



## 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: Raubex Construction (Pty) Ltd (Pty) Ltd.**

**TEL NO: 012 665 3226**

**FAX NO: -**

**POSTAL ADDRESS: -**

**PHYSICAL ADDRESS: Building 1, High Grove Park, 50 Tegel Avenue, Highveld 0169**

**FILE REFERENCE NUMBER SAMRAD: GP 30/5/1/3/2/10358 MP**

## 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 report 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 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**

**3. SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT**

**CONTACT PERSON AND CORRESPONDENCE ADDRESS**

**a) DETAILS OF -**

**(i) Details of the EAP how prepared the report**

*In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 1 – 3. (1)(a)(i)*

Name of the Practitioner: DERA Environmental Consultants (Pty) Ltd.

Mr Daan Erasmus

Tel No.: 018-468 5355

Fax No. : 018-468 4015

E-mail address: daane@dera.co.za

**(ii) Expertise of the EAP**

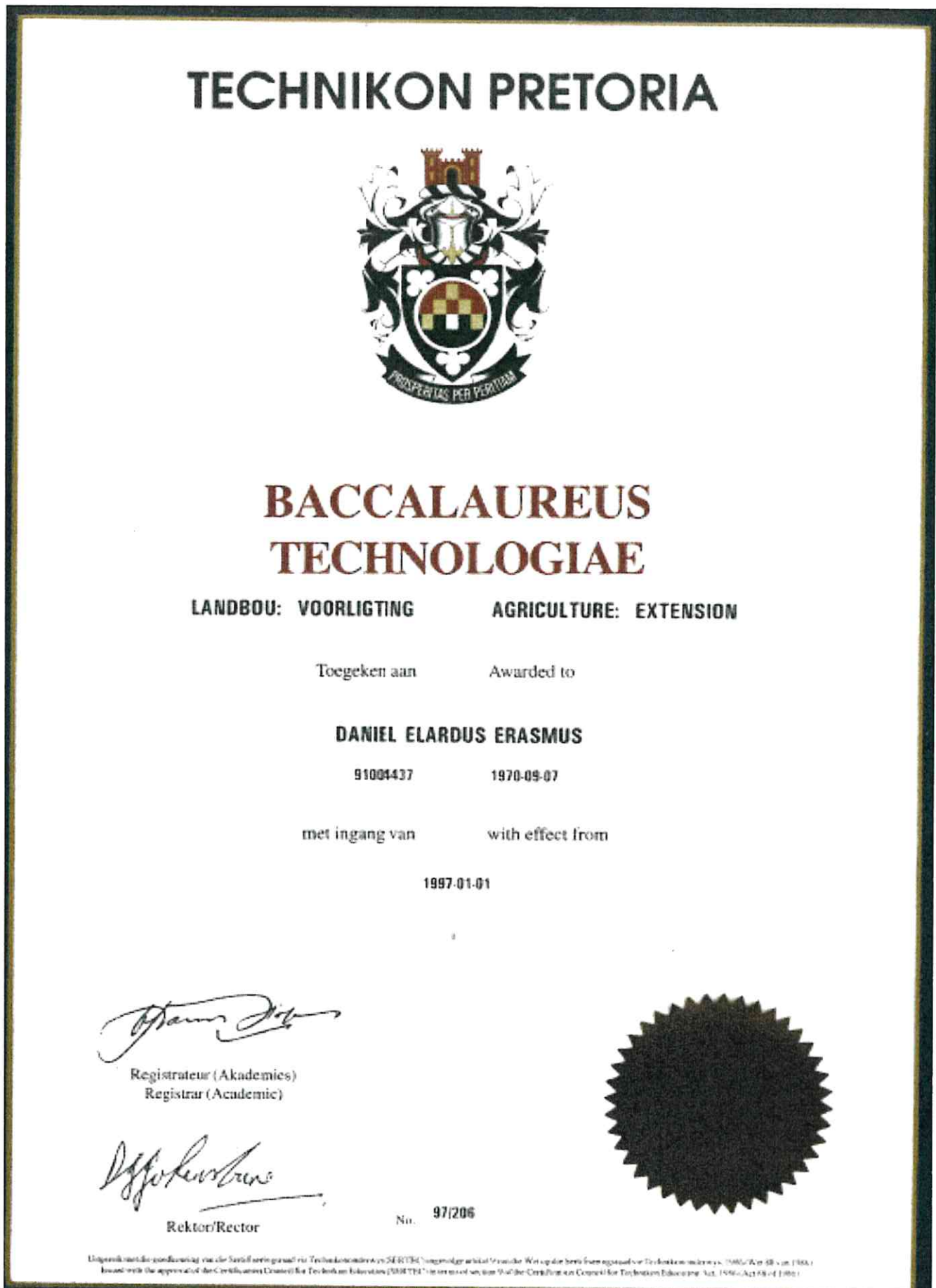
**1) The qualifications of the EAP**

*In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 1 – 3. (1)(a)(ii)*

The EAP Mr. Daan Erasmus has a National Diploma in Agriculture Resource Utilization and a Baccalaureus Technologiae degree in Agricultural Extension.

See next page for copy of qualification, Figure 1.

Figure 1 – Copy of Qualification



TECHNIKON  
PRETORIA



TECHNIKON  
PRETORIA

# NASIONALE NATIONAL DIPLOMA

LANDBOU: HULPBRONBENUTTING

AGRICULTURE: RESOURCE UTILIZATION

Toegeken aan

Awarded to

DANIEL ELARDUS ERASMUS

91004437

7009075033088

met ingang van

with effect from

1994-01-01

Die volgende is voltooi

The following were completed

(Die volgende is voltooi)

(The following are completed)

Landbou-ekonomie I, II en III  
Voorligtingsmetodiek I en II  
Akkerbou I, II en III  
Weidingkunde A  
Bodembepanning I en II  
Bodembewaring I  
Grondkunde I en II  
\*Meganisasie  
Fisiese Wetenskap  
Melkproduksietegnologie  
Vleisheesproduksietegnologie  
Kleinveesproduksietegnologie  
Grondklassifikasie III

Agricultural Economics I, II and III  
Extension Method I and II  
Field Husbandry I, II and III  
Pasture Science A  
Land Use Planning I and II  
Soil Conservation I  
Soil Science I and II  
Mechanisation\*  
Physical Science  
Milk Production Technology  
Beef Production Technology  
Small Stock Production Technology  
Soil Classification III

\*\*\*\*\*

Minimum Opleidingstydperk: 3 Jaar  
Minimum Training Period : 3 Years

SERTEC  
Uitvoerende Direkteur/  
Executive Director

Nr /No. ND1117/94

TECHNIKON  
Rektor/Rector

**2) Summary of the EAP's past experience.**

The EAP, Mr. Erasmus is involved in mining, environmental management, EMP & EMPR as well as Basic Assessments as from 1995. The EAP was involved in the NEMA Act through applications for chicken broilers where the Basic Assessments Report was also used to get to a ROD.

See **Figure 2** - below Curriculum Vitae of D. E. Erasmus.

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Wilkopies  
2671  
Klerksdorp  
South Africa

Phone +2718-468-6355  
Fax +2718-011-3760  
E-mail: d3ane@dera.co.za

## **DAAN ERASMUS**

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### **Curriculum Vitae Daniël Elardus Erasmus**

February 2020

#### Personal Information

Name: Daniël Elardus Erasmus  
Date of Birth: 7 September 1970  
Place of Birth: Ottosdal, North West Province, South Africa  
Marital Status: Married with two children

#### Professional Experience

**1989-1990** Military Service, Potchefstroom, SA  
Artillery Division  
**Officers Course: II Lieutenant**

**1991-2002** Commenced professional career as resource conservation inspector at the National Department of Agriculture – Directorate: Land Resource Management in 1991. The main activities was veld inspecting in order to monitor correct utilization of natural resources and where necessary take steps according to Act. Day to day activities included discussions and lectures at farmers unions; municipalities and other institutions in order to promulgate the Act. During 1998, I was appointed as Chief Resource Conservation Inspector, with duties being: manage the administration of Act 43 of 1983, Agricultural Resource Conservation Act in the North West Province of SA; management of personnel and personnel related matters; management of budget of regional office in Potchefstroom; monitoring mine rehabilitation and environmental management out of agricultural point of view; management and control of declared weeds and invader species.

**2003-Present** Began own company – DERA Environmental Consultants. Main scope of business: Compiling and submission of mining related applications; manage and compile legal environmental documents. Furthermore doing monitoring work to evaluated compliance to environmental legislation; evaluating outstanding rehabilitation liabilities for mining companies. Assist legal companies in determining environmental damage. Do risk assessment and applications for closure certificates. Give guidance in rehabilitation practices. Compile EMPR/EIA for Mining Rights and compilation of EMPlan's for Prospecting and Mining Right applications. Compile BAR & EMPr reports in support of application of Chicken Broilers and –facilities, Feed lots, Fuel Storage, Plaguing of virgin soil and associated infrastructure for Environmental Authorizations and many more based on experience from management of the natural resources and the mitigation of impacts.



**Secondary & Post-Secondary Education**

<b>1983-1988</b>	Wolmaransstad High School, North West, SA <b>Higher School Certificate – with Full Exemption</b>	
Subjects:	English Mathematics Geography	Afrikaans Science Accounting
<b>1991-1994</b>	Technikon Pretoria, Pretoria, SA <b>National Diploma - Agriculture: Resource Utilization</b>	
Subjects:	Agricultural Economics I, II and III Extension Method I, II and III Field Husbandry I, II and III Pasture Science A Land Use Planning I and II Soil Conservation I Soil Science I and II Mechanization Physical Science Milk Production Technology Beef Production Technology Small Stock Production Technology Soil Classification III Computer Application I	
<b>1996</b>	Technikon Pretoria, Pretoria, SA <b>Baccalaureus Technologiae - Agriculture: Extension</b>	
Subjects:	Agricultural Communication I Agricultural Extension IV Crop Production IV Research Methodology	
<b>1998 -1999</b>	Orange Free State University, Bloemfontein, SA Completed all subjects as part of the <b>Masters Degree in Sustainable Agriculture</b> , but have not yet completed the script.	
Subjects:	Conservation of agricultural resources and the Environment Soil-, climate and water use and soil and water Management Plant and energy utilization and management Economics of sustainability and development Scrip – project proposal Sustainable plant production systems Farm management for sustainable agriculture Strategic management, marketing and planning Communication and technology transfer	
<b>Courses</b>	Computer training Dbase IV Veld assessment course Persuasion Skills course Rehabilitation of Wetlands course Agricultural Law course Resource Identification and utilization course	Seminar in public speaking ArcView GIS course Wetlands identification course Management skills course

**b) LOCATION OF THE ACTIVITY**

**Table 1: Property Description**

*In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 1 – 3. (1)(b)*

(i) 21 digit Surveyor General Code for each farm portion	T0IR00000000017300047
(ii) Farm Name:	Tamboekiesfontein 173 IR ✓ (a certain portion of Portion 47)
(iii) Coordinates of the application area	Co-ordinates List WG 27° <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 5px auto;">                 Co-ordinates:                  A: 28.21493 -26.43515                  B: 28.21585 -26.43389                  C: 28.21424 -26.43226                  D: 28.21308 -26.43318                  WGS 84/WGS 84             </div>
Application area (Ha)	5 hectares
Magisterial district:	The area ( <b>Heidelberg</b> ) is a town with 35,500 inhabitants in the Gauteng province of South Africa at the foot of the Suikerbosrand next to the N3 highway. It falls under the <b>Local Municipality of Lesedi</b> and within the <b>District Municipality of Sedibeng</b> . Total Area is 40.26 km <sup>2</sup> (15.54 mi <sup>2</sup> ).
Distance and direction from nearest town	Heidelberg is situated 19.4 km south-east of the site and Kliprivier 18.7 km south-west.
Minerals:	Gravel (grav)

**c) LOCALITY MAP**

*In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 1 – 3. (1)(c)*

See Appendix 1(a) attached for Locality Map.

Appendix 1(a) – Locality Map

**d) DESCRIPTION OF THE SCOPE OF THE PROPOSED OVERALL ACTIVITY.**

*In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 1 – 3. (1)(d)*

This will be a very small project with low impacts (only 5 ha). The application area is situated over an area that looks to be natural veld with very scarce vegetation cover. The site is surrounded by private farms, which look to be used for mostly natural grazing. There is no existing infrastructure on the application area, as this 5 ha area is within an existing farm portion and in an open field. Access to the farm is gained by an existing gravel road from the R550 tar road ±19km south-east of Heidelberg. It will be a small scale Gravel mining operation. The main mining activities will be excavation of gravel resource, and stockpiling it from where it will be transported to the road building activities. After the excavation of the gravel the sides of the quarry will be sloped to make it safe for animals and humans. See **Figure 3** below for Google Earth Images of proposed area. The area will be mined and rehabilitated and the sides will be sloped to acceptable- and safe gradient. The mining focus area will be clearly demarcated. The area applied for is over natural veld. The vegetation cover seems to be scarce. Also see **Appendix 1(b)** for Infrastructure Plan.

**Figure 3: Google Earth Images**



Appendix 1(b) – Infrastructure Plan

(i) Listed and specified activities

Table 2: Listed Activities

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 1 – 3. (1)(d)(i)

NAME OF ACTIVITY	Aerial extent of the Activity (Ha or m <sup>2</sup> )	LISTED ACTIVITY	APPLICABLE LISTING
<p><b>Listing 1 – Activity 21:</b> 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 —</p> <p>(a) associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource[,] or [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)]</p> <p>(b) <u>the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing;</u></p> <p><u>but excluding the secondary processing of a mineral resource, including the smelting, beneficiation, reduction, refining, calcining or gasification of the mineral resource in which case activity 6 in Listing Notice 2 applies.</u></p>	5 ha	X	327
<p><b>Listing 1 – Activity 27:</b> The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for—</p> <p>(i) the undertaking of a linear activity; or</p> <p>(ii) maintenance purposes undertaken in accordance with a maintenance management plan.</p>	5 ha	X	327

(ii) Description of the activities to be undertaken

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 1 – 3. (1)(d)(ii)

Table 3: Description of Activities to be followed

Activities	Description of phases	Associated structures and infrastructures
<b>The Mineral</b>	Raubex intends to mine for gravel (grav) G5 situated on a portion of portion 47 of the farm Tamboekiesfontein 173 IR, Heidelberg district, and 5 hectares in total. This area is on an existing old quarry which will be deepened. The gravel will be used as filling material in road construction. The gravel will be used in different facets of the construction industry.	
<b>The extend</b>	The gravel is situated on this demarcated area on average 3 meters deep. The identified and demarcated which are 5 hectares in total includes the entire mining area of 3.5 ha will be used for mining and 1.5 ha for the stockpiling. (See sketch plan attached). The gravel reserve on this 3.5 hectares is estimated at 105 000 m <sup>3</sup> (132 000 tons).	No infrastructure.
<b>Mining method</b>	The above area will be mined through opencast excavations where the gravel will be removed with an excavator onto a stockpile and fed by a front end loader into the screening/crushing plant or the gravel will be directly loaded onto the trucks. A stockpile will be created at the screening plant and loaded on the trucks for transporting to the clients. It is envisaged that most of the gravel will be loaded directly onto the trucks without any processing. The gravel from the stockpile is transported at an average rate of 300 m (540tons) a day to the clients or as needed. The total estimated reserve of gravel is 105 000m <sup>3</sup> taken at a production rate of 6000m <sup>3</sup> (10800 tons) a month it will take 18 months to work this reserve.	There will be no plant area with ablation facilities and roads to the excavations.

e) POLICY AND LEGISLATIVE CONTEXT

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 1 – 3. (1)(e)(i)&(ii)

Table 4: Policy & Legislative Context

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED
National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA) 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 has been triggered by applications in terms of the Minerals and Petroleum Resources Development Act, 2002 (As mentioned).	Activity 21, listing 1 Activity 21, Listing 2
National Environmental Management Act, 1998 (Act 107 of 1998): Environmental Impact Assessment Regulations, 2014 (G38282 – R982-985) EA Authorization and EIA/EMP. Submit documents that will describe the impacts and sustainable mitigation thereof. Compliance to Act and Regulations during course of activities. Show impacts and mitigation thereof.	Regulation 21
National Water Act, 1998 (Act 36 of 1998) Application for Water abstraction for mining use	Section 21 (a)
Conservation of Agricultural Resources Act No 43 of 1983 Compliance to Act and Regulations during course of activities. Stabilization of soil after rehab to be sustainable with no erosion. Eradication of declared weeds	Section 29
National Heritages Resources Act, 1999 (Act 25 of 1999) Compliance to Act and Regulations during course of activities. Ensure that no graves or heritage site will be disturbed.	Section 36

**f) NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES**

*In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 1 – 3. (1)(f)*

The applicant believes that the applied area has prospects for Gravel as applied for. The company have another application some 40km west and there are mining operators to the north-eastern side of this proposed application area, which show the potential for gravel in this area, thus the application in order to confirm if minerals can be mined over this area. The desirability of this project can be motivated as the application area is not within a sensitive environmental areas and the impact that will be caused by the activity can be properly mitigated and rehabilitated. The material sourced here will be used in the upgrading of the N3

There is an unnamed stream some .05 km east, outside the proposed mining permit area. All mining activities will be kept within the mining permit area. The locality of the activities is over a small area within an entire farm portions. The specific activities as listed will be on this 5 ha application area specific according to the sketch plan. The duration of the activities will be 2 years.

A graveyard was identified on the opposite side of the entrance road into the farm outside the application area. The application area is 150 -200m west of this graveyard. There will be no impact.

**g) MOTIVATION FOR THE OVERALL PREFERRED SITE, ACTIVITIES AND TECHNOLOGY ALTERNATIVE**

*In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 1 – 3. (1)(g)*

The applicant envisaged that the applied mineral (Gravel) is present on this property and therefore the application for a mining permit. The gravel outcrops on several places within the application area and for this reason this area is the preferred area.

**h) FULL DESCRIPTION OF THE PROCESS FOLLOWED TO REACH THE PROPOSED PREFERRED ALTERNATIVES WITHIN THE SITE**

**(i) Details of the development footprint alternatives considered**

*In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 1 – 3. (1)(h)(i)*

Alternative is not applicable. The current land is natural vegetation. Thus the option to mine the area will be an alternative land use. The applicant, Raubex Construction (Pty) Ltd., is not interested in any other alternative land use over this land aside for the mining of Gravel, or any other activity, or method use other than mining for Gravel in the conventional way, which is the most cost effective.

(a) the property on which or location where it is proposed to undertake the activity  
There are no alternative for the property as the application is for this 5 hectare area only.

(b) the type of activity to be undertaken  
The type of activity is in line with the submitted Mining Plan.

(c) the design or layout of the activity  
The layout of the activity will and can only be on the application area as per sketch plan.

(d) the technology to be used in the activity  
The technology used in the activity will as described in the Mining Plan and the best options will be determined by the applicant.

(e) the operational aspects of the activity, and  
The operational aspect is only the mining of Gravel on this specific area.

(f) the option of not implementing the activity  
This option might only be possible if the applicant decide to abandon the project.

**(ii) Details of the Public Participation Process Followed**

*In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 1 – 3. (1)(h)(ii)*

The process as described by NEMA for Environmental Authorization was followed. See **Table 5 & 6** below for the identification of Interested and Affected Parties to be consulted with. The landowner (Mr. M.J. van der Ryst) and the direct neighbours were consulted personally and through a letter that was given to them by hand. An advertisement

was placed in the local newspaper, the Heidelberg Herald Newspaper of 19<sup>th</sup> February 2020. Notice was put up at the entrance to the application area, where all passers-by are invited to give through their comments of objections toward the proposed application. See proof of consultation under Appendix 2.

**Appendix 2 – Proof of consultation.**

**Table 5: Identification of Interested and Affected Parties to be consulted**

IDENTIFICATION CRITERIA	Mark with an X where applicable	
	YES	NO
Will the landowner be specifically consulted?	X	
Will the lawful occupier on the property other than the Landowner be consulted?	X	
Will a tribal authority or host community that may be affected be consulted?		X
Will recipients of land claims in respect of the area be consulted?	X	
Will the landowners or lawful occupiers of neighbouring properties been identified?	X	
Will the local municipality be consulted?	X	
Will the Authority responsible for power lines within 100 metres of the area be consulted?		X
Will the Authorities responsible for public roads or railway lines within 100 metres of the area applied for be consulted?		X
Will the Authorities responsible for any other infrastructure within 100 metres the area applied for be consulted? (Specify)		X
Will the Provincial Department responsible for the environment be consulted?	X	
Will all of the parties identified above be provided with a description of the proposed mining/prospecting operation as referred above?	X	
Will all the parties identified above be requested in writing to provide information as to how their interests (whether it be socio-economic, cultural, heritage or environmental) will be affected by the proposed mining project?	X	
Other, Specify		

**a. Details of the Public Participation Process Followed**

*In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 1 – 3. (1)(h)(iii)*

**Table 6: Identification of Interested and Affected Parties to be consulted**

IDENTIFICATION CRITERIA	Mark with an X where applicable	
	YES	NO
Will the landowner be specifically consulted?	X	
Will the lawful occupier on the property other than the Landowner be consulted?	X	
Will a tribal authority or host community that may be affected be consulted?		X
Will recipients of land claims in respect of the area be consulted?	X	
Will the landowners or lawful occupiers of neighbouring properties been identified?	X	
Will the local municipality be consulted?	X	
Will the Authority responsible for power lines within 100 metres of the area be consulted?		X
Will the Authorities responsible for public roads or railway lines within 100 metres of the area applied for be consulted?		X
Will the Authorities responsible for any other infrastructure within 100 metres the area applied for be consulted? (Specify)		X
Will the Provincial Department responsible for the environment be consulted?	X	
Will all of the parties identified above be provided with a description of the proposed mining/prospecting operation as referred above?	X	
Will all the parties identified above be requested in writing to provide information as to how their interests (whether it be socio-economic, cultural, heritage or environmental) will be affected by the proposed mining project?	X	
Other, Specify		

**Table 7: Furthermore the details of the engagement process to be followed are as reflected below.**

<b>Steps to be taken to notify interested and affected parties</b>	<b>PROVIDE DESCRIPTION HERE</b> The applicant does have consent from the landowner and the neighbours was informed personally consulted by the applicant and confirmed in the writing. A consultation letter was send to the (Heidelberg) Local Municipality of Lesedi. An advertisement was placed in the local newspaper for comments.
<b>Information to be provided to Interested and Affected Parties.</b>	<b>Compulsory</b> The site plan. List of activities to be authorized Scale and extent of activities to be authorized Typical impacts of activities to be authorized (e.g. surface disturbance, dust, noise, drainage, fly rock etc.) The duration of the activity. 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) <b>Other, specify:</b> mining plan
<b>Information to be required from interested and Affected Parties.</b>	<b>Compulsory</b> To provide information on how they consider that the proposed activities will impact on them or their socio-economic conditions To provide written responses stating their suggestions to mitigate the anticipated impacts of each activity To provide information on current land uses and their location within the area under consideration To provide information on the location of environmental features on site to make proposals as to how and to what standard the impacts on site can be remedied. requested to make written proposals To mitigate the potential impacts on their socio economic conditions to make proposals as to how the potential impacts on their infrastructure can be managed, avoided or remedied).

Other, Specify

(iii) Summary of issues raised by I&AP's

In terms of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 1 – 3. (1)(h)(iii)

See Appendix 2 for full detail on public participation.

Table 8: Summary of Identified I&AP's

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 sent and/or Comments Received	Issues raised	EAP's response to the applicant
<b>AFFECTED PARTIES</b>			
Mr. M.J. van der Ryst Cell: 082 445 3403; E-mail: drotsky@iafrica.com (Landowner)	X 13 Feb 2020	No objection. See signed consultation letter attached.	
<b>Lawful occupiers of the land</b>			
<b>Landowners or lawful occupiers on adjacent properties</b>			
Mrs. J. Moloko Cell: 061 590 3889 (Neighbour)	X 14 Feb 2020	No objection. See signed consultation letter attached.	
<b>Municipal councillor</b>			
<b>Municipality</b>			
Lesedi Local Municipality LED officer: Mr. Thami Gorali Tel: 016 492 0043; E-mail: thami@lesedi.gov.za	X 12 Feb 2020	Consultation letter sent to Mr. Thami Gorali – awaiting response	No response received
<b>Organs of state (Responsible for infrastructure that may be affected)</b>			
Roads Department, Eskom, Telkom, DWA.			
<b>Eskom</b>			
<b>Communities</b>			
<b>Dept. Land Affairs</b>			
Cindy Benyane cindy.benyane@tdlr.gov.za	X 19 Feb 2020	Request sent to Cindy Benyane for verification of land claims on 12 Feb 2020	
<b>Traditional Leaders</b>			
<b>N/A</b>			
<b>Dept. Agriculture and Rural Development</b>			
Mr. Andile A. Gumede Umhlobo House, 56 Eloff & Fox Street, Johannesburg, 200019 Tel: 011 355 1957; E-mail: andile.gumede@gauteng.gov.za	X 19 Feb 2020	BAR sent with Fastway couriers for comments	No comments received
<b>Dept. Water and Sanitation</b>			
Mr. Sibusiso Mhembu Ninayee House, 178 Francis Baard Street, Pretoria, 0001 Tel: 012 336 8065 / 082 865 3915	X 19 Feb 2020	BAR sent with Fastway couriers for comments	No comments received
<b>Dept. Agriculture, Forestry and Fisheries</b>			
Ms Phyllistias Mmakola Deipen Building, C/O Union street & Annie Botha Avenue, Riviera, Pretoria, 0001 Tel: 012 319 7484/082 404 3054; E-mail: PhyllistiasM@daff.gov.za	X 19 Feb 2020	BAR sent with Fastway couriers for comments	No comments received
<b>Dept. Rural Development and Land Claims</b>			

**BAR – Raubex Construction (Pty) Ltd – Tambooskiesfontein 173 IR – GP 30/5/1/3/2/10358 MP**

Other Competent Authorities				
OTHER AFFECTED PARTIES				
INTERESTED PARTIES				
Cllr M. Boshoff Freedom Front Plus Lesedi Municipality Cell: 072 547 0481, E-mail: marib@lesedi.gov.za	27 Feb 2020			
	9 March 2020			
				Copy of BAR/EMPr sent via e-mail for comments

**Notice was published in the Heidelberg Herald of 19<sup>th</sup> February 2020**



**(iv) The Environmental attributes associated with the alternatives***In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 1 – 3. (1)(h)(iv)***1. Baseline Environment**

**Introduction:** The purpose of this section is to provide information on the environment in which the proposed mining activities will take place, with a view to identify sensitive issues/areas, which need to be considered when conducting the impact assessment. The application is over: **Tamboekiesfontein 173 IR - a certain portion of Portion 47**. This area can be described as natural vegetation with scarce vegetation cover, see **Figure 3** Google Earth Images.

**Magisterial District:** The area (Heidelberg) is a town with 35,500 inhabitants in the Gauteng province of South Africa at the foot of the Suikerbosrand next to the N3 highway. It falls under the Local Municipality of Lesedi and within the District Municipality of Sedibeng.

**Direction from neighbouring town:** The site is situated 12 min (19.4 km) via N3 and R550 *from Heidelberg* – GP. Head northwest on N3 for 12.2 km. Take exit 79 for R550 toward Nigel/R554/Lenasia for 600 m. Turn left onto R550. Destination will be on the right after 6.6 km at -26.43515, 28.21493.

The site is situated 19 min (18.7 km) via R557 and Hill Road *from Kliprivier*. Head east on Karee Road/R557 toward Eaton Road. Continue to follow R557 for 5.2 km. Turn left drive 1.0 km. Turn left onto Hill Road and drive for 10.2 km. Turn right onto R550. Destination will be on the left after 2.3 km at -26.43515, 28.21493. See Location of proposed site on Locality Map Appendix 1(b).

**Longitude** (approximate center of mining site): 28.21493 E

**Latitude** (approximate center of mining site): -26.43515 S

**Existing Surface Infrastructure:**

There seem to be no existing infrastructure on the application area, as this 5 ha area is within an existing farm portion and in an open field. Access to the farm is gained by an existing gravel road from the R550 tar road ±19km south-east of Heidelberg. See Appendix 1(b) for Infrastructure Map and see **Figure 3** Google Earth Images.

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

VEGMAP (2006) classified this area as part of the [SVcb 11] Andesite Mountain Bushveld. VT 61 Bankenveld (62%) (Acocks 1953). LR 39 Moist Cool Highveld Grassland (45%), LR 34 Rocky Highveld Grassland (37%) (Low & Rebelo 1996).

**Distribution:** Gauteng, North-West, Mpumalanga and Free State Provinces: Several separate occurrences of which the main are: the Bronberg Ridge in eastern Pretoria extending to Welbekend; from Hartebeesthoek in the west along the valley between the two parallel ranges of hills to Atteridgeville; hills in southern Johannesburg; several hills encompassing Nigel, Willemsdal, Coalbrook and Suikerbosrand (in part); and the outer ring of ridges of the Vredefort Dome and some hills to the northwest around Potchefstroom. Altitude about 1 350-1 800 m. [See **Figure 5** below]

**Vegetation & Landscape Features:** Dense, medium-tall thorny bushveld with a well-developed grass layer on hill slopes and some valleys with undulating landscape. [See **Figure 5** below]

**Climate:** Summer rainfall with very dry winters. MAP from about 550 mm in the southwest to about 750 mm in the northeast. Frequent frost in winter, but less on the ridges and hills. See also climate diagram for SVcb 11 Andesite Mountain Bushveld.

**Geology & Soil:** Tholeiitic basalt of the Kliprivierberg Group (Randian Ventersdorp Supergroup), also dark shale, micaceous sandstone and siltstone and thin coal seams of the Madzaringwe Formation [Karoo Supergroup, and andesite and conglomerate of the Pretoria Group (Vaalian Transvaal Supergroup)]. Weathering of these rocks gives rise to shallow, rocky, clayey soils of mainly Mispah and Glenrosa soil forms. Land types mainly Ib and Fb, with some Ba and Bb.

Figure 5: The VEGMAP classification: (SVk 4) Kimberley Thornveld



**Vegetation [Flora] and Landscape Features:** Small Trees: *Acacia caffra* (d), *A. karroo* (d), *Celtis africana*, *Protea caffra*, *Zanthoxylum capense*, *Ziziphys mucronata*. Tall Shrubs: *Asparagus laricinus* (d), *Euclea crispa* subsp. *crispa* (d), *Rhus pyroides* var. *pyroides* (d), *Diospyros lycioides* subsp. *lycioides*, *Gymnosporia polyacantha*, *Lippia javanica*, *Rhamnus prinoides*. Low Shrubs: *Asparagus suaveolens* (d), *Rhus rigida* var. *margaretae*, *Teucrium trifidum*. Soft Shrubs: *Isoglossa grantii*. Woody Climber: *Rhoicissus tridentata*. Graminoids: *Eragrostis curvula* (d), *Hyparrhenia hirta* (d), *Setaria sphacelata* (d), *Themeda triandra* (d), *Cymbopogon pospischilii*, *Digitaria eriantha* subsp. *eriantha*, *Elionurus muticus*, *Eragrostis racemosa*, *E. superba*, *Panicum maximum*. Herbs: *Commelina africana*, *Vernonia galpinii*, *V. oligocephala*. Succulent Herb: *Aloe greatheadii* var. *davyana*. **Conservation** Least threatened. Target 24%. About 7% statutorily conserved mainly in the Suikerbosrand Nature Reserve and Magaliesberg Nature Area. An additional 1-2% conserved in other reserves mainly in the Hartbeesthoek Radio Astronomy Observatory. Some 15% already transformed, mainly cultivated and some urban and built-up areas. Some of the unit fringes on major urban areas. Erosion is generally very low. References Bredenkamp (1975, 1977), Bredenkamp & Theron (1980), Du Preez & Venter (1990), Coetzee et al. (1995), Grobler (2000).

#### **Animal Life [Fauna]:**

Not many species were directly observed but the presence of nesting sites in the area is an indication that this area is an acceptable habitat for shelter and food for avian species. Various insects are also expected to be present such as ants, grasshoppers, butterflies etc. The only butterfly species that were recorded during the site visit were *Danaus chrysippus* (African monarch) and *Pontia helice helice* (Meadow white). Other insect species that were recorded also include *Cyrtacanthacris aeruginosa* (Green tree locust) and *Delta hottentottum* (a wasp sp.).

#### **Topography:**

The site has one terrain type, which is characterized as Dense, medium-tall thorny bushveld with a well-developed grass layer on hill slopes and some valleys with undulating landscape. The slope varies around <0.1% to not more than 3%. The topography of the project area is flat. Most of the terrain can be classified as being a footslope. The average elevation is between 1 350-1 800 meters above sea level (masl) over most of the area. The area is characterized by predominantly one-terrain unit that form part of the natural topography of the area. The application area is under natural vegetation, the area is relatively flat, with poor grass coverage and very little big trees. According to AGIS Comprehensive Atlas (Source: <http://.agis.agric.za>)

#### **Surface Water:**

This application area falls within the water management area of the Upper Vaal and secondary catchment area C21 and tertiary drainage region C21F. There is no open water or streams within or near the application area. There are however probable drainage lines, which runs some 2.5 km north-western of the area parallel with the boundary fence, however adjacent portions of the farm Tamboekiesfontein 173 IR.

#### **Ground Water:**

The water required for mining will only 2000 liter a day for dust suppression as no processing will take place.

**Air Quality:**

With reference to the Scheduled processes under the Atmospheric Pollution Act, 1965 (Act No. 45 of 1965): No scheduled process relates to any proposed mining activity on this farm. The current source of air pollution in the area stems from vehicles travelling on the public roads of the area and other mining operators in the vicinity. The source of air pollution on the farm will be nuisance dust generated by the movement of excavators, hauling of raw mineral with the trucks and vehicles on the mining roads. The Gravel mined is fairly moist with a 10% moisture content, which will lower the dust impact from mining. The biggest impact will be caused by vehicle movement on the mining roads. Gas emissions from vehicles will be within legal limits. The landowner and surrounding neighbours may from time to time be negatively impacted upon. Dust will also be partially visible to the general public travelling on the R550. It is however foreseen that the overall dust impact will be medium to low negative. The accumulative impact of dust generated by mining operations within the vicinity of the mine may increase the effect on the local area.

**Noise:**

The movement of heavy vehicles during the operational and closure phase and the mining of the Gravel will have a low impact on the noise levels on the farm. The mining and transporting of the Gravel which is during normal office hours and will blend in with the daily noise impact of cars travelling on the R550 and other operators. These noise levels will be continuous and the operators will be issued with earplugs. The impact would be of more importance regarding the direct worker environment that should adhere to the requirements in terms of the Mine Health and Safety Act and the influence on wild life.

**Sites of Archaeological and Cultural Interest:**

No graveyards. According to Section 36(3) of the National Heritage Resources Act 25 of 1999 no person may, without a permit issued by SAHRA or a provincial heritage resources authority—

(a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;

(b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or

(b) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.

It is recommended that the graveyard is included in the overall management plan of the mine development. Preservation of the site will require that the area is properly demarcated with at least a 20m buffer zone placed around the graveyard in order to avoid potential damage during mining activities. It will be necessary to ensure that the graveyard is accessible to the relatives of the deceased. There are no major archaeological grounds to halt the proposed development. However, the potential occurrence of unmarked graves or subsurface finds not recorded during this survey can never be excluded, so it is advised that SAHRA and a qualified archaeologist are informed immediately if archaeological objects are uncovered.

**Sensitive Landscapes:**

There are no sensitive landscapes under statutory protection occurring on the farm or on the mining site itself. The only potentially sensitive landscapes are the banks of the non-perennial stream which runs some 0.5 km to the east of the mining area. Mining will not have any influence on this surface water body as all mining activities will be kept 1 km away.

**Visual Aspects:**

The mining site will be clearly visible from the R550 tar road running from Heidelberg towards Kliprivier. The negative visual impact associated with the stockpiling of Gravel dumps will be temporarily and short duration. The mitigation of this impact will be done concurrent with operations as mining progress, the stockpile dumps will get smaller and eventually diminish and in the long term this site will sloped and rehabilitated back to grazing use.

**Social:**

The proposed activity will employ 10 people, of which are resident from Heidelberg and near Kliprivier. Various social

amenities are available close to the operation. These include schools, hospitals churches, recreation facilities as well as a Police Station at Heidelberg/Kliprivier, which is located approximate 18-19 km south-east & west of the operation.

**(a)Description of the current land uses.**

The current land use is natural veld. The surrounding areas are used for as grazing and mining. The area north-east of the application area is an existing mining operation.

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

Please refer to Section 2 (d)(ii) Table 2 for a description of the activities and the infrastructure which are foreseen to form part of the mining activity. There is no existing infrastructure on site as the area is within farm area and natural vegetation. See Figure 3 of existing infrastructure.

**(c)Environmental and current land use map.**

Current land use of the application area is natural veld. See Appendix 1(b) [Infrastructure Map] and Figure 3 [Images of existing infrastructure] for more detail.

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

*In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 1 – 3. (1)(h)(v)*

The proposed project is anticipated to impact on a range of biophysical and socio-economic aspects of the environment. The main purpose of the Basic Assessment Report is to identify and evaluate the significance of these potential impacts and determine how they can be minimized or mitigated.

It should be noted that a comprehensive Environmental Management Program (EMPr) will be developed and implemented to regulate and minimize the direct, indirect and cumulative impacts during the construction and operational phases. The potential environmental impacts identified, which will be investigated further in the Impact Assessment Phase of the project, are summarized in Table 9 on next page.

Table 9: Impact significance identification matrix for Tamboekiesfontein 173 IR

PHASE	Components Impacts Activity, Product or Service	ABIOTIC										BIOTIC			SOCIO-ECONOMIC																
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	Geology	Topography	Soil	Land	Land	Surface	Ground	Air	Noise	Vegetati	Wildlife	Sensitive	Visual	Archaeological &	Socio-econo	Affected
Construction	1																														
	2																														
	3																														
	4																														
	5																														
	6																														
Operational	7																														
	8																														
	9																														
	11																														
	13																														
Decommissioning and closure	14																														
	15																														
	16																														

**(vi) Methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks;**

*In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 1 – 3. (1)(h)(vi)*

**Introduction:**

This section below describes and evaluates the effects of the different mining projects and the associated activities on the natural and social environments. The different environmental components, on which the project (can/may) have an impact, are:

- |                    |                                       |
|--------------------|---------------------------------------|
| 1. Geology         | 9. Ground Water                       |
| 2. Topography      | 10. Air Quality                       |
| 3. Soil            | 11. Noise                             |
| 4. Land Capability | 12. Archaeological and Cultural sites |
| 5. Land Use        | 13. Sensitive Landscapes              |
| 6. Vegetation      | 14. Visual Aspects                    |
| 7. Wildlife        | 15. Socio-economic Structure          |
| 8. Surface Water   | 16. Interested and Affected Parties   |

**IMPACT ASSESSMENT**

Before the impact assessment could be done the different project activities were identified:

**ACTIVITIES:**

1. Access Roads (Existing farm roads to be upgraded)
2. Temporary office, workshops, ablution facility, water tanks, diesel tanks and other temporary buildings
3. Mining equipment ( conveyor, screen/crusher, generator)
4. Stockpiles
5. Opencast trenches (as part of bulk sampling)

**Environmental Impact Assessment Summary:**

- **Environment likely to be affected by the mining operation. (See Appendix 1 (b) for location)**

Environmental aspect	Affected		Not affected
	Negligible	Substantial	
1. GEOLOGY		X	
2. TOPOGRAPHY	X		
3. SOIL		X	
4. LAND CAPABILITY		X	
5. LAND USE	X		
6. VEGETATION		X	
7. WILDLIFE	X		
8. SURFACE WATER			X
9. GROUND WATER	X		
10. AIR QUALITY	X		
11. NOISE	X		
12. SENSITIVE LANDSCAPES			X
13. VISUAL ASPECTS	X		
14. SOCIO ECONOMICS	X		
15. INTERESTED & AFFECTED PARTIES	X		
16. ARCHAEOLOGICAL			X

- **Environment likely to be affected by the alternative land use**

Mining will be a new land use over this area. The site that is earmarked for mining represents ± 100 % of the total area applied for. And it is further not foreseen that mining activities would disturbed an area of more than 0.5 ha at any given time. The whole of the 5 ha area will be demarcated but only 0.5 under mining associated infrastructure or activities at any stage.

- **Assessment of the impacts created by the mining activity**

Before any assessment can be made the following evaluation criteria need to be described:

*Explanation of **probability** of impact occurrence*

Probability of impact	Explanation of probability
Very low	<20% sure of particular fact or likelihood of impact occurring.
Low	20 to 39% sure of particular fact or likelihood of impact occurring.
Moderate	40 to 59% sure of particular fact or likelihood of impact occurring.
High	60 to 79% sure of particular fact or likelihood of impact occurring.
Very high	80 to 99% sure of particular fact or likelihood of impact occurring.
Definite	100% sure of particular fact or likelihood of impact occurring.

*Explanation of **extend** of impact*

Extend of impact	Explanation of extend
Site specific	Direct and indirect impacts limited to site of impact only.
Local	Direct and indirect impacts affecting environmental elements within the Heidelberg.
Regional	Direct and indirect impacts affecting environmental elements within Gauteng Province.
National	Direct and indirect impacts affecting environmental elements on a national level.
Global	Direct and indirect impacts affecting environmental elements on a global level.

*Explanation of **duration** of impact*

Duration of impact	Explanation of duration
Very short	Less than 1 year
Short	1 to 5 years
Medium	6 to 12 years
Long	13 to 50 years
Very long	Longer than 50 years
Permanent	Permanent

*Explanation of **impact significance***

Impact significance	Explanation of significance
No impact	There would be no impact at all - not even a very low impact on the system or any of its parts.
Very low	Impact would be negligible. In the case of negative impacts, almost no mitigation and/or remedial activity would be needed, and any minor steps, which might be needed, would be easy, cheap and simple. In the case of positive impacts, alternative means would almost all likely to be better, in one or a number of ways, than this means of achieving the benefit.
Low	Impact would be of a low order and with little real effect. In the case of negative impacts, mitigation and/or remedial activity would be either easily achieved or little would be required, or both. In case of positive impacts, alternative means for achieving this benefit would likely be easier, cheaper, more effective, less time-consuming, or some combination of these.
Moderate significance	Impact would be real but not substantial within the bounds of those which could occur. In the case of negative impacts, mitigation and/or remedial activity would be both feasible and fairly easily possible. In the case of positive impacts, other means of achieving these benefits would be about equal in time, cost and effort.
High significance	Impacts of a substantial order. In the case of negative impacts, mitigation and/or remedial activity would be feasible but difficult, expensive, time-consuming or some combination of these. In the case of positive impacts, other means of achieving this benefit would be feasible, but these would be more difficult, expensive, time-consuming or some combination of these.
Very high significance	Of the highest order possible within the bounds of impacts which could occur. In the case of negative impacts, there would be no possible mitigation and/or remedial activity to offset the impact at the spatial or time scale for which it was predicted. In the case of positive impacts, there is no real alternative to achieving the benefit.

**(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**

*In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 1 – 3. (1)(h)(vii)*

In terms of the EIA regulations, consideration must be given to alternatives. Alternatives are different approaches and ways of meeting the need, purpose and objectives of a proposed activity. Alternatives may include a location site alternative, activity alternatives, processes or technology alternatives, temporal alternatives etc. the no-go alternative or option is also considered, as it provides the baseline against which the impacts or other alternatives may be compared.

However, for this specific project, no alternatives have been investigated, with the exception of the no-go alternative. The reason for this being that the mining permit is being applied for the sole purpose of mining of Gravels. The no-go option entails the continuation of the current land use (natural grazing) on the study site. The project will contribute towards providing continued jobs. Should the proposed project therefore not be authorized to proceed, it is anticipated that employment opportunities will be lost.

The no-go option is therefore not a feasible option in this case, as it suggests that the mineral reserves

should not be exploited and current employment opportunities should not materialize or be prolonged. The site layout will be only the excavation and office container. The stockpiles of the topsoil (where available) will be placed next to the side walls of the excavation on the outside. This will have the advantage to be nearby available to be used for rehabilitation. The stockpiles for the Gravels (product) and the screening/crushing plant will be placed just outside the excavation within the mining area which will have the advantage that the loading of trucks can proceed without hampering the mining process and will be a safer mining environment.

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

*In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 1 – 3. (1)(h)(viii)*

Refer to the results of consultation contained in **Table 7** for the issues that were raised by I&AP's and stakeholders during the review period of the Consultation phase of the BAR/EMPr report, as well as the response to those issues made by the Environmental Assessment Practitioner.

The mitigation measures and technical management action plans which address potential impacts are discussed below. Please see section below for more detail.

**Table 10: Assessment of the nature, extent, duration, probability and significance of the potential environmental, social and cultural impacts of the proposed mining operation, including the cumulative environmental impacts**

ASPECT	IMPACTS				CUMULATIVE IMPACTS
<b>1. GEOLOGY</b>					
Nature of the impact	Geology (deposits will be destroyed during the opencast mining operation. During operation which will be for the next 2 years, the mineral resource (Gravels) will be extracted from mineral deposits. Waste material/overburden material is disposed off/backfilled in excavations as part of the mining process.				
Extent	Site				Activity causing the impact
Duration	Permanent				An opencast mining method will be used to extract mineral deposits. Therefore the original geology will be totally destroyed.
Probability	Definite				
Significance	High				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X		

ASPECT	IMPACTS				CUMULATIVE IMPACTS
<b>2. TOPOGRAPHY</b>					
Nature of the impact	<ul style="list-style-type: none"> <li>* <b>Change in landform :</b></li> <li>* The mining site is situated on; level plains some relief.</li> <li>* <b>Disturbance of the surface drainage:</b></li> <li>The mining of the mineral deposits will result in the creation of excavations (30 x 8 m x 3-5 m or less), that act as depressions in the environment that captures run-off. Mining activities will be concentrated as indicated on <b>Appendix 4</b> on the application area (approximately 3-5 m depth).</li> <li>Normal surface drainage will be disturbed at a given point.</li> <li>Run-off if any will be diverted away from the specific site.</li> </ul>				
Extent	Site				Activity causing the impact
Duration	Very long to Permanent				Creation of excavations
Probability	Definite				
Significance	High				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X	X	

ASPECT	IMPACTS				CUMULATIVE IMPACTS
<b>3. SOIL</b>					
Nature of the impact	The surface area is characterized by various soil depths as the area was disturbed before. Any construction of infrastructure should be preceded by the removal of all available topsoil where available.				
Extent	Site				Activity causing the impact
Duration	Long				In the process of removing topsoil the soil layers are mixed and the structure may be disturbed.
Probability	High				
Significance	Moderate				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X		



3. SOIL	IMPACTS	CUMULATIVE IMPACTS								
Nature of the impact	The establishment, construction, operation and eventually rehabilitation (demolition) of listed structures such as the access roads, stockpiles, cause compaction of soil. All mining activities will be concentrated on the identified mining focus area where mineral deposits could be found. In the same time a certain surface area is therefore alienated. The active mining surface area (alienated) would be restricted within the 5 ha at any given time (in relation to area of application of the mining permit of 5 ha) for the next 2 years.									
Extent	Site	Activity causing the impact								
Duration	Long	Site preparation for additional mining sites and the construction, operation of listed infrastructure.								
Probability	High									
Significance	Moderate									
Phase responsible for the impact	<table border="1"> <tr> <td>Phase 1</td> <td>Phase 2</td> <td>Phase 3</td> <td>Closure</td> </tr> <tr> <td></td> <td align="center">X</td> <td align="center">X</td> <td align="center">X</td> </tr> </table>	Phase 1	Phase 2	Phase 3	Closure		X	X	X	
Phase 1	Phase 2	Phase 3	Closure							
	X	X	X							

ASPECT	IMPACTS	CUMULATIVE IMPACTS							
3. SOIL									
Nature of the impact	Soil erosion: Due to the fact that certain surface areas would become compacted and this would lead to lesser infiltration of rainwater and more run-off that could cause erosion on bare disturbed surfaces. Erosion would always be possible until such time a vegetation cover is provided during rehabilitation phase.								
Extent	Site	Activity causing the impact							
Duration	Very short	When removing topsoil during site preparation, little storm water control structures are in place. If a severe storm hits the area, it may lead to erosion on site. Topsoil stockpiles may be prone to erosion due to lack of vegetation cover. Water control structures may fail or severe rainstorms may cause excessive run-off. Surface compaction due to activities taking place.							
Probability	Very low								
Significance	Low								
Phase responsible for the impact	<table border="1"> <tr> <td>Phase 1</td> <td>Phase 2</td> <td>Phase 3</td> <td>Closure</td> </tr> <tr> <td></td> <td align="center">X</td> <td align="center">X</td> <td align="center">X</td> </tr> </table>		Phase 1	Phase 2	Phase 3	Closure		X	X
Phase 1	Phase 2	Phase 3	Closure						
	X	X	X						

ASPECT	IMPACTS	CUMULATIVE IMPACTS							
3. SOIL									
Nature of the impact	Potential of soil contamination.	None.							
Extent	Site	Activity causing the impact							
Duration	Long	Vehicle/equipment breakages and oil/lubricant /diesel spills may contaminate soil.							
Probability	Moderate								
Significance	Moderate								
Phase responsible for the impact	<table border="1"> <tr> <td>Phase 1</td> <td>Phase 2</td> <td>Phase 3</td> <td>Closure</td> </tr> <tr> <td></td> <td align="center">X</td> <td align="center">X</td> <td align="center">X</td> </tr> </table>		Phase 1	Phase 2	Phase 3	Closure		X	X
Phase 1	Phase 2	Phase 3	Closure						
	X	X	X						

ASPECT	IMPACTS	CUMULATIVE IMPACTS							
3. SOIL									
Nature of the impact	Loss of soil structure	None							
Extent	Site	Activity causing the impact							
Duration	Long	In the process of removing topsoil the soil layers are mixed and the structure may be disturbed.							
Probability	High								
Significance	Moderate								
Phase responsible for the impact	<table border="1"> <tr> <td>Phase 1</td> <td>Phase 2</td> <td>Phase 3</td> <td>Closure</td> </tr> <tr> <td></td> <td align="center">X</td> <td align="center">X</td> <td></td> </tr> </table>		Phase 1	Phase 2	Phase 3	Closure		X	X
Phase 1	Phase 2	Phase 3	Closure						
	X	X							

ASPECT	IMPACTS	CUMULATIVE IMPACTS							
3. SOIL									
Nature of the impact	Loss of soil fertility	None							
Extent	Site	Activity causing the impact							
Duration	Short	The mixing of soil during site preparation, compaction and potential pollution (spillage of oil etc.) all may cause this situation.							
Probability	Definite								
Significance	Low								
Phase responsible for the impact	<table border="1"> <tr> <td>Phase 1</td> <td>Phase 2</td> <td>Phase 3</td> <td>Closure</td> </tr> <tr> <td></td> <td align="center">X</td> <td align="center">X</td> <td></td> </tr> </table>		Phase 1	Phase 2	Phase 3	Closure		X	X
Phase 1	Phase 2	Phase 3	Closure						
	X	X							

ASPECT	IMPACTS	CUMULATIVE IMPACTS
4. LAND CAPABILITY		
Nature of the impact	<b>Temporary loss of land capability to support grazing.</b> The small area (5 ha) where the active mining activities occur (excavations, tailings dumps, stock piles, mining equipment) etc. will thus be temporary alienated, until the area is rehabilitated. All excavations would be rehabilitated as part of the mining process during which excavations are sloped. The rest of the application area will still be used by the landowner as agricultural land.	
Extent	Site	Activity causing the impact

Duration	Long				Site preparation for additional mining sites and the construction, operation of listed infrastructure, the land capability of the active mining area will be totally destroyed.
Probability	Definite				
Significance	Moderate				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X	X	

ASPECT	IMPACTS				CUMULATIVE IMPACTS
<b>5. LAND USE</b>					
Nature of the impact	The rehabilitation of the historically disturbed areas will have a positive impact on land use. This is a new mining operation on an old disturbed area and therefore will lose its land use to support grazing on a certain portion of the 5 ha during the next 2 years. Only a small portions of land (5 ha at a time) would be affected by the mining operation relation to the total mining right application area of 5 ha. All excavations would be rehabilitated as part of the mining process during which excavations are sloped.				
Extent	Site				Activity causing the impact
Duration	Long to permanent				Site preparation for mining and the construction, operation of listed infrastructure
Probability	Definite				
Significance	Moderate				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X		

ASPECT	IMPACTS				CUMULATIVE IMPACTS
<b>6. VEGETATION</b>					
Nature of the impact	Vegetation clearance, disturbance and trampling. Destruction of habitats for vegetation. Due				
Extent	Site				Activity causing the impact
Duration	Long				The site preparation for new sites, construction of listed infrastructure will cause destruction of habitats for vegetation. Due to a disturbed ecosystem, bare ground and invasion of exotics could further spread. The vegetation needs to be cleared to remove the topsoil.
Probability	Definite				
Significance	High				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X		

ASPECT	IMPACTS				CUMULATIVE IMPACTS
<b>6. VEGETATION</b>					
Nature of the impact	Habitat change, loss of species, spread of alien and invasive species.				
Extent	Site				Activity causing the impact
Duration	Permanent				The change in the current habitat will be mitigated during final rehabilitation.
Probability	High				
Significance	Moderate				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X		

ASPECT	IMPACTS				CUMULATIVE IMPACTS
<b>6. VEGETATION</b>					
Nature of the impact	Dust coverage of plants.				None
Extent	Site				Activity causing the impact
Duration	Long				Heavy trucks and other vehicles on dirt roads, stockpiling, dumping of tailings are mainly responsible for this impact.
Probability	High				
Significance	Low				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X		

ASPECT	IMPACTS				CUMULATIVE IMPACTS
<b>7. WILDLIFE</b>					
Nature of the impact	Wildlife or wildlife habitat destruction /change / disturbance.				None
Extent	Site				Activity causing the impact
Duration	Permanent				The flora which normally serves as habitat for animals would be destroyed during site preparation. The increase in activity will temporarily scare other animals. The area will serve as a new habitat after rehabilitation.
Probability	Very High				
Significance	Moderate				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X		

ASPECT	IMPACTS				CUMULATIVE IMPACTS
<b>7. WILDLIFE</b>					
Nature of the impact	Injury and death to wildlife.				None
Extent	Site				Activity causing the impact
Duration	Short				The movement of vehicles may kill certain insects, rodents and possible birds. Most of the remaining animal life will however move away due to noise.
Probability	Very low				
Significance	Low				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X		

ASPECT	IMPACTS				CUMULATIVE IMPACTS
<b>7. WILDLIFE</b>					
Nature of the impact	Restoration of habitat.				None
Extent	Site				Activity causing the impact
Duration	Short				As rehabilitation progresses the habitat of certain species will be restored/created (Closure objective) Animals will probably only move back when human movement is limited.
Probability	Low				
Significance	Low				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X	X	

ASPECT	IMPACTS				CUMULATIVE IMPACTS
<b>8. SURFACE WATER</b>					
Nature of the impact	Increased silt load. Clearing topsoil for footprint areas can increase infiltration rates of water to the groundwater system and decrease buffering capacity of soils to absorb contaminants from spills on surface. This can increase the risk of contamination of the groundwater system (increases aquifer vulnerability).				
Extent	Local				Activity causing the impact
Duration	Short				The clearance of vegetation and the traffic on access roads will all contribute to an increase in the silt load on the mining area.
Probability	Moderate				
Significance	Moderate				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X	X	

ASPECT	IMPACTS				CUMULATIVE IMPACTS
<b>8. SURFACE WATER</b>					
Nature of the impact	Change in surface water quality. Spillages from vehicles and also surface water run-off that is not adequately diverted away from the active mining excavations could end-up in the excavations creating problems regarding water quality and hindering the mining process. Surface run-off from active mining sites if not adequately contained on site could end-up in the adjacent undisturbed natural veld. If the natural surface run-off is not adequately diverted in the case of the dry-water course area, mining sections it could become silted-up.				
Extent	Local				Activity causing the impact
Duration	Short				"Dirty / Clean" water systems at facilities like the overburden dumps, roads, excavations, etc. may impact on the quality of the surface water. The water should be contained in the surface runoff control measures provided therefore.
Probability	Moderate				
Significance	High				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X		

ASPECT	IMPACTS				CUMULATIVE IMPACTS
<b>8. SURFACE WATER</b>					
Nature of the impact	Change in surface water quantity: Notwithstanding the above-mentioned facts, it is not expected that mining operations will have any effect on the boundaries or the general water flow of the catchment. Standing water in trenches could as the result of rain/ surface run-off ending up in shallow depressions. Water for the dust suppression might be used from the borehole.				
Extent	Site				Activity causing the impact
Duration	Long				It is an operational objective to contain or divert all surface run-offs from the active mining excavations area mainly due to pollution (sediment) potential. This will reduce the run-off quantity, although small in comparison with the drainage area in total.
Probability	High				
Significance	High				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X		

ASPECT	IMPACTS	CUMULATIVE IMPACTS
<b>9. GROUND WATER</b>		
Nature of the impact	Reduction of groundwater quality Mining activities are not likely to impact on local ground-water quality. No chemicals are used during the mining process. Handling of waste and transport of building material can cause various types of spills (domestic waste, pit latrines, hydrocarbons) which can infiltrate and contaminate the groundwater system.	
Extent	Site	Activity causing the impact
Duration	Long	
Probability	Definite	
Significance	High	
Phase responsible for the impact	Phase 1      Phase 2      Phase 3      Closure	
	X	
		X
		X

<b>9. GROUND WATER</b>		
Nature of the impact	Even though abstraction is likely to have a minimal effect on the surrounding groundwater users, this is a new use, and groundwater levels are expected to continue current trends. Groundwater will be abstracted for potable water supply and dust suppression. The volume of water needed is small (2 000 Lit/day) in comparison to other water use and will have a small impact on the surrounding aquifer.	
Extent	Site	Activity causing the impact
Duration	Long	Opencast mining operation.
Probability	Low	
Significance	High	
Phase responsible for the impact	Phase 1      Phase 2      Phase 3      Closure	
	X	
		X
		X

ASPECT	IMPACTS	CUMULATIVE IMPACTS
<b>10. AIR QUALITY</b>		
Nature of the impact	Dust will be generated during the mining operation (loading with an excavator on to a dump truck) and transportation to the client and on gravel/dirt/farm roads. The mining of the Gravels is a wet process and therefore minimum dust is generated.	
Extent	Site	Activity causing the impact
Duration	Long	Initial construction work with regard to infrastructure (roads) that involves earth moving equipment. Dust could be generated as indicated during mining.
Probability	Moderate	
Significance	Moderate	
Phase responsible for the impact	Phase 1      Phase 2      Phase 3      Closure	
	X	
		X
		X

ASPECT	IMPACTS	CUMULATIVE IMPACTS
<b>11. NOISE POLLUTION</b>		
Nature of the impact	Noise will be generated during the mining operation (loading with an excavator on to a dump truck) and transportation from the site. The mine itself is located in rural landscape. The impact would be of more importance regarding the direct worker environment that should adhere to the requirements in terms of the Mine Health and Safety Act.	
Extent	Local	Activity causing the impact
Duration	Long	Earth moving equipment and vehicles (trucks).
Probability	Definite	
Significance	Moderate	
Phase responsible for the impact	Phase 1      Phase 2      Phase 3      Closure	
	X	
		X
		X

ASPECT	IMPACTS	CUMULATIVE IMPACTS
<b>12. ARCHAEOLOGICAL AND CULTURAL SITES</b>		
Nature of the impact	The terrain is not archaeologically vulnerable as it was disturbed before. It is unlikely that the proposed development will result in any significant archaeological impact at the site.	
Extent	Site	Activity causing the impact
Duration	Permanent	
Probability	Definite	
Significance	High	
Phase responsible for the impact	Phase 1      Phase 2      Phase 3      Closure	
	X	

ASPECT	IMPACTS				CUMULATIVE IMPACTS
<b>13. SENSITIVE LANDSCAPE</b>					
Nature of the impact	No sensitive landscapes identified.				
Extent	Not applicable				Activity causing the impact
Duration	Not applicable				
Probability	Not applicable				
Significance	Not applicable				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	

ASPECT	IMPACTS				CUMULATIVE IMPACTS
<b>14. VISUAL ASPECTS</b>					
Nature of the impact	Mining will be partly visible to the neighbours living there. The operation is not visible to from any tourist road.				
Extent	Site				Activity causing the impact
Duration	Long				Mining operation.
Probability	Definite				
Significance	Low				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	

ASPECT	IMPACTS				CUMULATIVE IMPACTS
<b>15. SOCIO ECONOMICS</b>					
Nature of the impact	Increase in Socio – economic activity at local level. The project in itself would ensure that approximately 10 workers would be assured of a job for some time. Job creation plays a major role in increasing the economic wellbeing of employees and their dependants in the Heidelberg and surrounding district. Once all mining operations have ceased it would definitely have a negative impact.				The increase in socio-economic activity will add to the current growth and development in Heidelberg district already created by industry and mining.
Extent	Local				Activity causing the impact
Duration	Long				Additional employment opportunities created.
Probability	Definite				
Significance	High				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	

ASPECT	IMPACTS				CUMULATIVE IMPACTS
<b>15. SOCIO ECONOMICS</b>					
Nature of the impact	The main impact on the landowners is visual impact and the small area of 5 ha that will not be available for agricultural activities at any given time for 2 years.				The economic benefits in terms of investment and the delivery of services in the Gauteng province will get an additional benefit from the project.
Extent	Regional				Activity causing the impact
Duration	Very Long				
Probability	High				
Significance	Moderate				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	

ASPECT	IMPACTS				CUMULATIVE IMPACTS
<b>16. INTERESTED &amp; AFFECTED PARTIES</b>					
Nature of the impact	Impact of activities on I&AP's Temporary loss of utilization of the mining focus areas for agricultural purposes. The long-term benefits far out-weight the current benefits from the current use. Loss of cattle due to falling of animals in mine workings if not fenced. No negative impact is expected that could be appropriately mitigated, such as the eventual rehabilitation of the excavations.				
Extent	Local				Activity causing the impact
Duration	Long				
Probability	High				
Significance	High				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	

**(ix) Outcome of site section matrix**

*In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 1 – 3. (1)(h)(ix)*

**Alternative is not applicable.** The current land use is natural veldt. The option to explore the possibility for mining is an alternative land use. The applicant, Raubex Construction (Pty) Ltd (Pty) Ltd. is not interested in any other alternative land use over this land aside of mining of Gravels or any other activity, or method use other than mining for the aforementioned minerals in the conversional way, which is the most cost effective. Please note that no additional infrastructure will be established, and therefore no alternatives for the location of infrastructure were identified

**(x) Statement motivating the alternative development location within the overall site**

*In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 1 – 3. (1)(h)(x)*

The application area applied for is only 5 hectares thus the development location is limited to this area and the area where the mineral deposits occur. The occurrence of economical viable Gravels was identified over this specific area, thus this site selection.

**i) FULL DESCRIPTION OF THE PROCESS UNDERTKEN 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**

*In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 1 – 3. (1)(h)(xi)*

See Table 11 below

**Table 11: Technical & Management Action Plans**

Environmental Component	Geology
<b>Environmental Management/Mitigation Measures/Action Plans/Commitments</b>	
<ul style="list-style-type: none"> <li>No mitigation exists except to slope the excavations.</li> <li>As mining progressed and the excavation has been sloped, a certain amount of overburden material and topsoil would be placed on these areas. This will not restore the geology, but will mitigate the impact.</li> <li>Planned, systematic and thorough mining of the mineral resource (Gravels deposits) should take place.</li> <li>Optimal utilization of the mineral resource should take place within the boundaries of the mining terrain.</li> <li>Strip, remove and store soil and overburden as far as practical in an orderly fashion and replace as far as possible on back-filled areas, in the reverse order once decision have been taken that no further mining would take place in a particular section or which might still be traversed by vehicles and disturbed in the process. Cognisance should be taken of the fact that bulk sampling would take place by means of an opencast mining method until such level is reach / cut-off point is reach where rehabilitation could begin.</li> <li>Care must be taken that the removal of Gravels deposits by means of earthmoving equipment is restricted to what is really necessary to achieve the objective.</li> </ul>	
<b>EMP Performance Assessment &amp; Monitoring Reporting</b>	
To be included in EMP/EIA.	
<b>Closure Objective</b>	
Optimal mining of the mineral resource in order to ensure to facilitate better rehabilitation planning. The overburden and topsoil (where available) must be replaced in a responsible and planned manner in order to achieve some conformity with the surrounding undisturbed area.	

Environmental Component	Topography
<b>Environmental Management/Mitigation Measures/Action Plans/Commitments</b>	
<ul style="list-style-type: none"> <li>All trenches should be partly back-filled where possible with waste and eventually sloped and covered with a shallow layer of topsoil (if available).</li> <li>Access to all active mining excavation areas should be controlled. The active mining area should be fenced off. The necessary warning signs should be put in place. All mining activities should be restricted to the fenced-off area.</li> <li>Surface run-off control should be put in place at active trenches (preventing water from entering) and also rehabilitated tailings dumps and overburden dumps in order to prevent the loss of growth medium on top of the dumps.</li> </ul> <p>Mining would be done according to a definite Mining Plan (only disturbing an area that is really necessary). As part of the Mining Plan the handling of tailings material, overburden material, construction of dumps and back-filling of trenches should also form part of it.</p> <p>Rehabilitation of the new topographical landscape in such a way that it would blend in with the surrounding landscape and allow normal surface drainage to continue. As soon as a section of the mining site would not be explored anymore it should be rehabilitated (planned and phased manner).</p>	
<b>EMP Performance Assessment &amp; Monitoring Reporting</b>	
To be included in EMP/EIA.	
<b>Closure Objective</b>	
Rehabilitation of the new topographical landscape in such a way that it would blend in with the surrounding landscape and allow normal surface drainage to continue. Rehabilitation in such a way that the new landscape features would be stable and would not pose any safety hazard to human and animal anymore.	

<b>Environmental Component</b>	<b>Soil (topsoil &amp; access roads)</b>
<b>Environmental Management/Mitigation Measures/Action Plans/Commitments</b>	
<p><b>Handling of topsoil as a natural resource:</b>                      Any future expansion of the trenches or construction of infrastructure should be preceded by the removal of all available topsoil.                      The surface of any new areas to be disturbed must be kept to a minimum. All available topsoil/overburden material should be removed and stockpiled for rehabilitation purposes.</p> <p><b>Access roads, etc:</b>                      The clearing of soil surface areas would be restricted to what is really necessary for the construction of infrastructure.                      Wherever possible all topsoil should be removed and stockpiled for rehabilitation purposes. Overburden material should also be stockpiled separately if practically possible. Topsoil and overburden material should be transported to an area earmarked for rehabilitation.</p>	
<b>EMP Performance Assessment &amp; Monitoring Reporting</b>	
To be included in EMP/EIA.	
<b>Closure Objective</b>	
The topsoil removed in the site preparation process should be replaced during the rehabilitation exercise.	

<b>Environmental Component</b>	<b>Soil (soil compaction)</b>
<b>Environmental Management/Mitigation Measures/Action Plans/Commitments</b>	
<p><b>Soil compaction:</b>                      The mining operation should only be restricted to what is really required (demarcated area of exploitation) within the fenced-off area. Access roads towards the sites would be restricted only to the roads (existing farm roads &amp; roads established in consultation with the surface owner). No land would be disturbed unnecessarily.                      Mining &amp; rehabilitation should be done in a well-planned manner (according to a MP) and in the process ensuring that activities are only restricted to surface areas really required.                      Compaction of soil surface areas would be alleviated once rehabilitation of certain area starts. Certain roads would probably remain for access (in consultation with the surface owner). Those that would not be required would be ripped and rehabilitated.</p>	
<b>EMP Performance Assessment &amp; Monitoring Reporting</b>	
To be included in EMP/EIA.	
<b>Closure Objective</b>	
Alleviation of compaction of soils would be done during rehabilitation of the mining terrain, including roads.	

<b>Environmental Component</b>	<b>Soil (Soil erosion)</b>
<b>Environmental Management/Mitigation Measures/Action Plans/Commitments</b>	
<p><b>Soil Erosion:</b>                      To take preventive steps against land disturbance like erosion. Implement and maintain cut-off trenches/berms to prevent erosion.  <b>Re-vegetation of exposed soil surfaces</b> (man-made surfaces on tailings dumps, overburden dumps, disturb surfaces in excavated sites, roads, etc) should happen as soon as a particular activity has ceased in order to act as a sufficient erosion prevention measure.</p>	
<b>EMP Performance Assessment &amp; Monitoring Reporting</b>	
To be included in EMP/EIA.	
<b>Closure Objective</b>	
No soil erosion must be visible and no potential for soil erosion must be present at closure.	

<b>Environmental Component</b>	<b>Soil (Soil contamination)</b>
<b>Environmental Management/Mitigation Measures/Action Plans/Commitments</b>	
<p><b>Potential for soil contamination:</b>                      Vehicles to be inspected to ensure no oil and hydraulic fluid leaks occur.                      All oil spills on soil to be removed and bio-remediate immediately (certain commercial products are available such as Terrasorb or it could be rehabilitated by means of the application of fertilizer and turn with a spade from time to time in order to enhance the natural occurring soil microbial activity).                      No servicing of vehicles must occur except on a concrete floor or over PVC lined area in an area allocated for that. Training w.r.t pollution hazards and their impact on the environment must be given as part of induction training.                      An incidence register for this purpose must be kept.                      Drip trays must be available and used where emergency repairs is done.</p>	
<b>EMP Performance Assessment &amp; Monitoring Reporting</b>	
To be included in EMP/EIA.	
<b>Closure Objective</b>	
Closure can only be given once all soil contamination measures have been conducted to prevent and remediate any incidences.	

<b>Environmental Component</b>	<b>Soil (Soil structure)</b>
<b>Environmental Management/Mitigation Measures/Action Plans/Commitments</b>	
<p><b>Change in Soil structure:</b>                      Ensure that all available (if any) topsoil is carefully removed in different areas.                      The soil must also be compacted as sloping is done.                      No unnecessary driving outside the active mining area is allowed due to soil compaction that may occur.                      Use organic material e.g. manure to restore the soil structure during rehabilitation.                      Ensure that the rehabilitation plan makes provision for ripping of roads and spreading of organic material and that this is used during rehabilitation.</p>	

<b>EMP Performance Assessment &amp; Monitoring Reporting</b>
To be included in EMP/EIA.
<b>Closure Objective</b>
No compaction of any roads or any other area must be present during closure. If the soil structure is disturbed mitigation measures e.g. the use of organic material, lime and fertilizers must be implemented to restore the soil structure.

<b>Environmental Component</b>	<b>Soil (Soil fertility)</b>
<b>Environmental Management/Mitigation Measures/Action Plans/Commitments</b>	
<p><b>Soil fertility:</b>                  Little can be done to preserve the moisture status of the soil once it is exposed. The soil must be used for rehabilitation as quickly as possible.                  The soil on the rehabilitated area must be analysed to determine the deficiencies and fertilizer and lime must be ploughed into the soil to restore its fertility, if necessary.                  Ensure that stockpiled soil is kept clean and where possible ensure that the topsoil is treated with organic material and fertilized.                  Do not use stockpiled soil for any other purpose but for rehabilitation.                  Do not use topsoil to construct roads.                  Ensure the rehabilitation plan makes provision for fertiliser.                  Make sure rehabilitated topsoil is analysed in a laboratory. The type of fertilizer would depend on a soil analyses and fertilizer recommendation.</p>	
<b>EMP Performance Assessment &amp; Monitoring Reporting</b>	
To be included in EMP/EIA.	
<b>Closure Objective</b>	
The soil must be fertile enough to sustain vegetation.	

<b>Environmental Component</b>	<b>Land Capability</b>
<b>Environmental Management/Mitigation Measures/Action Plans/Commitments</b>	
<p>The disturbance of land must be restricted (kept to a minimum) to the planned fenced-off, active mining site only. Remove topsoil where it is available. Take care that roads needed are restricted to one entry to the area for mining purposes. If new land is used for roads to enter the area it must be done in consultation with the surface owner.                  All rehabilitation will be done according to the final rehabilitation plans after approval by the Department of Mineral Resources (DMR). Topsoil will be placed in areas where it was removed and the areas will be re-vegetated accordingly. Ensure that the rehabilitation plan is implemented.</p>	
<b>EMP Performance Assessment &amp; Monitoring Reporting</b>	
To be included in EMP/EIA.	
<b>Closure Objective</b>	
Rehabilitated to the state that it is suitable for the predetermined and agreed land capability.	

<b>Environmental Component</b>	<b>Land Use</b>
<b>Environmental Management/Mitigation Measures/Action Plans/Commitments</b>	
<p>The disturbance of land must be restricted (kept to a minimum) to the planned active, fenced-off mining site only. Remove topsoil where it is available.                  Take care that roads are the only areas used to enter the area for mining purposes. If new land is used for roads to enter the area it must be done in consultation with surface owner.                  All rehabilitation will be done according to the final rehabilitation plans after approval by the Department of Mineral Resources (DMR). Topsoil will be placed in areas where it was removed and the areas will be re-vegetated accordingly. Ensure that the rehabilitation plan is implemented.</p>	
<b>EMP Performance Assessment &amp; Monitoring Reporting</b>	
To be included in EMP/EIA.	
<b>Closure Objective</b>	
The opencast section requires the land to be totally disturbed. The replacement of tailings material, overburden and topsoil would ensure that the land is able to support some grazing.	

<b>Environmental Component</b>	<b>Vegetation</b>
<b>Environmental Management/Mitigation Measures/Action Plans/Commitments</b>	
<p>No mitigation exists except to replace the vegetation by reseeded of grasses and natural growth.                  Mining should be done in a well-planned manner (according to a MP) and in the process ensuring that activities are only restricted to surface areas really required.</p>	
<b>EMP Performance Assessment &amp; Monitoring Reporting</b>	
To be included in EMP/EIA.	
<b>Closure Objective</b>	
During rehabilitation indigenous vegetation cover comprising of local plant species should be established in order to ensure a well-adapted sustainable plant cover that would be able to prevent erosion of the replaced topsoil on the disturbed mining site exposed surfaces, tailings dumps, etc.).	



Environmental Component	Vegetation
<b>Environmental Management/Mitigation Measures/Action Plans/Commitments</b>	
Habitat change, loss of species, spread of alien and invasive species: No mitigation exists except to replace the vegetation by reseeded of grasses. Mining should be done in a well-planned manner (according to a MP) and in the process ensuring that activities are only restricted to surface areas really required. <b>Develop and implement an invasive and alien control programme to control the spread of weeds and other invasive species.</b> Eradicate exotic weeds and invader species if it invades the terrain. All illegal invader plants and weeds shall be eradicated as required in terms of Regulation 15 & 16 of the Act on Conservation of Agricultural Resources, 1983 (Act no. 43 of 1983) which list the plants. An invasive and alien control programme must be implemented by the mine.	
<b>EMP Performance Assessment &amp; Monitoring Reporting</b>	
To be included in EMP/EIA.	
<b>Closure Objective</b>	
No invasive and alien species must be present after closure. A post-closure control program must also be implemented.	

Environmental Component	Vegetation
<b>Environmental Management/Mitigation Measures/Action Plans/Commitments</b>	
Ensure that all roads on the mining site (utilized by mining vehicles) are daily sprayed with water to control dust. Site inspections to ensure the spraying are done.	
<b>EMP Performance Assessment &amp; Monitoring Reporting</b>	
To be included in EMP/EIA.	
<b>Closure Objective</b>	
No excessive dust must be present during the normal growth season after closure.	

Environmental Component	Wildlife (habitat)
<b>Environmental Management/Mitigation Measures/Action Plans/Commitments</b>	
Wildlife or wildlife habitat destruction /change / disturbance : To take care that no new or unnecessary destruction of habitats, other than the demarcated mining site should take place. <b>Restoration of habitat:</b> Ensure the rehabilitation plan is implemented.	
<b>EMP Performance Assessment &amp; Monitoring Reporting</b>	
To be included in EMP/EIA.	
<b>Closure Objective</b>	
The animal life habitat must be restored after decommissioning. Success will be measured against the extent to which the animals return to the area.	

Environmental Component	Wildlife (Injury and death)
<b>Environmental Management/Mitigation Measures/Action Plans/Commitments</b>	
<b>Injury and death to wildlife:</b> Re-establish trees and grass cover as soon as possible during and after mining. Fence area off to ensure that no person can enter without permission. Ensure that the rehabilitation plan is compiled and executed. Keep incidence register on killings and disturbances.	
<b>EMP Performance Assessment &amp; Monitoring Reporting</b>	
To be included in EMP/EIA.	
<b>Closure Objective</b>	
The animal life habitat must be restored after decommissioning. Success will be measured against the extent to which the animals return to the area.	

Environmental Component	Wildlife
<b>Environmental Management/Mitigation Measures/Action Plans/Commitments</b>	
Make game catching, traps, snares, poaching and any other unnecessary disturbance of animals a disciplinary offence. All staff must undergo basic environmental awareness lecture during induction training. Machine operators and drivers to undergo appropriate level of environmental impact training to ensure they understand their impact on the environment. Ensure all staff working on the opencast section undergo basic lecture during induction phase. Introduce the actions as listed above into disciplinary code as offence.	
<b>EMP Performance Assessment &amp; Monitoring Reporting</b>	
To be included in EMP/EIA.	
<b>Closure Objective</b>	
The post-closure phase must be suitable for further restoration of the newly man-made animal habitat. The area must be stable and acceptable for the return of animal- and plant life.	

Environmental Component	Surface Water (quality)
<b>Environmental Management/Mitigation Measures/Action Plans/Commitments</b>	
<p><b>Change in surface water quality:</b>                      Storm water control measures must be implemented to divert clean water away from the active mining site and keep contaminated water contained. Water control structures must be well designed and constructed to ensure a minimum down wash of topsoil. Vegetation disturbance must be as little as possible. The Mining Plan must be strictly adhered to. Re-vegetation to be done as quickly as possible. Final re-vegetation to be done as per rehabilitation plan.</p>	
<b>EMP Performance Assessment &amp; Monitoring Reporting</b>	
To be included in EMP/EIA.	
<b>Closure Objective</b>	
The post closure water run-off may in no circumstance impact negatively on the water quality.	

Environmental Component	Surface Water (quantity)
<b>Environmental Management/Mitigation Measures/Action Plans/Commitments</b>	
<p><b>Change in surface water quantity:</b> Once the area is rehabilitated the surface run-off will be restored and normal clean water run-off will end-up in the drainage system. Once the area is rehabilitated the normal surface run-off drainage will be restored according to rehabilitation plan. The disturbed surface area must be rehabilitated to ensure some normal drainage. Minimal run-off should end-up in trenches. Final rehabilitation will be done according to the final rehabilitation plans after approval by the Department of Mineral Resources. The depth of the operation of maximum of 5 m will not intersect the groundwater table thus no negative impact.</p>	
<b>EMP Performance Assessment &amp; Monitoring Reporting</b>	
To be included in EMP/EIA.	
<b>Closure Objective</b>	
Ultimately rehabilitation of the disturbed mining site and the construction of run-off control structures in a planned and phased manner would ensure normal drainage and stability of rehabilitated site. The drainage must be away from the gravel road.	

Environmental Component	Ground Water (quality)
<b>Environmental Management/Mitigation Measures/Action Plans/Commitments</b>	
<p><b>Reduction of groundwater quality:</b> Storm water control measures must be implemented to divert clean water away from the site and keep (silt) contaminated water contained. Vehicles to be inspected to ensure no oil and hydraulic fluid leaks occur. All oil spills on soil to be removed and bio-remediate immediately. No servicing of vehicles must occur except at the workshops. Training w.r.t pollution hazards and their impact on the environment must be given as part of induction training. Storage of fuel and oil should be done according to best practices, within a bunded area and in containers of which the integrity is sound. The mining processes will not introduce any harmful or toxic substances and the most likely sources of pollution to the groundwater system would be associated with the infrastructure and / or workshop area. The most likely contaminants is therefore nitrate and bacteria (from sewage / pit latrines), as well as hydrocarbons (from vehicle accidents, diesel storage and the workshop area). An incidence register for this purpose must be kept. Drip trays must be available and used where emergency repairs is done. All waste must be stored according to best practices and disposed at an authorized waste disposal facility.</p>	
<b>EMP Performance Assessment &amp; Monitoring Reporting</b>	
To be included in EMP/EIA.	
<b>Closure Objective</b>	
Post water quality need to indicate a positive trend/improvement.	

Environmental Component	Ground Water (quantity)
<b>Environmental Management/Mitigation Measures/Action Plans/Commitments</b>	
<p><b>Reduction of groundwater quantity, lowering of groundwater level:</b> Water levels in the boreholes that are used for mining activities should be recorded monthly. Water volumes should be recorded continuously to ensure compliance with the water use authorization for abstraction.</p>	
<b>EMP Performance Assessment &amp; Monitoring Reporting</b>	
To be included in EMP/EIA.	
<b>Closure Objective</b>	
Post water quality need to indicate a positive trend/improvement.	

Environmental Component	Air Quality
<b>Environmental Management/Mitigation Measures/Action Plans/Commitments</b>	
<p><b>Dust:</b> The mining method will serve as mitigation measure because mining will limit dust to the active mining area (area where the excavator and the trucks are operating). Daily spraying of roads with water. Inspection should be done on a daily basis. If new roads are constructed, in coordination with surface owner, dust pollution must be mitigated by means of spraying the roads with water.</p>	
<b>EMP Performance Assessment &amp; Monitoring Reporting</b>	
To be included in EMP/EIA.	
<b>Closure Objective</b>	

Dust count must be the same as before mining. Rehabilitation of the mining sampling site would ensure that no dust is generated from exposed surfaces.

<b>Environmental Component</b>	<b>Noise</b>
<b>Environmental Management/Mitigation Measures/Action Plans/Commitments</b>	
Ensure the required silencers are placed on all engines and compressors. No mitigation to reverse hooters is allowed due to safety standards. Inspection of vehicles and machinery to ensure silencers are fitted. Ensure that a complaints register is created, managed and maintained. Vehicles and earthmoving equipment should be equipped with the necessary silencers and regularly maintained in a good working condition.	
<b>EMP Performance Assessment &amp; Monitoring Reporting</b>	
To be included in EMP/EIA.	
<b>Closure Objective</b>	
No noise attributed to mining will be generated from the site after closure anymore. During decommissioning and closure phase some earth moving equipment and trucks would be utilized for rehabilitation.	

<b>Environmental Component</b>	<b>Archaeological and Cultural Sites</b>
<b>Environmental Management/Mitigation Measures/Action Plans/Commitments</b>	
All grave yard needs to be avoided if found However, the potential occurrence of unmarked graves or subsurface finds not recorded during this survey can never be excluded, so it is advised that SAHRA and a qualified archaeologist are informed immediately if archaeological objects are uncovered.	
<b>EMP Performance Assessment &amp; Monitoring Reporting</b>	
To be included in EMP/EIA.	
<b>Closure Objective</b>	
No site of archaeological importance should be disturbed or damaged until the necessary permit from SAHRA has been issued.	

<b>Environmental Component</b>	<b>Sensitive Landscapes</b>
<b>Environmental Management/Mitigation Measures/Action Plans/Commitments</b>	
None	
<b>EMP Performance Assessment &amp; Monitoring Reporting</b>	
To be included in EMP/EIA.	
<b>Closure Objective</b>	

<b>Environmental Component</b>	<b>Visual Aspects</b>
<b>Environmental Management/Mitigation Measures/Action Plans/Commitments</b>	
Visual impact would be addressed by means of; * re-vegetation of disturbed areas with grasses; * removal of any temporary building, scrap, domestic waste, etc. that would otherwise contribute to a negative visual impact. Concurrent rehabilitation should be done simultaneously as mining activities progress.	
<b>EMP Performance Assessment &amp; Monitoring Reporting</b>	
To be included in EMP/EIA.	
<b>Closure Objective</b>	
No residual visual impacts will remain after closure. The terrain should blend in with the surrounding landscape.	

<b>Environmental Component</b>	<b>Socio-Economics</b>
<b>Environmental Management/Mitigation Measures/Action Plans/Commitments</b>	
There will be a very small increase in Socio – economic activity at local level, because of the size of this mining activity.	
<b>EMP Performance Assessment &amp; Monitoring Reporting</b>	
To be included in EMP/EIA.	
<b>Closure Objective</b>	
The economic development must deliver a multiplier effect that will contribute to the local economy long after closure.	

Environmental Component	Interested and Affected Parties
<b>Environmental Management/Mitigation Measures/Action Plans/Commitments</b>	
<p>Access control should always be a priority. Active mining site should be fenced off and also any deep water holes.                      If any problem should arise, meetings will be held with the landowners and affected parties to consult them on certain matters like permission to prospect and pollution.                      No mining should be conducted under or near Eskom power line (10 m distance should be kept) (<i>Permission of Inspector of Mines should be obtained.</i>)</p>	
<b>EMP Performance Assessment &amp; Monitoring Reporting</b>	
To be included in EMP/EIA.	
<b>Closure Objective</b>	
Not to be an economic, social or environmental liability to the local community or the state now or in the future. The company will ensure that the interest of all interested and affected parties will be considered.	

**j) ASSESSMENT OF EACH IDENTIFIED POTENTIALLY SIGNIFICANT IMPACT AND RISK**

*In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 1 – 3. (1)(j)(i)(ii)(iii)(iv)(v)(vii)*

**Table 12: Identified Potentially Significant Impacts & Risks**

NAME OF ACTIVITY	POTENTIAL IMPACT	(i) CUMULATIVE IMPACTS	(ii) SIGNIFICANCE	(iii) EXTEND AND DURATION	(iv) PROBABILITY OF THE IMPACT OCCURRING	(v) DEGREE TO WHICH IMPACT/RISK CAN BE REVERSED	(vi) DEGREE TO WHICH IRREPLACEABLE LOSS MAY OCCUR	(vii) DEGREE TO WHICH IMPACT/RISK CAN BE MITIGATED
Excavations for Gravels	1.1 Removal of the Gravels gravel up to 3-5m. Disturbance of 0.5 hectare at any given time.	None	High -	At open excavations 2 years	High	Impossible	Not reversible at all	Not mitigated
	1.2 Change in landform. The entire prospecting area will be lowered by 3-5 m and normal surface drainage will be disturbed at this specific point. The pit will be sipped.	Topography on adjacent farms if prospecting is also practised	Moderate -	2 years	Moderate	Possible	Partly reversible	Fully Mitigated
	1.3 Stripping of all available topsoil and stockpiled. Stockpile area of 1.4 hectare at any given time.	Localized	Low -	2 years	High	Impossible	Partly reversible	Fully Mitigated
	1.4 Soil erosion: Due to the fact that certain surface areas would become devoid of any vegetation cover and compacted this would lead to lesser infiltration of rain water and more run-off that could cause erosion on bare disturbed areas and side slopes	Localized	Low-	2 years	Low	Possible	Reversible	Fully mitigated
	1.5 Land capability and land use. Loss of land to support grazing.	If old disturbances not rehabilitated.	Low-	2 years	Low	Possible	Reversible	Full mitigated
	1.6 Generation of dust by excavating and vehicle movement	Air quality	Low -	2 years	Low	Possible	Reversible	Fully mitigated.

**k) SUMMARY OF SPECIALIST REPORTS**

*In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 1 – 3. (1)(k)*

**Table 13: Specialist Reports**

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.
None			

## I) ENVIRONMENTAL IMPACT STATEMENT

*In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 1 – 3. (1)(l)*

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

The small scale Gravels mining operation is definitely going to have an impact on the environment. The main impact relates to topography, geology, soil, vegetation, and land use and land capability. The Gravels resource will be mined over a period of 2 years or less. The existing land-use is natural vegetation. This is a small operation and for the next 2 years only a small portion of the farm will be temporarily alienated.

The conservation of topsoil is of utmost importance and therefore in order to ensure a sustainable land use again on the 5 ha, the top at least 30-50 cm topsoil where available needs to be removed prior to mining of the underlying Gravels (up to 3-5 m depth). This will be used again as growth medium during the rehabilitation phase. Topsoil will be stored in berm walls to divert any surface run-off during a rainfall event.

Other environmental impacts relates to the day to day operation that could easily be managed, such as dust and noise.

### ii) Final Site Map

See Appendix 1(b).

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

The loss of land use and land capability will be temporary as the site will be rehabilitated in such a way that it allows the establishment of a grass cover again. The rest of the farm will still be continued to be used for grazing.

Although this is a small Gravels mining operation it would also add to the increased economic activity within the farming and exiting mining community around Tamboekiesfontein 173 IR. Jobs for 10 permanent labourers will be created.

Negative impacts on the area are expected to be temporary and can be mitigated to a large extent if the recommendations of the EMP are adhered to e.g. rehabilitation.

No concerns have been raised as yet by any I & AP.

The specific occurrence of the Gravels deposit dictates the selection of the specific mining site.

## m) Proposed impact management objectives and the impact management outcomes for inclusion in the EMP

*In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 1 – 3. (1)(m)*

The main closure objective of the applicant is to rehabilitate the entire mining site in such a way to ensure that the man-made topographical landscape would be rehabilitated toward agricultural use and to blend in with the surrounding landscape and not pose a safety hazard to humans and animals, while at the same time allow for alternative land uses. Establish a self-sustaining and stable vegetation cover in order to mitigate the visual impact, to control erosion and to create some habitat for animals. The rehabilitated environment also needs to be aesthetically acceptable according to the principle of BPEO. The applicant will ensure that the Operation/Sites are:

- Neither a danger to public health and safety nor to animal health and safety;
- Not a source of any pollution;
- Stable (ecological and geophysical);
- Rehabilitated to the state that is suitable for the predetermined and agreed land use (grazing);
- Compatible with the surrounding biophysical environment;
- A sustainable environment;
- Aesthetically acceptable;
- Not an economic, social or environmental liability to the local community or the state now or in the future.

**n) Aspects for Inclusion as Conditions of Authorisation.**

*In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 1 – 3. (1)(n)*

None

**o) Description of Any Assumptions, Uncertainties and Gaps in Knowledge.**

*In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 1 – 3. (1)(o)*

None

**p) Reasoned Opinion As To Whether The Proposed Activity Should Or Should Not Be Authorised**

*In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 1 – 3. (1)(p)*

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

This activity will have only low and very low impacts and no significant impacts were identified. No concerns were raised by the interested parties. These mining activities will have no significant impacts on them or their surrounding environment.

**(ii) Conditions that must be included in the authorisation**

None

**q) Period for which the environmental authorisation is required.**

*In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 1 – 3. (1)(q)*

24 months for initial permit period, thus 24 months in total.

**r) UNDERTAKING**

*In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 1 – 3. (1)(r)*

**UNDERTAKING**

I, D.E. Erasmus, the undersigned and duly authorised thereto by DERA Omgewingskonsultante (PTY) Ltd hereby confirm:

- ✓ the correctness of the information provided in this report;
- ✓ the inclusion of comments and inputs from stakeholders and I&AP's;
- ✓ the inclusion of inputs and recommendations from the specialist reports where relevant and where applicable and;
- ✓ all information provided to the interested and affected parties a true reflection of this document.

Signed at Klerksdorp on this day 18 March 2020.

.....

Signature of EAP

**s) FINANCIAL PROVISION**

*In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 1 – 3. (1)(s)*

The total application area is 5 hectares but only 0.3 hectares will be disturbed by opencast excavations and 0.2 hectares by surface disturbance to be used for the stockpile at any given time. These figures were used for the calculation of the quantum, thus a total of R101 371.00 needed for the rehabilitation guarantees. R 101 371.00 for rehabilitation. See quantum attached as Appendix 3.

**(i) Explain how the aforesaid amount was derived.**

The amount was determined through the quantum tables provided by DMR.

**(ii) Confirm that this amount can be provided for from operating expenditure**

Yes, it is hereby confirmed that the amount will be provided from operating expenditure.

**t) SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY**

*In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 1 – 3. (1)(t)*

**(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.**

The applicant has an agreement with the landowner and the landowner will be paid for the land used by mining when the activity starts. No other person will be directly affected by this activity.

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

This activity will have no impact on archaeological structures.

**u) OTHER MATTERS REQUIRED IN TERMS OF SECTIONS 24(4)(A) AND (B) OF THE ACT**

*In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 1 – 3. (1)(u)*

None



## PART B

### ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

#### 1. DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME.

##### A) DETAILS OF THE EAP

The EAP Mr. Daan Erasmus has a National Diploma in Agriculture Resource Utilization and a Baccalaureus Technologiae degree in Agricultural Extension.

Yes see Part A.

##### B) DESCRIPTION OF THE ASPECTS OF THE ACTIVITY

Yes see Part A.

##### C) COMPOSITE MAP

See Appendix 1(b).

##### D) DESCRIPTION OF IMPACT MANAGEMENT OBJECTIVES INCLUDING MANAGEMENT STATEMENTS

###### (i) Determination of closure objectives

The main closure objective of the applicant is to rehabilitate the entire mining site in such a way to ensure that the man-made topographical landscape would blend in with the surrounding landscape, not pose a safety hazard to humans and animals, while at the same time allow for alternative land uses. Establish a self-sustaining and stable vegetation cover in order to mitigate the visual impact, to control erosion and to create some habitat for animals. The rehabilitated environment also needs to be aesthetically acceptable according to the principle of BPEO. Another main objective is to manage the surface water in such way that an acceptable water standard is achieved when a closure certificate is issued.

**Raubex Construction (Pty) Ltd.** will ensure that the Operation/Sites are:

- Neither a danger to public health and safety nor to animal health and safety;
- Not a source of any pollution;
- Stable (ecological and geophysical);
- Rehabilitated to the state that is suitable for the predetermined and agreed land use;
- Compatible with the surrounding biophysical environment;
- A sustainable environment;
- Aesthetically acceptable;
- Not an economic, social or environmental liability to the local community or the state now or in the future.

**Raubex Construction (Pty) Ltd.** will furthermore:

- ensure that the physical and chemical stability of the rehabilitated site will be such that risk to the environment is not increased by naturally occurring forces to the extent that such increased risk cannot be contended with by the installed measures;
- subscribe to the optimal exploitation and utilization of South Africa's mineral resources (Gravels);
- ensure that the mining site is closed efficiently and cost effectively.
- ensure that the operation is not abandoned but closed in accordance with the relevant requirements;

- ensure that the interest of all interested and affected parties will be considered;
- ensure that the all-relevant legislation regarding mine closure will be adhered to, and all relevant application procedures followed.

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

2000 litres a day will be used for dust suppression.

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

N/A

**(iv) Impacts to be mitigated in their respective phases**

**Table 14: Measures to rehabilitate the environment affected by the undertaking of any listed activity**

ACTIVITIES	PHASE	SIZE AND SCALE of disturbance	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
1. Excavations	Operational	0.3 hectares at any stage	Concurrent rehabilitation by sloping the sides of the excavation to be stable/sustainable and covered with topsoil and vegetate. Keep this area as small as possible within the demarcated area. Prevent spillages of fuels by machines	Sloping of sides	As part of concurrent rehabilitation.
2. Gravels Stockpile area	Operational	0.2 hectares at any stage		Immediate cleaning of spillages	Concurrent with mining

**E) IMPACT MANAGEMENT OUTCOMES**

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
1. Excavations of Gravel	1.1 Removal of the Gravels up to 3-5 m. 1.2 Change in landform. The excavation will be sloped	Geology & soil Topography	Operational Operational and closure	The impact will be mitigated by sloping the sides of the excavation and stabilizing the soil to prevent soil erosion. A surface water cut-off trench should be put in place around the active mining site in order to prevent surface water on the mining site. Rehabilitation of the new rehabilitated landscape in such a way that it would blend in with the surrounding landscape.	A stable levelled area that can sustain vegetation without excessive erosion. If not complete backfilled it must be gentle stable slopes.
	1.3 Stripping of all available topsoil and stockpiled	Soil	Construction and operational	The top soil must be removed before any disturbance take place. The top soil must be removed and stockpile in a demarcated area for rehabilitation purposes. To take preventive steps against erosion. Implement and maintain cut-off trenches and or berms around the mining area to prevent water entering that can cause excessive erosion.	Enough topsoil for rehabilitation to ensure sustainable vegetation. No excessive erosion that cannot be stabilized.
	1.4 Soil erosion due to the fact that certain surface areas would become devoid of any vegetation cover and compacted. This would lead to lesser infiltration of rain water and more run-off that could cause erosion on bare disturbed areas and side slopes. 1.5. Loss of Land capability & land use.	Soil Land capability & land use	Construction and operational Operational and closure	As this is only a very small area of 5 hectares, the impact is low. As the sides will be sloped and vegetated, the rehabilitated area must be treated as sensitive when grazed as overgrazing can trigger erosion and infiltration of declared weeds.	Sustainable rehabilitated area.
	1.6 Generation of dust by excavating, crushing/screening and vehicle movement	Air quality	Operational	The generation of dust will only be localized at the mining site. Daily spraying of roads with water	No excessive dust that can be harmful to the environment and humans.

**F) IMPACT MANAGEMENT ACTIONS**

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
Excavations for Gravel	<p>1.1 Removal of the Gravels up to 3-5 m</p> <p>1.2 Change in landform. The excavation will be sloped.</p>	<p>The impact will be mitigated by backfilling the excavation and stabilizing the soil to prevent soil erosion.</p> <p>The side of pit will be sloped and the soil stabilized to prevent erosion.</p> <p>A surface water cut-off trench should be put in place around the active mining site in order to prevent surface water on the mining site.</p> <p>Rehabilitation of the new sloped landscape in such a way that it would blend in with the surrounding landscape.</p>		
	<p>1.3 Stripping of all available topsoil and stockpiled</p>	<p>The top soil must be removed before any disturbance take place. The top soil must be removed and stockpile in a demarcated area for rehabilitation purposes</p>		
	<p>1.4 Soil erosion due to the fact that certain surface areas would become devoid of any vegetation cover and compacted. This would lead to lesser infiltration of rain water and more run-off that could cause erosion on bare disturbed areas and side slopes.</p>	<p>To take preventive steps against erosion. Implement and maintain cut-off trenches and or berms around the mining area to prevent water entering that can cause excessive erosion.</p>		
	<p>1.5 Loss of Land capability &amp; land use</p>	<p>As this is only a very small area of 5 hectares, the impact is low. As the sides will be sloped and vegetated, the rehabilitated area must be treated as sensitive when grazed as overgrazing can trigger erosion and infiltration of declared weeds.</p>		
	<p>1.6 Generation of dust by excavating, crushing/screening and vehicle movement</p>	<p>The generation of dust will only be localized at the mining site. Daily spraying of roads with water</p>		

## G) 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

The main closure objective of the applicant is to rehabilitate the entire mining site in such a way to ensure that the new man-made topographical landscape would blend in with the surrounding landscape, not pose a safety hazard to humans and animals, while at the same time allow for alternative land uses. Establish a self-sustaining and stable vegetation cover in order to mitigate the visual impact, to control erosion and to create some habitat for animals. The rehabilitated environment also needs to be aesthetically acceptable according to the principle of BPEO. Another main objective is to manage the surface water in such way that an acceptable water standard is achieved when a closure certificate is issued.

**Raubex Construction (Pty) Ltd.** will ensure that the Operation/Sites are:

- Neither a danger to public health and safety nor to animal health and safety;
- Not a source of any pollution;
- Stable (ecological and geophysical);
- Rehabilitated to the state that is suitable for the predetermined and agreed land use;
- Compatible with the surrounding biophysical environment;
- A sustainable environment;
- Aesthetically acceptable;
- Not an economic, social or environmental liability to the local community or the state now or in the future.

**Raubex Construction (Pty) Ltd.** will furthermore:

- ensure that the physical and chemical stability of the rehabilitated site will be such that risk to the environment is not increased by naturally occurring forces to the extent that such increased risk cannot be contended with by the installed measures;
- subscribe to the optimal exploitation and utilization of South Africa's mineral resources (GRAVELS);
- ensure that the mining site is closed efficiently and cost effectively.
- ensure that the operation is not abandoned but closed in accordance with the relevant requirements;
- ensure that the interest of all interested and affected parties will be considered;
- ensure that the all-relevant legislation regarding mine closure will be adhered to, and all relevant application procedures followed.

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

Yes, the disturbance that will take place and the rehabilitation thereof were discussed on the site visit with the landowner.

#### 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 closures.

##### Rehabilitation:

The clearing of soil surface areas would be restricted to what is really necessary for the construction of infrastructure/crushing plant. During rehabilitation of these sites, or where vegetation is lacking or compacted, the areas would be ripped or ploughed and levelled in order to re-establish a growth medium and if necessary

appropriately fertilised to ensure the regrowth of vegetation and the soil ameliorated based on a fertilizer recommendation (soil sample analysed).

**Rehabilitation of access roads**

- Whenever a mining permit is suspended, cancelled or abandoned or if it lapses and the holder does not wish to renew the permit or right, any access road or portions thereof, constructed by the holder and which will no longer be required by the landowner/tenant, shall be removed and/or rehabilitated to the satisfaction of the Regional Manager.
- Any gate or fence erected by the holder which is not required by the landowner/tenant, shall be removed and the situation restored to the pre-mining situation.
- Roads shall be ripped or ploughed, and if necessary, appropriately fertilised (based on a soil analysis) to ensure the regrowth of vegetation. Imported road construction materials which may hamper regrowth of vegetation must be removed and disposed of in an approved manner prior to rehabilitation.
- If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining operation, be corrected and the area be seeded with a seed mix to the Regional Manager's specification.

**Rehabilitation of the surface mining site**

On completion of operations, all buildings, structures or objects on the camp/office site shall be dealt with in accordance with section 44 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002), which states:

*(1) When a prospecting right, mining right, retention permit or mining permit lapses, is cancelled or is abandoned or when any prospecting or mining operation comes to an end, the holder of any such right or permit may not demolish or remove any building, structure, object -*

*(A & B) which may not be demolished in terms of any other law;*

*(C) which has been identified in writing by the Minister for purposes of this section; or*

*(c) which is to be retained in terms of an agreement between the holder and the owner or occupier of the land, which agreement has been approved by the Minister in writing.*

*(2) The provision of subsection (1) does not apply to bona fide mining equipment which may be removed*

The surface area shall be ripped or ploughed to a depth of at least 300mm and the topsoil previously stored adjacent the site, shall be spread evenly to its original depth over the whole area.

**After all the foreign matter has been removed from the mining sites, the side slopes and the final void area will be sloped and levelled and the previously stored topsoil replaced.**

The area shall then be fertilised if necessary (based on a soil analysis). The site shall be seeded with a vegetation seed mix (section C) adapted to reflect the local indigenous flora. Where the site has been rendered devoid of vegetation/grass or where soils have been compacted owing to traffic, the surface shall be scarified or ripped.

Photographs of the site, before and during the mining operation and after rehabilitation, shall be taken at selected fixed points and kept on record for the information of the Regional Manager.

Rehabilitation of the new topographical landscape in such a way that it would blend in with the surrounding landscape and allow normal (controlled) surface drainage to continue.

Implement water control systems in order to prevent erosion. Seed the area (see C. (below) for recommended seed mixture).

Visual impact would be addressed by means of;

- revegetation (grasses);

- removal of any building, scrap, domestic waste, etc. that would otherwise contribute to a negative visual impact.

**Fertilising of Areas to be Rehabilitated**

If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining operation be corrected and the area be seeded with a seed mix to his or her specification.

**Seeding of Grass Seed Mixture and planting of Woody Species**

The eventual seed mixture takes into account the availability of seed, different soil situations and the prevailing climatic conditions of the area. The following mixture will be applicable to the mining permit site:

*Cenchrusciliaris*  
*Cynodondactylon*  
*Digitariaeriantha*  
*Heteropogoncontortus*  
*Panicum maximum*

**a. Demolition of infrastructure/buildings**

On completion of operations, all buildings, structures or other on the mining terrain shall be dealt with in accordance with section 44 of the Mineral and Petroleum Resources Development Act,2002 (Act No. 28 of 2002). There will be no permanent buildings.

**b. Invasive and alien control programme**

Develop and implement an invasive and alien control programme to control the spread of weeds and other invasive species. Eradicate exotic weeds and invader species if it invades the terrain. All illegal invader plants and weeds shall be eradicated as required in terms of Regulation 15 & 16 of the Act on Conservation of Agricultural Resources, 1983 (Act no. 43 of 1983) which list the plants.

**D. Explain why it can be confirmed that the rehabilitation plan is compatible with the closure objectives**

There will be no excavations of processing areas that can cause after mining impacts or residues. It will only be the rehabilitation of the drilling sites.

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

The total application area is 5 hectares but only 0.3 hectares will be disturbed by opencast excavations and 0.2 hectares by surface disturbance to be used for the plant area at any given time. These figures were used for the calculation of the quantum, thus a total of R 101 371.00 needed for the rehabilitation guarantees. R 101 371.00 for rehabilitation. See quantum attached as Appendix 3.

**F. Confirm that the financial provision will be provided as determined**

The financing for this project will be done from the account Raubex Construction (Pty) Ltd.the applicant himself out of own funds. The guarantee will be provided in the form of Bank Guarantee after confirmation of the amount.

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

- vii. Monitoring of Impact Management Actions
- viii. Monitoring and reporting frequency
- vx. Responsible persons
- x. Time period for implementing impact management actions
- xi. Mechanism for monitoring compliance

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
Mining site/Soil	Possible spillages of petrochemicals. Stripping of topsoil	Checking for spillages on daily basis. Checking correct stripping and stockpiling of topsoil	Manager and Applicant	Daily checking and reporting with Performance Assessment
Mining site/Topography	Concurrent backfilling of the excavations	Checking stability of slope and erosion preventive measures	Manager and applicant	Quarterly
Mining site/Air quality	Dust pollution from mining activities.	Regular wetting of roads and stockpile area where loading take place.	Manager and applicant	Daily
Mining site	Chemical toilet	Make sure that it is used and hygienic.	Manager and Applicant	Weekly.



**H) INDICATE THE FREQUENCY OF THE SUBMISSION OF THE PERFORMANCE ASSESSMENT/ ENVIRONMENTAL AUDIT REPORT.**

Annually

**I) ENVIRONMENTAL AWARENESS PLAN**

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

Raubex Construction (Pty) Ltd. will contract DERA Environmental Consultants to inform the employees after the EMP was approved. The following guidelines will be used:

- Communication
- Urge
- Leadership
- Teamwork
- Understanding
- Recognition
- Empowerment (CULTURE).

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

The risks will be dealt with by proper management actions as described in 1d.

**J) SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY**

The quantum for rehabilitation liability will be reviewed with the performance assessment on annual basis.

**2. UNDERTAKING**

The EAP herewith confirms

- (i) The correctness of the information provided in the reports;
- (ii) The inclusion of comments and inputs from stakeholders and I&APs;
- (iii) The inclusion of inputs and recommendations from the specialist reports where relevant; and
- (iv) 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.

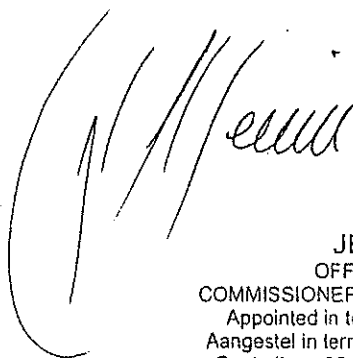


Signature of the environmental assessment practitioner:

DERA Omgewingskonsultante (Pty) Ltd.

Name of company:

**-END-**



**JERRY DEAN MENIN**  
OFFICE MANAGER / AUDITOR  
COMMISSIONER OF OATHS / KOMMISSARIS VAN EDE  
Appointed in terms of Section 5(1) of Act 16 of 1963  
Aangestel in terme van Artikel 5(1) van Wet 16 van 1963  
Centrallaan 32 Central Avenue, Flamwood, Klerksdorp  
Appointed/Aangestel: 23 Oktober 2012  
Reference/Verwysing: 9/1/8/2 Klerksdorp