reason the option of not implementing the activity cannot be considered.
- Waste dumps
  - Waste material will be hauled from the various mining processes and stored separate from the stock dumps, but sill in the same region. The specific design of this activity is dependent on the amount of waste material generated during the activities.
  - No technology will be used within this activity and this is only the storing of waste material.

- The operational aspects of the activity is the storing of waste untill the removal thereof, for use in mining related features or rehabilitation of excavated areas.

- The option of not implementing the activity is ruled out by the fact that waste material is a by-product of any mining activity and must be stored till usage or rehabilitation of the mined areas.

- Office site
  - The office block will be installed and have an approximate footprint of 0.0008 ha. This site will house several units including general office, mine health and safety office and fist aid room.

  - The office site will be mobile offices / Wendy house fitted with relevant equipment/furniture for its specific task.

  - All administrative activities, storing of files, mine financials and discussions will be occurring within this facility.

  - Acquiring office buildings within the town is an option, but not the best option to implement. Regulation of the mining activities will be very difficult and driving back and forth from the town to the mine will be very time consuming, not cost effective and certainly decrease productiveness within the working environment.

    The best option is to keep the offices within the mine premises for proper managing, activity regulation, accident and damage control as well as optimizing productivity.

- Processing site
  - The processing plant site (approximately 0.04 ha in footprint) shall not be formally demarcated but demarcated with berms to indicate the allowed area for movement. Equipment used within this site will be installed in an almost inline manner for sufficient and effective mineral processing operations.

  - The technology used for the mineral processing area: Vibrating screens and Conveyors.

  - The excavated material is loaded into a feeder bin, which feeds the vibrating screens. All screened materials are stockpiled in their different categories for trading purposes.

  - The option of not implementing this activity is regarded as a no-go as this activity is one of the cores processes in any sand mining operation.

- Ablution facility
  - Two chemical toilet facilities (with a total footprint of approximately 0.0008 ha), separating male and female employees, will be installed on site.

- Contractual agreements will be made and basic flushing chemical toilets installed. Within the female facility will sanity bins be provided for their specific needs and emptied on a daily bases.

- These facilities are to support the sanitation protocol of the mine. These facilities will be readily available for personal use as needed.

- The implementation of this structure and related activities is absolutely compulsive and enforced by the Basic Conditions of Employment Amendment Act, 2013 (Act 20 of 2013) in conjunction with the Basic Conditions of Employment Act, 1997 (Act 75 of 1997), Basic Conditions of Employment Amendment Act, 2002 (Act 68 of 2002) and Basic Conditions of Employment Amendment Act, 2003 (Act 52 of 2003)

- Vehicle storage
  - The parking area (approximately 0.0408 ha) will be situated next to the office block and storage area. The area will be also cleared of all vegetation, leveled and parking zones demarcated either with berms or waste rock.

  - Drip pans will also be readily available for vehicles during off-time. No other technologies will be used during this activity

  - The parking area will be sectioned and demarcated for the various activities. All mine vehicles, visitors' vehicles, employee vehicles and heavy vehicles will be parked in this area within their different sections. All vehicles will however be required to adhere to the reversed parking policy for the safety of all vehicles in the case of an emergency.

  - Should this activity not be implemented pollution and chemical spill control cannot be optimally managed as well as the informal parking of other normal vehicles can lead to difficult driving environment for heavy vehicles. For this reason and legislative requirements this activity cannot be excluded as a mining related activity and thus planned to be implemented during the construction phase of the mining activities.

- Chemical storage
  - The storage facilities (approximate footprint of 0.0025 ha) are situated at the administrative portion of the mine. This is to ensure access control and regulation of chemical handling. The facility should be well ventilated construction with the ability to be locked.

  - Ventilation in this facility will be ensured through adequate roof ventilation systems. The structure itself will also be in the form of a mobile container.

  - This facility's main function is for the storing and controlling of legislative regulated and/or non-legislative regulated chemicals. The different types of chemicals must be stored separately as well as a differentiation between used and un-used chemicals should be made. Containers can also be place within this storage facility for the storage of used mechanical parts till the removal thereof.

Once the use chemical containers are approximately 80% full the relevant agencies will be contacted for handling and correct removal of such chemicals.

- The option of not implementing the activity is legislatively ruled out by specific regulations within the Mineral and Petroleum Resources Development Act and National Environmental Management Act regarding the storing of environmental hazardous chemicals.

- Diesel Storage
  - One diesel tank with an approximate footprint of 0.0005 ha will be installed at the vehicle parking site. This area shall be installed with all relevant danger signs.

  - The technology used shall be of the highest standards provided by the contracting diesel/fuel agency. The actual volume of the tank is currently unknown, but it is compulsive that the mine is supplied with a diesel tank already equipped with a leak-proof bay to prevent any ground contamination should the tank be leaking by fault or bursting.

  - Diesel will be kept within these containers for refueling purposes during the mining activities. The contracting agency will be refilling these tanks on a regular basis and only then will be tank be inspected and maintenance procedures carried out.

    Machinery will be parked on a cement slap net to the tank for re-fuelling activities. This cement slap shall be contracted at a gradient with a run-off channel leading to a sump for impact prevention should any accidental spillage occur. The sump will also be cleaned and maintained on a regular basis by the contracting agency.

  - Taking the proximity of the town into consideration the option on not implementing the activity was considered but after careful consideration regarded as a no-go option.

- Domestic waste facility
  - The domestic waste facility (approximate footprint of 0.0008 ha) will be installed at the office sites.

  - The technology used shall be of local municipal standard including a tip-proof and scavenger proof bin. Agreements with the local municipality will signed for the removal of waste on their schedule.

  - All domestic waste on site will be placed within these bins to keep the area clean and litter free.

  - The option of not implementing the activity can be taken into consideration and should the activity not be implemented a greater risk of littering results.

- Access and mine roads
  - The location and amount of roads will be finalized during the final mine planning and construction phase.

  - No foreign materials will be used in the construction of these roads. The roads will be scraped to specific measures and maintained on a regular basis. During maintenance may the roads be sprayed with a non-polluting substance mixed in water to chemically bound dust particles to aid in dust reduction and even in some cases prevention.

  - The roads will be mainly used for mine traffic such as hauling of materials to different sites and employee travelling.

  - Should the roads not be implemented and vehicles are allowed to travel how they please trampling of vegetation is a given factor leading to greater environmental degradation that the construction of these roads. For this reason the option of not implementing activity is ruled out in order to protect the surrounding environment as far as possible.

8.2 Details of the Public Participation Process followed

(Describe the process undertaken to consult interested and affected parties including public meeting and one on one consultation. NB! the affected parties must be specifically consulted regardless of whether or not they attended public meeting. (Information to be provided to affected parties must include sufficient detail to the intended operation to enable them to assess what impact the activities will have on them or on the use of their land.))

Letters sent to the various parties included a notification letter informing the recipient of the application for a Mining Permit that has been accepted by the Department of Mineral Resources on the property. This letter further invited the receiver of the letter to register as such and provide feedback on/or before a specific date. With the letter the recipient also received a feedback form as well as a background document explaining the type of prospecting activities to be undertaken as well as the process that will be followed.

Public individuals were also notified, though the newspaper advertisements to register as an interested and/or affected party. All documents will then be sent to the individual for feedback.

The notified Interested and Affected parties have a 30 day period to register and deliver information, comments and issues to the consultant in writing. All letters will be answered. The supplied information, where applicable, will be used when compiling the Basic Environmental Assessment Report / Environmental Management Programme Report. The land owners were also invited to contact the Consultant for a meeting date for personal consultation and to visit the area under application.

The Basic Environmental Assessment Reports / Environmental Management Programme Report will also be subjected to a 30 day consultation period once submitted to the Department of Mineral Resources. Comments and feedback will be noted and submitted.

8.3 Summary of issues raised by I&AP's

(Complete the table summarizing comments and issues raised and reaction to those responses)

INTERESTED AND AFFECTED PARTIES List the names of persons consulted in this column, and mark with an **X** where those who must be consulted were in fact consulted		**DATE COMMENTS RECEIVED**	**ISSUES RAISED**	**EAP's RESPONSE TO ISSUES AS MANDATED BY THE APPLICANT**	**SECTION AND PARAGRAPH REFENCE** in this report where the issues and or response were incorporated
AFFECTED PARTIES					
Landowner/s					
Mr W Coetzee (Grasveld Boerdery Trust)	X	-	-	-	
Lawful occupiers/s of the land					
Landowners or lawful occupiers on adjacent properties					
Municipal councilor					
Municipality					
Maqhaka Local Municipality	**X**	**-**	**-**	**-**	**-**
Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA))					
Department Water and Sanitation	X	-	-	-	-
Dept Agriculture, Fisheries and Forestry	X	-	-	-	-
Communities					

Dept Land Affairs	X	-	-	-	-
Traditional Leaders					
Dept Environmental Affairs	X		-	-	
Other Competent Authorities affected					
South African Heritage Resource Agency	**X**	**-**	**-**	**-**	**-**
OTHER AFFECTED PARTIES					
INTERESTED PARTIES					

8.4 The Environmental attributes associated with the alternatives

(The environmental attributed described must include socio-economic, social, heritage, cultural geographical, physical and biological aspects)

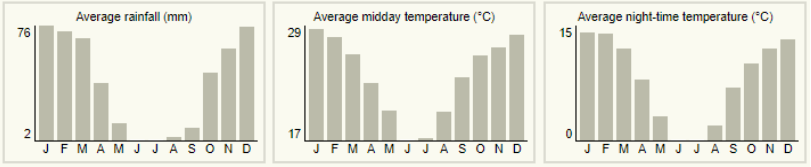
8.4.1 Baseline Environment

8.4.1.1 Type of environment affected by the proposed activity

(its current geographical, physical, biological, socio-economic and cultural character).

- Geographical environment:
  - Geographical location: The application area is situated on the Remainder of the farm Bospoort 558 and is approximately 16,2 km west from Kroonstad and 67.3 km south east from Bothaville..

  - Climate and rainfall: Kroonstad normally receives about 468mm of rain per year, with most rainfall occuring mainly during mid summer. The chart below (lower left) shows the average rainfall values for Kroonstad per month. It receives the lowest rainfall (2mm) in June and the highest (76mm) in January. The monthly distribution of average daily maximum temperatures (centre chart below) shows that the average midday temperatures for Kroonstad range from 17°C in June to 28.7°C in January. The region is the coldest during June when the mercury drops to 0°C on average during the night. Consult the chart below (lower right) for an indication of the monthly variation of average minimum daily temperatures.



- Geology and soils: The soil is mostly deep, red to yellow, apedal, Aeolian sand, and often covering limestone.

- Physical environment: The surrounding area itself is relatively flat with streams flowing towards the Vals River while the application area is an un-rehabilitated mine area, in the bend of the river.

- Biological environment:
  - Fauna: The only species observed from time to time is nocturnal consisting of several rodent species..

  - Flora: The area falls within the Dry Sandy Highveld Grassland. Biome dominated by grassland with a few sweet Thorn *Vachellia karroo* trees occurring only occasionally along water courses. Diagnostic grasses include the grasses Lehmann's Lovegrass *Eragrostis lehmanniana,E. obtuse,* Small Buffalograss *Panicum coloratum* and *Stipagrostis uniplumis,* and the karroid dwarf shrub, Bitterkaroo *Pentzia globosa*. Other prominent grass species include Redgrass *Themeda triandra*, Weeping Lovegrass *Eragrostis curvula*, Hairy Lovegrass *E.trichophora, Anthephora pubescens,Aristita congesta, Digitaria eriantha* and *Cynodon dactylon.* A large variety of dicotyledonous forbs are also present, including *Chamaecrista mimosoides,* Poison Apple *Solanum panduriforme,* Tummy Bitterroot *Dicoma anomala, Helichrysum callicomum, H. cerastioides, Kyphocarpa angustifolia, Leucas capensis, Gnidia capitata, Blepharis angusta, Anthospermum hispidulum* and *Acalypha angustata.* West of Bloemfontein, affinity to Karoo vegetation can be seen in plant communities dominated by dwarf shrubs, including Fringed Karee *Rhus ciliate,* Anchorkaroo *Pentzia incana,* Bitterbush *Chrysocoma ciliate, Helichrysum pentzioides, Salsola kali, Felicia muricata, Walafrida densilflora, W. saxatilis* and *Nenax microphylla*

- Heritage environment: the heritage environment is non-existing as the area is already disturbed by previous mining and left un-rehabilitated.

- Socio-economic environment: Current Socio-economic conditions are those of self-sustaining farmers.

  Job opportunities are sparse within the town and region leaving many individuals unemployed without an income to support his/her family even a basic survival level. Due to this, crime levels increased within the community and Kroonstad town itself in the attempt for individuals to acquire money and goods for survival.

- Cultural environment: The cultural environment is that of normal farming activities.

8.4.1.2 Description of the current land uses

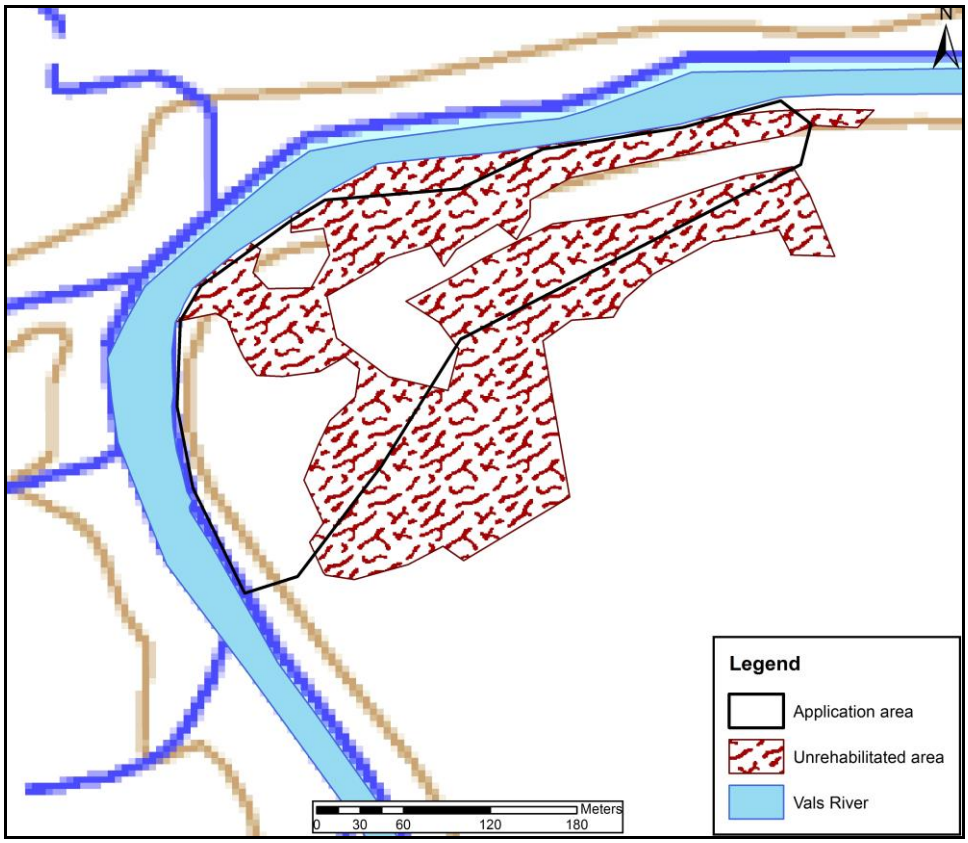
Currently the surrounding land is used for agricultural farming and livestock grazing while the application area was used for sand mining and left unrehabilitated.

8.4.1.3 Description of specific environmental features and infrastructure on the site

No specific environmental features exist within the proposed project area, which is situated within the bend of the Vals River that forms the northern border of the project area.

Environmental and current land use map

(Show all environmental and current land use features)



8.5 Impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts may occur

(Provide a list of the potential impacts identified of the activities described in the initial site layout that will be undertaken, as informed by both the typical known impacts of such activities, and as informed by the consultations with affected parties together with the significance, probability and duration of the impacts. Please indicate the extent to which they can be reversed, the extent to which they may cause irreplaceable loss of resources, and can be avoided, managed or mitigated)

ACTIVITY	DESCRIPTION	Se	D	SP	C	P	Si
1. CONSTRUCTION PHASE IMPACTS							
Road construction	Loss of vegetation + habitat	L	L	L	L	L	L
Escom line	Loss of vegetation + habitat	NOT APPLICABLE					
Plant construction	Loss of vegetation + habitat	L	L	L	L	L	L
Pipeline installation	Loss of vegetation + habitat	NOT APPLICABLE					
Offices	Loss of vegetation + habitat	L	L	L	L	L	L
2. OPERATIONAL PHASE IMPACTS							
Mining	Geological degradation	L	L	L	L	H	H
Disposal	Topographic change - dump	L	L	L	L	L	L
Mining	Topographic change - pit	L	L	L	L	L	L
Mining	Soil pollution - accidental spills and leakages	L	L	L	H	M	M
Operation	Soil pollution (w orkshop, store, parking)	L	L	L	H	M	M
Operation	Loss of grazing	L	L	L	L	L	L
Operation	Loss of/ disturbance to plants	L	L	L	L	L	L
Extraction of groundw ater	Depressed w ater table	NOT APPLICABLE					
Operation	Problem plant invasion	L	L	L	L	L	L
Operation	Effect on animals	L	L	L	L	L	L
*Waste w ater disposal	Water regime (regional)	NOT APPLICABLE					
Mining	Noise (earth moving equipment and crushers)	L	L	L	L	L	L
Operation	Air quality: Dust - Transport	L	L	L	L	L	L
Operation	Air quality: Dust - Screen	L	L	L	L	L	L
Mining	Noise - blasting nuisance - regional	NOT APPLICABLE					
Mining	Noise - blasting nuisance -personnel	NOT APPLICABLE					
Mining, operation	Loss of archaeological items	L	L	L	L	L	L
Operation	Sensitive landscapes	L	L	L	L	L	L
Mining	Visual impact	L	L	L	L	L	L
3. DECOMMISSIONING PHASE IMPACTS							
Demolition	Waste disposal	POSITIVE					
Rehabilitation	Re-vegetation	POSITIVE					
4. RESIDUAL IMPACTS AFTER CLOSURE							
Vacated site	Rehabilitation of exposed areas	POSITIVE					
Vacated site	Safety risks	POSITIVE					

8.6 Methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks

(Describe how the significance, probability and duration of the aforesaid identified impacts that were identified through the consultation process were determined in order to decide the extent to which the initial site layout needs revision).

The environmental evaluation is done with the assumption that all mitigatory measures and rehabilitation plans have been adhered to (Hacking, 1999).

The preceding list of identified impacts is evaluated hereunder in terms of the following criteria:

SEVERITY

- *Low negative impact* (indicates a state of 'calmness' concluding that the effect the operations may have on the environment is so insignificant that the wellbeing of the environment or any individual will not be degraded or prohibited.)

- *Medium negative impact* (describes as state of 'manageable stress', giving the idea of that the effect of the operations on the environment is significant enough to cause tolerable disturbance to the wellbeing or overall conditions of the environment or any individual.)

- *High negative impact* (indicating a state of 'high stress', meaning that the effect of the operations on the environment is so significant that the wellbeing and overall conditions of the environment or any individual will be degraded or prohibited.)

DURATION

- *Short-term* (short-term duration is rated as a period less than two years and indicated as a low impact.)

- *Medium-term* (medium-term impact is rated as the period between 2 and 5 years and indicated as a medium impact.)

- *Long-term* (long term impact is rated as the any period exceeding 5 years and indicated as a high impact.)

SPATIAL SCALE

- *Localized* (the disturbance occurs within a radius of 500 m from point of existence and indicated as low impact)

- *Fairly widespread* (the disturbance is carried over a short distance, between 500 m and 1 km radius from point of existence and indicated as medium impact)

- *Widespread* (disturbance exercise a negative affect over an area greater than 1 km radius from point of existence and indicated as high impact.)

CONSEQUENCE - *Low consequence* (meaning that the probability of cumulative impact occurrence is minimal with little to no lasting effects and is indicated as low impact)

- *Medium consequence* (meaning that the probability of cumulative impact occurring exists with a moderate, short-term lasting effect and is indicated as medium impact.)

- *High consequence* (meaning that the probability of cumulative impact occurrence is absolute with a short to medium-term lasting effect and indicated as high impact)

SIGNIFICANCE - *Low overall significance* (the disturbance caused by the impact is minimal with an excellent probability for total recovery after operations ceased.)

- *Medium overall significance* (the disturbance caused by the impact is moderate with a good chance for total recovery over an intermediate period after operations ceased.)

- *High overall significance* (the disturbance caused by the impact is severe with a poor to no probability for recovery after operations ceased.).

LEGEND FOR TABLES

Se	-	Severity	D	-	Duration
SP	-	Spatial Scale	P	-	Probability
Si	-	Significance	L	-	Low negative impact
H	-	High negative impact	M	-	Medium negative impact

8.7 The positive and negative impacts that the proposed activity (in terms of the initial site layout) and alternatives will have on the environment and the community that may be affected.

(Provide a discussion in terms of advantages and disadvantages of the initial site layout compered to alternative layout options to accommodate concerns raised by affected parties)

The proposed mining operations and current proposed site plan shows to have an overall low negative impact. Any alterations to the site layout or mining and mining related activities will not result in a lesser significant impact on the environment, but rather add to it.

8.8 The possible mitigation measures that could be applied and the level of risk

(With regard to the issues and concerns raised by affected parties proved a list of the issued raised and an assessment / discussion of the mitigations or site layout alternatives available to accommodate or address their concerns, together with an assessment of the impacts or risks associated with the mitigation or alternatives considered)

The current site plan will be planned after consultation with the land owner taking their concerns into consideration. Dust upliftment and mine created noise might be of the two major concerns throughout the concerns raised by consulted interested and/or affected parties where mitigation measures are the dampening of the mine roads, stabilizing mine stockpiles against wind erosion and keeping activities creating undue noise to more acceptable hours will be implemented.

8.9 Motivation where no alternative sites were considered

Alteration in the mine processes and site plan were considered, but ruled out during the early stages of the planning due to the fact that they proofed not to have any lesser affect on the environment. The current site layout and mine processes proposed for this operation proof to be the best possible option and layout with the minimal negative impacts in regard to the biophysical, socio-economic and cultural environment.

8.10 Statement motivation the alternative development location within the overall site

(Provide a statement motivating the final site layout that is proposed)

As detailed in Part A Section 8.7, 8.8 and 8.9 of this document no alternative developments towards mine processes and site plan are considered and will be kept as originally proposed due to that any alterations proof not to significantly minimize impacts but may rather add to it.

9. Full description of the process undertaken to identify, assess and rank the impacts and risks the activity will impose on the preferred site (In respect of the final site layout plan) through the life of the activity

(Including (i) a description of all environmental issues and risks that were identified during the environmental impact assessment process and (ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures)

- Assessment of each identified potentially significant impact and risk

  (This section of the report must consider all the known typical impacts of each of the activities (including those that could or should have been identified by knowledgeable persons) and not only those that were raised by registered interested and affected parties.)

ACTIVITY Whether listed or not listed. (E.g. Excavations, blasting, stockpiles, discard dumps or dams, loading, hauling and transport, water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyers, etc...etc...etc.)	**POTENTIAL IMPACT** (E.g. dusts, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc...etc.)	**ASPECTS AFFECTED**	**PHASE** In which impact is anticipated. (E.g. Construction, commissioning, operational, decommissioning, closure, post-closure.)	**SIGNIFINCANCE** If not mitigated	**MITIGATION TYPE** (modify, remedy, control, or stop) Through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc...etc. E.g. Modify through alternative method. Control through noise control. Control through management and monitoring through rehabilitation....	**SIGNIFICANCE** If mitigated
Excavation	Vegetation	Loss	Construction	Low	Restriction of roads Vegetation clearing control	Low
	Geological	Degradation		Low	-	-
		Loss	Operational	Low	-	-
	Topographic	Change		Low	Rehabilitation	-
	Soil	Pollution		High	Remedy through immediate rehabilitation.	Low
	Grazing	Loss		Low	Low	Low
	Vegetation	Loss/disturbance		Low	Traffic restriction to roads Vegetation clearing control	Low
		Invader plants		Low	Remedy through removal	Low
	Water table	-		-	-	-
	Fauna	Migration		Low	-	-

	Water quality	-		-	-	-
	Noise	Alleviated levels		Low	Control through work hours	Low
	Air quality	Degradation		Low	Damping of mine roads. Speed restriction	Low
	Archaeological items	-		-	-	-
	Sensitive landscape	-		-	-	-
	Visual impact	-		Low	-	-
	Waste	Disposal	Decommissioning	Positive	-	-
	Re-vegetation	Re-growth		Positive	Regular inspection	Low
	Exposed area Rehab	Re-vegetation	After closure	Positive	-	-
	Safety risks	Waste disposal		Positive	-	-
Topsoil dump	Vegetation	Loss	Construction	Low	Vegetation clearing control	Low
	Geological	-		-	-	-
		Loss	Operational	-	-	-
	Topographic	Change		Low	-	-
	Soil	-		-	-	-
	Grazing	Loss		-	-	-
	Vegetation	Loss/disturbance		Low	Vegetation clearing control	Low
		Invader plants		Low	Regular removal	Low
	Water table	-		-	-	-
	Fauna	Migration		Low	-	-
	Water quality	-		-	-	-
	Noise	-		-	-	-
	Air quality	Degradation		Low	Protect against wind erosion	Low
	Archaeological items	-		-	-	-
	Sensitive landscape	-		-	-	-
	Visual impact	-		Low	-	-
	Waste	Disposal	Decommissioning	Positive	-	-
	Re-vegetation	Re-growth		Positive	Regular inspection	Low
	Exposed area Rehab	Re-vegetation	After closure	Positive	-	-
	Safety risks	Waste disposal		Positive	-	-

Overburden dump	Vegetation	Loss	Construction	Low	Vegetation clearing control	Low
	Geological	-		-	-	-
		Loss	Operational	-	-	-
	Topographic	Change		Low	-	-
	Soil	-		-	-	-
	Grazing	Loss		-	-	-
	Vegetation	Loss/disturbance		Low	Vegetation clearing control	Low
		Invader plants		Low	Regular removal	Low
	Water table	-		-	-	-
	Fauna	Migration		Low	-	-
	Water quality	-		-	-	-
	Noise	-		-	-	-
	Air quality	Degradation		Low	Protect against wind erosion	Low
	Archaeological items	-		-	-	-
	Sensitive landscape	-		-	-	-
	Visual impact	-		Low	-	-
	Waste	Disposal	Decommissioning	Positive	-	-
	Re-vegetation	Re-growth		Positive	Regular inspection	Low
	Exposed area Rehab	Re-vegetation	After closure	Positive	-	-
	Safety risks	Waste disposal		Positive	-	-
Stock Piles	Vegetation	Loss	Construction	Low	Vegetation clearing control	Low
	Geological	-		-	-	-
		Loss	Operational	-	-	-
	Topographic	Change		Low	-	-
	Soil	-		-	-	-
	Grazing	Loss		-	-	-
	Vegetation	Loss/disturbance		Low	Vegetation clearing control	Low
		Invader plants		Low	Regular removal	Low
	Water table	-		-	-	-
	Fauna	Migration		Low	-	-

	Water quality	-		-	-	-
	Noise	-		-	-	-
	Air quality	Degradation		Low	Protect against wind erosion	Low
	Archaeological items	-		-	-	-
	Sensitive landscape	-		-	-	-
	Visual impact	-		Low	-	-
	Waste	Disposal	Decommissioning	Positive	-	-
	Re-vegetation	Re-growth		Positive	Regular inspection	Low
	Exposed area Rehab	Re-vegetation	After closure	Positive	-	-
	Safety risks	Waste disposal		Positive	-	-
Waste Dumps	Vegetation	Loss	Construction	Low	Vegetation clearing control	Low
	Geological	-		-	-	-
		-	Operational	-	-	-
	Topographic	Change		Low	-	-
	Soil	-		-	-	-
	Grazing	Loss		-	-	-
	Vegetation	Loss/disturbance		Low	Vegetation clearing control	Low
		Invader plants		Low	Regular removal	Low
	Water table	-		-	-	-
	Fauna	Migration		Low	-	-
	Water quality	-		-	-	-
	Noise	-		-	-	-
	Air quality	-		-	-	-
	Archaeological items	-		-	-	-
	Sensitive landscape	-		-	-	-
	Visual impact	-		Low	-	-
	Waste	Disposal	Decommissioning	Positive	-	-
	Re-vegetation	Re-growth		Positive	Regular inspection	Low
	Exposed area Rehab	Re-vegetation	After closure	Positive	-	-
	Safety risks	Waste disposal		Positive	-	-
Office Block	Vegetation	Loss	Construction	Low	Vegetation clearing control	Low
	Geological	-		-	-	-
		-	Operational	-	-	-
	Topographic	-		-	-	-

	Soil	-		-	-	-
	Grazing	Loss		-	-	-
	Vegetation	Loss/disturbance		Low	Vegetation clearing control	Low
		Invader plants		Low	Regular removal	Low
	Water table	-		-	-	-
	Fauna	Migration		Low	-	-
	Water quality	Waste water		Low	-	-
	Noise	-		-	-	-
	Air quality	-		-	-	-
	Archaeological items	-		-	-	-
	Sensitive landscape	-		-	-	-
	Visual impact	-		Low	-	-
	Waste	Disposal	Decommissioning	Positive	-	-
	Re-vegetation	Re-growth		Positive	Regular inspection	Low
	Exposed area Rehab	Re-vegetation	After closure	Positive	-	-
	Safety risks	Waste disposal		Positive	-	-
Processing site	Vegetation	Loss	Construction	Low	Vegetation clearing control	Low
	Geological	-		-	-	-
		-	Operational	-	-	-
	Topographic	-		-	-	-
	Soil	Pollution		High	Regular machine maintenance Immediate rehabilitation	Low
	Grazing	Loss		-	-	-
	Vegetation	Loss/disturbance		Low	Vegetation clearing control	Low
		Invader plants		Low	Regular removal	Low
	Water table	Depressed		-	-	-
	Fauna	Migration		Low	-	-
	Water quality	Waste water		Low	Reticulation and recycling of process water	Low
	Noise	Alleviated levels		Low	Restriction to appropriate hours	Low
	Air quality	Degradation		Low	Damping of plant site area	low
	Archaeological items	-		-	-	-
	Sensitive landscape	-		-	-	-

	Visual impact	-		Low	-	-
	Waste	Disposal	Decommissioning	Positive	-	-
	Re-vegetation	Re-growth		Positive	Regular inspection	Low
	Exposed area Rehab	Re-vegetation	After closure	Positive	-	-
	Safety risks	Waste disposal		Positive	-	-
Ablution	Vegetation	Loss	Construction	Low	Vegetation clearing control	Low
	Geological	-		-	-	-
		-	Operational	-	-	-
	Topographic	-		-	-	-
	Soil	Pollution		Low	Regular machine maintenance. Immediate rehabilitation	Low
	Grazing	Loss		-	-	-
	Vegetation	Loss/disturbance		Low	Vegetation clearing control	Low
		Invader plants		Low	Regular removal	Low
	Water table	-		-	-	-
	Fauna	Migration		Low	-	-
	Water quality	Waste water		Low	-	-
	Noise	-		-	-	-
	Air quality	-		-	-	-
	Archaeological items	-		-	-	-
	Sensitive landscape	-		-	-	-
	Visual impact	-		Low	-	-
	Waste	Disposal	Decommissioning	Positive	-	-
	Re-vegetation	Re-growth		Positive	Regular inspection	Low
	Exposed area Rehab	Re-vegetation	After closure	Positive	-	-
	Safety risks	Waste disposal		Positive	-	-
Vehicle Parking	Vegetation	Loss	Construction	Low	Vegetation clearing control	Low
	Geological	-		-	-	-
		-	Operational	-	-	-
	Topographic	-		-	-	-
	Soil	Pollution		Medium	Regular vehicle maintenance. Immediate rehabilitation and	Low

					drip pan installation.	
	Grazing	Loss		-	-	-
	Vegetation	Loss/disturbance		Low	Vegetation clearing control	Low
		Invader plants		Low	Regular removal	Low
	Water table	-		-	-	-
	Fauna	Migration		Low	-	-
	Water quality	-		-	-	-
	Noise	-		-	-	-
	Air quality	Degradation		Low	-	-
	Archaeological items	-		-	-	-
	Sensitive landscape	-		-	-	-
	Visual impact	-		Low	-	-
	Waste	Disposal	Decommissioning	Positive	-	-
	Re-vegetation	Re-growth		Positive	Regular inspection	Low
	Exposed area Rehab	Re-vegetation	After closure	Positive	-	-
	Safety risks	Waste disposal		Positive	-	-
Stores	Vegetation	Loss	Construction	Low	Vegetation clearing control	Low
	Geological	-		-	-	-
		-	Operational	-	-	-
	Topographic	-		-	-	-
	Soil	Pollution		Medium	Immediate rehabilitation and chemical handling control.	Low
	Grazing	Loss		-	-	-
	Vegetation	Loss/disturbance		Low	Vegetation clearing control	Low
		Invader plants		Low	Regular removal	Low
	Water table	-		-	-	-
	Fauna	Migration		Low	-	-
	Water quality	Waste water		Low	-	-
	Noise	-		-	-	-
	Air quality	-		-	-	-
	Archaeological items	-		-	-	-
	Sensitive landscape	-		-	-	-
	Visual impact	-		Low	-	-
	Waste	Disposal	Decommissioning	Positive	-	-

	Re-vegetation	Re-growth		Positive	Regular inspection	Low
	Exposed area Rehab	Re-vegetation	After closure	Positive	-	-
	Safety risks	Waste disposal		Positive	-	-
Diesel Storage	Vegetation	Loss	Construction	Low	Vegetation clearing control	Low
	Geological	-		-	-	-
		-	Operational	-	-	-
	Topographic	-		-	-	-
	Soil	Pollution		Medium	Regular inspection and immediate rehabilitation	Low
	Grazing	Loss		-	-	-
	Vegetation	Loss/disturbance		Low	Vegetation clearing control	Low
		Invader plants		Low	Regular removal	Low
	Water table	-		-	-	-
	Fauna	Migration		Low	-	-
	Water quality	-		-	-	-
	Noise	-		-	-	-
	Air quality	-		-	-	-
	Archaeological items	-		-	-	-
	Sensitive landscape	-		-	-	-
	Visual impact	-		Low	-	-
	Waste	Disposal	Decommissioning	Positive	-	-
	Re-vegetation	Re-growth		Positive	Regular inspection	Low
	Exposed area Rehab	Re-vegetation	After closure	Positive	-	-
	Safety risks	Waste disposal		Positive	-	-
Domestic waste	Vegetation	Loss	Construction	Low	Vegetation clearing control	Low
	Geological	-		-	-	-
		-	Operational	-	-	-
	Topographic	-		-	-	-
	Soil	Pollution		Medium	Regular inspection and immediate rehabilitation	Low
	Grazing	Loss		Low	-	-
	Vegetation	Loss/disturbance		Low	-	-
		Invader plants		Low	Regular removal	Low
	Water table	-		-	-	-

	Fauna	Migration		-	-	-
	Water quality	-		-	-	-
	Noise	-		-	-	-
	Air quality	-		-	-	-
	Archaeological items	-		-	-	-
	Sensitive landscape	-		-	-	-
	Visual impact	-		-	-	-
	Waste	Disposal	Decommissioning	Positive	-	-
	Re-vegetation	Re-growth		Positive	Regular inspection	Low
	Exposed area Rehab	Re-vegetation	After closure	Positive	-	-
	Safety risks	Waste disposal		Positive	-	-
Mine and access roads	Vegetation	Loss	Construction	Low	Restriction of roads	Low
	Geological	Degradation		Low	-	-
		Loss	Operational	-	-	-
	Topographic	Change		-	-	-
	Soil	Pollution		High	Remedy through immediate rehabilitation.	Low
	Grazing	Loss		-	-	-
	Vegetation	Loss/disturbance		Low	Traffic restriction to roads	Low
		Invader plants		Low	Remedy through removal	Low
	Water table	-		-	-	-
	Fauna	Migration		Low	-	-
	Water quality	-		-	-	-
	Noise	Alleviated levels		Low	-	-
	Air quality	Degradation		Low	Damping of mine roads. Speed restriction	Low
	Archaeological items	-		-	-	-
	Sensitive landscape	-		-	-	-
	Visual impact	-		Low	-	-
	Waste	Disposal	Decommissioning	Positive	-	-
	Re-vegetation	Re-growth		Positive	Regular inspection	Low
	Exposed area Rehab	Re-vegetation	After closure	Positive	-	-
	Safety risks	Waste disposal		Positive	-	-

10. Summary of specialist reports

(This summary must be completed if any specialist reports informed the impact assessment and final site layout process and must be in the following tabular form):-

LIST OF STUDIES UNDERTAKEN	**RECOMMENDATIONS OF SPECIALIST REPORTS**	**SPECIALITST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT** (Mark with an **X** where applicable	**REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALITS RECOMMENDATIONS HAVE BEEN INCLUDED**

Attach copies of Specialist Reports as appendices

11. Environmental impact statement

11.1 Summary of the key findings of the environmental impact assessment

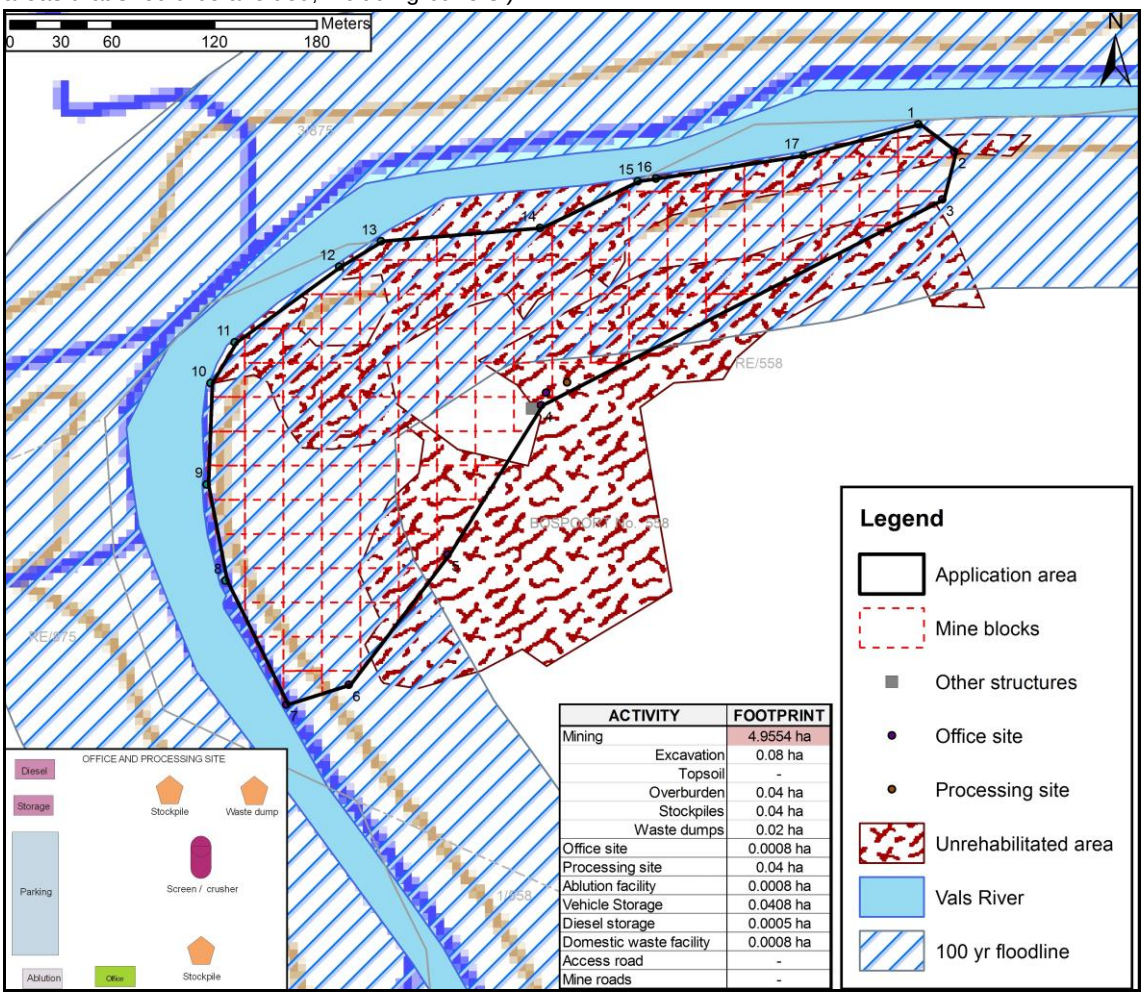
During the conduction of the Environmental Impact Assessment several key element regarding the proposed project came under attention:

- With due consideration towards the negative impact the mining activities pose on the environment with the knowledge of the current status of the environment, it can be concluded that the mining activities will not have a detrimental negative impact, but contribute to the rehabilitation of the already disturbed area.

- The mining activities will contribute to the employment opportunities as well as an economic growth within the communities are immediate area

11.2 Final Site Map

(Provide a map at an appropriate scale which superimposes the proposed overall activity and its associated structures and infrastructure on the environmental senilities of the preferred site indicating any areas that should be avoided, including buffers.)



ACTIVITY	FOOTPRINT
Mining	4.9554 ha
Excavation	0.08 ha
Topsoil	-
Overburden	0.04 ha
Stockpiles	0.04 ha
Waste dumps	0.02 ha
Office site	0.0008 ha
Processing site	0.04 ha
Ablution facility	0.0008 ha
Vehicle Storage	0.0408 ha
Diesel storage	0.0005 ha
Domestic waste facility	0.0008 ha
Access road	-
Mine roads	-

11.3 Summary of the positive and negative impacts and risks of the proposed activity and identified alternative.

Throughout the document the focus point was to identify and assess the negative impacts the proposed operations may have on the bio-physical, socio-economic and cultural environment. The major negative influences the proposed operations may pose are noise disturbance, alleviated dust levels, and vegetation loss.

12. Proposed impact management objectives and the impact management outcomes of inclusion in the EMPr

(Based on the assessment and where applicable the recommendations from specialist reports, the recording of proposed impact management objectives and the impact management outcomes for the development for inclusion in the EMPr as well as for inclusion as conditions of authorization.)

The proposed impact management objective is to create environmental sustainable prospecting operation by the management, remediation or elimination of environmental impacts through the implementation and adherence of mitigation measures as legislatively required.

The above mentioned outcomes can be achieved through the implementation of the following impact specified objectives and their outcomes:

- Minimizing of vegetation loss caused by construction and site maintenance:
  - Vegetation clearing control
  - Rip and rehabilitation of unnecessary compacted areas
  - Adherence to mine roads
  - Implementation of a no collection and no open fire policy

- Prevention of soil pollution due to chemical spillage
  - Regular maintenance of earth moving equipment and machinery.
  - Inspection on chemical containing activities against faults and leaks.
  - Immediate rehabilitation of an affected area.
  - Suitable disposal of contaminated soil.

- Reduction of noise levels caused by mine machinery, mineral processing and earth moving equipment.
  - Undue noise levels will be kept to acceptable hours.
  - Modification of earth moving equipment to reduce noise levels.
  - Aim to keep noise levels within the approved prescribed standards.

- Minimization of dust upliftment causing loss of air quality.
  - Watering of the dirt roads and vegetation cleared areas.
  - Adherence to speed limits.
  - Erosion protection of mine dumps.

- Surface and ground water quality degradation
  - Adherence to water management guidelines
  - Specific water facility construction.
  - Storm water control.
  - Measurement of water level and quality.
  - Implementation of ground water monitoring system.

- Waste disposal
  - Implementation of waste disposal facilities
  - Contractual agreements for waste removal.
  - Waste removal schedules,
  - Compliance to good housekeeping rules.

- Environmental awareness training on
  - Fauna and Flora
  - Proper waste management
  - Specific work related safety awareness,

13. Aspects for inclusion as conditions of Authorization

(Any aspects which must be made conditions of the Environmental Authorization)

At this stage all aspects that must be included into the environmental authorization are detailed in this document. Should any aspects arise that needs to be made conditions this document will be updated accordingly and will be submitted to all relevant departments.

14. Description of any assumptions, uncertainties and gaps in knowledge

(Which relate to the assessment and mitigation measures proposed)

Any assumptions, uncertainties and gaps in knowledge that could arise during the operation of the mining activities will be addressed and mitigation measures implemented to prevent any damage to the environment. Such assumptions, uncertainties and gaps in knowledge will be described, implemented and handed to the relevant departments.

To prevent any unnecessary assumptions, uncertainties and gaps in knowledge, the Basic Environmental Assessment part of this document should not be read alone, as it only contain impact assessment with summarized management options, but rather read as a whole with the Environmental Management Programme which include detailed management measures for each listed activity as described in the Basic Environmental Assessment.

15. Reasoned opinion as to whether the proposed activity should or should not be authorized

15.1 Reasons why the activity should be authorized or not

The proposed mining operations should be strongly considered for authorization as mine development may will result in the upliftment of local communities, economic growth of the town, region and possibly province.

15.2 Conditions that must be included in the authorization

15.2.1 Specific conditions to be included into the compilation and approval of EMPr

Specific conditions to be included into the compilation and approval of the EMPr are the adherence to all mitigation measures as stipulated within the EMPr.

15.1.2 Rehabilitation requirements.

Rehabilitation Requirements should include, but is not limited to the following:

- The area must be rehabilitated as close as possible to its original natural state as possible.
- Rehabilitation must be done to the complete satisfaction of all relevant departments
  .
- Where necessary must a soil bed be provided and sawn with indigenous plant species to ensure re-establishment of vegetation.
- A two to three year monitoring programme must be implemented to ensure the success of vegetation re-establishment and the elimination of invader / pioneer plant species.
- All other rehabilitation measures as contained within the EMPr, mitigation measures, inclusive must be adhered to or a grounded reason for why any of these could not be met.

16 Period for which the Environmental Authorization is required

The period applied for during the application phase is 2 years as legislatively required and requires Environmental Authorization for the latter period.

17 Undertaking

(Confirm that the undertaking required to meet the requirements of this section is provided at the end of the EMPr and is applicable to both the Basic Assessment Report and the Environmental Management Programme report.)

The applicant, Pitso 7 Star sand en Klip (Pty) Ltd, confirm that the undertaking required to meet the requirements of this section is provided at the end of the EMPr and is applicable to both the Basic Assessment Report and the Environmental Management Report.

18 Financial Provision

(State the amount that is required to both manage and rehabilitate the environment in respect or rehabilitation.)

CALCULATION OF THE QUANTUM

Applicant: **PITSO 7STAR SAND EN KLIP (PTY) LTD** **Location:** **Bospoort 558**
Date: **Jul-17**

No.	Description	Unit	A Quantity	B Master Rate	C Multiplication factor	D Weighting factor 1	E=A*B*C*D Amount (Rands)
1	Dismantling of processing plant and related structures (including overland conveyors and pow erlines)	m3	400	R 14.59	0.5	1	R 2,918.00
2 (A)	Demolition of steel buildings and structures	m2		R 203.28	1	1	R -
2(B)	Demolition of reinforced concrete buildings and structures	m2		R 299.57	1	1	R -
3	Rehabilitation of access roads	m2	2,000	R 36.38	0.5	1	R 36,380.00
4 (A)	Demolition and rehabilitation of electrified railw ay lines	m		R 353.06	1	1	R -
4 (A)	Demolition and rehabilitation of non-electrified railw ay lines	m		R 192.58	1	1	R -
5	Demolition of housing and/or administration facilities	m2		R 406.55	1	1	R -
6	Opencast rehabilitation including final voids and ramps	ha	0.08	R 206,914.18	1	1	R 16,553.13
7	Sealing of shafts adits and inclines	m3		R 109.13	1	1	R -
8 (A)	Rehabilitation of overburden and spoils	ha	0.08	R 142,079.64	1	1	R 11,366.37
8 (B)	Rehabilitation of processing w aste deposits and evaporation ponds (non-polluting potential)	ha		R 176,957.63	1	1	R -
8 (C)	Rehabilitation of processing w aste deposits and evaporation ponds (polluting potential)	ha		R 513,968.83	1	1	R -
9	Rehabilitation of subsided areas	ha		R 18,970.30	1	1	R -
10	General surface rehabilitation	ha	0.0024	R 112,551.04	1	1	R 270.12
11	River diversions	ha		R 112,551.04	1	1	R -
12	Fencing	m		R 128.39	1	1	R -
13	Water management	ha		R 42,795.07	1	1	R -
14	2 to 3 years of maintenance and aftercare	ha	0.2424	R 14,978.28	1	1	R 3,630.74
15 (A)	Specialist study	Sum				1	R -
15 (B)	Specialist study	Sum				1	R -
					Sub Total 1		R 71,118.36

1	Preliminary and General	R 8,534.20	weighting factor 2 / 1	R	8,534.20
2	Contingencies	R 7,111.84		R	7,111.84
			Subtotal 2	R	86,764.40
			VAT (14%)	R	12,147.02
			Grand Total	**R**	**98,911.42**

18.1 Explain how the aforesaid amount was derived

As seen from the above table the amount of **R 98 911.42** was calculated using the Department of Mineral Resources' approved Financial Provision Quantum Calculation table.

18.2 Confirm that this amount can be provided from operation expenditure

(Confirm that the amount, is anticipated to be an operating cost and is provided for as such in the Mining work programme, Financial and Technical Competence Report or Prospecting Work Programme as the case may be)

The above stated amount can be provided from, as part of, the 1st years operating expenditure and is in the submitted the Financial and Technical Competence Report anticipated as an operating cost and was provided for as such.

19 Specific Information required by the competent Authority

19.1 Compliance with the provisions of sections 24(4)(a) and (b) read with section 24(3)(a) and (7) of the National Environmental Management Act (Act 107 of 1998). The BEA report must include the:-

19.1.1 Impact on the socio-economic conditions of any directly affected person

(Provide the results of investigation, assessment and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any directly affected person including the landowner, lawful occupier or, where applicable, potential beneficiaries of any land restitution claim, attached the investigation report as an **Appendix**)

The mining activities will contribute to the local economy via its impact on job creation, total disposable income and value-added activities. The mine will support business activity in the local economy for the duration of the mine.

Five measures of economic impacts can be used to demonstrate the potential positive effect of the proposed prospecting operation on the local economy:

- Employment – the extent of employment can be measured as number of jobs or in terms of full time equivalents
- Payroll income – the gross remuneration of employees in terms of salaries and wages
- Capital Expenditure (CAPEX) – the total amount spent on the purchasing of fixed assets and total spent on construction
- Operating expenditure and maintenance (OPEX) – the total amount spent locally by businesses on goods and services, excluding salaries and wages as well as rents or interest.
- Revenue – The total value of sales arising from business activity at the mine

19.1.2 Impact on any national estate referred to in section 3(2) of the National Heritage Resources Act.

(Provide the result of investigation, assessment and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No 25 of 1999) with the exception of the national estate contemplated in section 3(2)(i)(vi) and (vii) of the Act.)

The proposed project area is situated over an area currently subjected to mining activities. It is not foreseen that any archaeological sites of any significance exist.

20 Other matter required in terms of sections 24(a) and (b) of the Act.

(the EAP managing the application must provide the competent authority with detailed, written proof of an investigation as required by section 24(4)(b)(i) of the Act and motivation if no reasonable or feasible alternatives, as contemplated in sub-regulation 22(2)(h), exist.)

The compiler of this document, also the appointed EAP, has knowledge of the area on which the proposed project is situated. An extensive field visit for investigation was executed, and an in depth desktop study was conducted using existing literature and data base knowledge acquired over the years.

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

1. Draft environmental management programme

1.1 Details of the EAP

(Confirm that the requiment for the provision of the details and expertise of the EAP are already included in PART A, Section 1.1 herin as required.)

The details and expertise of the Environmental Assessment Practitioner are already included in Part A Section 1.1 of this document, but also included below.

Details of the EAP

Name of the Practitioner:	Lindie Wiehahn
Tel No:	053 831 7634
Fax No:	086 606 6315
E-mail address:	lindie@liwico.co.za

The qualifications of the EAP

Current qualifications in this field were obtained through short courses at the University of Potchefstroom, which is the following:

- Introduction to Environmental Management (2002)
- Environmental Impact Assessment (2002)
- The Legal Framework for Managing Water in South Africa (2002)

Summary of the EAP's past experience.

During the year 2002 Lindie assisted with two Environmental Impact Assessments for a Golf Course development in Modder Rivier (today known as the Magersfontein Memorial Golf Course) and a Cottage development on the farm Avoca in the Douglas district. Later the same year she successfully completed her first sole Environmental Impact Assessment for the development of a filling station on the N12 at Warrenton.

Lindie was employed since then as an Environmental Consultant. Experiences obtained during these years were the drafting of Environmental Management Programmes, Environmental Management Programme Reports, Environmental Monitoring and Compliance Reports and Environmental Risk Reports. She also conducted several Environmental Impact Assessments for Mining Rights on La Reysstryd 53 IO, Lichtenburg (2004), Longlands, Barkly West (2004) and Lohatlha 673, Postmasburg (2009, 2011) and on the farm Groot Derm 10, Alexanderbay (2012).

The latest EIA conducted under the new DMR and NEMA regulations is Roodepan 70 (2015) and Kafferspan 273 (2017)

1.2 Description of the Aspects of the Activity

(Confirm that the requirement to describe the aspects of the activity that are covered by the draft environmental management programme is already included in PART A, section 9 herein as required)

The description of the aspects of the activity are already covered in Part A Section 9 of this document, but also included below.

ACTIVITY Whether listed or not listed. (E.g. Excavations, blasting, stockpiles, discard dumps or dams, loading, hauling and transport, water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyers, etc...etc...etc.)	**POTENTIAL IMPACT** (E.g. dusts, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc...etc.)	**ASPECTS AFFECTED**	**PHASE** In which impact is anticipated. (E.g. Construction, commissioning, operational, decommissioning, closure, post-closure.)	**SIGNIFINCANCE** If not mitigated	**MITIGATION TYPE** (modify, remedy, control, or stop) Through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc...etc. E.g. Modify through alternative method. Control through noise control. Control through management and monitoring through rehabilitation....	**SIGNIFICANCE** If mitigated
Excavation	Vegetation	Loss	Construction	Low	Restriction of roads Vegetation clearing control	Low
	Geological	Degradation		Low	-	-
		Loss	Operational	Low	-	-
	Topographic	Change		Low	Rehabilitation	-
	Soil	Pollution		High	Remedy through immediate rehabilitation.	Low
	Grazing	Loss		Low	Low	Low
	Vegetation	Loss/disturbance		Low	Traffic restriction to roads Vegetation clearing control	Low
		Invader plants		Low	Remedy through removal	Low
	Water table	-		-	-	-
	Fauna	Migration		Low	-	-
	Water quality	-		-	-	-
	Noise	Alleviated levels		Low	-	-
	Air quality	Degradation		Low	Damping of mine roads. Speed restriction	Low
	Archaeological items	-		-	-	-

	Sensitive landscape	-		-	-	-
	Visual impact	-		Low	-	-
	Waste	Disposal	Decommissioning	Positive	-	-
	Re-vegetation	Re-growth		Positive	Regular inspection	Low
	Exposed area Rehab	Re-vegetation	After closure	Positive	-	-
	Safety risks	Waste disposal		Positive	-	-
Topsoil dump	Vegetation	Loss	Construction	Low	Vegetation clearing control	Low
	Geological	-		-	-	-
		Loss	Operational	-	-	-
	Topographic	Change		Low	-	-
	Soil	-		-	-	-
	Grazing	Loss		-	-	-
	Vegetation	Loss/disturbance		Low	Vegetation clearing control	Low
		Invader plants		Low	Regular removal	Low
	Water table	-		-	-	-
	Fauna	Migration		Low	-	-
	Water quality	-		-	-	-
	Noise	-		-	-	-
	Air quality	Degradation		Low	Protect against wind erosion	Low
	Archaeological items	-		-	-	-
	Sensitive landscape	-		-	-	-
	Visual impact	-		Low	-	-
	Waste	Disposal	Decommissioning	Positive	-	-
	Re-vegetation	Re-growth		Positive	Regular inspection	Low
	Exposed area Rehab	Re-vegetation	After closure	Positive	-	-
	Safety risks	Waste disposal		Positive	-	-
Overvurden dump	Vegetation	Loss	Construction	Low	Vegetation clearing control	Low
	Geological	-		-	-	-
		Loss	Operational	-	-	-
	Topographic	Change		Low	-	-
	Soil	-		-	-	-
	Grazing	Loss		-	-	-
	Vegetation	Loss/disturbance		Low	Vegetation clearing control	Low

		Invader plants		Low	Regular removal	Low
	Water table	-		-	-	-
	Fauna	Migration		Low	-	-
	Water quality	-		-	-	-
	Noise	-		-	-	-
	Air quality	Degradation		Low	Protect against wind erosion	Low
	Archaeological items	-		-	-	-
	Sensitive landscape	-		-	-	-
	Visual impact	-		Low	-	-
	Waste	Disposal	Decommissioning	Positive	-	-
	Re-vegetation	Re-growth		Positive	Regular inspection	Low
	Exposed area Rehab	Re-vegetation	After closure	Positive	-	-
	Safety risks	Waste disposal		Positive	-	-
Stock Piles	Vegetation	Loss	Construction	Low	Vegetation clearing control	Low
	Geological	-		-	-	-
		Loss	Operational	-	-	-
	Topographic	Change		Low	-	-
	Soil	-		-	-	-
	Grazing	Loss		-	-	-
	Vegetation	Loss/disturbance		Low	Vegetation clearing control	Low
		Invader plants		Low	Regular removal	Low
	Water table	-		-	-	-
	Fauna	Migration		Low	-	-
	Water quality	-		-	-	-
	Noise	-		-	-	-
	Air quality	Degradation		Low	Protect against wind erosion	Low
	Archaeological items	-		-	-	-
	Sensitive landscape	-		-	-	-
	Visual impact	-		Low	-	-
	Waste	Disposal	Decommissioning	Positive	-	-
	Re-vegetation	Re-growth		Positive	Regular inspection	Low
	Exposed area Rehab	Re-vegetation	After closure	Positive	-	-

	Safety risks	Waste disposal		Positive	-	-
Waste Dumps	Vegetation	Loss	Construction	Low	Vegetation clearing control	Low
	Geological	-		-	-	-
		-	Operational	-	-	-
	Topographic	Change		Low	-	-
	Soil	-		-	-	-
	Grazing	Loss		-	-	-
	Vegetation	Loss/disturbance		Low	Vegetation clearing control	Low
		Invader plants		Low	Regular removal	Low
	Water table	-		-	-	-
	Fauna	Migration		Low	-	-
	Water quality	-		-	-	-
	Noise	-		-	-	-
	Air quality	-		-	-	-
	Archaeological items	-		-	-	-
	Sensitive landscape	-		-	-	-
	Visual impact	-		Low	-	-
	Waste	Disposal	Decommissioning	Positive	-	-
	Re-vegetation	Re-growth		Positive	Regular inspection	Low
	Exposed area Rehab	Re-vegetation	After closure	Positive	-	-
	Safety risks	Waste disposal		Positive	-	-
Office Block	Vegetation	Loss	Construction	Low	Vegetation clearing control	Low
	Geological	-		-	-	-
		-	Operational	-	-	-
	Topographic	-		-	-	-
	Soil	-		-	-	-
	Grazing	Loss		-	-	-
	Vegetation	Loss/disturbance		Low	Vegetation clearing control	Low
		Invader plants		Low	Regular removal	Low
	Water table	-		-	-	-
	Fauna	Migration		Low	-	-
	Water quality	Waste water		Low	-	-
	Noise	-		-	-	-
	Air quality	-		-	-	-

	Archaeological items	-		-	-	-
	Sensitive landscape	-		-	-	-
	Visual impact	-		Low	-	-
	Waste	Disposal	Decommissioning	Positive	-	-
	Re-vegetation	Re-growth		Positive	Regular inspection	Low
	Exposed area Rehab	Re-vegetation	After closure	Positive	-	-
	Safety risks	Waste disposal		Positive	-	-
Processing site	Vegetation	Loss	Construction	Low	Vegetation clearing control	Low
	Geological	-		-	-	-
		-	Operational	-	-	-
	Topographic	-		-	-	-
	Soil	Pollution		High	Regular machine maintenance Immediate rehabilitation	Low
	Grazing	Loss		-	-	-
	Vegetation	Loss/disturbance		Low	Vegetation clearing control	Low
		Invader plants		Low	Regular removal	Low
	Water table	Depressed		-	-	-
	Fauna	Migration		Low	-	-
	Water quality	Waste water		Low	Reticulation and recycling of process water	Low
	Noise	Alleviated levels		Low	Restriction to appropriate hours	Low
	Air quality	Degradation		Low	Damping of plant site area	low
	Archaeological items	-		-	-	-
	Sensitive landscape	-		-	-	-
	Visual impact	-		Low	-	-
	Waste	Disposal	Decommissioning	Positive	-	-
	Re-vegetation	Re-growth		Positive	Regular inspection	Low
	Exposed area Rehab	Re-vegetation	After closure	Positive	-	-
	Safety risks	Waste disposal		Positive	-	-
Ablution	Vegetation	Loss	Construction	Low	Vegetation clearing control	Low
	Geological	-		-	-	-
		-	Operational	-	-	-
	Topographic	-		-	-	-

	Soil	Pollution		Low	Regular machine maintenance. Immediate rehabilitation	Low
	Grazing	Loss		-	-	-
	Vegetation	Loss/disturbance		Low	Vegetation clearing control	Low
		Invader plants		Low	Regular removal	Low
	Water table	-		-	-	-
	Fauna	Migration		Low	-	-
	Water quality	Waste water		Low	-	-
	Noise	-		-	-	-
	Air quality	-		-	-	-
	Archaeological items	-		-	-	-
	Sensitive landscape	-		-	-	-
	Visual impact	-		Low	-	-
	Waste	Disposal	Decommissioning	Positive	-	-
	Re-vegetation	Re-growth		Positive	Regular inspection	Low
	Exposed area Rehab	Re-vegetation	After closure	Positive	-	-
	Safety risks	Waste disposal		Positive	-	-
Vehicle Parking	Vegetation	Loss	Construction	Low	Vegetation clearing control	Low
	Geological	-		-	-	-
		-	Operational	-	-	-
	Topographic	-		-	-	-
	Soil	Pollution		Medium	Regular vehicle maintenance. Immediate rehabilitation and drip pan installation.	Low
	Grazing	Loss		-	-	-
	Vegetation	Loss/disturbance		Low	Vegetation clearing control	Low
		Invader plants		Low	Regular removal	Low
	Water table	-		-	-	-
	Fauna	Migration		Low	-	-
	Water quality	-		-	-	-
	Noise	-		-	-	-
	Air quality	Degradation		Low	-	-

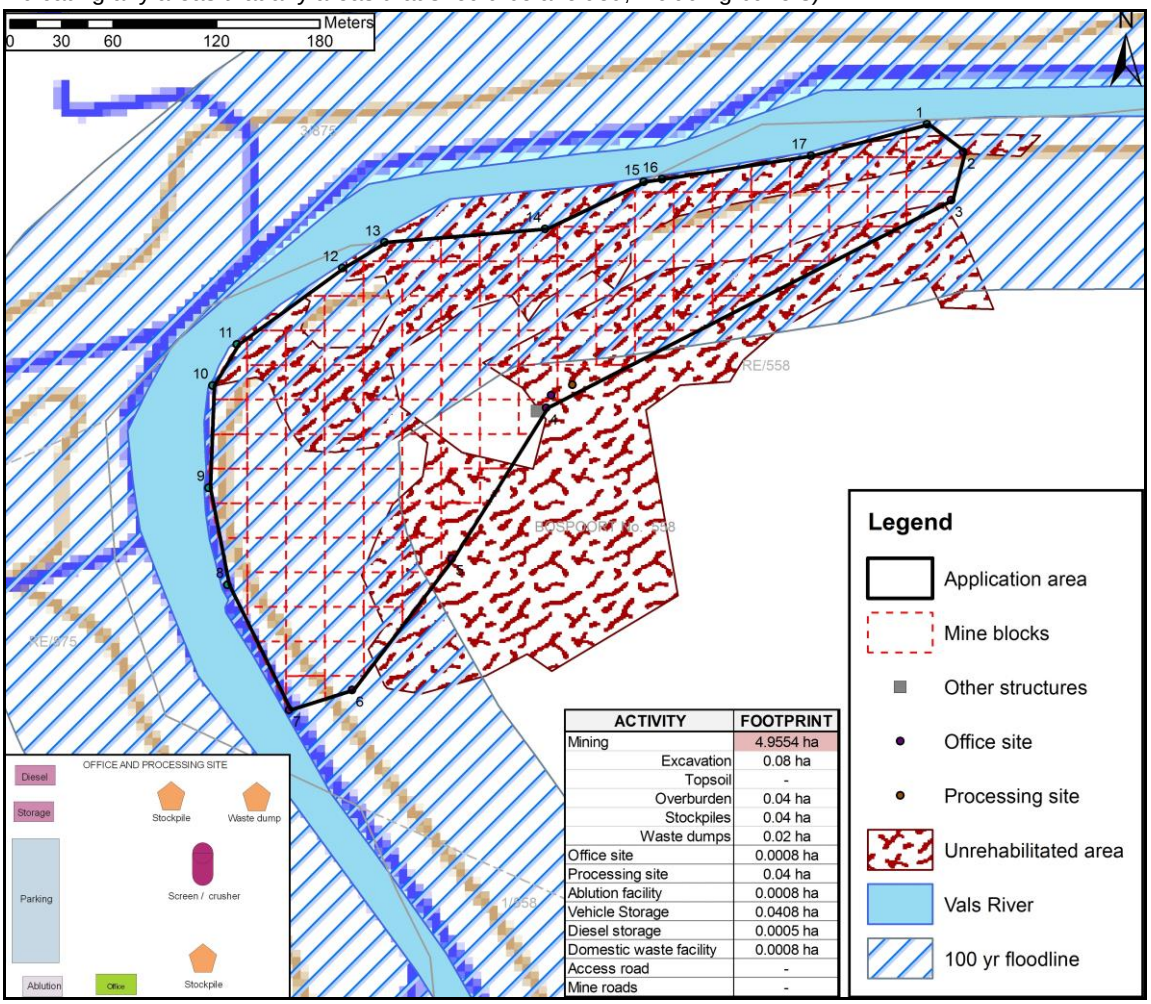
	Archaeological items	-		-	-	-
	Sensitive landscape	-		-	-	-
	Visual impact	-		Low	-	-
	Waste	Disposal	Decommissioning	Positive	-	-
	Re-vegetation	Re-growth		Positive	Regular inspection	Low
	Exposed area Rehab	Re-vegetation	After closure	Positive	-	-
	Safety risks	Waste disposal		Positive	-	-
Stores	Vegetation	Loss	Construction	Low	Vegetation clearing control	Low
	Geological	-		-	-	-
		-	Operational	-	-	-
	Topographic	-		-	-	-
	Soil	Pollution		Medium	Immediate rehabilitation and chemical handling control.	Low
	Grazing	Loss		-	-	-
	Vegetation	Loss/disturbance		Low	Vegetation clearing control	Low
		Invader plants		Low	Regular removal	Low
	Water table	-		-	-	-
	Fauna	Migration		Low	-	-
	Water quality	Waste water		Low	-	-
	Noise	-		-	-	-
	Air quality	-		-	-	-
	Archaeological items	-		-	-	-
	Sensitive landscape	-		-	-	-
	Visual impact	-		Low	-	-
	Waste	Disposal	Decommissioning	Positive	-	-
	Re-vegetation	Re-growth		Positive	Regular inspection	Low
	Exposed area Rehab	Re-vegetation	After closure	Positive	-	-
	Safety risks	Waste disposal		Positive	-	-
Diesel Storage	Vegetation	Loss	Construction	Low	Vegetation clearing control	Low
	Geological	-		-	-	-
		-	Operational	-	-	-
	Topographic	-		-	-	-
	Soil	Pollution		Medium	Regular inspection and immediate rehabilitation	Low

	Grazing	Loss		-	-	-
	Vegetation	Loss/disturbance		Low	Vegetation clearing control	Low
		Invader plants		Low	Regular removal	Low
	Water table	-		-	-	-
	Fauna	Migration		Low	-	-
	Water quality	-		-	-	-
	Noise	-		-	-	-
	Air quality	-		-	-	-
	Archaeological items	-		-	-	-
	Sensitive landscape	-		-	-	-
	Visual impact	-		Low	-	-
	Waste	Disposal	Decommissioning	Positive	-	-
	Re-vegetation	Re-growth		Positive	Regular inspection	Low
	Exposed area Rehab	Re-vegetation	After closure	Positive	-	-
	Safety risks	Waste disposal		Positive	-	-
Domestic waste	Vegetation	Loss	Construction	Low	Vegetation clearing control	Low
	Geological	-		-	-	-
		-	Operational	-	-	-
	Topographic	-		-	-	-
	Soil	Pollution		Medium	Regular inspection and immediate rehabilitation	Low
	Grazing	Loss		Low	-	-
	Vegetation	Loss/disturbance		Low	-	-
		Invader plants		Low	Regular removal	Low
	Water table	-		-	-	-
	Fauna	Migration		-	-	-
	Water quality	-		-	-	-
	Noise	-		-	-	-
	Air quality	-		-	-	-
	Archaeological items	-		-	-	-
	Sensitive landscape	-		-	-	-
	Visual impact	-		-	-	-
	Waste	Disposal	Decommissioning	Positive	-	-
	Re-vegetation	Re-growth		Positive	Regular inspection	Low

	Exposed area Rehab	Re-vegetation	After closure	Positive	-	-
	Safety risks	Waste disposal		Positive	-	-
Mine and access roads	Vegetation	Loss	Construction	Low	Restriction of roads	Low
	Geological	Degradation		Low	-	-
		Loss	Operational	-	-	-
	Topographic	Change		-	-	-
	Soil	Pollution		High	Remedy through immediate rehabilitation.	Low
	Grazing	Loss		-	-	-
	Vegetation	Loss/disturbance		Low	Traffic restriction to roads	Low
		Invader plants		Low	Remedy through removal	Low
	Water table	-		-	-	-
	Fauna	Migration		Low	-	-
	Water quality	-		-	-	-
	Noise	Alleviated levels		Low	-	-
	Air quality	Degradation		Low	Damping of mine roads. Speed restriction	Low
	Archaeological items	-		-	-	-
	Sensitive landscape	-		-	-	-
	Visual impact	-		Low	-	-
	Waste	Disposal	Decommissioning	Positive	-	-
	Re-vegetation	Re-growth		Positive	Regular inspection	Low
	Exposed area Rehab	Re-vegetation	After closure	Positive	-	-
	Safety risks	Waste disposal		Positive	-	-

1.3Composite Map

(Provide a map (**Attached as an Appendix**) at an appropriate scale which superimposes the proposed activity, its associated structures and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that any areas that should be avoided, including buffers)



ACTIVITY	FOOTPRINT
Mining	4.9554 ha
Excavation	0.08 ha
Topsoil	-
Overburden	0.04 ha
Stockpiles	0.04 ha
Waste dumps	0.02 ha
Office site	0.0008 ha
Processing site	0.04 ha
Ablution facility	0.0008 ha
Vehicle Storage	0.0408 ha
Diesel storage	0.0005 ha
Domestic waste facility	0.0008 ha
Access road	-
Mine roads	-

1.4Description of Impact management objectives including management statements

1.4.1 Determination of closure objectives

(Ensure that the closure objectives are informed by the type of environment described)

The sole determined objective is to rehabilitate the area during and after mining activities to such an extent that the post-mining environment is almost in the same condition as the surrounding environment.

When rehabilitation proofs successful the vegetation re-growth may be of such quality that this area can be used as a grazing field for farmer livestock.

1.4.2 Volumes and rate of water use required for the operation

No water is required during the commodity processing activities.

Other mining related activities such as the ablution facilities and office buildings also require the use of water, but the amount of water needed are still unknown at this stage.

1.4.3 Has a water use licence has been applied for?

The appointed EAP with co-operation from the project applicant is in the final stages of applying for water use authorization. Requirements to apply for such authorization include the Basic Environmental Assessment Report / Environmental Management Programme as well as the issued permit.

1.4.4 Impacts to be mitigated in their respective phases

Measures to rehabilitate the environment affected by the undertaking of any listed activity

ACTIVITES (As listed in 2.11.1)	**PHASE** of operation in which activity will take place. State: Planning and design, Pre-construction, Construction, Operational, rehabilitation, Closure, Post closure	**SIZE AND SCASLE of disturbance** (volumes, tonnages and hectares or m^2)	**MITIGATION MEASURES** (describe how each of the recommendations herein will remedy the cause of pollution or degradation and migration of pollutants)	**COMPLIANCE WITH STANDARDS** (A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)	**TIME PERIOD FOR IMPLEMENTATION** Describe the time period when the measures in the environmental management programme must be implemented. Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. With regard to Rehabilitation therefore state either:- Upon cessation of the individual activity Or Upon the cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be
Excavation	Construction		• The only necessary vegetation will be cleared • On vegetation clearing should any nests with chicks or eggs be discovered a local nature conservation officer shall be called to relocate the species • All infrastructure will be equipped with appropriate signs indicating function and potential dangers	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	

			• Overburden and topsoil will be stored separately next to the excavation.		
	Operational		• When working on equipment within the operational the appropriate measure needs to be implemented to prevent chemical spillage • Old diesel and related chemicals must be discarded within appropriate marked close containers and stored in the chemical storage facility till removal thereof • On accidental spillage the contaminated soil will be removed and appropriately stored till the removal there off. • Stored topsoil will be evenly spread to the recover the area • The area must be continuously inspected for spillages and remediated immediately • All vehicle traffic are restricted to the roads and demarcated traffic areas	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.

			• Washing of equipment shall be restricted to urgent maintenance requirements only and prevention of soil contamination should be taken care. • No indigenous shrubs or trees will unnecessarily uprooted and used for fire wood • If any pioneer species are observed the reporting thereof to the rehabilitation site manager is highly recommended. • Employees will be advised to stay clear from any wild animals or reptiles and not to disturb or provoke them in any manner. • Strict adherence to the mine roads and no off-road driving to prevent trampling of vegetation and ground compaction • A site will be identified and colour coded water tanks will be erected for safe human consumption.		

			• The mine shall be responsible for compliance with the relevant legislation in respect to noise. • Hearing protection will be made available to all employees where attenuation cannot be implemented. • Every vehicle in operation will be equipped with a silencer on the exhaust system. • Suppression of dust on cleared areas will occur by the spraying of chemical bounded water. • Littering of any product, including cigarette buds, at any operational site shall be seen as an offence and will not be tolerated • The mine shall be responsible for any cleaning up resulting from the failure by his employees or suppliers. • The mine shall ensure that all vehicle and heavy vehicle drivers are aware of procedures and restrictions in terms of this document. • Fire extinguishers will be kept		

			in good order and serviced regularly. • Hard hats, earplugs, safety glasses, dust masks, gloves, hard point boots, reflector vests and reflective overalls is compulsory before entering this area. • The entrance will be clearly marked will all regulatory signs, to indicate a potential dangerous zone. • Related waste/ scrap must be dispose of in the appropriate manner		
	Decommissioning		• The excavation will be filled with waste material and soil, with the topsoil and overburden in the correct order. • All chemical spills will be rehabilitated immediately • Rip and rehabilitate all compacted areas. • Rehabilitation will be finalized by the top soil where necessary and planting of indigenous species with regular inspection for the removal of invader pioneer species.	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.

	After closure		• A 2 – 3 year after care plan is initiated to ensure a satisfying vegetation re-growth rate and the successful establishment of indigenous vegetation.	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.
Topsoil dump	Construction		• The only necessary vegetation will be cleared • On vegetation clearing should any nests with chicks or eggs be discovered a local nature conservation officer shall be called to relocate the species	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.
	Operational		• If any pioneer species are observed the reporting thereof to the rehabilitation site manager is highly recommended. • Employees will be advised to stay clear from any wild animals or reptiles and not to disturb or provoke them in any manner. • Littering of any product ,including cigarette buds, at any operational site shall be seen as an offence and will not be tolerated	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.

			• The mine shall be responsible for any cleaning up resulting from the failure by his employees or suppliers. • The mine shall ensure that all suppliers and the delivery drivers are aware of procedures and restrictions in terms of this document.		
	Decommissioning		• Rip and rehabilitate all compacted areas. • Rehabilitation will be finalized by planting of indigenous species with regular inspection for the removal of invader pioneer species.	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.
	After closure		• A 2 – 3 year after care plan is initiated to ensure a satisfying vegetation re-growth rate and the successful establishment of indigenous vegetation.	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.
Overburden dump	Construction		• The only necessary vegetation will be cleared • On vegetation clearing should any nests with chicks or eggs be discovered a local nature conservation officer shall be called to relocate the species	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in	Upon commencement of activity.

				impact management.	
	Operational		• If any pioneer species are observed the reporting thereof to the rehabilitation site manager is highly recommended. • Employees will be advised to stay clear from any wild animals or reptiles and not to disturb or provoke them in any manner. • Littering of any product ,including cigarette buds, at any operational site shall be seen as an offence and will not be tolerated • The mine shall be responsible for any cleaning up resulting from the failure by his employees or suppliers. • The mine shall ensure that all suppliers and the delivery drivers are aware of procedures and restrictions in terms of this document.	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.

	Decommissioning		• Rip and rehabilitate all compacted areas. • Rehabilitation will be finalized by planting of indigenous species with regular inspection for the removal of invader pioneer species.	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.
	After closure		• A 2 – 3 year after care plan is initiated to ensure a satisfying vegetation re-growth rate and the successful establishment of indigenous vegetation.	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.
Stockpiles	Construction		• The only necessary vegetation will be cleared • On vegetation clearing should any nests with chicks or eggs be discovered a local nature conservation officer shall be called to relocate the species	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.
	Operational		• If any pioneer species are observed the reporting thereof to the rehabilitation site manager is highly recommended. • Employees will be advised to stay clear from any wild animals or reptiles and not to	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation	Upon commencement of activity.

			disturb or provoke them in any manner. • Littering of any product ,including cigarette buds, at any operational site shall be seen as an offence and will not be tolerated • The mine shall be responsible for any cleaning up resulting from the failure by his employees or suppliers. • The mine shall ensure that all suppliers and the delivery drivers are aware of procedures and restrictions in terms of this document.	measures proofs successful in impact management.	
	Decommissioning		• Rip and rehabilitate all compacted areas. • Rehabilitation will be finalized by planting of indigenous species with regular inspection for the removal of invader pioneer species.	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.
	After closure		• A 2 – 3 year after care plan is initiated to ensure a satisfying vegetation re-growth rate and the successful establishment of indigenous vegetation.	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.

Waste Dumps	Construction		• The only necessary vegetation will be cleared • On vegetation clearing should any nests with chicks or eggs be discovered a local nature conservation officer shall be called to relocate the species	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.
	Operational		• If any pioneer species are observed the reporting thereof to the rehabilitation site manager is highly recommended. • Employees will be advised to stay clear from any wild animals or reptiles and not to disturb or provoke them in any manner. • Littering of any product ,including cigarette buds, at any operational site shall be seen as an offence and will not be tolerated • The mine shall be responsible for any cleaning up resulting from the failure by his employees or suppliers. • The mine shall ensure that all suppliers and the delivery drivers are aware of procedures and restrictions in terms of this document.	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.

	Decommissioning		• Rip and rehabilitate all compacted areas. • Rehabilitation will be finalized by planting of indigenous species with regular inspection for the removal of invader pioneer species.	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.
	After closure		• A 2 – 3 year after care plan is initiated to ensure a satisfying vegetation re-growth rate and the successful establishment of indigenous vegetation.	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.
Mineral Processing	Construction		• The only necessary vegetation will be cleared • On vegetation clearing should any nests with chicks or eggs be discovered a local nature conservation officer shall be called to relocate the species • All infrastructure will be equipped with appropriate signs indicating function and potential dangers	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.
	Operational		• When working on equipment the appropriate measure needs to be implemented to prevent chemical spillage	All mitigation measures within this document comply with the NEMA and DMR rules and regulations.	Upon commencement of activity.

			• Old diesel and related chemicals must be discarded within appropriate marked close containers and stored in the chemical storage facility till removal thereof • On accidental spillage the contaminated soil will be removed and appropriately stored till the removal there off. • Stored topsoil / tailings will be evenly spread to the recover the area • The area must be continuously inspected for spillages and remediated immediately • All vehicle traffic are restricted to the roads and demarcated traffic areas • Washing of equipment shall be restricted to urgent maintenance requirements only and soil contamination should be taken care of. • No indigenous shrubs or trees will unnecessarily uprooted and used for fire wood	Further does all mitigation measures proofs successful in impact management.	

			• If any pioneer species are observed the reporting thereof to the rehabilitation site manager is highly recommended. • Employees will be advised to stay clear from any wild animals or reptiles and not to disturb or provoke them in any manner. • Strict adherence to the mine roads and no off-road driving to prevent trampling of vegetation and ground compaction • A site will be identified and colour coded water tanks will be erected for safe human consumption. • The mine shall be responsible for compliance with the relevant legislation in respect to noise. • Hearing protection will be made available to all employees where attenuation cannot be implemented. • Every vehicle in operation will be equipped with a silencer on the exhaust system.		

			• Suppression of dust on cleared areas will occur by the spraying of chemical bounded water. • Littering of any product, including cigarette buds, at any operational site shall be seen as an offence and will not be tolerated • The mine shall be responsible for any cleaning up resulting from the failure by his employees or suppliers. • The mine shall ensure that all suppliers and the delivery drivers are aware of procedures and restrictions in terms of this document. • Fire extinguishers will be kept in good order and serviced regularly. • Hard hats, earplugs, safety glasses, dust masks, gloves, hard point boots, reflector vests and reflective overalls is compulsory before entering this area. • The entrance will be clearly marked will all regulatory signs, to indicate a potential dangerous zone.		

			• Related waste/ scrap must be dispose of in the appropriate manner		
	Decommissioning		• All structures will be broken down and removed from site. • All chemical spills will be rehabilitated immediately • Rip and rehabilitate all compacted areas. • Rehabilitation will be finalized by the spreading of tailing soil where necessary and planting of indigenous species with regular inspection for the removal of invader pioneer species.	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.
	After closure		• A 2 – 3 year after care plan is initiated to ensure a satisfying vegetation re-growth rate and the successful establishment of indigenous vegetation.	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.
Office Block	Construction		• All buildings will consist of appropriate signs indicating function and potential dangers • The only necessary vegetation will be cleared	All mitigation measures within this document comply with the NEMA and DMR rules and regulations.	Upon commencement of activity.

			• On vegetation clearing should any nests with chicks or eggs be discovered a local nature conservation officer shall be called to relocate the species • Soil shall be exposed for a minimum time a possible once cleared of vegetation. The timing in clearing shall be co-ordinated as much as possible to avoid prolonged exposure to wind and water erosion • No indigenous shrubs or trees will be unnecessarily uprooted	Further does all mitigation measures proofs successful in impact management.	
	Operational		• Suppression of dust on cleared areas will occur by the spraying of chemical bounded water. • Littering of any product ,including cigarette buds, at any operational site shall be seen as an offence and will not be tolerated • The mine shall be responsible for any cleaning up resulting from the failure by his employees or suppliers.	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.

			• The mine shall ensure that all suppliers and the delivery drivers are aware of procedures and restrictions in terms of this document. • Fire extinguishers will be kept in good order and serviced regularly.		
	Decommissioning		• All structures will be broken down and removed from site. • All chemical spills will be rehabilitated immediately • Rip and rehabilitate all compacted areas. • Rehabilitation will be finalized by the spreading of tailing soil where necessary and planting of indigenous species with regular inspection for the removal of invader pioneer species.	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.
	After closure		• A 2 – 3 year after care plan is initiated to ensure a satisfying vegetation re-growth rate and the successful establishment of indigenous vegetation.	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.

Processing Site	Construction		• The area will consist of appropriate signs indicating function and potential dangers • The only necessary vegetation will be cleared • On vegetation clearing should any nests with chicks or eggs be discovered a local nature conservation officer shall be called to relocate the species • Soil shall be exposed for a minimum time a possible once cleared of vegetation. The timing in clearing shall be co-ordinated as much as possible to avoid prolonged exposure to wind and water erosion • No indigenous shrubs or trees will be unnecessarily uprooted	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.
	Operational		• Suppression of dust on cleared areas will occur by the spraying of chemical bounded water. • Littering of any product ,including cigarette buds, at any operational site shall be seen as an offence and will not be tolerated	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.

			• The mine shall be responsible for any cleaning up resulting from the failure by his employees or suppliers. • The mine shall ensure that all suppliers and the delivery drivers are aware of procedures and restrictions in terms of this document. • Fire extinguishers will be kept in good order and serviced regularly.		
	Decommissioning		• All structures will be broken down and removed from site. • All chemical spills will be rehabilitated immediately • Rip and rehabilitate all compacted areas. • Rehabilitation will be finalized by the spreading of tailing soil where necessary and planting of indigenous species with regular inspection for the removal of invader pioneer species.	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.

	After closure		• A 2 – 3 year after care plan is initiated to ensure a satisfying vegetation re-growth rate and the successful establishment of indigenous vegetation.	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.
Ablution	Construction		• The only necessary vegetation will be cleared • On vegetation clearing should any nests with chicks or eggs be discovered a local nature conservation officer shall be called to relocate the species • Soil shall be exposed for a minimum time a possible once cleared of vegetation. The timing in clearing shall be co-ordinated as much as possible to avoid prolonged exposure to wind and water erosion • No indigenous shrubs or trees will be unnecessarily uprooted • Concealed septic tanks must be installed above ground, where it can be regularly inspected for leakage	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.

	Operational		• Ablution blocks shall be at all times be sanitized • Sanitary bins will be provided within the building, no sanitary material will be allowed within the septic tanks • All human waste and related waste will be contained within septic tanks installed for this purpose • Septic tanks and chemical toilets will be chemically treated and maintained by a contracting agency • The local municipality may be contracted on the draining of the septic tank and the removal of its contents to the sewerage plant of their choice • Sanitary material within the bins provided will be closed in colour plastics and disposed of with domestic waste • No indigenous shrubs or trees will unnecessarily uprooted and used for fire wood	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.

			• If any pioneer species are observed the reporting thereof to the rehabilitation site manager is highly recommended. • Employees will be advised to stay clear from any wild animals or reptiles and not to disturb or provoke them in any manner. • Littering of any product, including cigarette buds, at any operational site shall be seen as an offence and will not be tolerated • The mine shall be responsible for any cleaning up resulting from the failure by his employees or suppliers. • The mine shall ensure that all suppliers and the delivery drivers are aware of procedures and restrictions in terms of this document. • The entrance will be clearly marked will all regulatory signs		
	Decommissioning		• All structures will be broken down and removed from site. • All chemical spills will be rehabilitated immediately	All mitigation measures within this document comply with the NEMA and DMR rules and regulations.	Upon commencement of activity.

			• Rip and rehabilitate all compacted areas. • Rehabilitation will be finalized by the spreading of tailing soil where necessary and planting of indigenous species with regular inspection for the removal of invader pioneer species. • On closure Department of Water Affairs will be consulted in aiding with the rehabilitation of the facility	Further does all mitigation measures proofs successful in impact management.	
	After closure		• A 2 – 3 year after care plan is initiated to ensure a satisfying vegetation re-growth rate and the successful establishment of indigenous vegetation.	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.
Vehicle parking	Construction		• A demarcated fenced area away from the operational sight will be cleared for vehicle storage and parking • The only necessary vegetation will be cleared • On vegetation clearing should any nests with chicks or eggs be discovered a local nature conservation officer shall be	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.

			called to relocate the species • Soil shall be exposed for a minimum time a possible once cleared of vegetation. The timing in clearing shall be co-ordinated as much as possible to avoid prolonged exposure to wind and water erosion • No indigenous shrubs or trees will be unnecessarily uprooted		
	Operational		• Drip pans will be readily available and no parked heavy vehicle will be without a drip pan. • No vehicle repairs and maintenance will occur within the operational area.. • Old diesel and related chemicals must be discarded within appropriate marked close containers and stored in the chemical storage facility till removal thereof • On accidental spillage the contaminated soil will be removed and appropriately stored till the removal there off. Stored topsoil / tailings will be evenly spread to the recover the area	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.

			• The area must be continuously inspected for spillages and remediated immediately • Suppression of dust on cleared areas will occur by the spraying of chemical bounded water. • Littering of any product ,including cigarette buds, at any operational site shall be seen as an offence and will not be tolerated • The mine shall be responsible for any cleaning up resulting from the failure by his employees or suppliers. • The mine shall ensure that all suppliers and the delivery drivers are aware of procedures and restrictions in terms of this document. • Fire extinguishers will be kept in good order and serviced regularly.		
	Decommissioning		• All structures will be broken down and removed from site. • All chemical spills will be rehabilitated immediately • Rip and rehabilitate all compacted areas.	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation	Upon commencement of activity.

			• Rehabilitation will be finalized by the spreading of tailing soil where necessary and planting of indigenous species with regular inspection for the removal of invader pioneer species.	measures proofs successful in impact management.	
	After closure		• A 2 – 3 year after care plan is initiated to ensure a satisfying vegetation re-growth rate and the successful establishment of indigenous vegetation.	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.
Stores	Construction		• All buildings will consist of appropriate signs indicating function and potential dangers • The only necessary vegetation will be cleared • On vegetation clearing should any nests with chicks or eggs be discovered a local nature conservation officer shall be called to relocate the species • Soil shall be exposed for a minimum time a possible once cleared of vegetation. The timing in clearing shall be co-ordinated as much as possible to avoid prolonged	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.

			exposure to wind and water erosion • No indigenous shrubs or trees will be unnecessarily uprooted		
	Operational		• Stored chemicals must be in marked closed containers • For remediation purposes a neutralizing agent for each chemical must be available at the entrance of the room at all time • Un-used chemicals must be separated from used chemicals as well as each type of chemical will be group to prevent cross contami-nation. • Chemicals removed from storage will be in approved containers to minimize the possibility of spillage • Safety wear for workers will always be available for urgent situations. • Fire extinguishers for this purpose will be available at all times • Chemical and chemical containing waste will be stored in closed containers within the chemical storage	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.

			room. • All personnel handling chemical related products will follow handling procedures • Suppression of dust on cleared areas will occur by the spraying of chemical bounded water. • Littering of any product ,including cigarette buds, at any operational site shall be seen as an offence and will not be tolerated • The mine shall be responsible for any cleaning up resulting from the failure by his employees or suppliers. • The mine shall ensure that all suppliers and the delivery drivers are aware of procedures and restrictions in terms of this document. • Once the area specified for these waste is approximately 80% full and decommis-sioning of the mine the different agencies dealing with these specific chemicals will be contacted for the safe removal thereof.		

	Decommissioning		• With decommissioning of the mine the different agencies dealing with these specific chemicals will be contacted for the safe removal thereof. • All structures will be broken down and removed from site. • All chemical spills will be rehabilitated immediately • Rip and rehabilitate all compacted areas. • Rehabilitation will be finalized by the spreading of tailing soil where necessary and planting of indigenous species with regular inspection for the removal of invader pioneer species.	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.
	After closure		• A 2 – 3 year after care plan is initiated to ensure a satisfying vegetation re-growth rate and the successful establishment of indigenous vegetation.	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.
Diesel storage	Construction		• Diesel tanks will stand in a leak-proof bay, supporting the tank volume plus 10% and a 1.5 m wide cement buffer will encircle the area	All mitigation measures within this document comply with the NEMA and DMR rules and regulations.	Upon commencement of activity.

			• The floor area must be constructed at a gradient and a run-off sump to capture all contaminated water to be treated by a separator • All buildings will consist of appropriate signs indicating function and potential dangers • The only necessary vegetation will be cleared • On vegetation clearing should any nests with chicks or eggs be discovered a local nature conservation officer shall be called to relocate the species • Soil shall be exposed for a minimum time a possible once cleared of vegetation. The timing in clearing shall be co-ordinated as much as possible to avoid prolonged exposure to wind and water erosion • No indigenous shrubs or trees will be unnecessarily uprooted	Further does all mitigation measures proofs successful in impact management.	
	Operational		• Vehicles which are filled with fuel will park on a cement floor for if any spillage occurs it can be cleaned • Two fire extinguishers will be present at all times	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation	Upon commencement of activity.

			• No vehicle repairs and maintenance will occur within the operational area. • Old diesel and related chemicals must be discarded within appropriate marked close containers and stored in the chemical storage facility till removal thereof • The area must be continuously inspected for spillages and remediated immediately • All vehicle traffic are restricted to the roads and demarcated traffic areas • No indigenous shrubs or trees will unnecessarily uprooted and used for fire wood • If any pioneer species are observed the reporting thereof to the rehabilitation site manager is highly recommended. • Employees will be advised to stay clear from any wild animals or reptiles and not to disturb or provoke them in any manner. • Suppression of dust on cleared areas will occur by the	measures proofs successful in impact management.	

			spraying of chemical bounded water. • Littering of any product ,including cigarette buds, at any operational site shall be seen as an offence and will not be tolerated • The mine shall be responsible for any cleaning up resulting from the failure by his employees or suppliers. • The mine shall ensure that all suppliers and the delivery drivers are aware of procedures and restrictions in terms of this document. • Fire extinguishers will be kept in good order and serviced regularly.		
	Decommissioning		• All structures will be broken down and removed from site. • All chemical spills will be rehabilitated immediately • Rip and rehabilitate all compacted areas. • Rehabilitation will be finalized by the spreading of tailing soil where necessary and planting of indigenous species with regular inspection for the removal of invader pioneer	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.

			species. • On closure Department of Water Affairs will be consulted in aiding with the rehabilitation of the facility		
	After closure		• A 2 – 3 year after care plan is initiated to ensure a satisfying vegetation re-growth rate and the successful establishment of indigenous vegetation.	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.
Domestic Waste	Construction		• All buildings will consist of appropriate signs indicating function and potential dangers • The only necessary vegetation will be cleared • On vegetation clearing should any nests with chicks or eggs be discovered a local nature conservation officer shall be called to relocate the species. • Soil shall be exposed for a minimum time a possible once cleared of vegetation. The timing in clearing shall be co-ordinated as much as possible to avoid prolonged exposure to wind and water erosion	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.

			• No indigenous shrubs or trees will be unnecessarily uprooted • Marked containers will be made available for storage of domestic waste		
	Operational		• Domestic waste will be kept in closed marked containers. • Containers will be removed on a regular basis. • Domestic waste will be dumped at a registered site for such disposal. • Regular inspection of containers and for spillages must be done. • Spillages need to be remediated immediately. • Safety wear for workers will always be available for urgent situations. • Fire extinguishers for this purpose will be available at all times • .Suppression of dust on cleared areas will occur by the spraying of chemical bounded water. • Littering of any product ,including cigarette buds, at any operational site shall be seen as an offence and will	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.

			not be tolerated • The mine shall be responsible for any cleaning up resulting from the failure by his employees or suppliers. • The mine shall ensure that all suppliers and the delivery drivers are aware of procedures and restrictions in terms of this document. • Once the area specified for these waste is approximately 80% full and decommis-sioning of the mine the different agencies dealing with these domestic waste will be contacted for the safe removal thereof.		
	Decommissioning		• With decommissioning of the mine the specific agencies dealing with domestic waste will be contacted for the safe removal thereof. • All structures will be broken down and removed from site. • All domestic waste and chemical spills will be rehabilitated immediately • Rip and rehabilitate all compacted areas.	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.

			• Rehabilitation will be finalized by the spreading of tailing soil where necessary and planting of indigenous species with regular inspection for the removal of invader pioneer species.		
	After closure		• A 2 – 3 year after care plan is initiated to ensure a satisfying vegetation re-growth rate and the successful establishment of indigenous vegetation.	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.
Mine and Access roads	Construction		• As far as possible will be made use of existing farm roads • Only when utmost necessarily will new roads be scraped. • No foreign materials will be used in the construction of roads • The only necessary vegetation will be cleared • On vegetation clearing should any nests with chicks or eggs be discovered a local nature conservation officer shall be called to relocate the species	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	

			• Soil shall be exposed for a minimum time a possible once cleared of vegetation. The timing in clearing shall be co-ordinated as much as possible to avoid prolonged exposure to wind and water erosion • No indigenous shrubs or trees will be unnecessarily uprooted • Roads will be marked with the appropriate signs for safety.		
	Operational		• The roads must be continuously inspected for spillages and remediated immediately • All vehicle traffic are restricted to the roads and demarcated traffic areas • No indigenous shrubs or trees will unnecessarily uprooted and used for fire wood • If any pioneer species are observed the reporting thereof to the rehabilitation site manager is highly recommended.		

			• Employees will be advised to stay clear from any wild animals or reptiles and not to disturb or provoke them in any manner. • Suppression of dust on cleared areas will occur by the spraying of chemical bounded water. • Littering of any product ,including cigarette buds, at any operational site shall be seen as an offence and will not be tolerated • The mine shall be responsible for any cleaning up resulting from the failure by his employees or suppliers.		
	Decommissioning		• All structures will be broken down and removed from site. • All chemical spills will be rehabilitated immediately • Rip and rehabilitate all compacted areas.	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.

			• Rehabilitation will be finalized by the spreading of tailing soil where necessary and planting of indigenous species with regular inspection for the removal of invader pioneer species.		
	After closure		• A 2 – 3 year after care plan is initiated to ensure a satisfying vegetation re-growth rate and the successful establishment of indigenous vegetation.	All mitigation measures within this document comply with the NEMA and DMR rules and regulations. Further does all mitigation measures proofs successful in impact management.	Upon commencement of activity.

OTHER MITIGATION MEASURES NOT LISTED WITH LISTED ACTIVITIES

- Vehicles will be equipped with a red flag on a long enough rod to be easily observed by the heavy vehicle drives and a roll bar
- Personnel will need to be trained on health and safety matters in line with the Health and Safety Act for mining and in the handling and remediation of chemical spills, fire and first aid
- Daily checking of oil/diesel leakages before any vehicle is operated
- Domestic waste containers will be installed and clearly marked for this purpose
- Waste storage containers shall be covered, tip-proof, weather proof and scavenger proof
- The waste storage area shall be fenced off to prevent windblown litter
- The mine shall ensure that all facilities are maintained in a neat and tidy condition and the site shall be kept fee of litter
- No burning, on site burring or dumping of waste shall occur
- Contracts with the local municipality / agencies will be signed for the removal of waste containers on an appropriate schedule of once a week, but if found necessary twice a week
- Access road maintenance throughout the entire project timeframe
- All mine roads will be cleared of foreign materials and ripped to loosen the ground for vegetation re-growth for rehabilitation purposes

1.5 Impact Management Outcomes

(A description of impact management outcomes, identifying the standard of impact management requred for the aspects contemplated in paragraph ()

ACTIVITY Whether listed or not listed. (E.g. Excavations, blasting, stockpiles, discard dumps or dams, loading, hauling and transport, water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyers, etc... etc.... etc.).	**POTENTIAL IMPACT** (E.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc... etc... etc.	**ASPECTS AFFECTED**	**PHASE** In which impact is anticipated (e.g. Construction, commissioning, operational, decommissioning, closure, post-closure)	**MITIGATION TYPE** (modify, remedy, control, or stop) Through (e.g. noise control measures, storm water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc) E.g. • Modify through alternative method • Control through noise control • Controlling through management and monitoring • Remedy through rehabilitation.	**STANDARDS TO BE ACHIEVED** (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives etc.)
Excavation	Vegetation	Loss	Construction	-	-
	Soil	Disturbance	Operational	Rehabilitation	Rehabilitation standards
	Grazing field	Loss		-	-
	Vegetation	Loss		-	-
	Fauna	Disturbance		Vegetation clearing control	Impact minimized
		Migration		Noise level control	Impact minimized
	Noise	Disturbance		Noise level control	Impact minimized
	Air quality	Degradation		Dust control	Impact minimized
	Waste	Disposal	Decommissioning	Rehabilitation	Rehabilitation standards
Topsoil dump	Vegetation	Loss	Construction	Vegetation clearing control	Impact minimized
	Grazing field	Loss	Operational	-	-
	Vegetation	Loss		Vegetation clearing control	Impact minimized
		Disturbance		Vegetation clearing control	Impact minimized
		Invader plants		Regular removal	Impact avoided
	Air quality	Degradation		Dust control	Impact minimized

	Vegetation	Re-growth	Decommissioning	Regular inspections	Rehabilitation standards
Overburden dump	Vegetation	Loss	Construction	Vegetation clearing control	Impact minimized
	Grazing field	Loss	Operational	-	-
	Vegetation	Loss		Vegetation clearing control	Impact minimized
		Disturbance		Vegetation clearing control	Impact minimized
		Invader plants		Regular removal	Impact avoided
	Air quality	Degradation		Dust control	Impact minimized
	Vegetation	Re-growth	Decommissioning	Regular inspections	Rehabilitation standards
Stockpiles	Vegetation	Loss	Construction	Vegetation clearing control	Impact minimized
	Grazing field	Loss	Operational	-	-
	Vegetation	Loss		Vegetation clearing control	Impact minimized
		Disturbance		Vegetation clearing control	Impact minimized
		Invader plants		Regular removal	Impact avoided
	Air quality	Degradation		Dust control	Impact minimized
	Vegetation	Re-growth	Decommissioning	Regular inspections	Rehabilitation standards
Waste dump	Vegetation	Loss	Construction	Vegetation clearing control	Impact minimized
	Grazing field	Loss	Operational	-	-
	Vegetation	Loss		Vegetation clearing control	Impact minimized
		Disturbance		Vegetation clearing control	Impact minimized
		Invader plants		Regular removal	Impact avoided
	Air quality	Degradation		Dust control	Impact minimized
	Vegetation	Re-growth	Decommissioning	Regular inspections	Rehabilitation standards
Office block	Vegetation	Loss	Construction	Vegetation clearing control	Impact minimized
	Grazing field	Loss	Operational	-	-
	Vegetation	Loss		Vegetation clearing control	Impact minimized
		Disturbance		Vegetation clearing control	Impact minimized
		Invader plants		Regular removal	Impact avoided
	Vegetation	Re-growth	Decommissioning	Regular inspections	Rehabilitation standards
Processing Site	Vegetation	Loss	Construction	Vegetation clearing control	Impact minimized
	Soil	Pollution	Operational	Immediate Rehabilitation	Impact avoided
	Grazing field	Loss		-	-

	Vegetation	Loss		Vegetation clearing control	Impact minimized
		Disturbance		Vegetation clearing control	Impact minimized
		Invader plants		Regular removal	Impact avoided
	Water table	Depressed		Reticulation and recycling	Impact minimized
	Fauna	Migration		Noise level control	Impact minimized
	Water	Waste water		Reticulation and recycling	Impact minimized
	Noise	Disturbance		Noise level control	Impact minimized
	Air quality	Degradation		Dust control	Impact minimized
	Vegetation	Re-growth	Decommissioning	Regular inspections	Rehabilitation standards
Ablution	Vegetation	Loss	Construction	Vegetation clearing control	Impact minimized
	Soil	Pollution	Operational	Immediate Rehabilitation	Impact avoided
	Grazing field	Loss		-	-
	Vegetation	Loss		Vegetation clearing control	Impact minimized
		Disturbance		Vegetation clearing control	Impact minimized
		Invader plants		Regular removal	Impact avoided
	Vegetation	Re-growth	Decommissioning	Regular inspections	Rehabilitation standards
Vehicle parking	Vegetation	Loss	Construction	Vegetation clearing control	Impact minimized
	Soil	Pollution	Operational	Immediate Rehabilitation	Impact avoided
	Grazing field	Loss	Operational	-	-
	Vegetation	Loss		Vegetation clearing control	Impact minimized
		Disturbance		Vegetation clearing control	Impact minimized
		Invader plants		Regular removal	Impact avoided
	Vegetation	Re-growth	Decommissioning	Regular inspections	Rehabilitation standards
Stores	Vegetation	Loss	Construction	Vegetation clearing control	Impact minimized
	Soil	Pollution	Operational	Immediate Rehabilitation	Impact avoided
	Grazing field	Loss		-	-
	Vegetation	Loss		Vegetation clearing control	Impact minimized
		Disturbance		Vegetation clearing control	Impact minimized
		Invader plants		Regular removal	Impact avoided
	Vegetation	Re-growth	Decommissioning	Regular inspections	Rehabilitation standards
Diesel storage	Vegetation	Loss	Construction	Vegetation clearing control	Impact minimized

	Soil	Pollution	Operational	Immediate Rehabilitation	Impact avoided
	Grazing field	Loss		-	-
	Vegetation	Loss		Vegetation clearing control	Impact minimized
		Disturbance		Vegetation clearing control	Impact minimized
		Invader plants		Regular removal	Impact avoided
	Vegetation	Re-growth	Decommissioning	Regular inspections	Rehabilitation standards
Domestic waste	Vegetation	Loss	Construction	Vegetation clearing control	Impact minimized
	Soil	Pollution	Operational	Immediate Rehabilitation	Impact avoided
	Grazing field	Loss		-	-
	Vegetation	Loss		Vegetation clearing control	Impact minimized
		Disturbance		Vegetation clearing control	Impact minimized
		Invader plants		Regular removal	Impact avoided
	Vegetation	Re-growth	Decommissioning	Regular inspections	Rehabilitation standards
Mine and access roads	Vegetation	Loss	Construction	Vegetation clearing control	Impact minimized
	Soil	Pollution	Operational	Immediate Rehabilitation	Impact avoided
	Grazing field	Loss		-	-
	Vegetation	Loss		Vegetation clearing control	Impact minimized
		Disturbance		Vegetation clearing control	Impact minimized
		Invader plants		Regular removal	Impact avoided
	Air quality	Degradation		Dust control	Impact minimized
	Vegetation	Re-growth	Decommissioning	Regular inspections	Rehabilitation standards
	Exposed area	Flora establishment	After closure	Regular inspections	Rehabilitation standards

1.6 Impact Management Actions

(A description of impact management actions, identifying the manner in which the impact mangement objectives and outcomes contemplate in paragraphs (1.3) and (1.4) will be achieved)

ACTIVITY Whether listed or not listed. (E.g. Excavations, blasting, stockpiles, discard dumps or dams, loading, hauling and transport, water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyers, etc... etc.... etc.)..	**POTENTIAL IMPACT** (E.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc... etc... etc.	**MITIGATION TYPE** (modify, remedy, control, or stop) Through (e.g. noise control measures, storm water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc) E.g. • Modify through alternative method • Control through noise control • Controlling through management and monitoring Remedy through rehabilitation.	**TIME PERIOD FOR IMPLEMENTATION** Describe the time period when the measures in the environmental management programme must be implemented. Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. With regard to Rehabilitation therefore state either:- Upon cessation of the individual activity Or Upon the cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.	**COMPLIANCE WITH STANDARDS** (A description of how each of the recommendations in 2.11.6 read with 2.12.and 2.15.2 herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)
Excavations	Vegetation loss	Vegetation clearing control	Upon commencement of activity.	Impact minimized
	Soil pollution	Immediate Rehabilitation	Upon commencement of activity.	Impact avoided
	Grazing loss	-	-	-
	Vegetation disturbance	Vegetation clearing control	Upon commencement of activity.	Impact minimized
	Invader plants	Regular removal	Upon commencement of activity.	Impact avoided
	Fauna migration	Noise level control	Upon commencement of activity.	Impact minimized
	Noise disturbance	Noise level control	Upon commencement of activity.	Impact minimized
	Air quality degradation	Dust control	Upon commencement of activity.	Impact minimized
	Waste disposal	Rehabilitation	Upon commencement of activity.	Rehabilitation standards
	Re-vegetation	Regular inspections	Upon commencement of activity.	Rehabilitation standards
	Exposed area rehab	Regular inspections	Upon commencement of activity.	Rehabilitation standards
Topsoil Dump	Vegetation loss	Vegetation clearing control	Upon commencement of activity.	Impact minimized
	Grazing loss	-	-	-

	Vegetation disturbance	Vegetation clearing control	Upon commencement of activity.	Impact minimized
	Invader plant	Regular removal	Upon commencement of activity.	Impact avoided
	Air quality loss	Dust control	Upon commencement of activity.	Impact minimized
	Re-vegetation	Regular inspections	Upon commencement of activity.	Rehabilitation standards
Overburden Dump	Vegetation loss	Vegetation clearing control	Upon commencement of activity.	Impact minimized
	Grazing loss	-	-	-
	Vegetation disturbance	Vegetation clearing control	Upon commencement of activity.	Impact minimized
	Invader plant	Regular removal	Upon commencement of activity.	Impact avoided
	Air quality loss	Dust control	Upon commencement of activity.	Impact minimized
	Re-vegetation	Regular inspections	Upon commencement of activity.	Rehabilitation standards
Stockpiles	Vegetation loss	Vegetation clearing control	Upon commencement of activity.	Impact minimized
	Grazing loss	-	-	-
	Vegetation disturbance	Vegetation clearing control	Upon commencement of activity.	Impact minimized
	Invader plant	Regular removal	Upon commencement of activity.	Impact avoided
	Air quality loss	Dust control	Upon commencement of activity.	Impact minimized
	Re-vegetation	Regular inspections	Upon commencement of activity.	Rehabilitation standards
Waste Dump	Vegetation loss	Vegetation clearing control	Upon commencement of activity.	Impact minimized
	Grazing loss	-	-	-
	Vegetation disturbance	Vegetation clearing control	Upon commencement of activity.	Impact minimized
	Invader plant	Regular removal	Upon commencement of activity.	Impact avoided
	Air quality loss	Dust control	Upon commencement of activity.	Impact minimized
	Re-vegetation	Regular inspections	Upon commencement of activity.	Rehabilitation standards
Office block	Vegetation loss	Vegetation clearing control	Upon commencement of activity.	Impact minimized
	Grazing loss	-	-	-
	Vegetation disturbance	Vegetation clearing control	Upon commencement of activity.	Impact minimized
	Invader plants	Regular removal	Upon commencement of activity.	Impact avoided
	Re-vegetation	Regular inspections	Upon commencement of activity.	Rehabilitation standards
	Re-vegetation	Regular inspections	Upon commencement of activity.	Rehabilitation standards
Processing Site	Vegetation loss	Vegetation clearing control	Upon commencement of activity.	Impact minimized
	Soil pollution	Immediate Rehabilitation	Upon commencement of activity.	Impact avoided
	Grazing loss	-	-	-

	Vegetation disturbance	Vegetation clearing control	Upon commencement of activity.	Impact minimized
	Invader plants	Regular removal	Upon commencement of activity.	Impact avoided
	Depressed water table	Reticulation and recycling	Upon commencement of activity.	Impact minimized
	Fauna migration	Noise level control	Upon commencement of activity.	Impact minimized
	Water quality (Waste)	Reticulation and recycling	Upon commencement of activity.	Impact minimized
	Noise disturbance	Noise level control	Upon commencement of activity.	Impact minimized
	Air quality loss	Dust control	Upon commencement of activity.	Impact minimized
	Re-vegetation	Regular inspections	Upon commencement of activity.	Rehabilitation standards
Ablution	Vegetation loss	Vegetation clearing control	Upon commencement of activity.	Impact minimized
	Soil pollution	Immediate Rehabilitation	Upon commencement of activity.	Impact avoided
	Grazing loss	-	-	-
	Vegetation disturbance	Vegetation clearing control	Upon commencement of activity.	Impact minimized
	Invader plants	Regular removal	Upon commencement of activity.	Impact avoided
	Re-vegetation	Regular inspections	Upon commencement of activity.	Rehabilitation standards
Vehicle parking	Vegetation loss	Vegetation clearing control	Upon commencement of activity.	Impact minimized
	Soil pollution	Immediate Rehabilitation	Upon commencement of activity.	Impact avoided
	Grazing loss	-	-	-
	Vegetation disturbance	Vegetation clearing control	Upon commencement of activity.	Impact minimized
	Invader plants	Regular removal	Upon commencement of activity.	Impact avoided
	Re-vegetation	Regular inspections	Upon commencement of activity.	Rehabilitation standards
Stores	Vegetation loss	Vegetation clearing control	Upon commencement of activity.	Impact minimized
	Soil pollution	Immediate Rehabilitation	Upon commencement of activity.	Impact avoided
	Grazing loss	-	-	-
	Vegetation disturbance	Vegetation clearing control	Upon commencement of activity.	Impact minimized
	Invader plant	Regular removal	Upon commencement of activity.	Impact avoided
	Re-vegetation	Regular inspections	Upon commencement of activity.	Rehabilitation standards
Diesel storage	Vegetation loss	Vegetation clearing control	Upon commencement of activity.	Impact minimized
	Soil pollution	Immediate Rehabilitation	Upon commencement of activity.	Impact avoided
	Grazing loss	-	-	-
	Vegetation disturbance	Vegetation clearing control	Upon commencement of activity.	Impact minimized
	Invader plants	Regular removal	Upon commencement of activity.	Impact avoided

	Re-vegetation	Regular inspections	Upon commencement of activity.	Rehabilitation standards
Domestic waste	Vegetation loss	Vegetation clearing control	Upon commencement of activity.	Impact minimized
	Soil pollution	Immediate Rehabilitation	Upon commencement of activity.	Impact avoided
	Grazing loss	-	-	-
	Vegetation disturbance	Vegetation clearing control	Upon commencement of activity.	Impact minimized
	Invader plants	Regular removal	Upon commencement of activity.	Impact avoided
	Re-vegetation	Regular inspections	Upon commencement of activity.	Rehabilitation standards
Mine and access roads	Vegetation loss	Vegetation clearing control	Upon commencement of activity.	Impact minimized
	Soil pollution	Immediate Rehabilitation	Upon commencement of activity.	Impact avoided
	Grazing loss	-	-	-
	Vegetation disturbance	Vegetation clearing control	Upon commencement of activity.	Impact minimized
	Invader plants	Regular removal	Upon commencement of activity.	Impact avoided
	Air quality loss	Dust control	Upon commencement of activity.	Impact minimized
	Re-vegetation	Regular inspections	Upon commencement of activity.	Rehabilitation standards
	Exposed area rehab	Regular inspections	Upon commencement of activity.	Rehabilitation standards

1.7 Financial Provision

1.7.1 Determination of the amount of Financial Provision

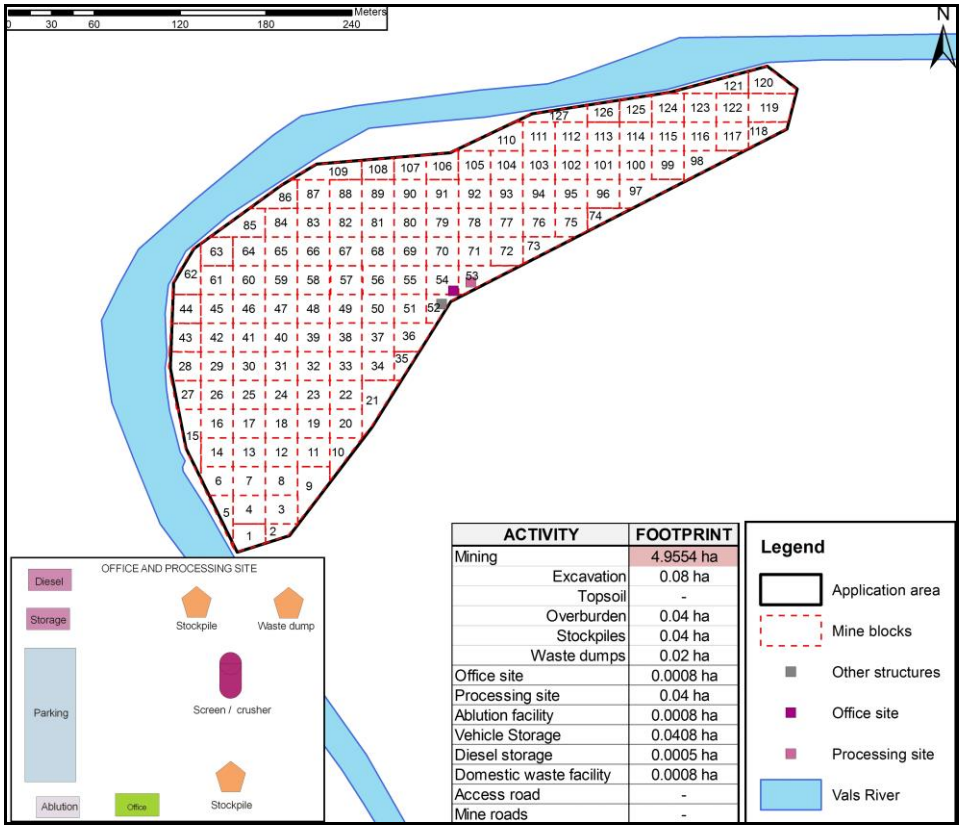
1.7.1.1 Describe the closure objectives and the extent to which they have been aligned to the baseline environment described under the Regulation

The main closure objective is to create a post-mining environment through extensive rehabilitation to such an extent that it closely represents the original environment and is closely aligned with the baseline environment

1.7.1.2 Confirm specifically that the environmental objectives in relation to closure have been consulted with landowner and interested and affected parties

The environmental objectives in relation to closure are still in the consultation process with the landowner.

1.7.1.3 Provide a rehabilitation plan that describes and shows the scale and aerial extent of the main mining activities, including the anticipated mining area at the time of closure



ACTIVITY	FOOTPRINT
Mining	4.9554 ha
Excavation	0.08 ha
Topsoil	-
Overburden	0.04 ha
Stockpiles	0.04 ha
Waste dumps	0.02 ha
Office site	0.0008 ha
Processing site	0.04 ha
Ablution facility	0.0008 ha
Vehicle Storage	0.0408 ha
Diesel storage	0.0005 ha
Domestic waste facility	0.0008 ha
Access road	-
Mine roads	-

The proposed rehabilitation plan is to discard all waste materials into the excavation. Once all waste materials have been discarded back into the excavation the area will be sloped to the acceptable 45° or less where after the overburden and topsoil is evenly spread to finalize the process.

After rehabilitation have been finalized a 2 to 3 year maintenance plan is initiated and implemented to ensure the successful re-establishment of indigenous plant species.

1.7.1.4 Explain why it can be confirmed that the rehabilitation plan is compatible with the closure objectives

Throughout the whole document during the environmental assessment and environmental management all possible management, remediation and mitigation measures were planned toward the rehabilitation of the environment to result in an outcome compatible with the closure objectives.

1.7.1.5 Calculate and state the quantum of the financial provision required to manage and rehabilitate the environment in accordance with the applicable guideline

The calculated total amount necessary for the financial provision to mange and rehabilitate the environment is **R 98 911.42**

CALCULATION OF THE QUANTUM

Applicant: **PITSO 7STAR SAND EN KLIP (PTY) LTD** **Location:** **Bospoort 558**
Date: **Jul-17**

No.	Description	Unit	A Quantity	B Master Rate	C Multiplication factor	D Weighting factor 1	E=A*B*C*D Amount (Rands)
1	Dismantling of processing plant and related structures (including overland conveyors and pow erlines)	m3	400	R 14.59	0.5	1	R 2,918.00
2 (A)	Demolition of steel buildings and structures	m2		R 203.28	1	1	R -
2(B)	Demolition of reinforced concrete buildings and structures	m2		R 299.57	1	1	R -
3	Rehabilitation of access roads	m2	2,000	R 36.38	0.5	1	R 36,380.00
4 (A)	Demolition and rehabilitation of electrified railw ay lines	m		R 353.06	1	1	R -
4 (A)	Demolition and rehabilitation of non-electrified railw ay lines	m		R 192.58	1	1	R -
5	Demolition of housing and/or administration facilities	m2		R 406.55	1	1	R -
6	Opencast rehabilitation including final voids and ramps	ha	0.08	R 206,914.18	1	1	R 16,553.13
7	Sealing of shafts adits and inclines	m3		R 109.13	1	1	R -
8 (A)	Rehabilitation of overburden and spoils	ha	0.08	R 142,079.64	1	1	R 11,366.37
8 (B)	Rehabilitation of processing w aste deposits and evaporation ponds (non-polluting potential)	ha		R 176,957.63	1	1	R -
8 (C)	Rehabilitation of processing w aste deposits and evaporation ponds (polluting potential)	ha		R 513,968.83	1	1	R -
9	Rehabilitation of subsided areas	ha		R 18,970.30	1	1	R -
10	General surface rehabilitation	ha	0.0024	R 112,551.04	1	1	R 270.12
11	River diversions	ha		R 112,551.04	1	1	R -
12	Fencing	m		R 128.39	1	1	R -
13	Water management	ha		R 42,795.07	1	1	R -
14	2 to 3 years of maintenance and aftercare	ha	0.2424	R 14,978.28	1	1	R 3,630.74
15 (A)	Specialist study	Sum				1	R -
15 (B)	Specialist study	Sum				1	R -
					Sub Total 1		R 71,118.36

1	Preliminary and General	R 8,534.20	weighting factor 2 1	R	8,534.20
2	Contingencies	R 7,111.84		R	7,111.84
			Subtotal 2	R	86,764.40
			VAT (14%)	R	12,147.02
			Grand Total	**R**	**98,911.42**

1.7.1.6 Confirm that the financial provision will be provided as determined.

The applicant will provide the total amount of **R 98 911.42** in the form of a bank guarantee on the granting of this Mining Permit application.

1.8 Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon, including

1.8.1 Monitoring of Impact Management Actions
1.8.2 Monitoring and reporting frequency
1.8.3 Responsible persons
1.8.4 Time period for implementing impact mangement actions
1.8.5 Mechanism for monitoring compliance

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PEROIDS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS.
Excavation	Vegetation loss	Extent of vegetation loss	Environmental Manager	Yearly
		Vegetation re-establishment rate	Environmental Manager	Yearly
		Presence of invader species	Environmental Manager	Yearly
	Soil pollution	Visible spills on ground	Environmental Manager	6 monthly
	Noise disturbance	Monitoring of noise levels	Noise monitoring specialist	6 monthly
	Air quality loss	Monitoring of dust fall	Air monitoring specialist	6 monthly
Topsoil Dump	Vegetation loss	Extent of vegetation loss	Environmental Manager	Yearly
		Vegetation re-establishment rate	Environmental Manager	Yearly
		Presence of invader species	Environmental Manager	Yearly
	Air quality loss	Monitoring of dust fall	Air monitoring specialist	6 monthly
Overburden Dump	Vegetation loss	Extent of vegetation loss	Environmental Manager	Yearly
		Vegetation re-establishment rate	Environmental Manager	Yearly
		Presence of invader species	Environmental Manager	Yearly
	Air quality loss	Monitoring of dust fall	Air monitoring specialist	6 monthly
Stockpiles	Vegetation loss	Extent of vegetation loss	Environmental Manager	Yearly
		Vegetation re-establishment rate	Environmental Manager	Yearly
		Presence of invader species	Environmental Manager	Yearly
	Air quality loss	Monitoring of dust fall	Air monitoring specialist	6 monthly

Waste Dump	Vegetation loss	Extent of vegetation loss	Environmental Manager	Yearly
		Vegetation re-establishment rate	Environmental Manager	Yearly
		Presence of invader species	Environmental Manager	Yearly
	Air quality loss	Monitoring of dust fall	Air monitoring specialist	6 monthly
Office block	Vegetation loss	Extent of vegetation loss	Environmental Manager	Yearly
		Vegetation re-establishment rate	Environmental Manager	Yearly
		Presence of invader species	Environmental Manager	Yearly
Mineral processing	Vegetation loss	Extent of vegetation loss	Environmental Manager	Yearly
		Vegetation re-establishment rate	Environmental Manager	Yearly
		Presence of invader species	Environmental Manager	Yearly
	Soil pollution	Visible spills on ground	Environmental Manager	6 monthly
	Depressed water table	Groundwater monitoring	Groundwater specialist	Yearly
	Noise disturbance	Monitoring of noise levels	Noise monitoring specialist	6 monthly
	Air quality loss	Monitoring of dust fall	Air monitoring specialist	6 monthly
Ablution	Vegetation loss	Extent of vegetation loss	Environmental Manager	Yearly
		Vegetation re-establishment rate	Environmental Manager	Yearly
		Presence of invader species	Environmental Manager	Yearly
	Soil pollution	Visible spills on ground	Environmental Manager	6 monthly
Vehicle parking	Vegetation loss	Extent of vegetation loss	Environmental Manager	Yearly
		Vegetation re-establishment rate	Environmental Manager	Yearly
		Presence of invader species	Environmental Manager	Yearly
	Soil pollution	Visible spills on ground	Environmental Manager	6 monthly
Stores	Vegetation loss	Extent of vegetation loss	Environmental Manager	Yearly
		Vegetation re-establishment rate	Environmental Manager	Yearly
		Presence of invader species	Environmental Manager	Yearly
	Soil pollution	Visible spills on ground	Environmental Manager	6 monthly
Diesel storage	Vegetation loss	Extent of vegetation loss	Environmental Manager	Yearly
		Vegetation re-establishment rate	Environmental Manager	Yearly
		Presence of invader species	Environmental Manager	Yearly

	Soil pollution	Visible spills on ground	Environmental Manager	6 monthly
Domestic Waste	Vegetation loss	Extent of vegetation loss	Environmental Manager	Yearly
		Vegetation re-establishment rate	Environmental Manager	Yearly
		Presence of invader species	Environmental Manager	Yearly
	Soil pollution	Visible spills on ground	Environmental Manager	6 monthly
Mine and access roads	Vegetation loss	Extent of vegetation loss	Environmental Manager	Yearly
		Vegetation re-establishment rate	Environmental Manager	Yearly
		Presence of invader species	Environmental Manager	Yearly
	Soil pollution	Visible spills on ground	Environmental Manager	6 monthly
	Air quality loss	Monitoring of dust fall	Air monitoring specialist	6 monthly

1.9 Indicate the frequency of the submission of the performance assessment / environmental audit report

The submission of the performance assessment / environmental audit reports will be done on an annual basis as legislatively required.

1.10 Environmental awareness plan

1.10.1 Manner in which the applicant intends to inform his or her employees of any environmental risk which may result from their work

Initial employee training will be done on employment of personnel, handling all issues related to General and Conservational Environmental Awareness. Follow up training workshops will be held on an annual basis and when expansion and/or implementation of new equipment are introduced to the mine.

Motivation:

- Inspections will be held on a regular basis against the do's and don'ts listed within this document. Immediate penalties can be given to offenders.

- On the discretion of the mine, motivation can be implemented

- By all-expenses paid, braai/function at the end of unbroken fixed environmental contamination hours.

1.10.2 Manner in which risks will be dealt with in order to avoid pollution or the degradation of the environment.

- Everyday Awareness
  - Littering – As wild species still roam the area from time to time, the accidental ingestion of litter is a possibility and highly dangerous as it can and will kill the animal involved. Even when not ingested smaller mammals are always at risk in getting tangled with plastics, rubber etc., this can ensure numerous suffering and eventually death of the animal.

    Plastics, rubber, some types of paper and glass are not biodegradable and release poisons into the environment when exposed to harsh weather conditions. Even when buried, they tend to resist weathering. These poisons released into the environment can be harmful to our plant species, but even if it is not harmful to the plant itself the plant tend to store all absorbed substances in their fruit, roots and root tuber and the last mentioned may be utilized by humans or animals leading to the consumption for harmful chemicals that may pose illness or even death.

    No glass, paper, plastics and cigarette duds are to be littered during the duration of the mining operations. Garbage containers will be installed and maintained to prevent litter pollution.

- Open fires – The Northern Cape is generally known as a semi-arid region with less than moderate rainfall per annum. It is however by law prohibited to start open fires.

  Due to the hot and dry conditions of the region is it very susceptible for runaway fires. No open fires will be tolerated during the mining period and as this is regarded by law as a criminal offence related penalties can be issued. The littering of self ignitable substances or objects (e.g. matches) are also not allowed as it will always pose a danger regarding field fires, and if such happen the person responsible to the littering will be charged with arson and related penalties can be issued.

- Sanitation and Personal Hygiene
  Sanitation and personal hygiene is a very important subject for environmental and social health. Improper sanitation habits can lead to intestinal parasite infestations within humans and animals, endangering the overall health of the recipients. Unfortunately these infestations do not stay only within the host and will spread rapidly throughout a community or herd.

  Human viruses like Tubercle bacillus (TB) and Herpes simplex, both are very contagious, spread vigorously throughout a community not handling good hygiene habits/practices.

  - ✓ Strict use and cleanliness of the toilette facilities will be enforced during the entire life of mine.

  - ✓ Employees will further be advised and educated on the importance of consuming clean and fresh water. Several sites will be identified and water tanks will be erected for safe human water consumption.

- Fauna – Wild animals roaming within the area is a common sight from time to time, but reptiles and smaller rodents permanently inhabit the area. Wild animals are and will always be very dangerous.

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

- Flora

  The vegetation of the Free State regions is easily endangered by pioneer species invading the Free State at an alarming rate and due to the slow growth rate of our indigenous species.

  - ✓ No indigenous shrubs of trees will be unnecessarily uprooted and utilized for firewood, the employees will rather be advised to utilize pioneer species and be educated on which plant species are indigenous, endangered or pioneer.

  - ✓ If any pioneer species are observed the reporting thereof to the rehabilitation site manager will be highly recommended.

  - ✓ Penalties will be given to individuals that damage any endangered species e.g. cutting branches/bark from a Camel/Grey Camel tree.

- Work Related Awareness
  - Storage

    All storage personnel will receive a basic information session regarding the threats of diesel, oil and other related chemicals impose on the environment.

    The following must be implemented or enforced:-

    - ✓ Before cleaning the storage area, make sure all spillages have been treated.

    - ✓ When handling related chemicals make sure of non-spillage procedures.

    - ✓ Make sure boots are cleaned from chemicals before leaving the workshop into the unprotected environment.

    - ✓ When working on equipment outside the storage, the appropriate measures needs to be implemented to prevent chemical spillage.

    - ✓ Related waste/scrap must be dispose off in the appropriate manner.

- Heavy vehicle operators

  All heavy vehicles pose a threat to the environment in several ways. Some awareness must be initiated by the operators to minimize the treat to the environment.

  The following must be implemented or enforced:-

  - ✓ Daily checking for oil/diesel leakages before vehicle is operated
  - ✓ Drip pans must be installed during “off-time”
  - ✓ Immediate communication with the workshop when faults are observed.
  - ✓ Strict adherence to the mine roads and no off-road driving to prevent trampling of vegetation
  - ✓ Driving speed must be complied with. Beware of animals, workers and other vehicles.

- Machinery operators

  Although the operational mining equipment does not pose any environmental risk, employees still need to adhere to some measurements to prevent spillage.

- Maintenance personnel

  All maintenance personnel must receive basic training on work related environmental awareness to minimize/eliminate the possibility of environmental degradation.

  Pointers that will be looked at:-

  - ✓ Electricians may not leave any cables unprotected scattered on the site – animals may get tangled up.
  - ✓ During fencing/rehabilitation common fence wires may not be left scattered as these rust over time – any cuts to animals and humans (sepsis and tetanus risk) can lead to suffering or great discomfort.
  - ✓ No metals may be left scattered as it pose the same threat as described directly above
  - ✓ All personnel handling chemical relating products must follow handling procedures – any spillage contaminating the ground will pose risk to environmental degradation
  - ✓ All chemical used must be put to storage afterwards – containers may leak and environmental contamination occurs.

1.11 Specific information required by the Competent Authority

(Among others, confirm that the financial provision will be reviewed annually)

- Annually renewal of financial provision
- Annual Monitoring and Compliance Report
- Annual Progress Report
- Annual Environmental Awareness Training Report

2. Undertaking

The EAP herewith confirms

a) the correctness of the information provided in the reports
b) the inclusion of comments and inputs from stakeholders and I&APs
c) the inclusion of inputs and recommendations from the specialist reports where relevant; and
d) that the information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties are correctly reflected herein.

_____

Signature of the Environmental Assessment Practitioner
Name of Company: **LW Consultants**
Date: **12 October 2017**

***** END *****