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 ACTIVITIES THAT HAVE BEEN TRIGGERED BY APPLICATIONS IN TERMS OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (MPRDA) (AS AMENDED).

NAME OF APPLICANT: City Sand Supplies (Pty) Ltd

TEL NO: 033 345 6004

FAX NO: 033 345 6004

POSTAL ADDRESS: Suite 42, Private Bag X301, Luxmi, 3207

PHYSICAL ADDRESS: 14 a Wiganthorpe Rd, Willowton, Pietermaritzburg, 3201

FILE REFERENCE NUMBER SAMRAD:

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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 an Environmental Authorisation 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 a format that may be determined by the Competent Authority and 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 applications.

It is therefore an instruction that the prescribed reports required in respect of applications for an environmental authorisation 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 Authorisation 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 thereof 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 of 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 context within which the proposed activity is located and how the activity complies with and responds to the policy 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 the 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 managed and monitored.

PART A

SCOPE OF ASSSSMENT AND BASIC ASSESSMENT REPORT

3. Contact Person and correspondence address

a) Details of

i) Details of the EAP

Name of The Practitioner: Tarin Strydom

Tel No.: (033) 343 6789

Fax No. : (033) 343 6701

e-mail address: strydomt@terratest.co.za

ii) Expertise of the EAP.

(1) **The qualifications of the EAP**
(with evidence). BSocSci Geography and Environmental Management, Please see qualifications attached in Appendix A.

(2) **Summary of the EAP's past experience**.
(In carrying out the Environmental Impact Assessment Procedure) Please see CV attached in Appendix B.

b) Location of the overall Activity.

Farm Name:	Fawn Leas
Application area (Ha)	approximately 0.65 hectares in extent
Magisterial district:	uMvoti
Distance and direction from nearest town	The site is located approximately 25km north east of the town of Dalton on the farm Fawn Leas
21 digit Surveyor General Code for each farm portion	NOFT00000000466700000

c) Locality map
(show nearest town, scale not smaller than 1:250000). Please see attached in Appendix C.

d) 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

The project involves the operation of a site borrow pit for the sourcing of weathered sandstone. The mining will be done in stages.

The establishment, operation, and closure of the site will require:

- Clearing and grubbing of the vegetative matter;
- Collection and stockpiling of topsoil;
- Collection and stockpiling of overburden; (if any);
- Excavation of the weathered sandstone using an excavator and if necessary temporarily stockpiling;
- Loading the excavated material into a truck for transport to site. Loading will be done using a payloader.
- The use of a container as a stores; and
- The provision of a portable chemical toilet.

Please see Sketch Plan attached in Appendix D.

(i) 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.)	**Aerial extent of the Activity** **Ha or m²**	**LISTED ACTIVITY** **Mark with an X where applicable or affected.**	**APPLICABLE LISTING NOTICE (*GNR 544, GNR 545 or GNR 546)***
The operation of a site borrow pit for the sourcing of weathered sandstone	0.65Ha	X	GNR 983 December 2014 (21)

(ii) 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)

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- Loading the excavated material into a truck for transport to site. Loading will be done using a payloader.
- The use of a container as a stores; and
- The provision of a portable chemical toilet.

e) Policy and Legislative Context

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, 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 COMPLIY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.** (E.g. In terms of the National Water Act a Water Use License has/ has not been applied for)
In terms of the Regulation 983 of the National Environmental Management Act, Act 107 of 1998 (NEMA) Regulations, published in November 2014, requiring a Basic Assessment (BA) Process will be applicable to the proposed construction:	"Any activity including the operation of that activity which requires a mining permit in terms of section 27 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002, including associated infrastructure, structures and earthworks directly related to the extraction of a mineral resource, including activities for which an exemption has been issued in terms of section 106 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)"	As such, a BA Process is required before any construction may commence. The aim of the BA Process is to obtain Environmental Authorisation from the Competent Authority, the KwaZulu-Natal Department of Mineral Resources (DMR), which is a legally binding document, giving permission for the Applicant to undertake the proposed activities under certain conditions of establishment.

	The operation of a site a borrow pit for the sourcing of weathered sandstone.	
According to the Minerals and Petroleum Resources Development Act, 2002 (Act 28 of 2002) "The environment affected by the mining operation shall be rehabilitated by the applicant, as far as is practicable, to it's natural state or to a predetermined and agreed to standard or land use, which conforms with the concept of sustainable development".		The affected environment shall be maintained in a stable condition that will not be detrimental to the safety and health of humans and animals, and that will not pollute the environment or lead to the degradation thereof. Upon completion of the mining operations, the mining area will be rehabilitated and become available for agricultural use.

f) 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).

City Sand Suppliers supplies materials for local domestic use as well as the supply of materials for housing projects in the surrounding areas.

The motivation for the quarry is for the production of aggregate for the construction industry in the area.

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

In terms of the Environmental Impact Assessment Regulations 2014, the interpretation of alternatives is as follows:

"alternatives", in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to the –

(a) Property on which or location where the activity is proposed to be undertaken;
(b) The type of activity to be undertaken;
(c) Design or layout of the activity;
(d) Technology to be used in the activity; or
(e) Operational aspects of the activity;

And includes the option of not implementing the activity.

No alternative sites have been considered as this site is owned by the Ingonyama Trust Board and the locality of the activity has been decided upon in consultation with tribal authority. In effect the operation would be the re-opening and expansion of previous mining activity at the site since it was used for the same purpose more than five years ago.

The uniformity of the land cover suggests the impact will be similar despite site layout variation.

Therefore the only other alternative for the proposed project that will be assessed is the option of not implementing the activity.

h) 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.

i) Details of the development footprint alternatives considered.

With reference to the site plan provided as Appendix 4 and the location of the individual activities on site, provide details of the alternatives considered with respect to:

(a) the property on which or location where it is proposed to undertake the activity;
(b) the type of activity to be undertaken;
(c) the design or layout of the activity;
(d) the technology to be used in the activity;
(e) the operational aspects of the activity; and
(f) the option of not implementing the activity.

Consultation with the tribal authorities.

ii) Details of the Public Participation Process Followed

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

Public Notifications

Site Notices

Terratest produced public notices to notify IAPs about the proposed project and to invite the surrounding Masihambisane community to register as IAPs. Notice boards were fixed onto conspicuous spaces around the proposed project site during a site visit conducted on 1 September 2015. The following table presents the photos of the site notices.

The notice boards were fixed at the following coordinates:

Table 2: Positions of Site Notice Boards.

Site Notice	South Coordinate	East Coordinate	Description
1	29°13’53.1”	30°47’14.5”	Masihambisane Traditional Council Court
2	29°13’00.8”	30°46’23.5”	Electricity pole near cluster of households
3	29°13’11.4”	30°46’17.4”	Road intersection near proposed project site

Newspaper Adverts

Terratest published a newspaper advert which was placed on The Witness newspaper on 26 August 2015. The advert was translated into IsiZulu and was placed in the Ilanga newspaper on 27-29 August 2015.

Background Information Document

Terratest also produced BID document to request stakeholders and IAPs to register and comment on the proposed project. Copies of a BID were circulated to stakeholders to notify them about the proposed project and to invite them to register as IAPs. The BIDs were distributed via email and hand delivery on 28 August 2015.

Public/Community Engagement

Household Visits

During the site visit of 1 September 2015 Terratest engaged the surrounding community households to notify them about the basic environmental assessment and associated public participation process that were being conducted. Community members were encouraged to register as IAPs in order to be able to forward their comments on the proposed project and to be informed about the progress of the mining permit application and environmental assessment process. Appendix E presents a register of community members that were engaged and their comments on the proposed project.

Terratest attempted to convene a meeting with the traditional authority (T/A) during the site visit on 1 September 2015. The purpose was to: determine if the T/A was aware of the proposed project; verify that the persons that signed the ITB4 form that was provided to Terratest were indeed members of the Traditional Council; inform the Chief and Headmen of the Masihambisane T/A about the proposed project, and; invite the T/A to register as an IAP. The meeting was held at the Masihambisane Traditional Council Court. Mention must be made of the fact that the T/A was not complete; the chief and some of the T/A members were not present. The meeting was therefore an informal engagement. However it was confirmed that the T/A is aware of the proposed meeting. The ITB4 form was indeed signed by the relevant persons; three of the five signatories that signed the ITB4 form on behalf of the T/A were present at the informal meeting.

iii) Summary of issues raised by I&Aps

(Complete the table summarising 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**	**EAPs response to issues as mandated by the applicant**	**Section and paragraph reference in this report where the issues and or response were incorporated.**
AFFECTED PARTIES			(Please see full Public Participation report attached in Appendix E.)		
Landowner/s	**X**				
Ingonyama Trust board: Pravesh Manipersadh	X	28-08-2015	I have checked the coordinates and yes the Mining Site is on Ingonyama Trust land. The Ptn 19 of The Farm Umvoti Location No 4667 – FT and is along the P381. The applicant needs to apply with the DMR and the Ingonyama Trust for a lease agreement.	03-09-2015 The mining permit application has been lodged and has been accepted by the DMR (Ref: KZN 30/5/1/3/2/ 10423 MP). Public participation and environmental assessment processes and reporting are currently underway as requested by the DMR. A Lease Agreement should be entered into with Ingonyama Trust prior to the commencement of the mining. Written consent from the Masihambisane Traditional Council has been obtained. The Traditional Council has signed an ITB 4 form.	h(ii) Details of Pulic Participation Process followed.

Lawful occupier/s of the land					
Landowners or lawful occupiers on adjacent properties	**X**				
Mrs Zondi		01-09-2015	Where are they going to use the sandstone that will be mined from the Masihambisane community land? How will the Masihambisane community benefit from the mining?	The borrowed sandstone will be used as bedding material for the new bulk water supply pipleline being constructed by Umgeni Water. The applicant is to pay a tenure fee to the Ingonyama Trust Board for the land being used under the mining permit. In addition, the applicant has made allowance for the employment of one (1) unskilled labourer for the duration of the project.	
Mr Zwane		01-09-2015	How will the sandstone mined from the Masihambisane community be used? Where will it be used?	The sandstone will be excavated using an excavator. This material will be loaded directly into a truck for transportation to the pipeline construction site. The construction site is near Dalton.	(f) Need and Desirability for the Proposed Project.
Municipal councillor	**X**				
Municipality	**X**				
Organs of state (Responsible for infrastructure that may be affected Roads Department,			To date, no comments received.		

Eskom, Telkom, DWA e					
Communities					
Dept. Land Affairs			To date, no comments received.		
Traditional Leaders			Please see comments received from members of the Traditional Council under Other Affected Parties.		
Dept. Environmental Affairs			To date, no comments received.		
Other Competent Authorities affected			To date, no comments received.		
OTHER AFFECTED PARTIES					
Traditional Council Chairperson: Thulani Ndlovu		01-09-2015	Can individuals comment in their own capacity or should traditional / democratic leadership comment on behalf of the community? How will the community benefit from the project?	Individual members of the community have the right to register as IAPs and comment in their own capacity. Community leadership structures and civil organizations may also register and/or comment as stakeholders/IAPs in their own capacity.	
Traditional Council Member: Magayisa Ndlovu		01-09-2015	When and how was the proposed site identified?	The site was selected because of the availability of suitable quality bedding	(g) Motivation for Overall Preferred site,

			material that is easily and economically available.	activities and technologies.
INTERESTED PARTIES				

iv) The Environmental attributes associated with the alternatives. **(The environmental attributed described must include socio-economic, social, heritage, cultural, geographical, physical and biological aspects)**

(1) Baseline Environment

(a) Type of environment affected by the proposed activity.

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

The site is located on vacant land which was formerly used for mining purposes.

According to the Minset (EKZNW) data set, there site is considered to have very low Critical Biodiversity Sensitive Areas Map. (Appendix F (a))

According to Ezemvelo KZN Wildlife dataset, the vegetation surrounding the site is classified as KwaZulu-Natal Hinterland Thornveld. (Appendix F (b))

According to the biodiversity assessment conducted by Jake Alletson, there are no features of great interest or concern.

"The mapped vegetation for the area is SVs 3 KwaZulu-Natal Hinterland Thornveld (Mucina and Rutherford, 2006) and is described as "open Thornveld dominated by Acacia species on undulating plains found on upper margins of river valleys". There are no wetlands anywhere near the site and the nearest stream is a small tributary of the Mvoti River and passes some 150 m to the south but 50 m below it. The nearest nature reserve is Mvoti Vlei Nature Reserve as is situated some 20 km to the west of the site. The frog, bird, and butterfly atlases suggested no species of concern for the immediate area and there are no threatened ecosystems near the site."

From an archaeological point of view no heritage sites or features are in danger of being destroyed or altered, the area has been mined previously and site location has been decided upon in consultation with the local traditional council.

There are no watercourses within the project area.

According to the geological map (Appendix F (b)) the site is underlain by Nbi – Biotite gneiss. Biotite-hornblende gneiss, subordinate politic schist rocks and granulite (Natal Group).

As described above, there are no features of great interest or concern. The site conditions were ground truthed by Mr Jake Alletson whose conclusions are detailed below and referenced to in Appendix G.

"All of the indigenous plant and animal species which were found are common although one (Dicoma cf. speciosa) is listed as "Data Deficient". The reason for this listing is that the taxonomy of the genus is not clear and further work is called for. The alien weed plants were not abundant and the growths were all sparse.

On the basis of the above, it appears that the reuse and expansion of the old mine by City Sand (Pty) Ltd raises no impacts on biodiversity that could be considered to be fatal flaws which would stop the application. Despite this, there is still some call for caution in regard to the operation and the following recommendations are put forward:

- Extent of the operation. The area within which the mining operation will take place must be restricted to the co-ordinates stated in the application. This recommendation applies not only to actual mining but also to all associated activities and infrastructure including stockpiles, spoil heaps, buildings, stores, and the like.
- Site inspection and monitoring. It is recommended that the site be inspected at monthly intervals by an Environmental Control Officer (ECO) so as to ensure compliance with all conditions of the authorisation.
- Site clearing. During the site clearing process any plant products such as wood, which are of use to the local residents, must be made available to those people.

- Waste. Other than for soil and stone, no waste of any sort may be disposed of at the site.
- The site must be fully fenced so as to both contain the operation, and as a safety feature to keep unauthorised people out.
- Site maintenance. At all times the site is to be kept in a condition in which it is clean and stormwater is to be controlled so that sediment is not transported into the nearby stream. Any alien plants which appear are to be eradicated immediately. Provision is to be made for immediately cleaning up any spills of fuels or other such hydrocarbon substances and for proper disposal of the contaminated soils.
- Site rehabilitation. At the end of mining activities, the site is to be rehabilitated and is to be left in a condition which will not deteriorate. Attention is to be given to the following items:
  - Alien plants.
  - Removal of all wastes other than soil and stone.
  - Stormwater management.
  - Revegetation of the area."

(b) Description of the current land uses.

The site is undefined at present, and as such used for cattle grazing at present.

(c) Description of specific environmental features and infrastructure on the site.

None.

(d) Environmental and current land use map.

(Show all environmental, and current land use features)

Please see Appendix H.

v) Impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts

(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).

1. Impacts Identified during Construction Phase:

Direct impacts:

Soils

- Potential disturbances include compaction, physical removal and potential pollution.
- The exposed soil surfaces have the potential to erode easily if left uncovered which could lead to the loss of vegetation.
- Potential loss of stockpiled topsoil and other materials if not protected properly.

Vegetation and fauna

- Alien invasive encroachment.

Surface water

- Potential for an increase in surface runoff through vegetation clearing.
- Potential loss of soil due to increase surface runoff.

Air quality and noise pollution
- Potential dust generation from soil stripping, vehicle traffic on the access roads and motor vehicle fumes will have an impact on air quality.
- Potential increase in noise from the operation of machinery and equipment, as well as the construction vehicle traffic.
- Potential disturbance to the resident's.

Visual
- Potential for the creation of dust from the construction vehicles.
- The presence of the construction machinery on site will have a temporary visual impact.

Traffic
- Potential increase of construction vehicles entering and exiting the site.

Waste
- Accumulation of general waste.

Socio-Economic
- The construction phase is likely to have a positive impact on the area and local community as it will provide employment opportunities.
- Skills development within the communities.

Heritage
- Possibility of finding something of heritage or cultural significance during earth moving activities.

Indirect impacts:
Soils
- Insufficient stormwater control measures may result in localised high levels of soil erosion, possibly creating dongas or gullies.

Vegetation and Fauna
- Increase in alien invasive species, therefore a possible loss in biodiversity.

vi) 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 was determined in order to decide the extent to which the initial site layout needs revision).

Please see Appendix I. Impact Matrix

vii) 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 compared to alternative layout options to accommodate concerns raised by affected parties)

The site layout comprises of no fixed or permanent infrastructure

viii) The possible mitigation measures that could be applied and the level of risk.

(With regard to the issues and concerns raised by affected parties provide a list of the issues 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).

Mitigation Measures during Construction Phase

Soils

- Spread absorbent sand on areas where oil spills have occurred;
- Oil-contaminated soils are to be removed to a contained storage area and disposed of at a licensed facility;
- Soil should be stockpiled in such a way as to minimize erosion.

Vegetation and Fauna

- All construction areas should be demarcated prior to construction to ensure that the footprint of the impacts are limited (including areas where vehicles may traverse);
- All alien invasive species within the construction and development footprint should be removed and follow up monitoring and removal programmes should be initiated once construction is complete;
- Reseed cleared areas with an indigenous seed mix to prevent soil erosion;
- Hunting and/or fishing activities on site is prohibited. This includes the setting of traps, or the killing of any animal caught in construction works;
- No animal, reptile or bird of any sort found on site may be killed. This specifically includes snakes or other animals considered potentially dangerous discovered on site. If such an animal is discovered on site an appropriately skilled person should be summoned to remove the animal from the site. Consideration should be given to selection and nomination of such a person prior to site establishment. If no-one is available, training should be provided to at least two site staff members.
- Environmental training must be conducted by the responsible ECO.
- The removal and replanting of indigenous vegetation must be conducted under the supervision of the ECO and biodiversity specialist, the Municipality can provide alternate replanting sites should it be needed.

Waste Management and Pollution Prevention

- Demarcated areas where waste can be securely contained and stored on a temporary basis during the construction phase should be established. When adequate volumes (not more than 1 month) have accumulated all waste is to be removed from site and disposed of at a licensed facility;
- Litter must be removed from all construction areas prior to construction commencement.
- Waste is not to be buried on site;
- Storage of waste volumes must not exceed those stipulated in NEM:WA, schedule 1.
- All waste must be recycled where possible or disposed of at a registered landfill, proof of which must be provided.
- All hazardous materials including paints, turpentine and thinners must be stored appropriately to prevent these contaminants from entering the environment;
- Spill-sorb or similar type product must be used to absorb hydrocarbon spills in the event that such spills should occur;

Surface Water

- Care must be taken to ensure that in removing vegetation adequate erosion control measures are implemented;
- A stormwater management plan, including sufficient erosion-control measures, must be compiled in consultation with a suitably qualified environmental practitioner / control officer during the detailed design phase prior to the commencement of construction.

Air Quality

- Heavy vehicles and machinery should be serviced regularly to minimise exhaust fume pollution;
- Soil stockpiles will be located in areas to limit the erosive effects of the wind, which will limit dust;

- Removal of vegetation will be avoided until such time as soil stripping is required, which will limit dust.
- Limit vehicle speeds on unpaved roads to 20 km/h to limit the amount of dust generated;
- Haulage distances should be at a minimum;
- Water should be sprayed onto gravel roads when required;
- Environmental friendly soil stabilisers may be used as additional measures to control dust on gravel roads and construction areas;
- All equipment should be kept in good working order;
- Equipment should be operated within its specifications and capacity and should not be overloaded;
- All machinery/plant should be serviced and lubricated regularly to ensure a good working order;
- Ensure that the potential noise source will conform to the South African Bureau of Standards recommended code of practice, SANS Code 0103:1983, so that it will not produce excessive or undesirable noise when it is released;
- All the Contractors' equipment shall be fitted with effective exhaust silencers and shall comply with the South African Bureau of Standards recommended code of practice and the South African National Standard (SANS) Code 0103:1983, for construction plant noise generation;
- The entire Contractors' vehicles shall be fitted with effective exhaust silencers and shall comply with Road Traffic Act (Act 29 of 1989) when any such vehicle is operated on a public road.

Traffic

- Provide sufficient area for the storage of heavy vehicles within the construction site;
- Ensure that all road diversions and closures are considered as part of the development footprint and do not add any unnecessary roads;
- Ensure that vehicle traffic which may obstruct traffic flow is scheduled outside of peak travelling time;
- Ensure that heavy / large load traffic is appropriately routed and appropriate safety precautions are taken to prohibit road collisions and traffic incidences; and
- Ensure that vehicle operators are suitably licensed, have had appropriate environmental and safety induction, are aware of specific site procedures, and are well rested and cognisant when operating heavy or unsafe vehicles / machinery.
- Ensure that public consultation has taken place, informing residents of alternative routes prior to the commencement of construction activities.

Heritage Impact

- In the event of a cultural or heritage artefact being found all work must stop until the matter is resolved. AMAFA is to be contacted immediately and direction from the AMAFA representative must be taken and adhered to.

ix) Motivation where no alternative sites were considered.

The reuse and expansion of the old mine by City Sand (Pty) Ltd raises no impacts on biodiversity that could be considered to be fatal flaws which would stop the application.

x) Statement motivating the alternative development location within the overall site. **(Provide a statement motivating the final site layout that is proposed)**

The site layout comprises of no fixed or permanent infrastructure.

i) 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 erer 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.)

Please see Appendix I. Impact Matrix

j) 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).

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.)	**POTENTIAL IMPACT** (Including the potential impacts for cumulative impacts) (e.g. dust, 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)	**SIGNIFICANCE** 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
Excavations Stockpiles Loading Hauling and Transport Offices Ablutions Processing plant Stormwater control Roads	Dust Noise Drainage surface disturbance Surface water contamination Groundwater contamination Air pollution	Soils	All phases	Moderate	Spread absorbent sand on areas where oil spills have occurred; Oil-contaminated soils are to be removed to a contained storage area and disposed of at a licensed facility; Soil should be stockpiled in such a way as to minimize erosion. All construction areas should be demarcated prior	Low

					to construction to ensure that the footprint of the impacts are limited (including areas where vehicles may traverse); All alien invasive species within the construction and development footprint should be removed and follow up monitoring and removal programmes should be initiated once construction is complete; Reseed cleared areas with an indigenous seed mix to prevent soil erosion; Hunting and/or fishing activities on site is prohibited. This includes the setting of traps, or the killing of any animal caught in construction works; No animal, reptile or bird of any sort found on site may be killed. This specifically includes snakes or other animals considered potentially dangerous discovered on site. If such an animal is discovered on	

					site an appropriately skilled person should be summoned to remove the animal from the site. Consideration should be given to selection and nomination of such a person prior to site establishment. If no-one is available, training should be provided to at least two site staff members. Environmental training must be conducted by the responsible ECO. The removal and replanting of indigenous vegetation must be conducted under the supervision of the ECO and biodiversity specialist. Demarcated areas where waste can be securely contained and stored on a temporary basis during the construction phase should be established. When adequate volumes (not more than 1 month) have accumulated all waste is to be removed from site and	

					disposed of at a licensed facility; Litter must be removed from all construction areas prior to construction commencement. Waste is not to be buried on site; Storage of waste volumes must not exceed those stipulated in NEM:WA, schedule 1. All waste must be recycled where possible or disposed of at a registered landfill, proof of which must be provided. All hazardous materials including paints, turpentine and thinners must be stored appropriately to prevent these contaminants from entering the environment; Spill-sorb or similar type product must be used to absorb hydrocarbon spills in the event that such spills should occur;	

					Care must be taken to ensure that in removing vegetation adequate erosion control measures are implemented; A stormwater management plan, including sufficient erosion-control measures, must be compiled in consultation with a suitably qualified environmental practitioner / control officer during the detailed design phase prior to the commencement of construction. Heavy vehicles and machinery should be serviced regularly to minimise exhaust fume pollution; Soil stockpiles will be located in areas to limit the erosive effects of the wind, which will limit dust; Removal of vegetation will be avoided until such time as soil stripping is required, which will limit dust.	

					Limit vehicle speeds on unpaved roads to 20 km/h to limit the amount of dust generated; Haulage distances should be at a minimum; Water should be sprayed onto gravel roads when required; Environmental friendly soil stabilisers may be used as additional measures to control dust on gravel roads and construction areas; All equipment should be kept in good working order; Equipment should be operated within its specifications and capacity and should not be overloaded; All machinery/plant should be serviced and lubricated regularly to ensure a good working order; Ensure that the potential noise source will conform to the South African	

					Bureau of Standards recommended code of practice, SANS Code 0103:1983, so that it will not produce excessive or undesirable noise when it is released; All the Contractors' equipment shall be fitted with effective exhaust silencers and shall comply with the South African Bureau of Standards recommended code of practice and the South African National Standard (SANS) Code 0103:1983, for construction plant noise generation; The entire Contractors' vehicles shall be fitted with effective exhaust silencers and shall comply with Road Traffic Act (Act 29 of 1989) when any such vehicle is operated on a public road. Provide sufficient area for the storage of heavy vehicles within the construction site;	

					Ensure that all road diversions and closures are considered as part of the development footprint and do not add any unnecessary roads; Ensure that vehicle traffic which may obstruct traffic flow is scheduled outside of peak travelling time; Ensure that heavy / large load traffic is appropriately routed and appropriate safety precautions are taken to prohibit road collisions and traffic incidences; and Ensure that vehicle operators are suitably licensed, have had appropriate environmental and safety induction, are aware of specific site procedures, and are well rested and cognisant when operating heavy or unsafe vehicles / machinery. Ensure that public consultation has taken place, informing residents of alternative routes prior to	

					the commencement of construction activities. In the event of a cultural or heritage artefact being found all work must stop until the matter is resolved. AMAFA is to be contacted immediately and direction from the AMAFA representative must be taken and adhered to.	

The supporting impact assessment conducted by the EAP must be attached as an appendix, marked **Appendix**

k) 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	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED.
ASSESSMENT OF THE BIODIVERSITY AT THE SITE OF THE SANDSTONE QUARRY PROPOSED BY CITY SAND (PTY) LTD	• Extent of the operation. The area within which the mining operation will take place must be restricted to the co-ordinates stated in the application. This recommendation applies not only to actual mining but also to all associated activities and infrastructure including stockpiles, spoil heaps, buildings, stores, and the like. • Site inspection and monitoring. It is recommended that the site be inspected at monthly intervals by an Environmental Control Officer (ECO) so as to ensure compliance with all conditions of the authorisation. • Site clearing. During the site clearing process any plant products such as wood, which are of use to the local residents, must be made available to those people. • Waste. Other than for soil and stone, no waste of any sort may be disposed of at the site. • The site must be fully fenced so as to both contain the operation, and as a safety feature to keep unauthorised people out. • Site maintenance. At all times the site is to be kept in a condition in which it is clean and stormwater is to be controlled so that sediment is not transported into the nearby stream. Any alien plants which appear are to be eradicated immediately. Provision is to be made for immediately cleaning up any spills of fuels or other such hydrocarbon substances and for proper disposal of the contaminated soils.	X	(iv)(1)(a) Type of Environment Affected by the activity.

	• Site rehabilitation. At the end of mining activities, the site is to be rehabilitated and is to be left in a condition which will not deteriorate. Attention is to be given to the following items: □ Alien plants. □ Removal of all wastes other than soil and stone. □ Stormwater management. □ Revegetation of the area.		

Attach copies of Specialist Reports as appendices

l) Environmental impact statement

(i) Summary of the key findings of the environmental impact assessment;

The impact significance exercise indicates that the majority of the construction impacts are rated as medium to low. Furthermore the impacts are considered to be mitigated through standard management practices. There are no permanent and irreversible impacts which result in a loss of resource. Nor is there an immitigable impact on sensitive environments.

Assuming all phases of the project adhere to the conditions stated in the EMPr, it is believed that the impacts associated with the proposed construction will have insignificant adverse, long term environmental impact on the surrounding environment.

Positive impacts associated with the construction include;

- Economic growth and development;
- Job creation; and

It is perceived that these impacts will be short term and have limited benefits.

It must be ensured that the post-construction rehabilitation leaves the surrounding environments in an as good, if not better, state.

After the construction phase of the project, the contractors must ensure that all hazardous materials are removed from the site and that rehabilitation of land is undertaken according to the requirements of the EMPr.

Any alien infestation that is removed during construction rehabilitation must be maintained.

(ii) 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 sensitivities of the preferred site indicating any areas that should be avoided, including buffers .Attach as **Appendix**

Please see Appendix D.

(iii) Summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;

As described above.

m) Proposed impact management objectives and the impact management outcomes for 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 authorisation.

Soils

- Spread absorbent sand on areas where oil spills have occurred;
- Oil-contaminated soils are to be removed to a contained storage area and disposed of at a licensed facility;
- Soil should be stockpiled in such a way as to minimize erosion.

Vegetation and Fauna

- All construction areas should be demarcated prior to construction to ensure that the footprint of the impacts are limited (including areas where vehicles may traverse);
- All alien invasive species within the construction and development footprint should be removed and follow up monitoring and removal programmes should be initiated once construction is complete;
- Reseed cleared areas with an indigenous seed mix to prevent soil erosion;
- Hunting and/or fishing activities on site is prohibited. This includes the setting of traps, or the killing of any animal caught in construction works;
- No animal, reptile or bird of any sort found on site may be killed. This specifically includes snakes or other animals considered potentially dangerous discovered on site. If such an animal is discovered on site an appropriately skilled person should be summoned to remove the animal from the site. Consideration should be given to selection and nomination of such a person prior to site establishment. If no-one is available, training should be provided to at least two site staff members.
- Environmental training must be conducted by the responsible ECO.
- The removal and replanting of indigenous vegetation must be conducted under the supervision of the ECO and biodiversity specialist, the Municipality can provide alternate replanting sites should it be needed.

Waste Management and Pollution Prevention

- Demarcated areas where waste can be securely contained and stored on a temporary basis during the construction phase should be established. When adequate volumes (not more than 1 month) have accumulated all waste is to be removed from site and disposed of at a licensed facility;
- Litter must be removed from all construction areas prior to construction commencement.
- Waste is not to be buried on site;
- Storage of waste volumes must not exceed those stipulated in NEM:WA, schedule 1.
- All waste must be recycled where possible or disposed of at a registered landfill, proof of which must be provided.
- All hazardous materials including paints, turpentine and thinners must be stored appropriately to prevent these contaminants from entering the environment;
- Spill-sorb or similar type product must be used to absorb hydrocarbon spills in the event that such spills should occur;

Surface Water

- Care must be taken to ensure that in removing vegetation adequate erosion control measures are implemented;
- A stormwater management plan, including sufficient erosion-control measures, must be compiled in consultation with a suitably qualified environmental practitioner / control officer during the detailed design phase prior to the commencement of construction.

Air Quality

- Heavy vehicles and machinery should be serviced regularly to minimise exhaust fume pollution;
- Soil stockpiles will be located in areas to limit the erosive effects of the wind, which will limit dust;
- Removal of vegetation will be avoided until such time as soil stripping is required, which will limit dust.
- Limit vehicle speeds on unpaved roads to 20 km/h to limit the amount of dust generated;
- Haulage distances should be at a minimum;
- Water should be sprayed onto gravel roads when required;
- Environmental friendly soil stabilisers may be used as additional measures to control dust on gravel roads and construction areas;
- All equipment should be kept in good working order;
- Equipment should be operated within its specifications and capacity and should not be overloaded;
- All machinery/plant should be serviced and lubricated regularly to ensure a good working order;
- Ensure that the potential noise source will conform to the South African Bureau of Standards recommended code of practice, SANS Code 0103:1983, so that it will not produce excessive or undesirable noise when it is released;

- All the Contractors' equipment shall be fitted with effective exhaust silencers and shall comply with the South African Bureau of Standards recommended code of practice and the South African National Standard (SANS) Code 0103:1983, for construction plant noise generation;
- The entire Contractors' vehicles shall be fitted with effective exhaust silencers and shall comply with Road Traffic Act (Act 29 of 1989) when any such vehicle is operated on a public road.

Traffic
- Provide sufficient area for the storage of heavy vehicles within the construction site;
- Ensure that all road diversions and closures are considered as part of the development footprint and do not add any unnecessary roads;
- Ensure that vehicle traffic which may obstruct traffic flow is scheduled outside of peak travelling time;
- Ensure that heavy / large load traffic is appropriately routed and appropriate safety precautions are taken to prohibit road collisions and traffic incidences; and
- Ensure that vehicle operators are suitably licensed, have had appropriate environmental and safety induction, are aware of specific site procedures, and are well rested and cognisant when operating heavy or unsafe vehicles / machinery.
- Ensure that public consultation has taken place, informing residents of alternative routes prior to the commencement of construction activities.

Heritage Impact
- In the event of a cultural or heritage artefact being found all work must stop until the matter is resolved. AMAFA is to be contacted immediately and direction from the AMAFA representative must be taken and adhered to.

n) Aspects for inclusion as conditions of Authorisation.

Any aspects which must be made conditions of the Environmental Authorisation

It is the recommendation of the EAP that the following management and mitigation measures be incorporated into any project approvals which may be issued.

Soils
- Spread absorbent sand on areas where oil spills have occurred;
- Oil-contaminated soils are to be removed to a contained storage area and disposed of at a licensed facility;
- Soil should be stockpiled in such a way as to minimize erosion and be located out of the 1:20 year floodline or 50 metres from the watercourses, whichever is the greater;
- Top soil should be stockpiled to be used for rehabilitation once construction is completed.

Vegetation and Fauna
- All construction areas should be demarcated prior to construction to ensure that the footprint of the impacts are limited (including areas where vehicles may traverse);
- All alien invasive species within the construction and development footprint should be removed and follow up monitoring and removal programmes should be initiated by the applicant once construction is complete;
- Reseed cleared areas with an indigenous seed mix to prevent soil erosion;
- Hunting and/or fishing activities on site must be prohibited. This includes the setting of traps, or the killing of any animal caught in construction works;
- No animal, reptile or bird of any sort found on site may be killed. This specifically includes snakes or other animals considered potentially dangerous discovered on site. If such an animal is discovered on site an appropriately skilled person should be summoned to remove the animal from the site. Consideration should be given to selection and nomination of such a person prior to site establishment. If no-one is available, training should be provided to at least two site staff members.

Waste Management and Pollution Prevention
- Demarcated areas where waste can be securely contained and stored on a temporary basis during the construction phase should be established. When adequate volumes have accumulated all waste is to be removed from site and disposed of at a licensed disposal facility (waste must however be removed at least once every two weeks irrespective of volumes);

- Waste is not to be buried or burnt on site and records of waste disposal are maintained;
- Storage of waste volumes must not exceed those stipulated in NEM:WA, schedule 1.
- All hazardous materials must be stored appropriately to prevent these contaminants from entering the environment.
- Spill-sorb or similar type product must be used to absorb hydrocarbon spills in the event that such spills should occur, spent product must be disposed of at an appropriately licenced facility by a licenced waste service provider;

Surface Water
- Care must be taken to ensure that in removing vegetation adequate erosion control measures are implemented;
- A stormwater management plan, including sufficient erosion-control measures, must be compiled in consultation with a suitably qualified hydrologist/environmental practitioner / control officer during the detailed design phase prior to the commencement of construction; and
- The propagation of low-growing dense vegetation suitable for the habitat such as grasses, sedges or reeds is the best natural method to reduce erosion potential in sensitive areas.

Air Quality
- Heavy vehicles and machinery should be serviced regularly to minimise exhaust fume pollution;
- Soil stockpiles must be located in areas to limit the erosive effects of the wind, which will limit dust;
- Removal of vegetation must be avoided until such time as soil stripping is required, which will limit dust.
- Vehicle speeds on unpaved roads must be limited to 20 km/h to reduce the amount of dust generated;
- Haulage distances should be kept to a minimum within the confines of the EMPr requirements regarding stockpile and storage areas;
- Water should be sprayed onto gravel roads when required to suppress dust;
- Environmental friendly soil stabilisers may be used as additional measures to control dust on gravel roads and construction areas;
- All equipment should be kept in good working order;
- Equipment should be operated within its specifications and capacity and should not be overloaded;
- All machinery/plant should be serviced and lubricated regularly to ensure a good working order;
- Ensure that the potential noise source will conform to the South African Bureau of Standards recommended code of practice, SANS Code 0103:1983, so that it will not produce excessive or undesirable noise when it is released;
- All the Contractors' equipment shall be fitted with effective exhaust silencers and shall comply with the South African Bureau of Standards recommended code of practice and the South African National Standard (SANS) Code 0103:1983, for construction plant noise generation
- The entire Contractors' vehicles shall be fitted with effective exhaust silencers and shall comply with Road Traffic Act (Act 29 of 1989) when any such vehicle is operated on a public road.

Traffic
- Provide sufficient area for the storage of heavy vehicles within the construction site;
- Ensure that all road diversions and closures are considered as part of the development footprint and do not add any unnecessary roads;
- Ensure that vehicle traffic which may obstruct traffic flow is scheduled outside of peak travelling times and that the local communities are made aware of any road closures / detours at least 5 working days prior to implementation;
- Ensure that heavy / large load traffic is appropriately routed and appropriate safety precautions are taken to prohibit road collisions and traffic incidences;
- Ensure that vehicle operators are suitably licensed, have had appropriate environmental and safety induction, are aware of specific site procedures, and are well rested and cognisant when operating heavy or unsafe vehicles / machinery; and
- Ensure that traffic warning and safety signage is in place at the construction zones at all times. Any potentially dangerous areas/ excavations must be formally demarcated and signed.

Heritage Impact
- In the event of a cultural or heritage artefact being found all work must stop until the matter is resolved. AMAFA is to be contacted immediately and direction from the AMAFA representative must be taken and adhered to.

A construction EMPr (see Appendix J) has been compiled to mitigate identified impacts associated with waste, dust, noise, spillages, erosion, vegetation removal and alien vegetation encroachment. Associated impacts such as traffic and the safety of children, pedestrians and cattle shall have to be mitigated through traffic calming measures and visible signage laid out by the contractor.

An onsite ELO must be appointed to oversee and ensure that the EMPr is correctly and stringently implemented and maintained for the duration of the construction phase of the activity. The ELO will be responsible for the day to day environmental monitoring of the construction.

An independent ECO must be employed to conduct monthly audits of the activity for the duration of the construction phase. The ECO will audit compliance with the EMPr and specify any corrective measures that may be required in monthly audit reports which will be submitted to the EDTEA.

o) Description of any assumptions, uncertainties and gaps in knowledge.

(Which relate to the assessment and mitigation measures proposed)

Terratest (Pty) Ltd is of the assumption that the information provided to us and used in the detailing of this report is correct.

It is assumed that databases and maps utilised are accurate. Ground truthing was undertaken in the context of vegetation and fauna where reasonable. In addition ground truthing was conducted to ensure that watercourses and wetlands were not present on the site.

p) Reasoned opinion as to whether the proposed activity should or should not be authorised

i) Reasons why the activity should be authorized or not.

The proposed project should not result in impacts on the natural or social environment that are highly detrimental, nor result in undue risks to the natural environment. The nature and types of negative impacts do not outweigh the potential benefits of this project, provided the short term localised impacts of construction phase are adequately mitigated.

It is imperative that the findings and recommendations of the Basic Assessment Report are carried through to the project Environmental Management Programme (EMPr) and monitored by an Environmental Control Officer (ECO). It is recommended that an independent ECO be appointed to undertake annual site inspections and compile annual audit reports to be submit to the relevant compliance and monitoring authority.

Type of Impacts

The key negative impacts include the sites potential for soil erosion, vegetation and fauna loss, surface water pollution, air quality and noise pollution, visual impacts, traffic impacts, waste pollution, socio-economic impacts and heritage impacts are all mainly limited to the construction phase. These impacts can be successfully mitigated.

Likelihood

Most of the negative impacts are likely to occur during the construction phase.

Duration

The duration of most impacts will be short term, impacts will be limited to the construction phase.

Spatial Scale

Impacts as noted above will be localised in scale.

Intensity

Impacts on the local natural environment are likely to be moderate to low as much of the area has already been impacted by previous mining activities. Social impacts are likely to be low and negative impacts will be offset by MODERATE BENEFITS in terms of skills development, and contribution to the upliftment and development.

Overall Environmental Significance

The overall environmental impact in terms of the natural environment is LOW NEGATIVE and will be limited to the construction period. There is a number of MODERATE benefits associated with the implementation of the preferred alternative.

ii) Conditions that must be included in the authorisation

It is the recommendation of the EAP that the following management and mitigation measures be incorporated into any project approvals which may be issued.

Soils

- Spread absorbent sand on areas where oil spills have occurred;
- Oil-contaminated soils are to be removed to a contained storage area and disposed of at a licensed facility;
- Soil should be stockpiled in such a way as to minimize erosion and be located out of the 1:20 year floodline or 50 metres from the watercourses, whichever is the greater;
- Top soil should be stockpiled to be used for rehabilitation once construction is completed.

Vegetation and Fauna

- All construction areas should be demarcated prior to construction to ensure that the footprint of the impacts are limited (including areas where vehicles may traverse);
- All alien invasive species within the construction and development footprint should be removed and follow up monitoring and removal programmes should be initiated by the applicant once construction is complete;
- Reseed cleared areas with an indigenous seed mix to prevent soil erosion;
- Hunting and/or fishing activities on site must be prohibited. This includes the setting of traps, or the killing of any animal caught in construction works;
- No animal, reptile or bird of any sort found on site may be killed. This specifically includes snakes or other animals considered potentially dangerous discovered on site. If such an animal is discovered on site an appropriately skilled person should be summoned to remove the animal from the site. Consideration should be given to selection and nomination of such a person prior to site establishment. If no-one is available, training should be provided to at least two site staff members.

Waste Management and Pollution Prevention

- Demarcated areas where waste can be securely contained and stored on a temporary basis during the construction phase should be established. When adequate volumes have accumulated all waste is to be removed from site and disposed of at a licensed disposal facility (waste must however be removed at least once every two weeks irrespective of volumes);
- Waste is not to be buried or burnt on site and records of waste disposal are maintained;
- Storage of waste volumes must not exceed those stipulated in NEM:WA, schedule 1.
- All hazardous materials must be stored appropriately to prevent these contaminants from entering the environment.

- Spill-sorb or similar type product must be used to absorb hydrocarbon spills in the event that such spills should occur, spent product must be disposed of at an appropriately licenced facility by a licenced waste service provider;

Surface Water

- Care must be taken to ensure that in removing vegetation adequate erosion control measures are implemented;
- A stormwater management plan, including sufficient erosion-control measures, must be compiled in consultation with a suitably qualified hydrologist/environmental practitioner / control officer during the detailed design phase prior to the commencement of construction; and
- The propagation of low-growing dense vegetation suitable for the habitat such as grasses, sedges or reeds is the best natural method to reduce erosion potential in sensitive areas.

Air Quality

- Heavy vehicles and machinery should be serviced regularly to minimise exhaust fume pollution;
- Soil stockpiles must be located in areas to limit the erosive effects of the wind, which will limit dust;
- Removal of vegetation must be avoided until such time as soil stripping is required, which will limit dust.
- Vehicle speeds on unpaved roads must be limited to 20 km/h to reduce the amount of dust generated;
- Haulage distances should be kept to a minimum within the confines of the EMPr requirements regarding stockpile and storage areas;
- Water should be sprayed onto gravel roads when required to suppress dust;
- Environmental friendly soil stabilisers may be used as additional measures to control dust on gravel roads and construction areas;
- All equipment should be kept in good working order;
- Equipment should be operated within its specifications and capacity and should not be overloaded;
- All machinery/plant should be serviced and lubricated regularly to ensure a good working order;
- Ensure that the potential noise source will conform to the South African Bureau of Standards recommended code of practice, SANS Code 0103:1983, so that it will not produce excessive or undesirable noise when it is released;
- All the Contractors' equipment shall be fitted with effective exhaust silencers and shall comply with the South African Bureau of Standards recommended code of practice and the South African National Standard (SANS) Code 0103:1983, for construction plant noise generation
- The entire Contractors' vehicles shall be fitted with effective exhaust silencers and shall comply with Road Traffic Act (Act 29 of 1989) when any such vehicle is operated on a public road.

Traffic

- Provide sufficient area for the storage of heavy vehicles within the construction site;
- Ensure that all road diversions and closures are considered as part of the development footprint and do not add any unnecessary roads;
- Ensure that vehicle traffic which may obstruct traffic flow is scheduled outside of peak travelling times and that the local communities are made aware of any road closures / detours at least 5 working days prior to implementation;

- Ensure that heavy / large load traffic is appropriately routed and appropriate safety precautions are taken to prohibit road collisions and traffic incidences;
- Ensure that vehicle operators are suitably licensed, have had appropriate environmental and safety induction, are aware of specific site procedures, and are well rested and cognisant when operating heavy or unsafe vehicles / machinery; and
- Ensure that traffic warning and safety signage is in place at the construction zones at all times. Any potentially dangerous areas/ excavations must be formally demarcated and signed.

Heritage Impact

- In the event of a cultural or heritage artefact being found all work must stop until the matter is resolved. AMAFA is to be contacted immediately and direction from the AMAFA representative must be taken and adhered to.

A construction EMPr (see Appendix J) has been compiled to mitigate identified impacts associated with waste, dust, noise, spillages, erosion, vegetation removal and alien vegetation encroachment. Associated impacts such as traffic and the safety of children, pedestrians and cattle shall have to be mitigated through traffic calming measures and visible signage laid out by the contractor.

An onsite ELO must be appointed to oversee and ensure that the EMPr is correctly and stringently implemented and maintained for the duration of the construction phase of the activity. The ELO will be responsible for the day to day environmental monitoring of the construction.

An independent ECO must be employed to conduct monthly annual of the activity for the duration of the construction phase. The ECO will audit compliance with the EMPr and specify any corrective measures that may be required in annual audit reports which will be submitted to the EDTEA

q) Period for which the Environmental Authorisation is required.

Two years

r) 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.

Confirmed.

s) Financial Provision

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

i) Explain how the aforesaid amount was derived.

ii) Confirm that this amount can be provided for from operating 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).

t) Specific Information required by the competent Authority

i) 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 EIA report must include the:-

(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, attach the investigation report as an **Appendix** .

None at the time of circulating this report.

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

(Provide the results 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 that Act, attach the investigation report as **Appendix 2.19.2** and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6.and 2.12.herein).

None at the time of circulating this report

u) Other matters required in terms of sections 24(4)(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 EAP must attach such motivation as **Appendix 4)**.

None at the time of circulating this report.

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

1) Draft environmental management programme.

a) **Details of the EAP,** (Confirm that the requirement for the provision of the details and expertise of the EAP are already included in PART A, section 1(a) herein as required).

As per part A, section 1(a) herein.

b) **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 (1)(h) herein as required).

As per part A, section 1(h) herein.

c) Composite 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)

Please see Appendix J

d) **Description of Impact management objectives including management statements**

i) **Determination of closure objectives.** (ensure that the closure objectives are informed by the type of environment described)

Rehabilitation measures.

Soils

- Spread absorbent sand on areas where oil spills have occurred;
- Oil-contaminated soils are to be removed to a contained storage area and disposed of at a licensed facility;
- Stockpiles should be distrubited in such a way as to minimize erosion and create uniformity with the surrounding environment.

Vegetation and Fauna

- All construction areas should be cleared of materials and hardened surfaces loosened;
- All alien invasive species within the construction and development footprint should be removed and follow up monitoring and removal programmes should be initiated;
- Reseed cleared areas with an indigenous seed mix to prevent soil erosion;
- The replanting of indigenous vegetation must be conducted under the supervision of the ECO and biodiversity specialist, the Municipality can provide alternate replanting sites should it be needed.

Waste Management and Pollution Prevention

- Demarcated areas where waste was securely contained and stored on a temporary basis should be de-established. All waste is to be removed from site and disposed of at a licensed facility;
- Litter must be removed from all construction areas.
- Waste is not to be buried on site;
- All hazardous materials including paints, turpentine and thinners must be removed from the site;

Surface Water

- Care must be taken to ensure that in repalting vegetation, adequate erosion control measures are implemented;
- A stormwater management plan, including sufficient erosion-control measures, must be incorporated into the rehailitation plan, compiled in consultation with a suitably qualified environmental practitioner / control officer.

ii) **Volumes and rate of water use required for the operation.**

The proposed application is not dependant on substantial quantities of water. THe only water requirement is for domestic consumtion by employees on a daily basis. This water will be sourced from a municipal supply and brought onto site on a daily basis.

For this reason a water use license is not required.

iii) **Has a water use licence has been applied for?**

iv) Impacts to be mitigated in their respective phases

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

ACTIVITIES **(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.)	**PHASE** (of operation in which activity will take place. State; Planning and design, Pre-Construction' Construction, Operational, Rehabilitation, Closure, Post closure).	**SIZE AND SCALE of disturbance** (volumes, tonnages and hectares or m²)	**MITIGATION MEASURES** (describe how each of the recommendations in 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.
Soil contamination	Pre-construction, operational, rehabilitation and closure.		Hazardous materials/dangerous goods should be stored in a clearly marked, lockable, designated storage area; Hazardous materials/dangerous goods should be stored within a 110% bunded area or on an impermeable surface; and Chemical toilets should be placed outside 50m from any watercourse. A registered chemical waste company is to be used to remove waste from the chemical toilets on site.		Lifespan of the project. Lifespan of the project. Weekly.

			Documentation for this must be kept by the contractor for review purposes by the ECO if needed.		
Soil loss	Pre-construction, operational, rehabilitation and closure.		Soil should be stockpiled in such a way as to minimize erosion;		Lifespan of the project.
			The exposed soil surfaces have the potential to erode easily if left uncovered which could lead to the loss of vegetation, also leading to the potential increase in soil erosion; and		As soon as possible.
			Potential loss of stockpiled topsoil and other materials if not protected properly.		As soon as possible.
Preservation of Flora	Pre-construction, operational, rehabilitation and closure.		All construction areas should be demarcated prior to construction to ensure that the footprint of the impacts are limited (including areas where vehicles may traverse);		Before commencement.
			All alien invasive species within the construction and development footprint should be removed and follow up monitoring and removal programmes should be initiated once construction is complete; and		Lifespan of the project.

			The removal and replanting of indigenous vegetation must be conducted under the supervision of the ECO and biodiversity specialist, the Municipality can provide alternate replanting sites should it be needed.		Lifespan of the project.
Preservation of fauna	Pre-construction, operational, rehabilitation and closure.		Hunting and/or fishing activities on site is prohibited. This includes the setting of traps, or the killing of any animal caught in construction works;		Lifespan of the project.
			No animal, reptile or bird of any sort found on site may be killed. This specifically includes snakes or other animals considered potentially dangerous discovered on site. If such an animal is discovered on site an appropriately skilled person should be summoned to remove the animal from the site. Consideration should be given to selection and nomination of such a person prior to site establishment. If no-one is available, training should be provided to at least two site staff members; and		Lifespan of the project.

			Environmental training must be conducted by the responsible ECO.		Lifespan of the project.
Prevent increased surface runoff	Pre-construction, operational, rehabilitation and closure.		Care must be taken to ensure that in removing vegetation adequate erosion control measures are implemented; and		Lifespan of the project.
			A stormwater management plan, including sufficient erosion-control measures, has been compiled in consultation with a suitably qualified environmental practitioner / control officer during the detailed design phase prior to the commencement of construction.		Lifespan of the project.
Preserve air quality	Pre-construction, operational, rehabilitation and closure.		Heavy vehicles and machinery should be serviced regularly to minimise exhaust fume pollution;		Lifespan of the project.
			Soil stockpiles will be located in areas to limit the erosive effects of the wind, which will limit dust;		Lifespan of the project.
			Removal of vegetation will be avoided until such time as soil stripping is required, which will limit dust;		Lifespan of the project.

			Limit vehicle speeds on unpaved roads to 20 km/h to limit the amount of dust generated;		Lifespan of the project.
			Haulage distances should be at a minimum;		Lifespan of the project.
			Water should be sprayed onto gravel roads when required;		Lifespan of the project.
			Environmental friendly soil stabilisers may be used as additional measures to control dust on gravel roads and construction areas;		Lifespan of the project.
			All equipment should be kept in good working order;		Lifespan of the project.
			Equipment should be operated within its specifications and capacity and should not be overloaded;		Lifespan of the project.
			All machinery/plant should be serviced and lubricated regularly to ensure a good working order; and		Lifespan of the project.
			The entire Contractors' vehicles shall be fitted with effective exhaust silencers and shall comply with Road Traffic Act (Act 29 of 1989) when any such		Lifespan of the project.

			vehicle is operated on a public road.		
Prevent noise pollution	Pre-construction, operational, rehabilitation and closure.		Potential increase in noise from the operation of machinery and equipment, as well as the construction vehicle traffic;		Lifespan of the project.
			Potential disturbance to the resident's adjacent site;		Lifespan of the project.
			Ensure that the potential noise source will conform to the South African Bureau of Standards recommended code of practice, SANS Code 0103:1983, so that it will not produce excessive or undesirable noise when it is released; and		Lifespan of the project.
			All the Contractors' equipment shall be fitted with effective exhaust silencers and shall comply with the South African Bureau of Standards recommended code of practice and the South African National Standard (SANS) Code 0103:1983, for construction plant noise generation.		Lifespan of the project.
Prevent visual unsightliness	Pre-constructi		Potential for the creation of dust from the construction vehicles;		Lifespan of the project.

	on, operational, rehabilitation and closure.		The presence of the construction machinery on site will have a temporary visual impact;		Lifespan of the project.
Prevent unnecessary impedance of traffic	Pre-construction, operational, rehabilitation and closure.		Potential increase of construction vehicles entering and exiting the site;		Lifespan of the project.
			Possible lane closures, traffic delays and congestion during the pre-construction phase;		Lifespan of the project.
			Provide sufficient area for the storage of heavy vehicles within the construction site;		Lifespan of the project.
			Ensure that vehicle traffic which may obstruct traffic flow is scheduled outside of peak travelling time;		Lifespan of the project.
			Ensure that heavy / large load traffic is appropriately routed and appropriate safety precautions are taken to prohibit road collisions and traffic incidences;		Lifespan of the project.
			Ensure that vehicle operators are suitably licensed, have had appropriate environmental and safety induction, are aware of specific site procedures, and are		Lifespan of the project.

			well rested and cognisant when operating heavy or unsafe vehicles / machinery; and		
			Ensure that public consultation has taken place, informing residents of alternative routes prior to the commencement of construction activities.		Lifespan of the project.
Prevent the spread of waste	Pre-construction, operational, rehabilitation and closure.		Accumulation of general waste;		Lifespan of the project.
			Demarcated areas where waste can be securely contained and stored on a temporary basis during the construction phase should be established. When adequate volumes (not more than 1 month) have accumulated all waste is to be removed from site and disposed of at a licensed facility;		Lifespan of the project.
			Litter must be removed from all construction areas prior to construction commencement;		Weekly.
			Should skips be used for the storage and transportation of waste, these need to be emptied once full and covered to prevent waste from being blown away;		Weekly.
			Waste is not to be buried on site;		Lifespan of the project.

			Storage of waste volumes must not exceed those stipulated in NEM:WA, schedule 1;		Lifespan of the project.
			All waste must be recycled where possible or disposed of at a registered landfill, proof of which must be provided;		Lifespan of the project.
			All hazardous materials including paints, turpentine and thinners must be stored appropriately to prevent these contaminants from entering the environment; and		Lifespan of the project.
			Spill-sorb or similar type product must be used to absorb hydrocarbon spills in the event that such spills should occur.		Lifespan of the project.
Prevent unnecessary loss of heritage artefacts	Pre-construction, operational, rehabilitation and closure.		Possibility of finding something of heritage or cultural significance during earth moving activities;		Lifespan of the project.
			Potential destruction of grave sites located around the construction area through construction activities;		Lifespan of the project.
			In the event of a cultural or heritage artefact being found all		Lifespan of the project.

			work must stop until the matter is resolved. AMAFA is to be contacted immediately and direction from the AMAFA representative must be taken and adhered to; and No graves may be damaged, altered or destroyed.		Lifespan of the project.

e) Impact Management Outcomes

(A description of impact management outcomes, identifying the standard of impact management required 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, conveyors, etc…etc…etc.).**	**POTENTIAL IMPACT** **(e.g. dust, 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)**	**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** • **Remedy through rehabilitation..**	**STANDARD TO BE ACHIEVED** **(Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.**
Vegetation stripping, Excavations, stockpiles, loading, hauling, transport, offices, ablution, stores, stormwater control, berms, roads.	Soil contamination		Pre-construction, operational, rehabilitation and closure.	Hazardous materials/dangerous goods should be stored in a clearly marked, lockable, designated storage area; Hazardous materials/dangerous goods should be stored within a 110% bunded area or on an impermeable surface; and Chemical toilets should be placed outside 50m from any watercourse. A registered chemical waste company is to be used to remove waste from the chemical toilets on site. Documentation for this must be kept by the contractor for	Prevent soil contamination

				review purposes by the ECO if needed.	
	Soil loss		Pre-construction, operational, rehabilitation and closure.	Soil should be stockpiled in such a way as to minimize erosion; The exposed soil surfaces have the potential to erode easily if left uncovered which could lead to the loss of vegetation, also leading to the potential increase in soil erosion; and Potential loss of stockpiled topsoil and other materials if not protected properly.	Prevent soil loss
	Preservation of Flora		Pre-construction, operational, rehabilitation and closure.	All construction areas should be demarcated prior to construction to ensure that the footprint of the impacts are limited (including areas where vehicles may traverse); All alien invasive species within the construction and development footprint should be removed and follow up monitoring and removal programmes should be initiated once construction is complete; and	Preservation of Flora

				The removal and replanting of indigenous vegetation must be conducted under the supervision of the ECO and biodiversity specialist, the Municipality can provide alternate replanting sites should it be needed.	
	Preservation of fauna		Pre-construction, operational, rehabilitation and closure.	Hunting and/or fishing activities on site is prohibited. This includes the setting of traps, or the killing of any animal caught in construction works; No animal, reptile or bird of any sort found on site may be killed. This specifically includes snakes or other animals considered potentially dangerous discovered on site. If such an animal is discovered on site an appropriately skilled person should be summoned to remove the animal from the site. Consideration should be given to selection and nomination of such a person prior to site establishment. If no-one is available, training should be provided to at least two site staff members; and	Preservation of fauna

				Environmental training must be conducted by the responsible ECO.	
	Increased surface runoff		Pre-construction, operational, rehabilitation and closure.	Care must be taken to ensure that in removing vegetation adequate erosion control measures are implemented; and A stormwater management plan, including sufficient erosion-control measures, has been compiled in consultation with a suitably qualified environmental practitioner / control officer during the detailed design phase prior to the commencement of construction.	Prevent increased surface runoff
	Air quality		Pre-construction, operational, rehabilitation and closure.	Heavy vehicles and machinery should be serviced regularly to minimise exhaust fume pollution; Soil stockpiles will be located in areas to limit the erosive effects of the wind, which will limit dust; Removal of vegetation will be avoided until such time as soil	Preserve air quality

				stripping is required, which will limit dust; Limit vehicle speeds on unpaved roads to 20 km/h to limit the amount of dust generated; Haulage distances should be at a minimum; Water should be sprayed onto gravel roads when required; Environmental friendly soil stabilisers may be used as additional measures to control dust on gravel roads and construction areas; All equipment should be kept in good working order; Equipment should be operated within its specifications and capacity and should not be overloaded; All machinery/plant should be serviced and lubricated regularly to ensure a good working order; and The entire Contractors' vehicles shall be fitted with effective	

				exhaust silencers and shall comply with Road Traffic Act (Act 29 of 1989) when any such vehicle is operated on a public road.	
	Noise pollution		Pre-construction, operational, rehabilitation and closure.	Potential increase in noise from the operation of machinery and equipment, as well as the construction vehicle traffic; Potential disturbance to the resident's adjacent site; Ensure that the potential noise source will conform to the South African Bureau of Standards recommended code of practice, SANS Code 0103:1983, so that it will not produce excessive or undesirable noise when it is released; and All the Contractors' equipment shall be fitted with effective exhaust silencers and shall comply with the South African Bureau of Standards recommended code of practice and the South African National Standard (SANS) Code 0103:1983, for construction plant noise generation.	Prevent noise pollution

	Visual unsightliness		Pre-construction, operational, rehabilitation and closure.	Potential for the creation of dust from the construction vehicles; The presence of the construction machinery on site will have a temporary visual impact;	Prevent visual unsightliness
	Impedance of traffic		Pre-construction, operational, rehabilitation and closure.	Potential increase of construction vehicles entering and exiting the site; Possible lane closures, traffic delays and congestion during the pre-construction phase; Provide sufficient area for the storage of heavy vehicles within the construction site; Ensure that vehicle traffic which may obstruct traffic flow is scheduled outside of peak travelling time; Ensure that heavy / large load traffic is appropriately routed and appropriate safety precautions are taken to prohibit road collisions and traffic incidences;	Prevent unnecessary impedance of traffic

				Ensure that vehicle operators are suitably licensed, have had appropriate environmental and safety induction, are aware of specific site procedures, and are well rested and cognisant when operating heavy or unsafe vehicles / machinery; and Ensure that public consultation has taken place, informing residents of alternative routes prior to the commencement of construction activities.	
	Spread of waste		Pre-construction, operational, rehabilitation and closure.	Accumulation of general waste; Demarcated areas where waste can be securely contained and stored on a temporary basis during the construction phase should be established. When adequate volumes (not more than 1 month) have accumulated all waste is to be removed from site and disposed of at a licensed facility; Litter must be removed from all construction areas prior to construction commencement; Should skips be used for the storage and transportation of	Prevent the spread of waste

				waste, these need to be emptied once full and covered to prevent waste from being blown away; Waste is not to be buried on site; Storage of waste volumes must not exceed those stipulated in NEM:WA, schedule 1; All waste must be recycled where possible or disposed of at a registered landfill, proof of which must be provided; All hazardous materials including paints, turpentine and thinners must be stored appropriately to prevent these contaminants from entering the environment; and Spill-sorb or similar type product must be used to absorb hydrocarbon spills in the event that such spills should occur.	
	Loss of heritage artefacts		Pre-construction, operational, rehabilitation and closure.	Possibility of finding something of heritage or cultural significance during earth moving activities;	Prevent unnecessary loss of heritage artefacts

				Potential destruction of grave sites located around the construction area through construction activities; In the event of a cultural or heritage artefact being found all work must stop until the matter is resolved. AMAFA is to be contacted immediately and direction from the AMAFA representative must be taken and adhered to; and No graves may be damaged, altered or destroyed.	

f) Impact Management Actions

(A description of impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated in paragraphs (c) and (d) 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, conveyors, etc…etc…etc.)**.	**POTENTIAL IMPACT** **(e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution 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** • **Control 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)
Vegetation stripping, Excavations, stockpiles, loading, hauling, transport, offices, ablution, stores, stormwater control, berms, roads	Soil contamination	Hazardous materials/dangerous goods should be stored in a clearly marked, lockable, designated storage area; Hazardous materials/dangerous goods should be stored within a 110% bunded area or on an impermeable surface; and	Lifespan of the project. Lifespan of the project.	

		Chemical toilets should be placed outside 50m from any watercourse. A registered chemical waste company is to be used to remove waste from the chemical toilets on site. Documentation for this must be kept by the contractor for review purposes by the ECO if needed.	Weekly.	
	Soil loss	Soil should be stockpiled in such a way as to minimize erosion;	Lifespan of the project.	
		The exposed soil surfaces have the potential to erode easily if left uncovered which could lead to the loss of vegetation, also leading to the potential increase in soil erosion; and	As soon as possible.	
		Potential loss of stockpiled topsoil and other materials if not protected properly.	As soon as possible.	
	Preservation of Flora	All construction areas should be demarcated prior to construction to ensure that the footprint of the impacts are limited	Before commencement.	

		(including areas where vehicles may traverse); All alien invasive species within the construction and development footprint should be removed and follow up monitoring and removal programmes should be initiated once construction is complete; and The removal and replanting of indigenous vegetation must be conducted under the supervision of the ECO and biodiversity specialist, the Municipality can provide alternate replanting sites should it be needed.	Lifespan of the project. Lifespan of the project.	
	Preservation of fauna	Hunting and/or fishing activities on site is prohibited. This includes the setting of traps, or the killing of any animal caught in construction works; No animal, reptile or bird of any sort found on site may be killed. This specifically includes snakes or other animals considered	Lifespan of the project. Lifespan of the project.	

		potentially dangerous discovered on site. If such an animal is discovered on site an appropriately skilled person should be summoned to remove the animal from the site. Consideration should be given to selection and nomination of such a person prior to site establishment. If no-one is available, training should be provided to at least two site staff members; and		
		Environmental training must be conducted by the responsible ECO.	Lifespan of the project.	
	Increased surface runoff	Care must be taken to ensure that in removing vegetation adequate erosion control measures are implemented; and	Lifespan of the project.	
		A stormwater management plan, including sufficient erosion-control measures, has been compiled in consultation with a suitably qualified environmental practitioner / control officer during the detailed design phase prior to the	Lifespan of the project.	

		commencement of construction.		
	Air quality	Heavy vehicles and machinery should be serviced regularly to minimise exhaust fume pollution;	Lifespan of the project.	
		Soil stockpiles will be located in areas to limit the erosive effects of the wind, which will limit dust;	Lifespan of the project.	
		Removal of vegetation will be avoided until such time as soil stripping is required, which will limit dust;	Lifespan of the project.	
		Limit vehicle speeds on unpaved roads to 20 km/h to limit the amount of dust generated;	Lifespan of the project.	
		Haulage distances should be at a minimum;	Lifespan of the project.	
		Water should be sprayed onto gravel roads when required;	Lifespan of the project.	
		Environmental friendly soil stabilisers may be used as additional measures to	Lifespan of the project.	

		control dust on gravel roads and construction areas;		
		All equipment should be kept in good working order;	Lifespan of the project.	
		Equipment should be operated within its specifications and capacity and should not be overloaded;	Lifespan of the project.	
		All machinery/plant should be serviced and lubricated regularly to ensure a good working order; and	Lifespan of the project.	
		The entire Contractors' vehicles shall be fitted with effective exhaust silencers and shall comply with Road Traffic Act (Act 29 of 1989) when any such vehicle is operated on a public road.	Lifespan of the project.	
	Noise pollution	Potential increase in noise from the operation of machinery and equipment, as well as the construction vehicle traffic;	Lifespan of the project.	
		Potential disturbance to the resident's adjacent site;	Lifespan of the project.	

		Ensure that the potential noise source will conform to the South African Bureau of Standards recommended code of practice, SANS Code 0103:1983, so that it will not produce excessive or undesirable noise when it is released; and	Lifespan of the project.	
		All the Contractors' equipment shall be fitted with effective exhaust silencers and shall comply with the South African Bureau of Standards recommended code of practice and the South African National Standard (SANS) Code 0103:1983, for construction plant noise generation.	Lifespan of the project.	
	Visual unsightliness	Potential for the creation of dust from the construction vehicles;	Lifespan of the project.	
		The presence of the construction machinery on site will have a temporary visual impact;	Lifespan of the project.	

	Impedance of traffic	Potential increase of construction vehicles entering and exiting the site; Possible lane closures, traffic delays and congestion during the pre-construction phase; Provide sufficient area for the storage of heavy vehicles within the construction site; Ensure that vehicle traffic which may obstruct traffic flow is scheduled outside of peak travelling time; Ensure that heavy / large load traffic is appropriately routed and appropriate safety precautions are taken to prohibit road collisions and traffic incidences; Ensure that vehicle operators are suitably licensed, have had appropriate environmental and safety induction, are aware of specific site procedures, and are well rested and cognisant when	Lifespan of the project. Lifespan of the project. Lifespan of the project. Lifespan of the project. Lifespan of the project. Lifespan of the project.	

		operating heavy or unsafe vehicles / machinery; and		
		Ensure that public consultation has taken place, informing residents of alternative routes prior to the commencement of construction activities.	Lifespan of the project.	
	Spread of waste	Accumulation of general waste;	Lifespan of the project.	
		Demarcated areas where waste can be securely contained and stored on a temporary basis during the construction phase should be established. When adequate volumes (not more than 1 month) have accumulated all waste is to be removed from site and disposed of at a licensed facility;	Lifespan of the project.	
		Litter must be removed from all construction areas prior to construction commencement;	Weekly.	
		Should skips be used for the storage and transportation of waste, these need to be	Weekly.	

		emptied once full and covered to prevent waste from being blown away;		
		Waste is not to be buried on site;	Lifespan of the project.	
		Storage of waste volumes must not exceed those stipulated in NEM:WA, schedule 1;	Lifespan of the project.	
		All waste must be recycled where possible or disposed of at a registered landfill, proof of which must be provided;	Lifespan of the project.	
		All hazardous materials including paints, turpentine and thinners must be stored appropriately to prevent these contaminants from entering the environment; and	Lifespan of the project.	
		Spill-sorb or similar type product must be used to absorb hydrocarbon spills in the event that such spills should occur.	Lifespan of the project.	
	Loss of heritage artefacts	Possibility of finding something of heritage or	Lifespan of the project.	

		cultural significance during earth moving activities; Potential destruction of grave sites located around the construction area through construction activities; In the event of a cultural or heritage artefact being found all work must stop until the matter is resolved. AMAFA is to be contacted immediately and direction from the AMAFA representative must be taken and adhered to; and No graves may be damaged, altered or destroyed	Lifespan of the project. Lifespan of the project. Lifespan of the project.	

i) Financial Provision

(1) Determination of the amount of Financial Provision.

(a) Describe the closure objectives and the extent to which they have been aligned to the baseline environment described under the Regulation.

(b) Confirm specifically that the environmental objectives in relation to closure have been consulted with landowner and interested and affected parties.

(c) 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.

(d) Explain why it can be confirmed that the rehabilitation plan is compatible with the closure objectives.

(e) Calculate and state the quantum of the financial provision required to manage and rehabilitate the environment in accordance with the applicable guideline.

(f) Confirm that the financial provision will be provided as determined.

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

g) Monitoring of Impact Management Actions
h) Monitoring and reporting frequency
i) Responsible persons
j) Time period for implementing impact management actions
k) 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 PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS

l) Indicate the frequency of the submission of the performance assessment/ environmental audit report.

On an annual basis.

m) Environmental Awareness Plan

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

As part of the Environmental Management Programme / Environmental Audit Reports.

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

As part of the Environmental Management Programme / Environmental Audit Reports.

n) Specific information required by the Competent Authority
(Among others, confirm that the financial provision will be reviewed annually).

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:

Terratest (Pty) Ltd.

Name of company:

27-10-2015

Date:

-END-