



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: **Bitflow Investments 20 (Pty) Ltd.**

TEL NO: **079 547 8481**

FAX NO: -

POSTAL ADDRESS: **P O Box 12672, De Boord, 7613**

PHYSICAL ADDRESS:-

FILE REFERENCE NUMBER SAMRAD: **NW 30/5/1/3/2/11138 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 mining 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
SCOPE OF ASSSMENT AND BASIC ASSESSMENT REPORT

3. 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
Ms. Esna Erasmus
Tel No.: 018-468 5355
Fax No. : 018-011 3760
E-mail address: dera.office@dera.co.za

(ii) Expertise of the EAP

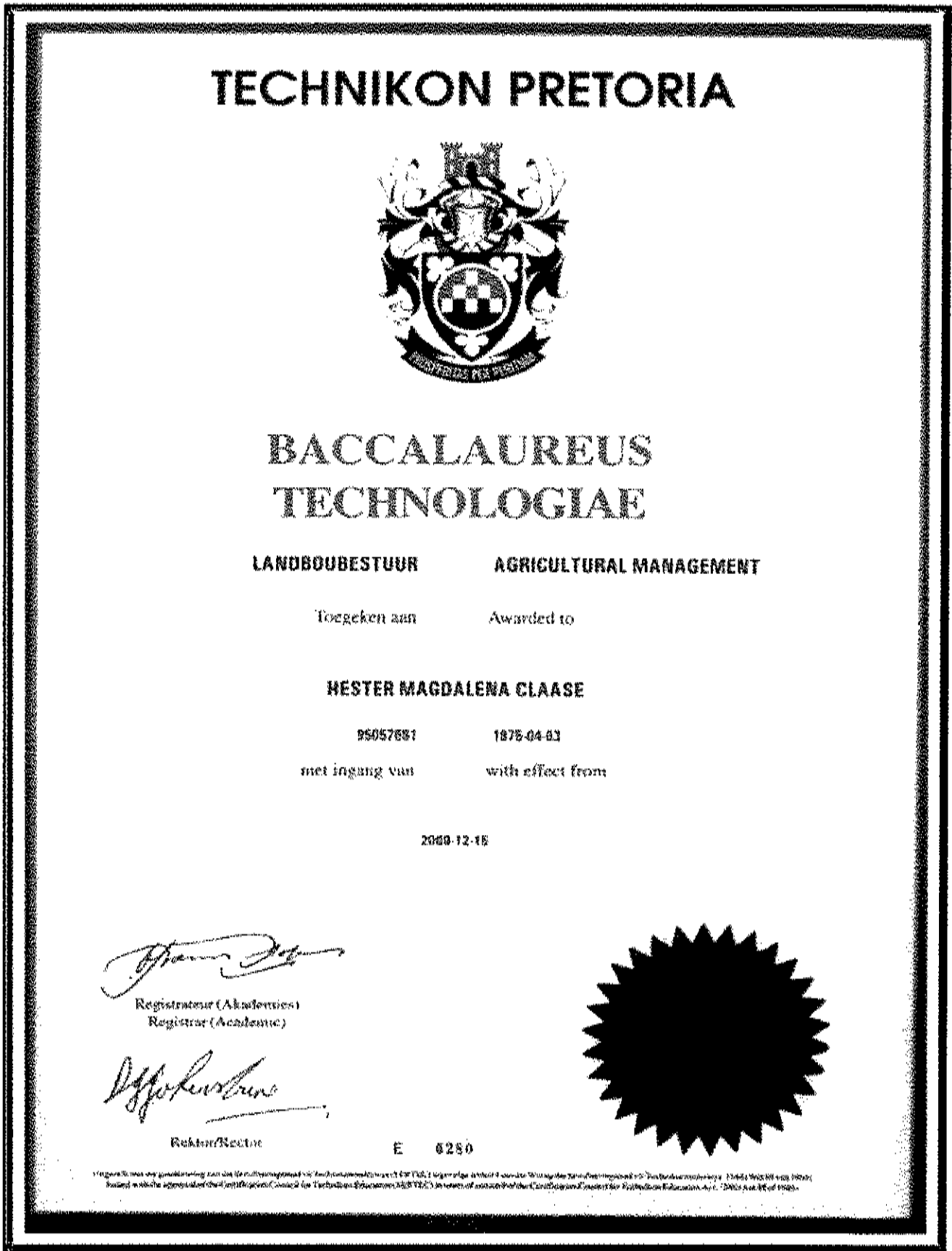
i. The qualifications of the EAP

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

The EAP, Ms HM (Esna) Erasmus has a National Diploma in Agriculture Resource Utilization and a Baccalaureus Technologiae degree in Agricultural Management. She also completed the subjects for her Master Degree in Environmental Analysis & Management at NWU. See **Figure 1** for copies of his qualifications and CV. She is further registered at the International Association for Impact Assessment South Africa (*IAIAsa*), **membership No: 6502** and is registered at Environmental Assessment Practitioners Association of South Africa (**EAPASA**), **registration No: 2020/2909**.



Figure 2



iii. **Summary of the EAP's past experience**


HM (Esna) Erasmus (maiden name Claase) is an environmental practitioner with 24 years' experience in Agricultural and Mining Management and Science. Experience in the field of inspection and evaluation of Environmental Impact Assessment in North West. Since 1998 involvement in mining activities with Department of Minerals and Energy in the North West Province as representative for National Department of Agriculture Dir. LRM in the following: Evaluation of Environmental Management Reports Inspection and evaluation of all different mining entities in North West Province. A member of the Slimes Dam Core Committee of North West Province. Involved in the compiling of a strategy for rehabilitation of Gold slime Dams in NW. Give inputs and comments on the revision of EMPR for small scale diamond mining. Involve in setting a strategy to encounter the impact of small scale mining on the environment in North West. See **Figure 3** below Curriculum Vitae of H.M. Erasmus.


Figure 3: Copy of Curriculum Vitae


ESNA ERASMUS


ENVIRONMENTAL PRACTITIONER

CONTACTS

 esnae@dera.co.za

 +27 83 4525917

 <http://za.linkedin.com/in/esna-erasmus-1881aba5/>

 Klerksdorp, North-west Province, South Africa

ABOUT ME

Environmental practitioner with 22 years' experience in Agricultural and Mining Management and Science.

Experience in the field of inspection and evaluation of Environmental Impact Assessment in North West

Since 1998 involvement in mining activities with Department of Minerals and Energy in the North West Province as representative for National Department of Agriculture Dir. LRM in the following:

Evaluation of Environmental Management Reports

Inspection and evaluation of all different mining entities in North West Province.

A member of the Slimes Dam Core Committee of North West Province involved in the compiling of a strategy for rehabilitation of Gold slime Dams in NW.

Give inputs and comments on the revision of EMPR for small scale diamond mining.

Involve in setting a strategy to encounter the impact of small scale mining on the environment in North West.

SKILLS

- Report writing
- Conduct auditing
- Bilingual (English/Afrikaans)
- Computer Proficient
- Report generation and analysis
- verbal and written communication
- Computer literate
- Project Management
- Results-orientated
- Conduct risk assessments

WORK EXPERIENCE

<p><u>JAN 1998</u> <u>JUN 2002</u></p>	<p>SENIOR RESOURCE CONSERVATION INSPECTOR <i>National Department of Agriculture – Potchefstroom, SA</i></p> <p>Manage Administration of Act 49 of 1988, Agricultural Resource Conservation act in North West Province.</p> <p>Management of personnel and personnel related matters.</p> <p>Management of budget for Potchefstroom office of Directorate Land Resource Management.</p>
<p><u>JUL 2002</u> <u>FEB 2004</u></p>	<p>SENIOR ENVIRONMENTAL OFFICER <i>Department of Minerals and Energy – Klerksdorp, SA</i></p> <p>Administration of Act 90 of 1991, the Minerals Act in the North West province.</p> <p>Evaluation of EMPR's and EIA's.</p> <p>Audit and compliance inspections of mining operations.</p>
<p><u>MAR 2004</u> <u>PRESENT</u></p>	<p>ENVIRONMENTAL PRACTITIONER <i>DERA Environmental Consultants – Klerksdorp, SA</i></p> <p>Compiling and submission of mining related applications; manage and compile legal environmental documents.</p> <p>Monitoring work to evaluated compliance to environmental legislation; evaluating outstanding rehabilitation liabilities for mining companies.</p> <p>Risk assessment and applications for closure certificates.</p> <p>Compile EMPR/EIA for Mining Rights and compilation of EMPlan's for Prospecting and Mining Right applications.</p> <p>Compile BAR & EMPR's in support of applications for listed activities under NEMA such as Chicken Broilers, Feed lots, Fuel Storage, ect.</p> <p>Manages consultation between Departments and applicants.</p>

EDUCATION



1992

HIGH SCHOOL DIPLOMA

Middelburg High School – Middelburg, Mpumalanga, SA

English	Afrikaans
Biology	History
Geography	Accounting

1998

NATIONAL DIPLOMA: AGRICULTURE, RESOURCE UTILISATION

Tshwane University of Technology – Pretoria, Tshwane, SA

Animal Production I	Computer Application I
Pasture Science I	Physical Science I
Agricultural Marketing II (I and II)	
Poultry Production II	Crop Production I, II
Agricultural Soil Science I	Agricultural Mechanization I
Agricultural Production Management III	
Agricultural Extension II	Large Stock Production II
Horticulture III	Agricultural Anatomy & Physiology I
Farm Planning I	Soil Conservation II

2001

BACCALAUREUS TECHNOLOGIAE: AGRICULTURAL MANAGEMENT

Tshwane University of Technology – Pretoria, Tshwane, SA

Financial Management IV	Strategic Management IV
Plant Production IV	Leadership Development II

2004

MATERS OF ENVIRONMENTAL SCIENCES IN ENVIRONMENTAL SCIENCES AND MANAGEMENT - uncompleted

North-West University – Potchefstroom, North West

Introduction to environmental management
 Applied Environmental Management
 Environmental Management
 Theoretical Hydrology
 Urban Ecology
 Introduction to GIS
 Applied GIS
 Applied hydrology
 Environmental Analysis
 Research Proposal - uncompleted
 Final dissertation - uncompleted

SHORT COURSES



Computer training Database IV
 Seminar in public speaking
 Veld assessment course
 Resource identification and utilization course - September 1998
 Introduction to GIS - June 2001
 Persuasion skills
 Wetlands identification
 Wetlands Rehabilitation - August 2001
 Management skills
 Environmental Risk Assessment and Management - August 2005
 Mining and the Environment - October 2003

EIA - EXPERIENCE

The following list of EIA's was just some that was done by me:

- *Elde Beer (Doornfontein)* - was done as part of a Prospecting Right Application with Bulk Sampling, my role entailed: site visit, impact assessment and evaluation and compilation of report and handling of application process.
- *Hartzer & Steyn Beleggers (Zwartkop)* - was done as part of Mining Right Application with Bulk Sampling, my role entailed: site visit, impact assessment and evaluation and compilation of report and handling of application process.
- *Bethlehem Sand en Kip CC (Kalfarmey)* - was done as part of Mining Right Application, my role entailed: site visit, impact assessment and evaluation and compilation of report and handling of application process.
- *KMF Agro Processing (Pty) Ltd (Kareefontein)* - was done as part of an Environmental Authorization for a listed activity, for the construction of Chicken slaughter facility, my role entailed: site visit, impact assessment and evaluation and compilation of report and handling of application process.
- *Summit Ridge (Graslaagte)* - was done as part of an Environmental Authorization for a listed activity for feed mill for chicken feed, my role entailed: site visit, impact assessment and evaluation and compilation of report and handling of application process.

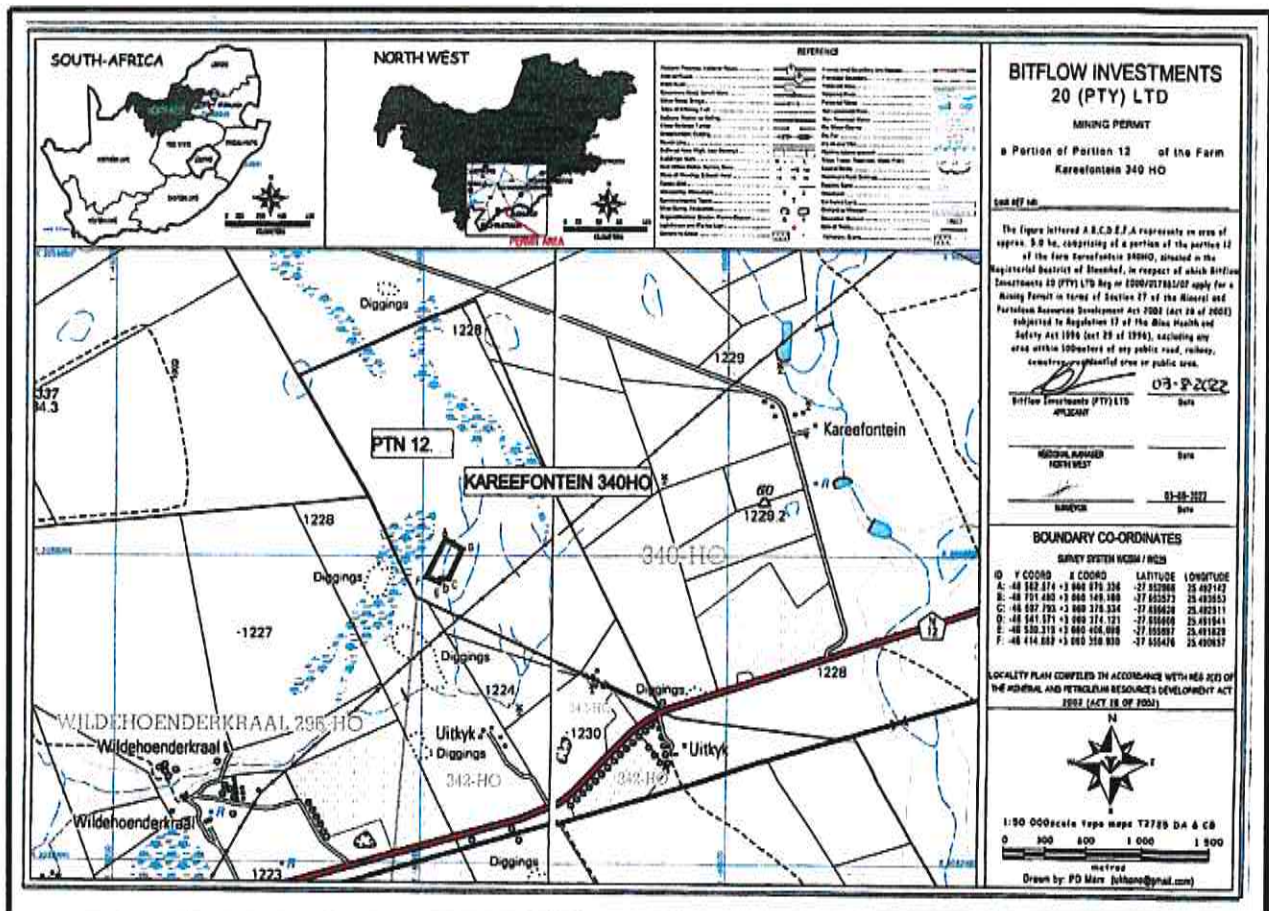
b) LOCATION OF THE OVERALL ACTIVITY

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	TOHO0000000034000012																																			
(ii) Farm Name:	KAREEFONTEIN 340 HO ➤ over a certain portion of Portion 12																																			
(iii) Coordinates - Co-ordinates List WG 27°	<div style="border: 1px solid black; padding: 5px;"> <p align="center">BOUNDARY CO-ORDINATES</p> <p align="center">SURVEY SYSTEM WGS84 / WG25</p> <table border="1"> <thead> <tr> <th>ID</th> <th>Y COORD</th> <th>X COORD</th> <th>LATITUDE</th> <th>LONGITUDE</th> </tr> </thead> <tbody> <tr> <td>A:</td> <td>-48 562.574</td> <td>+3 060 070.336</td> <td>-27.652866</td> <td>25.492142</td> </tr> <tr> <td>B:</td> <td>-48 701.480</td> <td>+3 060 149.180</td> <td>-27.653573</td> <td>25.493553</td> </tr> <tr> <td>C:</td> <td>-48 597.793</td> <td>+3 060 376.534</td> <td>-27.655628</td> <td>25.492511</td> </tr> <tr> <td>D:</td> <td>-48 541.571</td> <td>+3 060 374.121</td> <td>-27.655608</td> <td>25.491941</td> </tr> <tr> <td>E:</td> <td>-48 530.319</td> <td>+3 060 406.098</td> <td>-27.655897</td> <td>25.491829</td> </tr> <tr> <td>F:</td> <td>-48 414.882</td> <td>+3 060 358.930</td> <td>-27.655476</td> <td>25.490657</td> </tr> </tbody> </table> </div>	ID	Y COORD	X COORD	LATITUDE	LONGITUDE	A:	-48 562.574	+3 060 070.336	-27.652866	25.492142	B:	-48 701.480	+3 060 149.180	-27.653573	25.493553	C:	-48 597.793	+3 060 376.534	-27.655628	25.492511	D:	-48 541.571	+3 060 374.121	-27.655608	25.491941	E:	-48 530.319	+3 060 406.098	-27.655897	25.491829	F:	-48 414.882	+3 060 358.930	-27.655476	25.490657
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Application area (Ha)	5 hectares																																			
Magisterial district:	The area is situated 14.8 km west of Bloemhof within the district of Bloemhof which is a maize, peanut, cattle farming town situated on the N12 towards Bloemhof in the North West Province of South Africa. The town lies in an important alluvial diamond-mining area and it is the main town of the Lekwa-Teemane Local Municipality, which further falls under the Dr Ruth Segomotsi Mompati District Municipality.																																			
Distance and direction from nearest town	± 14.8 km west of Bloemhof.																																			
Minerals applied for	Diamonds Alluvial (DA)																																			

Figure 4: Sketch plan of application area



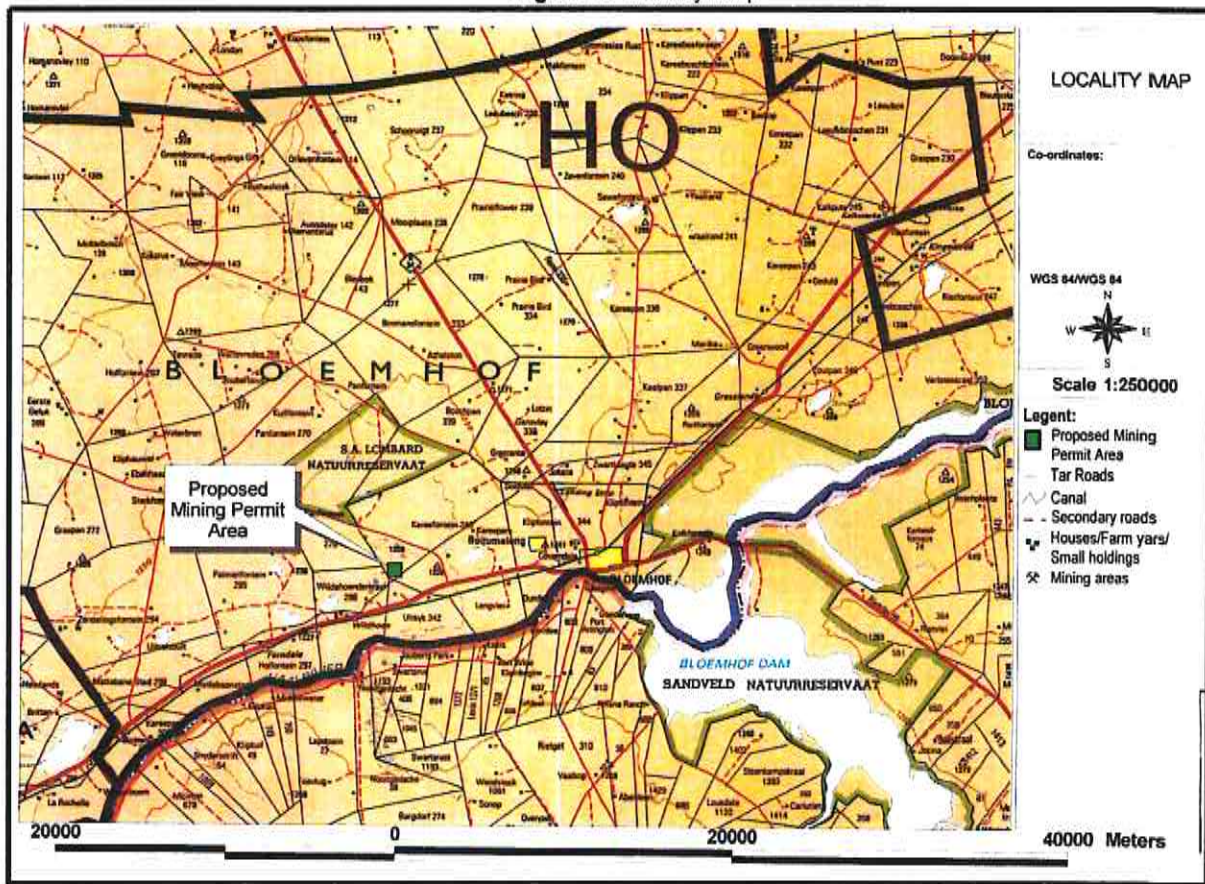
c) LOCALITY MAP

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

The area is situated within the district of Bloemhof is a maize-farming, cattle, peanuts town situated on the N12 from Bloemhof in the North West Province of South Africa. The town lies in an important alluvial diamond-mining area and it is the main town of the Lekwa Teemane Local Municipality which further falls under the Dr Ruth Segomotsi Mompati District Municipality (Course: https://en.wikipedia.org/wiki/Lekwa_Teemane). See **Figure 5 below**, as well as **Appendix 1(a) - Locality Map** indication where the applied area is situated within the district of Bloemhof, North West Province.

Appendix 1(a) – Locality Map

Figure 5: 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 is over natural grassveld vegetation over an area that was disturbed by agriculture land uses (grazing by cattle). The proposed application area is situated ± 14.8 km west of Bloemhof town, as can be seen on the Figure 6 – below for images of proposed site. There is no infrastructure over the application site. It is part of a bigger farm portion - of the rest of Portion 12 of the KAREEFONTEIN 340 HO. Access to the application area is gained via existing N12 and gravel road.

Figure 6: Access to the application area



The scope of the activities will be: that the above area will be mined through opencast excavations where the topsoil will be stripped separately and stockpiled. The gravel is then removed with a 30 ton excavator and placed next to the excavation. A Front-end Loader takes the gravel to the 14 feet washing pan which is fed at a rate of 6m³ an hour, 240m³ a day and 4800m³ a month. All the rough are first placed back into the bottom of the excavation, hereafter the puddle out of the pan is pumped directly back into the open excavation. After the puddle dried off, the topsoil is put back on top again. The excavations will be 40m in length 10m wide and ±1.5 meters deep on average. Only one excavation will be opened at a time.

The total estimated reserve of gravel is 75'000m³ taken at a production rate of 4'800m³ a month it will take 24 months to work the estimated reserve of ±75'000m³. The production rate is taken at 4'800m³/month. The gravel which is relatively shallow (1.5metre) and the low production rate of the applicant make this 5 hectare to be worked sustainable over a period of two years.

Appendix 1(b 1 & b2) – Infrastructure Plan

(i) Listed and specified activities

Table 2: Listed and specified 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 ²	LISTED ACTIVITY	APPLICABLE LISTING NOTICE (GNR 544, GNR 545 or GNR 546)	WASTE MANAGEMENT AUTHORISATION
<p>Listing 1 – Activity 21: 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</p> <p>(b) the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing; 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.</p>	5 ha	X	GNR 327	
<p>Listing 1 – Activity 27: 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 (ii) maintenance purposes undertaken in accordance with a maintenance management plan.</p>	5 ha	X	GNR 327	

(ii) Listed and specified activities

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
The Mineral	Bitflow Investments (Pty) Ltd. intends to mine for Diamonds (Alluvial) (DA) situated on the KAREEFONTEIN 340 HO (over a certain portion of Portion 12), Bloemhof district, and 5 hectares in total. See Figure 4 for location of application area. The alluvial diamond gravel will be mined over the whole of the application area.	
The extend	The gravel is on average 1.5 meter thick with a topsoil layer which varies between 300 and 500 millimeters. The area that was identified and demarcated is shown on the attached sketch plan. The gravel reserve on these 5 hectares is estimated at 75'000m ³ or ± 85'000 tons and the total material to be moved is 75'000m ³ .	
Mining method	The above area will be mined through opencast excavations where the topsoil will be stripped separately and stockpiled. The gravel is then removed with a 30 ton excavator and placed next to the excavation. A Front-end Loader takes the gravel to the 14 feet washing pan which is fed at a rate of 6m ³ an hour, 240m ³ a day and 4'800m ³ a month. All the rough are first placed back into the bottom of the excavation, hereafter the puddle out of the pan is pumped directly	<p>There will be a plant area with ablation facilities and roads to the excavations.</p> <p>Equipment to be used includes: * 2 x Frond end loader or 1 x Excavator; * 1 x Tipper truck * 1 x 14 feet washing pan * 1x Power plant Pipes and water pump.</p>

	<p>back into the open excavation. After the puddle dried off, the topsoil is put back on top again. The excavations will be 40m in length 10m wide and ± 1 meters deep on average. Only one excavation will be opened at a time.</p> <p>The total estimated reserve of gravel is 75'000m³ taken at a production rate of 4'800m³ a month it will take 24 months to work the estimated reserve of $\pm 75'000$m³. The production rate is taken at 4'800m³/month. The gravel which is relatively shallow (1,5 meter) and the low production rate of the applicant make this 5 hectare to be worked sustainable over a period of two years.</p>	
<p>The grade</p>	<p>The grade of this gravel is estimated at 0.3 carat per 100 ton of gravel and \$650 a carat, which can give ± 254 carats of diamonds. The small operation can last for 24 months and can be profitable.</p>	

e) POLICY AND LEGISLATIVE CONTEXT

In terms of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 1 – 3.1(f)(e)(j)

Table 4: Policy & Legislative Context

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE POLICY AND LEGISLATIVE CONTEXT
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 27, Listing 1.	Mining Right application submitted and EA application with DMR
National Environmental Management Act, 1998 (Act 107 of 1998); Environmental Impact Assessment Regulations, 2014 (G38282 – R962-985) EA Authorization and EIA/EEMP. Submit documents that will describe the impacts and sustainable mitigation thereof.	Regulation 21 Section 23	Scoping Report in process following by EIA/EEMP
Compliance to Act and Regulations during course of activities. Show impacts and mitigation thereof. National Water Act, 1998 (Act 36 of 1998) Application for Water abstraction for mining use	Section 21 (a)	Application for water use license with DWS, will follow.
South African National Heritage Resources Act (Act 25 of 1999) (SAHRA) Compliance to Act and Regulations during course of activities. Ensure that no graves or heritage site will be disturbed.	Section 38	SAHRA was notified process will be followed. Compilation of HIA over the application area in order to identify possible archaeological and paleontological sites or occurrences.
Conservation of Agricultural Resources Act No 43 of 1983 (CARA) 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	Regulation will be applicable during construction and operational phases of mining.
National Forest Act, Act No. 84 of 1998 (NFA) & GN 1935 in Government Gazette No. 46094 of 25 March 2022. Application of Permit or License if protected species may be affected.	Section 15 (1)	No person may cut, disturb, damage or destroy any protected tree; or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, or any forest product derived from a protected tree, except under a licence granted by the Minister; or in terms of an exemption published by the Minister.
National Veld and Forest Fire Act, Act 101 of 1998 (NVFFA)	Section 12	Duty on owners to prepare and maintain firebreaks as it may be required in consultation with adjoining owners and fire protection association.
Provincial Northern Cape Nature Conservation Act, Act 9 of 2009 (NCNCA) Application of Permit or License if protected species may be affected.	Section 3 Section 49	Restricted activities involving specially protected animals. No person may, without a permit - hunt; import; export; transport; keep; possess; breed; or trade in, a specimen of a specially protected animal. Restricted activities involving specially protected plants: (1) No person may, without a permit - pick; import; export; transport; possess; cultivate; or trade in, a specimen of a specially protected plant.
National Environmental Management Laws Amendment Act (Act 2 of 2022)		
NEMA Financial Provision Regulation		The purpose of GNR 1147 is to regulate the determination of financial provision as contemplated in NEMA for the specific costs related to undertaking the management, rehabilitation and remediation of environmental impacts. This is applicable from the commencement of exploration activities, through the lifespan of mining and mining operations.

Bitflow Investments 20 (Pty) Ltd. – KAREEFONTEIN 340 HD (over a certain portion of Portion 12) – NW30/5/1/3/2/ 11 138 MP

National Environmental Management: Air Quality Act (Act 39 of 2004)		
National Dust Control Regulations (GN. 827 of 1 November 2013)		
National Environmental Management: Biodiversity Act (Act 10 of 2004): Threatened or Protected Species Regulations		

f) NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES

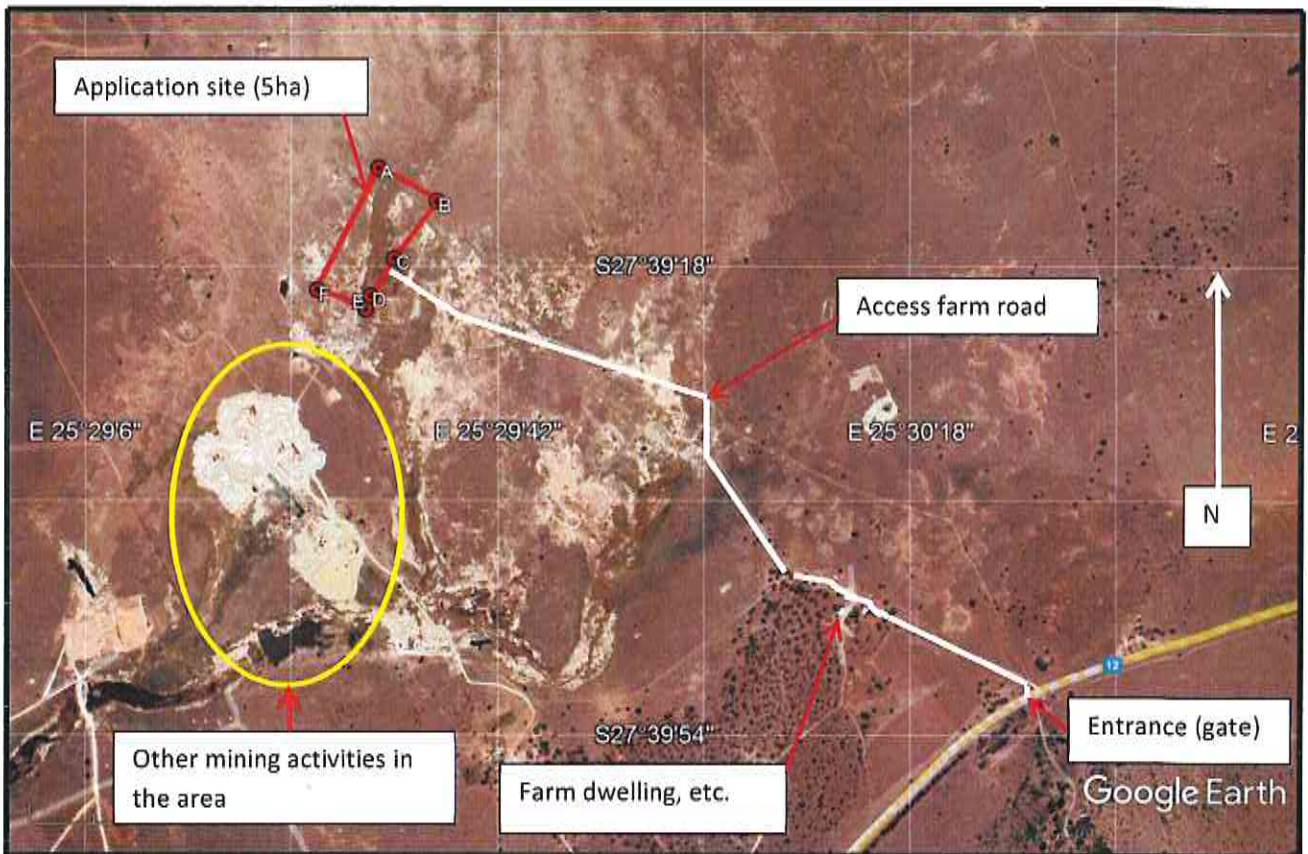
In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 1 – 3. (1)(f)

The farm portions over which the application was applied for is currently used as agriculture (grazing for cattle). There seem to be no infrastructure on this 5 ha site except for a farm road also utilized by the land owner. There is historically disturbance/mining areas on the surrounding areas, on the neighbouring farms.

As mentioned there is no infrastructure on this area, beside for the farm road. Access to the farm is gained by the N12 and existing gravel road from Bloemhof to Christiana. See **Figure 7** for extraction of Google Earth Images for more detail. It is envisaged that the whole site (5 ha) will in time (2 years) be disturbed but that as mining progress it will be simultaneously be rehabilitated .

The area will be mined and rehabilitated. **The mining focus site (5 ha) will be clearly demarcated.** The area applied for is over the demarcated portion only. After mining the land will be used for grazing for cattle (agricultural) again.

Figure 7: Google Earth Images



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

The applicant envisaged that Diamonds (Alluvial) DA to be present on this property as the adjacent property was also mined successful, therefore the application for a mining permit. The mining of gravel is very site specific and Bitflow Investments 20 (Pty) Ltd. have years of experience in identifying the right gravel required.

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 withdrawn from agricultural use and earmarked for mining. The option to explore the possibility for mining is already in itself an alternative land use. The applicant, **Bitflow Investments 20 (Pty) Ltd**, is not interested in any other alternative land use over this land aside for the mining of diamond bearing gravel (Alluvial Diamonds (DA)), or any other activity, or method use other than mining 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. The Mining Permit application is for this specific area as indicated on the sketch plan (**Appendix 1(b 1 & b2) – Infrastructure Plan**) with no alternatives. And the whole of the application area will systematically be mined eventually. There are no alternative sites as the whole of the application area was identified as being favourable to bear Alluvial Diamonds (DA).

(b) the type of activity to be undertaken

The type of activity is for mining and processing of alluvial diamond bearing gravel in line with the submitted Mining Plan. The type of activity does not have an alternative. Alluvial Diamonds (DA) mining normally uses the opencast mining method in order to access the mineral.

The application area will be mined through opencast excavations where the topsoil will be stripped separately and stockpiled. The gravel is then removed with a 30 ton excavator and placed next to the excavation. A Front-end Loader takes the gravel to the 14 feet washing pan which is fed at a rate of 6m³ an hour, 240m³ a day and 4'800 m³ a month. All the rough are first placed back into the bottom of the excavation, hereafter the puddle out of the pan is pumped directly back into the open excavation. After the puddle dried off, the topsoil is put back on top again. The excavations will be 40m in length 10m wide and ±1.5 meters deep on average. Only one excavation will be opened at a time. The gravel which is relatively shallow (1.5 meter) and the low production rate of the applicant make this 5 hectare to be worked sustainable over a period of two years.

There are no alternatives to the processing of the mineral as this is the conventional manner in which it is done. No other technology exists for this diamond mining operation. As this is only mining trenching operation it will be the basic opencast method with associated machinery.

(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 (**Appendix 1(b 1 & b2) – Infrastructure Plan**) as submitted with the application. And the whole of the application area (5 ha) will systematically be mined eventually. There are no preferred sites as the whole of the application area was identified as being favourable to be mined. This mining operation will also not be a static operation as the whole of the application area will be mined in order to determine where the possible Alluvial Diamonds (DA) runs. They will perhaps have a temporary office building and the gravel to be processed next to the open excavations. There will also be temporary chemical toilets on the site for ablution facilities. There will not be services to machinery done on site and in case of emergency it will be done over a PVC lining. This operation will be a basic small scale mining layout, with minimal temporary infrastructure and just the necessary equipment.

(d) the technology to be used in the activity

The technology used in the activity will be as described in the **Mining Plan** and the best options will be determined by the applicant, which will be trenching. The technology used with regards to the processing of the Alluvial Diamonds (DA) is putting it through a washing plant. The washing plant will

be set up next to the current open excavation and will only be moved once the excavation is closed up. The technology used in the activity will be as described in the Mining Plan and the best options will be determined by the applicant. They will basically be using excavators to open the trenches (0.2 ha at any given time) and a front-end loader to move the material to be processed through the washing pan.

(e) the operational aspects of the activity, and

The operational aspect is only the mining for Alluvial Diamonds (DA) on this specific area, making use of **trenching (40m length x 10 m wide x 1,5m depth)**. Operations will be done through systematically trenches that will be made with a back-actor of the whole application area. Where trenches were completed the excavation will be backfilling (rough material, puddle and overburden material) before the next excavation will be opened and the topsoil will be removed and spread over the closed up excavation, thus creating a rollover effect. The importance will be to mine the whole of the area not leaving any patches, but rather mine the reserve systematically so that proper concurrent rehabilitation can take place.

(f) the option of not implementing the activity

This option might only be possible if the applicant decide to abandon the project. If this application is not implemented the current landowners will just continue with **existing agricultural activities which is grazing**. Thus not exploiting the mineral reserve and somebody else can apply.

(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 (Barry Wentzel Trust)** and the direct neighbours were consulted personally and through a letter that was given to them by hand. A **site notice** was placed at the entrance gate of the Kareefontein farm. With this site notice all passers-by are requested to submit any written comments to be forwarded to the consultant (still awaiting response). An **advertisement** was placed in the **Stellaander Newspaper** of **9th November 2022**. See proof of consultation under **Appendix 2**.

Appendix 2 – Proof of consultation.

Table 5: Description of process to be undertaken to consult interested and affected parties

IDENTIFICATION CRITERIA	Mark with an X where applicable		ACTIONS
	YES	NO	
Will the landowner be specifically consulted?	X		Yes, see consultation letter
Will the lawful occupier on the property other than the Landowner be consulted?	X		Yes, see letter form land owner
Will a tribal authority or host community that may be affected be consulted?		X	N/A
Will recipients of land claims in respect of the area be consulted?	X		E-mail was sent to Mr. T. Mbonani, no reply was received.
Will the landowners or lawful occupiers of neighbouring properties been identified?	X		The landowner and neighbours were all consulted in person.
Will the local municipality be consulted?	X		Lekwa Teemane Local Municipality was consulted in writing.
Will the Authority responsible for power lines within 100 meters of the area be consulted?		X	There are no power lines within 100m from application area.
Will the Authorities responsible for public roads or railway lines within 100 meters of the area applied for be consulted?		X	There are no public roads within 100 m that will be affected.
Will the Authorities responsible for any other infrastructure within 100 meters the area applied for be consulted? (Specify)		X	There are no surface infrastructure that will be affected; the application

Will the Provincial Department responsible for the environment be consulted?	X	area is within grazing land for cattle. Draft BAR was sent to DEDECT
Will all of the parties identified above be provided with a description of the proposed mining/mining operation as referred above?	X	All consultation letters included the full property description and summary of intended activities.
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	All consulted letter invited all I&AP's to send through any comment or objections.
Other, Specify		

Table 6: Furthermore the details of the engagement process to be followed are as reflected below

Steps to be taken to notify interested and affected parties	PROVIDE DESCRIPTION HERE The <u>landowner</u> and the neighbours were informed personally consulted by the applicant and confirmed in the writing. A consultation letter was sent to Lekwa Teemane Local Municipality. An advertisement was placed in the Stelaland Newspaper for comments.
Information to be provided to interested and Affected Parties.	Compulsory 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) Other, specify: mining plan
Information to be required from Interested and Affected Parties.	Compulsory 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 term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 1 – 3. (1)(b)(iii)

See Appendix 2 for full detail on public participation.

Table 7: Summary of Identified I&AP's

Interested and Affected Parties	Date sent and/or Comments	Issues raised	EAP's response to the applicant
AFFECTED PARTIES			
Landowner/s	X		
Barry Wentzel Trust (Landowner) Bloemhof, 2660 Cell: 0826320114	3 Nov 2022 7 Nov 2022	Consultation letter send No objection, see attached signed consultation letter	
Lawful occupier/s of the land			
Landowners or lawful occupiers on adjacent	X		
Mr. P.J. Roos (Neighbour) P.O. Box 77, Bloemhof, 2660 Cell: 072 626 6808	3 Nov 2022 4 Nov 2022	Consultation letter send No objection, see signed consultation letter	
Mr. C.L. Roos The farm Ulikya Bloemhof, 2660 Cell: 072 064 8418	3 Nov 2022 4 Nov 2022	Consultation letter send No objection, see signed consultation letter attached.	
Municipal councillor			
Municipality	X		
Lekwa Teemane Local Municipality Municipal Manager: Mr. T. Mbonani Tel: 053 441 2206, E-mail: contact@lekwa-teemane.co.za	3 Nov 2022	Consultation letter send to Mr. Mbonani	
Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA.			
Eskom			
Communities			
N/A			
Dept. Land Affairs	X		
KeabetsweMothupi Keabetswe.mothupi@drdlr.gov.za	3 Nov 2022 7 Nov 2022	Request for verification of land claims send to Ms. Mothupi	Acknowledge letter received

Traditional Leaders				
NIA				
Dept. Rural, Environment and Agricultural	X			
CumaSkosana Agricentre Building, Cnr James Moroka& Stadium Road, Mmabatho, 2735 E-mail: oskosana@nwppg.gov.za		9 Nov 2022	BAR/EMPr sent with Fastway couriers for comments	
Dept. Water and Sanitation	X			
Lerato Mokoanle 28 Central Road, Beaconsfield, Kimberley, 8300 Tel: 053 830 8800, E-mail: Mokoanlel@dws.gov.za		9 Nov 2022	BAR/EMPr sent with Courier Guy couriers for comments	
Dept. Agriculture, Forestry and Fisheries	X			
Maurice Vuyega Louis le Grange Building, Cnr Peter Mokaba & Wolmarans street, 3 rd Floor, Office no 318, Potchefstroom, 2520 Tel: 018-389 5156, E-mail: MauriceV@daff.gov.za		9 Nov 2022	BAR/EMPr sent with Fastway couriers for comments	
Other Competent Authorities				
OTHER AFFECTED PARTIES				
INTERESTED PARTIES				

Public Notice – Stellalander 9 November 2022

(iv)The Environmental attributes associated with the alternatives

In terms 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 identifying sensitive issues/areas, which need to be considered when conducting the impact assessment. The application is over: **KAREEFONTEIN 340 HO (over a certain portion of Portion 12)**. This area consists of natural vegetation (grazing for cattle).

Magisterial District: The area is situated 14.8 km west of Bloemhof within the district of Bloemhof which is a maize, peanut, cattle farming town situated on the N12 between Bloemhof and Christiana in the North West Province of South Africa. The town lies in an important alluvial diamond-mining area and it is the main town of the Lekwa Teemane Local Municipality, which further falls under the Dr Ruth Segomotsi Mompati District Municipality. See **Figure 5**, as well as **Appendix 1(a)** - Locality Map indication where the applied area is situated within the district of Bloemhof, North West Province.

Direction from neighbouring town: The nearest town is Bloemhof, which is situated 14.8 km east of the application area.

Longitude (approximate centre of mining site): 25°29'31.59"E

Latitude (approximate centre of mining site): 27°39'16.07"S

Existing Surface Infrastructure: The application area is situated over a rural part of the Bloemhof district. The mining permit application area is characterized by natural vegetation (grazing for cattle).

The infrastructure over the farm KAREEFONTEIN 340 HO (over a certain portion of Portion 12), there is an entrance (gate) farm road from the N12 road.

All of the above infrastructure can be seen on the **Infrastructure Plan - Appendix 1(b)1 (b2)**. The **surrounding farms** are mostly utilized as cultivated field for cash crops and natural grazing for cattle and mining/mining can be seen. Access to the mining permit application area will be from the N12 running between Bloemhof and Christiana. **Also see Appendix 1(b)1 & 1(b)2 for Infrastructure Plan and Google satellite image of the application area.**

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

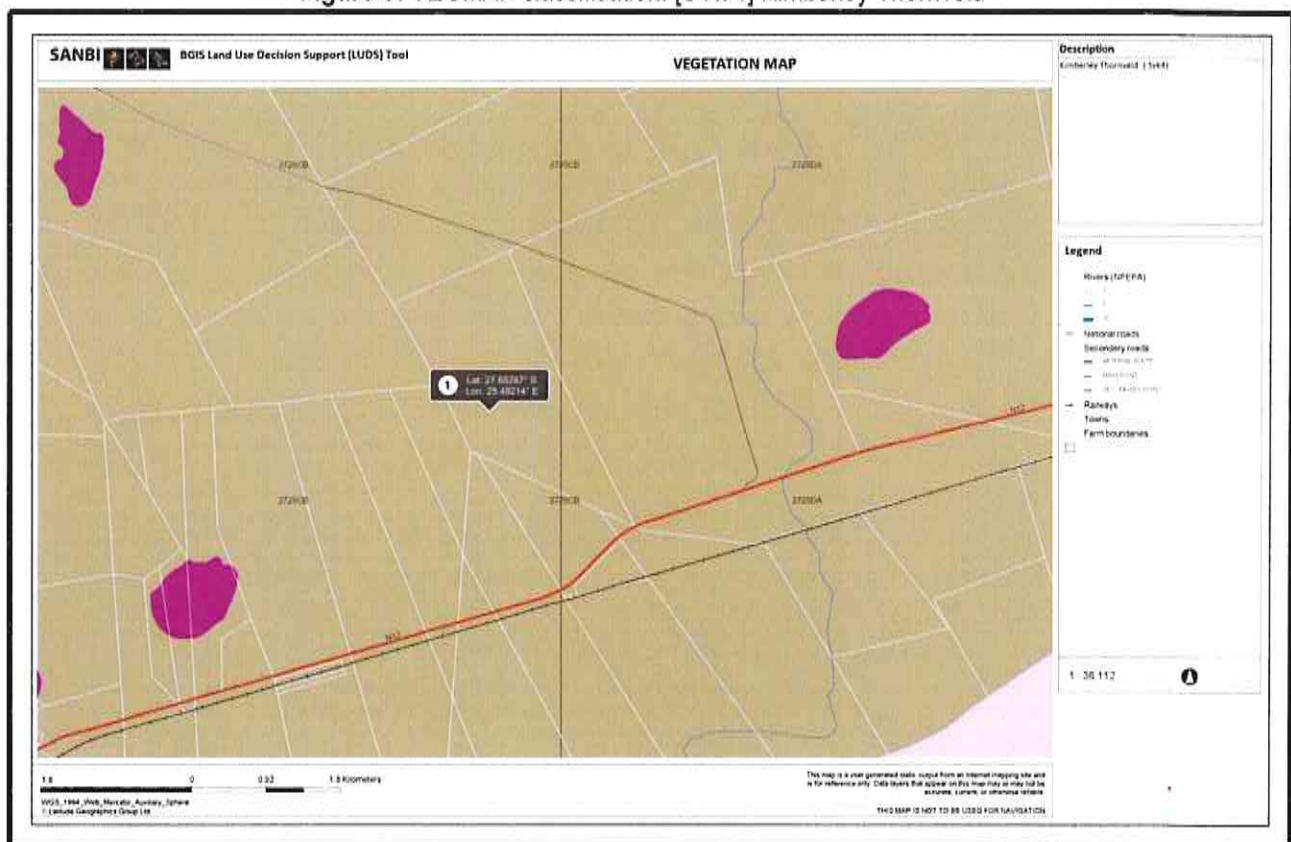
Vegetation [Flora] and Landscape Features: This application area falls over veld type: **[SVk 4] Kimberley Thornveld**. VT 16 Kalahari Thornveld and Shrub Bushveld (50%) (Acocks 1953). LR 32 Kimberley Thorn Bushveld (74%) (Low & Rebelo 1996).

Distribution: North-West, Free State and Northern Cape Provinces: Most of the Kimberley, Hartswater, Bloemhof and Hoopstad Districts as well as substantial parts of the Warrenton, Christiana, Taung, Boshof and to some extent the Barkly West Districts. Also includes pediment areas in the Herbert and Jacobsdal Districts. Altitude 1 050–1 400 m.

Plains often slightly irregular with well-developed tree layer with *Acacia erioloba*, *A. tortilis*, *A. karroo* and *Boscia albitrunca* and well-developed shrub layer with occasional dense stands of *Tarchonanthus camphoratus* and *A. mellifera*. Grass layer open with much uncovered soil.

VEGMAP (2006) further classify this area as part of the **[SVk 4] Kimberley Thornveld** over most of the mining permit application area of 5 hectares. See Figure 8 below. Below is a summary of the plant species that may occur over the surrounding undisturbed areas, which in turn can be a source for regrowth of natural species once mining, have totally ceased over this area.

Figure 8: VEGMAP classification: [SVk 4] Kimberley Thornveld



Important Taxa: Tall Tree: *Acacia erioloba* (d). Small Trees: *Acacia karroo* (d), *A. mellifera* subsp. *detinens* (d), *A. tortilis* subsp. *heteracantha* (d), *Rhus lancea*. Tall Shrubs: *Tarchonanthus camphoratus* (d), *Diospyros pallens*, *Ehretia rigida* subsp. *rigida*, *Euclea crispa* subsp. *ovata*, *Grewia flava*, *Lycium arenicola*, *L. hirsutum*, *Rhus tridactyla*. Low Shrubs: *Acacia hebeclada* subsp. *hebeclada* (d), *Anthospermum rigidum* subsp. *pumilum*, *Helichrysum zeyheri*, *Hermannia comosa*, *Lycium pilifolium*, *Melolobium microphyllum*, *Pavonia burchellii*, *Peliostomum leucorrhizum*, *Plinthus sericeus*, *Wahlenbergia nodosa*. Succulent Shrubs: *Aloe hereroensis* var.

hereroensis, *Lycium cinereum*. Graminoids: *Eragrostis lehmanniana* (d), *Aristida canescens*, *A. congesta*, *A. mollissima* subsp. *argentea*, *Cymbopogon pospischillii*, *Digitaria argyrograpta*, *D. eriantha* subsp. *eriantha*, *Enneapogon cenchroides*, *E. scoparius*, *Eragrostis rigidior*, *Heteropogon contortus*, *Themeda triandra*. Herbs: *Barleria macrostegia*, *Dicoma schinzii*, *Harpagophytum procumbens* subsp. *procumbens*, *Helichrysum cerastioides*, *Hermbstaedtia odorata*, *Hibiscus marlothianus*, *Jamesbrittenia aurantiaca*, *Lippia scaberrima*, *Osteospermum muricatum*, *Vahlia capensis* subsp. *vulgaris*. Succulent Herbs: *Aloe grandidentata*, *Piранthus decipiens*.


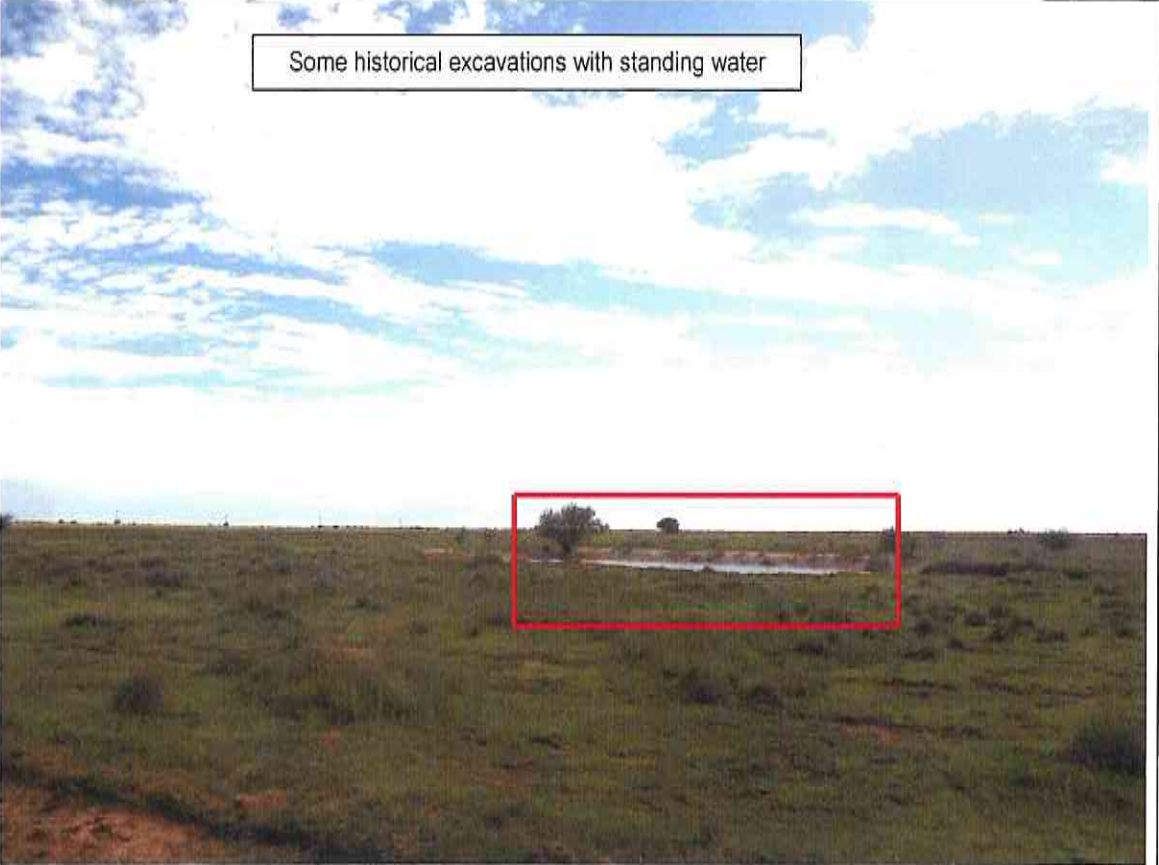
Biogeographically Important Taxa: (^{GW}Griqualand West endemic, ^KKalahari endemic) Low Shrub: *Blepharis marginata*^{GW}. Succulent Shrub: *Euphorbia bergii*^{GW}. Graminoid: *Panicum kalaharensis*^K. Herbs: *Helichrysum arenicola*^K, *Neuradopsis bechuanensis*^K. Succulent Herbs: *Lithops aucampiae* subsp. *aucampiae*^{GW}, *Tridentea marientalensis* subsp. *marientalensis*^K.

Conservation: Least threatened. Target 16%. Only 2% statutorily conserved in Vaalbos National Park as well as in Sandveld, Bloemhof Dam and S.A. Lombard Nature Reserves. Some 18% already transformed, mostly by cultivation. Erosion is very low. Area is mostly used for cattle farming or game ranching. Overgrazing leads to encroachment of *Acacia mellifera* subsp. *detinens*. **References** Bezuidenhout (1994, 1995), Smit (2000).

Some indication of the **original vegetation type** could be found on the **5 ha**. Though the years the site have been disturbed by agricultural activities (grazing for cattle) and historic mining activities. **This is a "brownfields site"**.

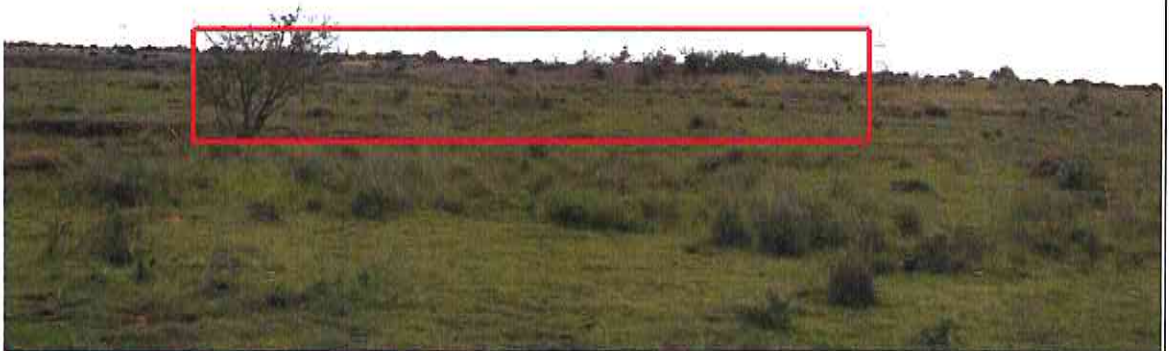
See photo table (next pages):



PHOTO	
1	<p>Grass cover = grazing for cattle. Original Kimberley Thornveld not present on site.</p> 
3	<p>Some historical excavations with standing water</p> 

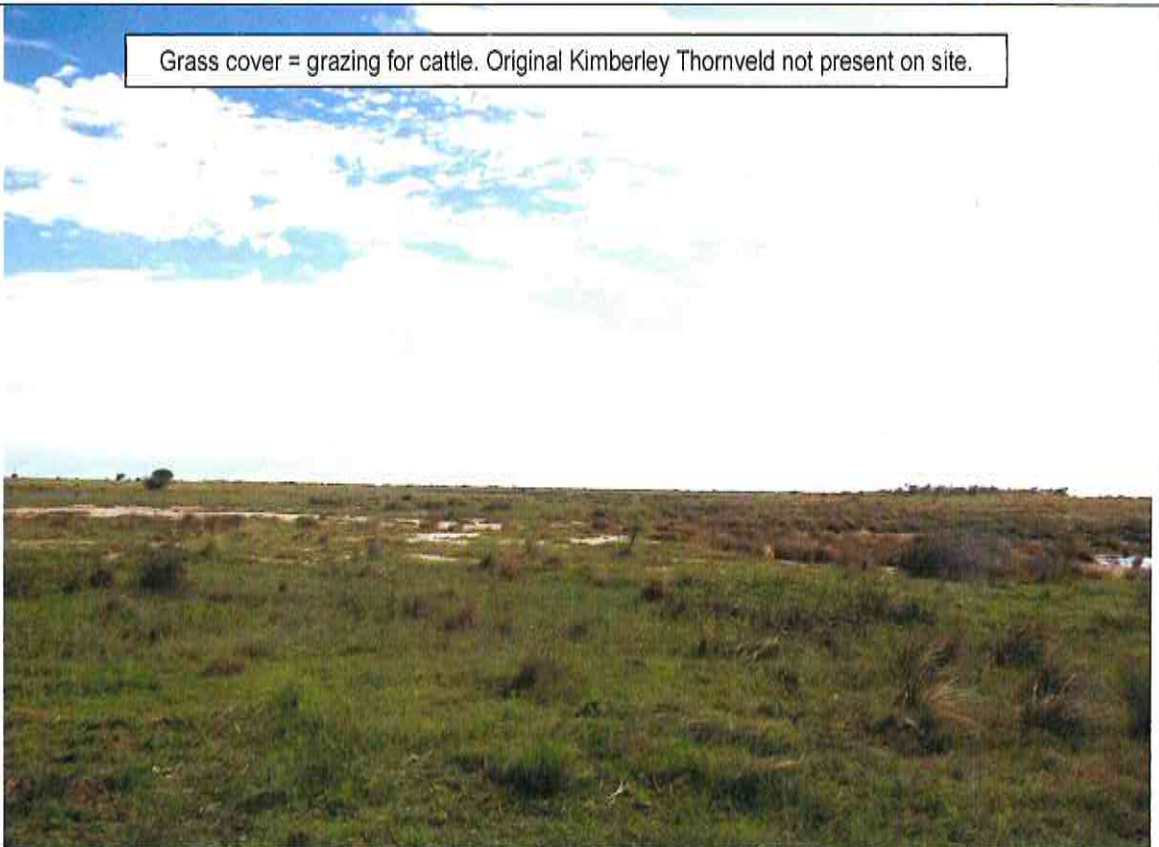
4

Grass cover = grazing for cattle. Original Kimberley Thornveld not present on site.
See historical mine dumps present on site.



5

Grass cover = grazing for cattle. Original Kimberley Thornveld not present on site.



Screening of environmental sensitivity of the proposed site (See Appendix 3 for full report):

Furthermore according to the DEDACT's (Department of Economic Development, Environment, Conservation and Tourism's) screening tool the footprint of this application area, although only **small scale mining (5 ha disturbed over 2 years)**, are classified (by background reference to the whole mining permit application area as per summary table below.

According to the **screening of environmental sensitivity of the proposed mining permit (5ha)** it is indicated that **Terrestrial Biodiversity Theme** was classified as being VERY HIGH. Also the whole of the area is being regarded as to have a LOW environmental sensitivity with regard to plant species and LOW with regard to animals. The majority of the areas have been disturbed by agricultural activities. The site itself does not represent anymore the SVk4 Kimberley Thornveld. All trees, shrubs have been removed on the site is being utilized as grazing for cattle (agricultural use). The mining permit **site** should be regarded as a **"brownfields site"** as the site has been disturbed by agriculture activities. During the site investigation no animals were found on site. The **Animal Species Theme** is regarded as of LOW sensitivity. The **site has been disturbed by agricultural activities in the past and currently** and it is likely that animals would not stay in such a habitat but rather move to other undisturbed areas.

Palaeontology Theme was further classified as being HIGH sensitivity. It is however not foreseen that there will be any such sites of the application area that the landowner (applicant) may not be aware of any findings and they would have come across item if there were any. **The mining activity will be only alluvial gravel and not hard rock formations.** The mining project manager will have to keep a look out for possible sightings and report it as soon as possible.

According to the screening of **environmental sensitivity** of the proposed site it is indicated that **Agricultural Theme** was classified as being MEDIUM sensitivity. The mining sites will disturb **only 5 ha in total over 2 years** and should be regarded as a **"brownfields site"** as the site has been disturbed by agriculture activities (Grazing for cattle). No cultivation is taking place .Only grazing by cattle. Rehabilitation of the 5 ha site will return the site to some grazing capability for cattle. **The majority of the farm still continues with agricultural activity (grazing for cattle) (IV; marginal potential arable land) and is in no way hindered by the proposed activity and the environmental sensitivity for the 5 ha should be low.**

According to the screening of environmental sensitivity of the proposed site it is indicated that **Plant species Theme** was classified as being MEDIUM sensitivity. **Giving the fact that the majority of the mining permit application area is regarded as of MEDIUM environmental sensitivity and the fact that the remaining area have been impacted by agricultural activities the site is actually "Brownfields site".**

See Summary: See results of full screening report Appendix 3 for KAREEFONTEIN 340 HO (over a certain portion of Portion 12) within the mining permit application area of 5 ha in total as shown in Table 4 below.

Table 8: DEDACT - Screening Report

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Agriculture Theme			X	
Animal Species Theme				X
Aquatic Biodiversity Theme	X			
Archaeological and Cultural Heritage Theme				X
Civil Aviation Theme			X	
Defence Theme				X
Palaeontology Theme		X		
Plant Species Theme			X	
Terrestrial Biodiversity Theme	X			

Climate: Warm-temperate, summer-rainfall region, with overall MAP of 520 mm. Summer temperatures are high. Severe frequent frost occurs in winter.

Geology & Soil: Andesitic lavas of the Allanridge Formation of the Ventersdorp Supergroup, sometimes covered with silcrete or calcrete of the Kalahari Group. **Shallow Brandvlei Form (Ortic A/Soft calcrete horizon) soils.**



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. The natural animal life occurring over the application area includes but is not restricted to, small animals common in this area. List of mammals which are likely to occur over the project area were derived based on distribution record from the Animal Demography Unit (ADU) web portal: <http://vmus.adu.org.za>. Animals that are likely to occur here are: *Cynictis penicillata* (Yellow Mongoose), *Sylvicapra grimmia* (Bush Duiker), *Hystrix africaeaustralis* (Cape Porcupine), *Canis mesomelas* (Black-backed Jackal), *Herpestes sanguineus* (Slender Mongoose), *Raphicerus campestris* (Steenbok), *Otocyon megalotis* (Bat-eared Fox), *Phacochoerus africanus* (Common Warthog (Suidae)). The study area is being known for the agriculture with regard to the production of Cattle.

Surface Water: Harts River: This application area fall within the **water management area of the Lower Vaal (10) and secondary catchment area C91 and tertiary drainage region C91A (Surface area 360 km²)**. It is not expected that this 5 ha mining sites area will have any effect on the surface run-off in the drainage catchment area (C91A). ***There is a wetland area is within the 5ha site that will definitely be impacted on by proposed mining activities. See description under SENTITIVE LANDSCAPES for further information. No mining could take place within 100m from such sensitive landscape.***

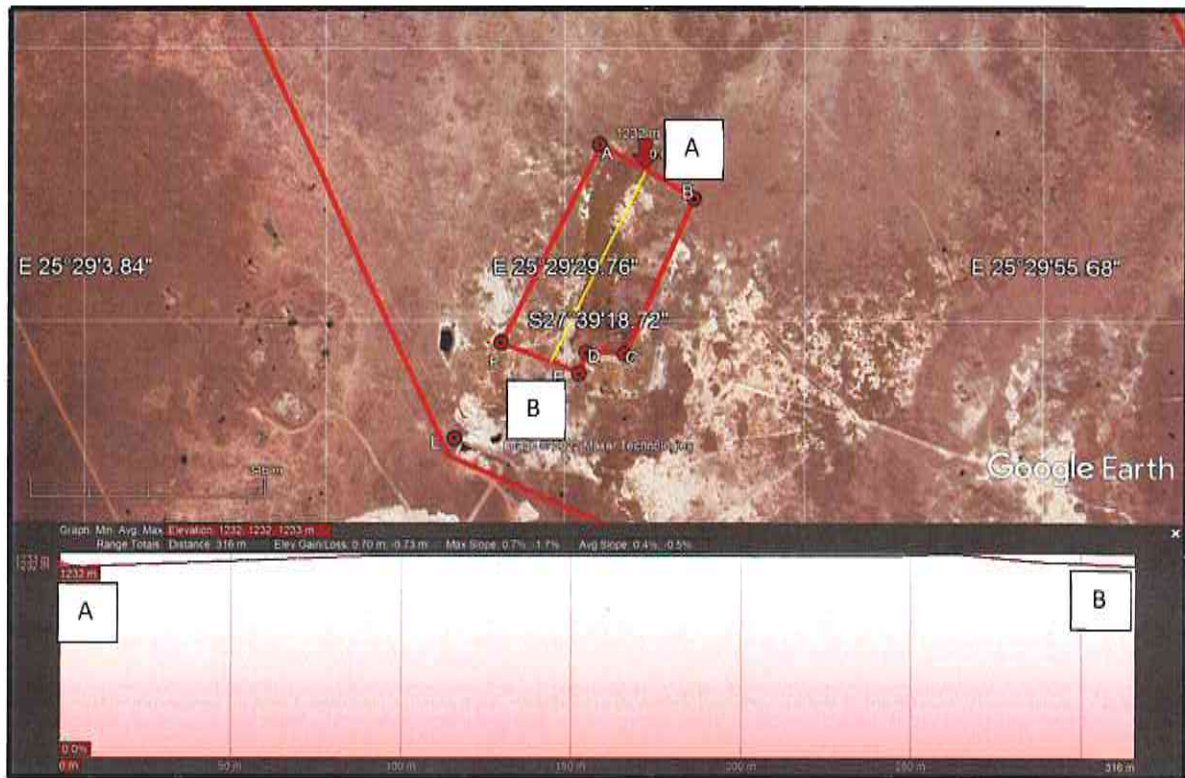
According to NEMA's Screening Tool the *Aquatic biodiversity sensitivity* was classified as being VERY HIGH sensitive.

Ground Water: The applicant intends TO USE WATER from BOREHOLES located on the farm. Water uses will be 2'000 liters a day for the primary processing in the bulk sampling phase.

Air Quality: The impact on air quality will occur from test pits, trenches and movement on the roads. This impact will be low and will be monitored and mitigated trough wetting of the roads. This area fall in very rural area and the impact form windblown dust particles, can have just as big an impact. Area where testing are completed must be backfilled and re-vegetated so soon as possible to establish a vegetation layer in order to retain the loose soil fractions.

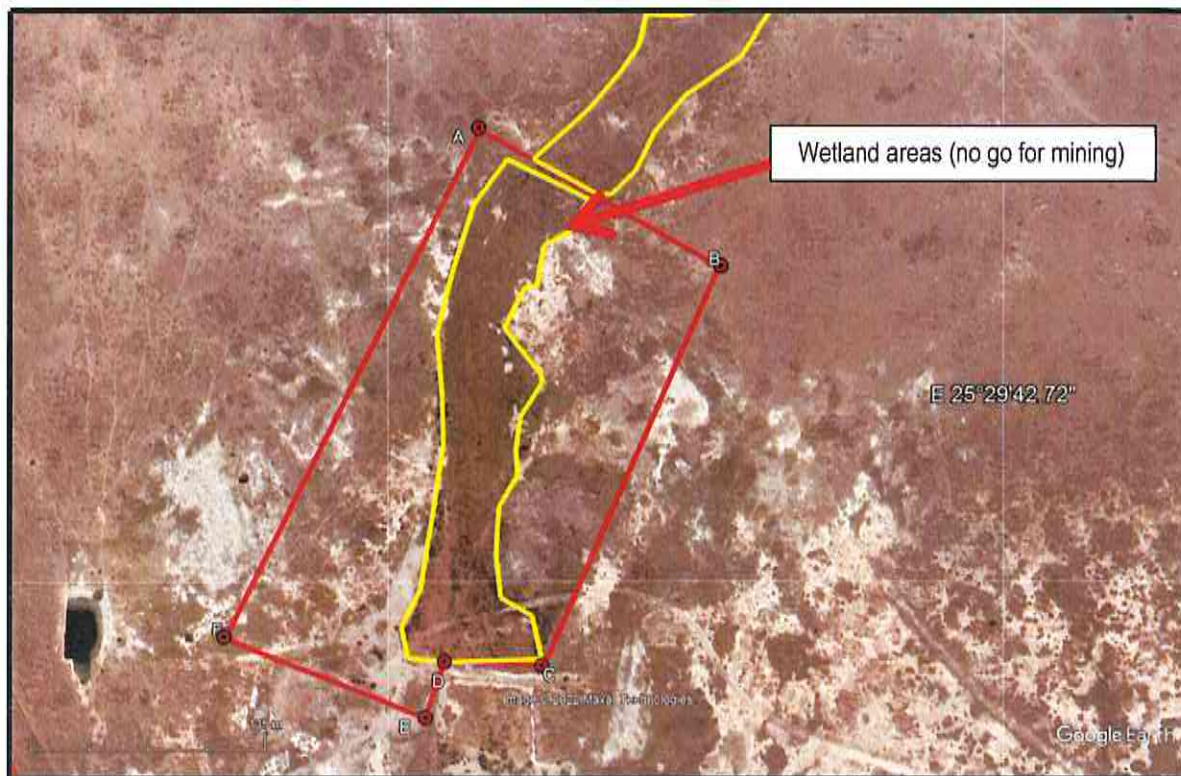
Noise: The impact of noise will be generated by the mining equipment. This operation will only be in day time working hours and will have a low impact on current surroundings. And because of the extent of this application area 5 ha, the sound will get lost and no residence on neighboring farms will be adversely affected. The landowner's farmstead is located within 1.3 km southeast from the application area and roads to the application area and will they be the most affected by any noise of the mining activities. The impact may be greater with regards to wild animals, but they tend to move away toward areas less influenced by noise disturbance.

Topography: The site has one terrain type, which is characterized as "Plains with pans" (Terrain Morphological Map of S.A. 1983), covered with grassland. **The average slope is 0.4 % that can be described as flat (see slope profile).** The **average elevation is between 1232-1233 m meters above sea level (masl)** over most of the mining permit application area.

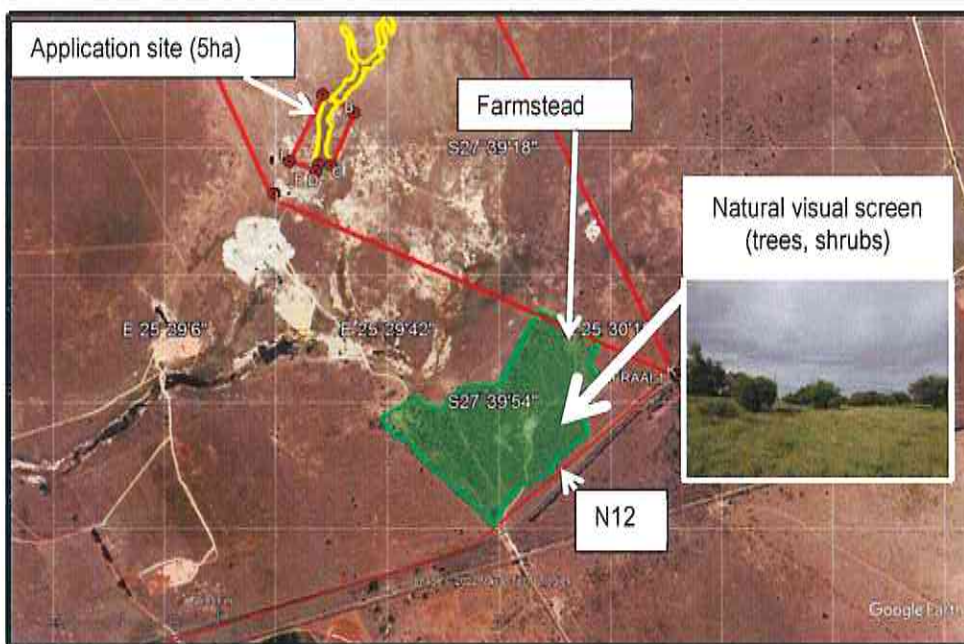


Sites of Archaeological and Cultural Interest: None. Nothing found on site.

Sensitive Landscapes: A wetland area is within the 5ha site. See figure below indicating the location of the site. No mining could take place within 100m from such sensitive landscape.



Visual Aspects: These mining activities will be not visible to the landowner. The landowner's farmstead is located within 1.3 km southeast from the application area. The site will not be visible from the farmstead or the N12, as the site is located 1.76 km from the site and the visibility of the site is obscured by trees and shrubs that acts as a **natural visual screen**.



Social: The proposed activity will employ **9 people (manager included)**. Various social amenities are available close to the operation. These include schools, hospitals, clinics, churches, recreation facilities as well as a Police Station at Bloemhof, which is located \pm 14.8 km away from the proposed operation.

(a) Description of the current land uses.

The current land use (agricultural) is natural vegetation for grazing by cattle and cultivated maize fields. There are also areas that were previously mined.

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

The application area is situated over a rural part of the Bloemhof district. The mining permit application area is characterized by natural vegetation (grazing for cattle).

All of the above infrastructure can be seen on the Infrastructure Plan - **Appendix 1(b1 & b2)**. **The surrounding farms** are mostly utilized as cultivated field for cash crops and natural grazing and mining/mining. The evidence of years of alluvial diamond mining can clearly be seen over these neighbouring areas. Access to farm will be from the N12 running between Bloemhof and Christiana via a farm road. See **Appendix 1(b1 & b2)** for Infrastructure Plan of the application area.

(c) Environmental and current land use map.

Current land use on the application area is grazing over natural veld. This is privately owned land (Barry Wentzel Trust). See **Appendix 1 C** 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 BAR/EMPr 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.

(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 (containers)
3. Mining equipment (conveyor, drum screen, washing pan, generator)
4. Stockpiles
5. Overburden dumps
6. Opencast trenches (as part of bulk sampling)
7. Tailings (porrel dam within open excavations)

Environmental Impact Assessment Summary:

- **Environment likely to be affected by the mining operation. (See Appendix 1(a) 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 is not a new land use over the rest of the farm in general. The site that is earmarked for mining represents 5 ha. And it is further not foreseen that mining activities would disturbed an area of more than 0.2 ha at any given time. The rest of the terrain would continue to be used for agriculture purposes (grazing by cattle) by the landowner.

- **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 extent 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 Bloemhof area .
Regional	Direct and indirect impacts affecting environmental elements within North West 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 diamond bearing gravel. The no-go option entails the continuation of the current land use (Agriculture= grazing for cattle) on the study site. The project will contribute towards providing continued jobs for current staff. Should the proposed project therefore not be authorized to proceed, it is anticipated that current employment opportunities will be terminated once the mineral reserves have been depleted.

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 the plant and office container. The stockpiles of the topsoil 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 gravel (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 farm road will be maintained by **Bitflow Investments 20 (Pty) Ltd.** for the period of mining and all measures for safety of the other road users will be in place and properly managed. 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
1. GEOLOGY					
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 (Alluvial Diamonds) will be extracted from mineral deposits. Waste rock material/overburden material is disposed off/backfilled in existing excavations as part of the mining process.				Activity causing the impact An opencast mining method will be used to extract mineral deposits. Therefore the original geology will be totally destroyed.
Extent	Site				
Duration	Permanent				
Probability	Definite				
Significance	High				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X		

ASPECT	IMPACTS				CUMULATIVE IMPACTS
2. TOPOGRAPHY					
Nature of the impact	<p>* Change in landform : * The mining site is situated on; level plains some relief.</p> <p>* Disturbance of the surface drainage: The mining of the mineral deposits will result in the creation of excavations (40m x 10 m x ±1.5 m), that act as depressions in the environment that captures run-off. Mining activities will be concentrated as indicated on Appendix 1(b) on the application area (approximately 1 m depth). Normal surface drainage will be disturbed at a given point. Run-off if any will be diverted away from the specific site.</p>				Activity causing the impact Creation of excavations
Extent	Site				
Duration	Very long to Permanent				
Probability	Definite				
Significance	High				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X	X	

3. SOIL	IMPACTS				CUMULATIVE IMPACTS
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.				Activity causing the impact In the process of removing topsoil the soil layers are mixed and the structure may be disturbed.
Extent	Site				
Duration	Long				
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 /tailings dumps, 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 ±0.2 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	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	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	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	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 (spillages form oil etc.) all may cause this situation.
Probability	Definite				
Significance	Low				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
		X	X		

ASPECT	IMPACTS				CUMULATIVE IMPACTS
4.LAND					
Nature of the impact	Temporary loss of land capability to support grazing. 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 back-filled. The rest of the application area will still be used by the landowner as agricultural grazing 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
5. LAND USE					
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 portion of land (0.2 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
6.VEGETATION					
Nature of the impact	Vegetation clearance, disturbance and trampling. Destruction of habitats for vegetation. Due to a disturbed ecosystem, bare ground and spreading of exotics can follow.				
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
6. VEGETATION					
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
6. VEGETATION					
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
7. WILDLIFE					
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
7. WILDLIFE					
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
7. WILDLIFE					
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		

SPECT	IMPACTS	CUMULATIVE IMPACTS
8. SURFACE WATER		
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
8. SURFACE WATER		
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, mining sections 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
8. SURFACE WATER		
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
9. GROUND WATER					
Nature of the impact	Reduction of groundwater quality. Mining activities are not likely to impact on local ground-water quality. No chemicals area 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 of 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	

9. GROUND WATER					
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. Water in boreholes will be abstracted for potable water, process 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
10. AIR QUALITY					
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 plant (screen & crushing plant) and on gravel/dirt/farm roads. The crushing of the gravel 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
11. NOISE POLLUTION					
Nature of the impact	Noise will be generated during the mining operation (loading with an excavator on to a dump truck) and transportation to the plant (screen & crushing plants). 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								
12. ARCHAEOLOGICAL AND CULTURAL SITES										
Nature of the impact	The terrain is not archaeologically vulnerable as it was disturbed before (agriculture & mining activities). 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	<table border="1"> <tr> <td>Phase 1</td> <td>Phase 2</td> <td>Phase 3</td> <td>Closure</td> </tr> <tr> <td></td> <td>X</td> <td></td> <td></td> </tr> </table>	Phase 1	Phase 2	Phase 3	Closure		X			
Phase 1	Phase 2	Phase 3	Closure							
	X									

ASPECT	IMPACTS	CUMULATIVE IMPACTS								
13. SENSITIVE LANDSCAPE										
Nature of the impact	Wetland area located within the 5ha site will definitely be impacted on by mining activities, if mining is not kept 100-meters horizontally away.									
Extent	Site	Activity causing the impact								
Duration	Permanent									
Probability	Definite									
Significance	Very High									
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>X</td> <td></td> <td>X</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								
14. VISUAL										
Nature of the impact	These mining activities will be not visible to the landowner. The landowner's farmstead is located within 1.3 km southeast from the application area. The site will not be visible from the farmstead or the N12, as the site is located 1.76 km from the site and the visibility of the site is obscured by trees and shrubs that acts as a natural visual screen.									
Extent	Site	Activity causing the impact								
Duration	Long	5 ha mining operation.								
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>X</td> <td>X</td> <td>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								
15. SOCIO ECONOMICS										
Nature of the impact	Increase in Socio – economic activity at local level. The project in itself would ensure that approximately 8 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 Bloemhof 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 Bloemhof 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	<table border="1"> <tr> <td>Phase 1</td> <td>Phase 2</td> <td>Phase 3</td> <td>Closure</td> </tr> <tr> <td></td> <td>X</td> <td>X</td> <td>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
15. SOCIO - ECONOMICS					
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 North West 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	
		X	X	X	

ASPECT	IMPACTS				CUMULATIVE IMPACTS
16. INTERESTED & AFFECTED PARTIES					
Nature of the impact	Impact of activities on I&AP's Temporary loss of utilization of the mining focus areas for agricultural purposes (grazing). 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	
		X	X	X	

(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)

Motivation where no alternative sites were considered

Alternative is not applicable. The current land use is agricultural and is being utilized as grazing for cattle the landowner. The option to explore the possibility for mining is already in itself an alternative land use. The applicant, Bitflow Investments 20 (Pty) Ltd., is not interested in any other alternative land use over this land aside of mining alluvial gravel or any other activity on the designate 5 ha, 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.

(xi) 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
Environmental Management/Mitigation Measures/Action Plans/Commitments	
<ul style="list-style-type: none"> • No mitigation exists except to backfill the excavations with the rock waste material and fine tailings. • As mining progressed and the excavation has been back-filled, 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. • Planned, systematic and thorough mining of the mineral resource (alluvial gravel deposits) should take place. • Optimal utilization of the mineral resource should take place within the boundaries of the mining terrain. • 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 mining 	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
Optimal exploration 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
Environmental Management/Mitigation Measures/Action Plans/Commitments	
<ul style="list-style-type: none"> • All trenches should be back-filled with waste tailings material and eventually overburden material, covered with a shallow layer of topsoil (if available). • 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. • 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. <p>Mining would be done according to a definite MWP (only disturbing an area that is really necessary). As part of the MWP the handling of tailings material, overburden material, construction of dumps and back-filling of trenches should also form part of it. 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>	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
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.	

Environmental Component	Soil (topsoil & access roads)
Environmental Management/Mitigation Measures/Action Plans/Commitments	
<p>Handling of topsoil as a natural resource: Any future expansion of the excavations 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>Access roads, etc: 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>	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
<p>The topsoil removed in the site preparation process should be replaced during the rehabilitation exercise. Alleviation of compaction of soils would be done during rehabilitation of the terrain, including roads. No soil erosion must be visible and no potential for soil erosion must be present at closure. No soil contamination must be visible or known before closure can be given. 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. The soil must be fertile enough to sustain vegetation.</p>	

Environmental Component	Soil (soil compaction)
Environmental Management/Mitigation Measures/Action Plans/Commitments	
<p>Soil compaction: 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 & roads established in consultation with the surface owner). No land would be disturbed unnecessarily. Mining & rehabilitation should be done in a well-planned manner (according to a mining plan) 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>	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
Alleviation of compaction of soils would be done during rehabilitation of the mining terrain, including roads.	

Environmental Component	Soil (Soil erosion)
Environmental Management/Mitigation Measures/Action Plans/Commitments	
<p>Soil Erosion: To take preventive steps against land disturbance like erosion. Implement and maintain cut-off trenches/berms to prevent erosion.</p> <p>Re-vegetation of exposed soil surfaces (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>	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
No soil erosion must be visible and no potential for soil erosion must be present at closure.	

Environmental Component	Soil (Soil contamination)
Environmental Management/Mitigation Measures/Action Plans/Commitments	
<p>Potential for soil contamination: 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 steel floor 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>	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
No soil contamination must be visible or known before closure can be given.	

Environmental Component	Soil (Soil structure)
Environmental Management/Mitigation Measures/Action Plans/Commitments	
<p>Change in Soil structure: Ensure that all available (if any) topsoil is carefully removed in different areas. The soil must also be compacted as backfilling 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>	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
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.	

Environmental Component	Soil (Soil fertility)
Environmental Management/Mitigation Measures/Action Plans/Commitments	
<p>Soil fertility: 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 analyzed in a laboratory. The type of fertilizer would depend on a soil analyses and fertilizer recommendation.</p>	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
The soil must be fertile enough to sustain vegetation.	

Environmental Component	Land Capability
Environmental Management/Mitigation Measures/Action Plans/Commitments	
<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</p>	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
Rehabilitated to the state that it is suitable for the predetermined and agreed land capability.	

Environmental Component	Land Use
Environmental Management/Mitigation Measures/Action Plans/Commitments	
<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>	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
To rehabilitate the excavation area back to pre-mining capability.	

Environmental Component	Vegetation
Environmental Management/Mitigation Measures/Action Plans/Commitments	
<p>No mitigation exists except to replace the vegetation by reseedling of grasses and natural growth. Mining should be done in a well-planned manner (according to a MWP) and in the process ensuring that activities are only restricted to surface areas really required.</p>	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
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
Environmental Management/Mitigation Measures/Action Plans/Commitments	
<p>No mitigation exists except to replace the vegetation by reseedling of grasses. Habitat change, loss of species, spread of alien and invasive species: No mitigation exists except to replace the vegetation by reseedling and planting trees. Bulk sampling should be done in a well-planned manner (according to a mining plan) and in the process ensuring that activities are only restricted to surface areas really required. <i>Develop and implement an invasive and alien control programme to control the spread of weeds and other invasive species.</i> 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 drafted and implemented by the mine. Ensure that all roads (utilized by mine vehicles) are daily sprayed with water to control dust. Site inspections to ensure the spraying are done.</p>	

EMP Performance Assessment & Monitoring Reporting
To be included in EMP/EIA.
Closure Objective
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. No invasive and alien species must be present after closure. A post-closure control program must also be implemented. No excessive dust must be present during the normal growth season after closure

Environmental Component	Vegetation
Environmental Management/Mitigation Measures/Action Plans/Commitments	
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.	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
No excessive dust must be present during the normal growth season after closure.	

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

Environmental Component	Surface Water (quantity)
Environmental Management/Mitigation Measures/Action Plans/Commitments	
<p>Change in surface water quantity: 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.</p> <p>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.</p>	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
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.	

Environmental Component	Ground Water (quality)
Environmental Management/Mitigation Measures/Action Plans/Commitments	
<p>Reduction of groundwater quality: Storm water control measures must be implemented to divert clean water away from the site and keep (silt) contaminated water contained.</p> <p>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.</p> <p>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.</p> <p>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</p>	

<p>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>
<p>EMP Performance Assessment & Monitoring Reporting</p>
<p>To be included in EMP/EIA.</p>
<p>Closure Objective</p>
<p>Post water quality need to indicate a positive trend/improvement.</p>

Environmental Component	Ground Water (quantity)
Environmental Management/Mitigation Measures/Action Plans/Commitments	
<p>Reduction of groundwater quantity, lowering of groundwater level: Water levels in the borehole 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>	
EMP Performance Assessment & Monitoring Reporting	
<p>To be included in EMP/EIA.</p>	
Closure Objective	
<p>Post water quality need to indicate a positive trend/improvement.</p>	

Environmental Component	Air Quality
Environmental Management/Mitigation Measures/Action Plans/Commitments	
<p>Dust: 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>	
EMP Performance Assessment & Monitoring Reporting	
<p>To be included in EMP/EIA.</p>	
Closure Objective	
<p>Dust count must be the same as before mining. Rehabilitation of the mining site would ensure that no dust is generated from exposed surfaces.</p>	

Environmental Component	Noise
Environmental Management/Mitigation Measures/Action Plans/Commitments	
<p>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.</p>	
EMP Performance Assessment & Monitoring Reporting	
<p>To be included in EMP/EIA.</p>	
Closure Objective	
<p>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.</p>	

Environmental Component	Archaeological and Cultural Sites
Environmental Management/Mitigation Measures/Action Plans/Commitments	
<p>All grave yards need to be avoided: Preservation of any 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 all graveyard is accessible to the relatives of the deceased. 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.</p>	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
No site of archaeological importance should be disturbed or damaged until the necessary permit from SAHRA has been issued.	

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

Environmental Component	Visual Aspects
Environmental Management/Mitigation Measures/Action Plans/Commitments	
<p>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.</p>	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
No residual visual impacts will remain after closure. The terrain should blend in with the surrounding landscape.	

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

Environmental Component	Interested and Affected Parties
Environmental Management/Mitigation Measures/Action Plans/Commitments	
<p>Access control should always be a priority. Active mining site should be fenced off and also any deep water holes.</p> <p>If any problem should arise, meetings will be held with the landowners and affected parties to consult them on certain matters like permission to mine and pollution.</p> <p>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>	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
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.	

(xii) Assessment of each identified potentially significant impact and risk

[in term of NEMA – EIA Regulations No. 328 of 7 April 2017 – Reg. 21, Appendix 1 – 3. (1)(b)(i)(ii)(iii)(iv)(v)(vi)(vii)]

Table 12: Identified Potentially Significant Impacts & Risks

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE if not mitigated	MITIGATION TYPE	SIGNIFICANCE if mitigated
Excavations for gravel and stone	1.1 Removal of the alluvial gravel up to 1.5m. Disturbance of 0.2 hectares over a period of 2 years at any given time.	Geology & soil	Operational	High -	The bulk of the material mined will be sold. The impact will be mitigated by sloping the sides and stabilizing the soil to prevent erosion	Low +
	1.2 Change in landform. The entire mining area will be lowered by 1.5 m and normal surface drainage will be disturbed at this specific point.	Topography	Operational and closure	Moderate -	All pits/trenches will be backfilled. The sides will be sloped and top soiled and vegetated. A surface water cut-off trench should be put in place around the active mining site in order to prevent surface run-off water on the mining site. Rehabilitation of the new sloped landscape in such a way that it would blend in with the surrounding landscape.	Moderate +
	1.3 Stripping of all available topsoil and stockpiled.	Soil	Construction and Operational	Low -	Any area on the mining area where disturbance will take place the top soil must be removed and stockpiled for rehabilitation purposes in a demarcated area (surrounding the pit area to act as a surface run-off control measure and safety berm.)	Low +
	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	Soil	Construction	Low-	To take preventative steps against erosion. Implement and maintain cut-off trenches and or berms around the mining area to prevent water entering that can cause erosion. Concurrent rehabilitation and re-vegetation of mined areas must happen as soon as the particular area is mined out. Rehabilitated areas must be inspected and managed in such a way that any signs of erosion can be mitigated immediately.	Low +
	1.5. Land capability and land use. Loss of land to support cultivation/ grazing.	Land capability & Land use	Operational and closure	Low-	As this is only a very small area of 5 hectares, the impact is not so big. As the excavation will be backfilled and vegetated the rehabilitated area must be treated as sensitive when grazed as overgrazing can trigger erosion and infiltration of declares weeds.	
1.5 Generation of dust by excavating and vehicle movement	Air quality	Operational	Low -	The mining method will serve as mitigation measure because it will limit dust to the active mining area, where the excavator and trucks operating. Daily spraying of the roads with water when required..		

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			

L) 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 alluvial gravel 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 gravel resource will be mined over a period of 2 years or possible more.

The existing land-use is agriculture (grazing).

This is a small operation (5 ha) 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 5ha, the top at least 30 cm topsoil need to be removed prior to mining of the underlying gravel (up to 1.5 m depth). This will be used again as growth medium during the rehabilitation phase of the excavations. Topsoil will be stored in berm walls on the border of the excavations in order 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

Attach as **Appendix 1 (b)**.

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

The site is selected in such a way that farming (grazing by cattle) will still be possible on the rest of the farm. The loss of land use and land capability will be temporary as the site will be rehabilitated in order to still be continued to be used for agriculture (grazing).

Although this is a small alluvial diamond mining operation it would also add to the increased economic activity within the farming and exiting mining community around Bloemhof. Jobs for 9 permanent (including manager) labour 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 alluvial gravel (DA) deposit dictates the selection of the specific mining site.

M) Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr;

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

The main closure objective for Bitflow Investments 20 (Pty) Ltd 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. 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)

2 Years.

R) Undertaking

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

UNDERTAKING

I, HM 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 9th November 2022.



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 0.2 hectares will be disturbed by opencast excavations. The DMRE 2022 quantum calculation table and rates was used to determine the environmental liability. Based on these figures thus a total of R 113'058.87 will be needed for rehabilitation guarantees. R 113'058.87 will be sufficient for rehabilitation. See quantum attached as **Appendix 4**.

(i) Explain how the aforesaid amount was derived.

This will be a small operation where only 5 hectares will be disturbed at any stage by opencast excavations 0.2 hectares was ad at after care and maintenance. The amount was determined through the quantum tables and will be provided to DMRE prior to approval.

(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 5 ha application area falls within the farm Kareefontein farm 340 HO that is owned by the Barry Wentzel Trust. 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

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

Ms. Esna Erasmus

Tel No.: 018-468 5355

Fax No. : 018 011 3760

E-mail address: dera.office@dera.co.za. The EAP Ms. Esna Erasmus has a National Diploma in Agriculture Resource Utilization and a Baccalaureus Technologiae degree in Agricultural Management and completed three years subjects in Masters of Environmental Sciences in Environmental Sciences and Management.

See Figure 1, Figure 2 & Figure 3 for copies of his qualifications and CV.

B) DESCRIPTION OF THE ASPECTS OF THE ACTIVITY

Activities	Description of phases
The Mineral	Bitflow Investments (Pty) Ltd intends to mine for Diamonds (Alluvial) (DA) situated on the KAREEFONTEIN 340 HO (over a certain portion of Portion 12), Bloemhof district, and 5 hectares in total. See Figure 5 for location of application area. The alluvial diamond gravel will be mined over the whole of the application area.
The extend	The gravel is on average 1.5 meter thick with a topsoil layer which varies between 300 and 500 millimeters. The area that was identified and demarcated is shown on the attached sketch plan. The gravel reserve on these 5 hectares is estimated at 75'000m ³ or ± 85 000 tons and the total material to be moved is 75'000m ³ .
Mining method	The above area will be mined through opencast excavations where the topsoil will be stripped separately and stockpiled. The gravel is then removed with a 30 ton excavator and placed next to the excavation. A Front -end Loader takes the gravel to the 14 feet washing pan which is fed at a rate of 6m ³ an hour, 240m ³ a day and 4800m ³ a month. All the rough are first placed back into the bottom of the excavation, hereafter the puddle out of the pan is pumped directly back into the open excavation. After the puddle dried off, the topsoil is put back on top again. The excavations will be 40m in length 10m wide and ±1 meters deep on average. Only one excavation will be opened at a time. The total estimated reserve of gravel is 75'000m ³ taken at a production rate of 4800m ³ a month it will take 24 months to work the estimated reserve of ±75'000m ³ . The production rate is taken at 4800m ³ /month. The gravel which is relatively shallow (1.5 meter) and the low production rate of the applicant make this 5 hectare to be worked sustainable over a period of two years.
The grade	The grade of this gravel is estimated at 0.3 carat per 100 ton of gravel and \$650 a carat, which can give ±254 carats of diamonds. The small operation can last for 24 months and can be profitable.

C) COMPOSITE MAP

See Appendix 1 (C).

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 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.

As this area was disturbed before there is not top soil available on all the areas but on the non-disturbed area all available top soil will be stripped and stockpiled.

Bitflow Investments 20 (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 (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.

Bitflow Investments 20 (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 (Alluvial Diamonds (DA));
- 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

2'000 litres a day will be used for washing pans.

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

Water will be obtained from a exiting borehole by the applicant.

Not yet, applicant will submit an application when the right is successfully issued.

(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 (volumes, tonnages and hectares or m ²)	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
1. Excavations	Operational	4'800 m ² a month and 0.2 hectares at any stage	Concurrent rehabilitation by sloping the sides of the excavation to be stable/sustainable and covered with topsoil and vegetation. Keep this area as small as possible within the demarcated area. Prevent spillages of fuels by machines	The pits will backfilled with puddle for stability and providing a base for the replacement of topsoil. Immediate cleaning of spillages	As part of concurrent rehabilitation. Concurrent with mining
2. Gravel Stockpile area	Operational	0.2 hectares at any stage	Keep this area as small as possible. Prevent spillages of fuels by equipment.	Immediate cleaning of spillages	Concurrent with the mining
3. Washing of gravel	Operational				

E) IMPACT MANAGEMENT OUTCOMES

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
Excavations for alluvial gravel	1.1 Removal of the gravel up to 1.5 m	Geology & soil	Operational	The bulk of the material removed will be back-filled. The impact will be mitigated by sloping the sides of the excavation and stabilizing the soil to prevent soil erosion.	Stable slopes that can sustain erosion without excessive erosion.
	1.2 Change in landform. The entire mining area will be lowered by 1 m and normal surface drainage will be disturbed at this specific point. The pit will be backfilled	Topography	Operational and closure	The side of pit will be sloped and the soil stabilized to prevent 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 sloped landscape in such a way that it would blend in with the surrounding landscape.	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.
	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.	Soil	Construction and operational		No excessive erosion that cannot be stabilized.
	1.5. Loss of Land capability & land use.	Land capability & land use	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 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 alluvial gravel	1.1 Removal of the gravel up to 1.5 m	The bulk of the material removed will be washed and the puddle back to the excavation. The impact will be mitigated by backfilling the excavation and stabilizing the soil to prevent soil erosion.		
	1.2 Change in landform. The entire mining area will be lowered by 1.5 m and normal surface drainage will be disturbed at this specific point. The pit will be backfilled	The pit will be backfilled and the soil stabilized to prevent 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.		
	1.3 Stripping of all available topsoil and stockpiled	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		
	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.	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.		
	1.5 Loss of Land capability & land use	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.		
	1.6 Generation of dust by excavating and vehicle movement	The generation of dust will only be localized at the mining site. Daily spraying of roads with water		

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.

Bitflow Investments 20 (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 (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.

Bitflow Investments 20 (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 (ALLUVIAL DIAMONDS (DA));
- 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.

a. 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 Shorter 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 mining right, mining right, retention permit or mining permit lapses, is cancelled or is abandoned or when any mining 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 excavations 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 excavations floor 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 borehole mining site:

- *Cenchrus ciliaris*
- *Cynodon dactylon*
- *Digitaria eriantha*
- *Heteropogon contortus*
- *Panicum maximum*

b. 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.

c. 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

The excavations will be backfilled with puddle and top soil will be placed back. This site can be rehabilitated.

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 0.2 hectares will be disturbed by opencast excavations. The DMRE 2022 quantum calculation table and rates was used to determine the environmental liability. Based on these figures thus a total of R 113'058.87 will be needed for rehabilitation guarantees. R 113'058.87 will be sufficient for rehabilitation. See quantum attached as Appendix 4.

F. CONFIRM THAT THE FINANCIAL PROVISION WILL BE PROVIDED AS DETERMINED

The financing for this project will be done from the account of Bitflow Investments 20 (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 (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	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 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) INDICATE THE FREQUENCY OF THE SUBMISSION OF THE PERFORMANCE ASSESSMENT/ ENVIRONMENTAL AUDIT REPORT.

Annually

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

Annually

K) 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.

Bitflow Investments 20 (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 biggest risks will be the degradation of soil/ land capability if the top soil is not handled correctly. The risks of soil pollution by spillages of fuel and oil will be managed on a daily basis checking for leaks on equipment and proper storage of oil and fuel. Concurrent proper rehabilitation of the excavations will ensure that pre-mining land capability can be restored.

The main closure objective of **Bitflow Investments (Pty) Ltd.** 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. As this area was disturbed before there is not top soil available on all the areas but on the non-disturbed area all available top soil will be stripped and stockpiled.

L) SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

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

Table 15: Monitoring Plan

Action	Frequency	Method	Period
1. Monitoring of perimeter fence	Monthly and following any heavy rainfall.	Vehicle patrol. Record	Until closure
2. Monitoring of re-vegetation Mined out and rehabilitated areas Levelled and Rehabilitated Dumps Old roads Covered over waste pits Rehabilitation plots	Every 6 months	Foot inspection Initiate set up of test plots Photograph. Get consultants in if necessary.	Until closure
3. Monitoring of erosion Roads Rehabilitated mined out areas Dumps Pumps and pipelines Any other areas	Every 6 months and following any heavy rainfall	Visual inspection Walk over rehab areas Drive along roads. Check pipelines and pumps. Photographic records.	Until closure
4. Monitoring of alien plants over the whole site.	On-going until under control - then every 6 months.	Visual inspection on foot patrol. Map presence of invasive plants. Plan removal, remove and document area covered on monthly basis. Verify Photograph.	On-going until closure
5. Monitoring of all Rehabilitation Areas. Check compliance with gradients and variation in topography	Every 6 months.	Survey- map new rehabilitated areas. Plot on map and calculate area treated, Get rehab consultants in if necessary.	Until closure.
6. Monitoring of stability of water storage pit.	Monthly and summarize every 6 months	Follow specifications in mandatory code of practice for puddle dams	Until closure
7. Monitoring of disposal of metal scrap, old oil, oil filters, old oil drums, oily cloths, batteries, fluorescent tubes, tires and contaminated soil (Hazardous waste)	Monthly and summarize every 6 months.	Record each load sent off the site. Give used oils to Oilkol Ensure safe disposal certificates are obtained from suppliers if the material is given back to them.	Until closure.
8. Monitoring of maintenance of general waste disposal	All loads of waste to be recorded and quantity extrapolated. Covering of waste pit - Monthly.	Running total of loads of waste taken Record of waste taken to Wolmaransstad waste disposal site Keeping record of waste taken to disposal site	Until closure
9. Monitoring of condition efficiency of chemical toilets	Every six months	Visual inspection. Record condition.	Until closure
10. Monitoring of condition of bunded areas around diesel storages, refueling area, old oil tank.	Every six months.	Visual inspection	Until closure
11. Monitoring of water use.	Monthly	Record total water use, should there be an indication that there is a decline in water volumes.	Until closure

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 Environmental Consultants (Pty) Ltd

Name of company:

9th November 2022

Date:

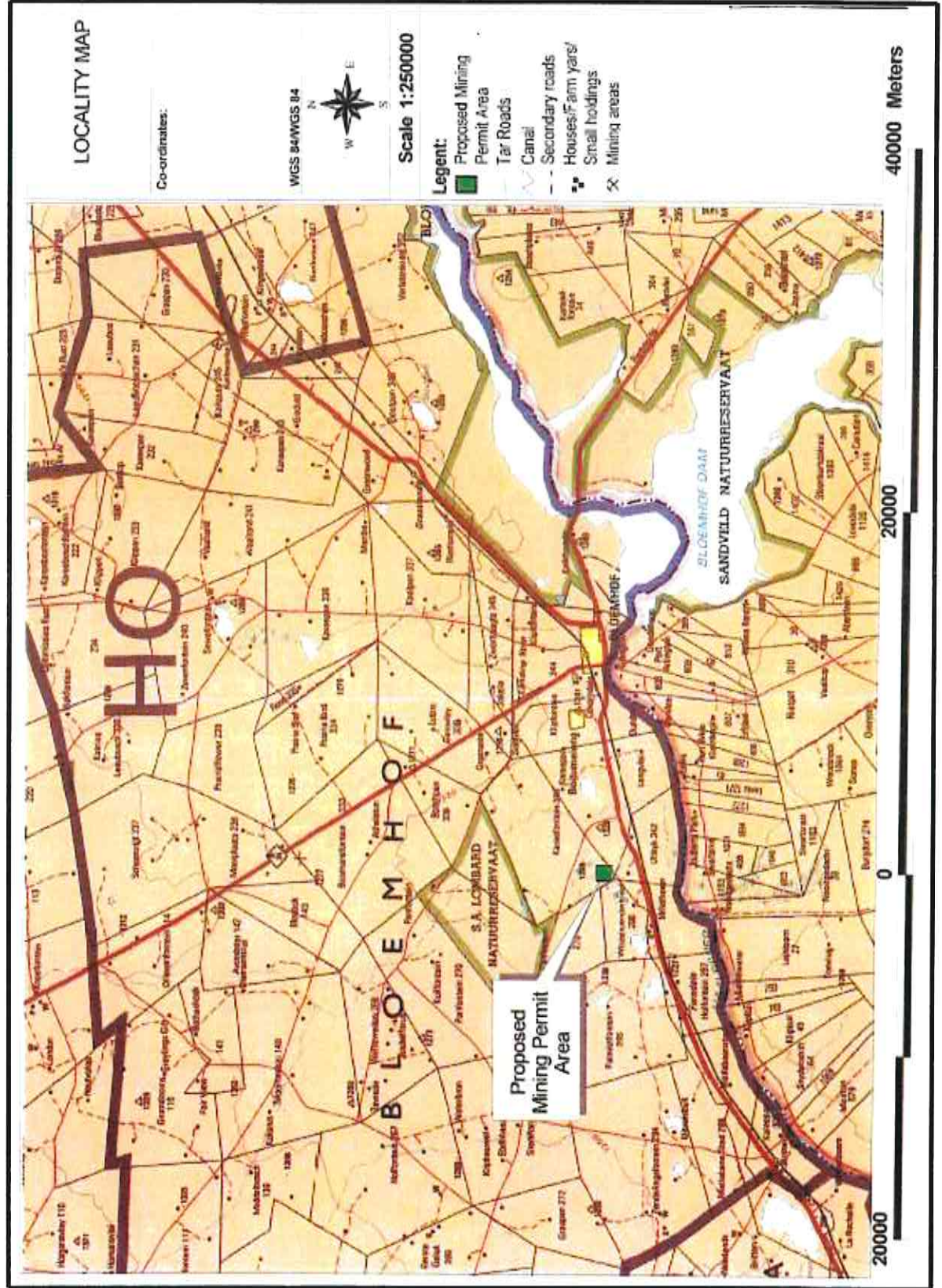
-END-



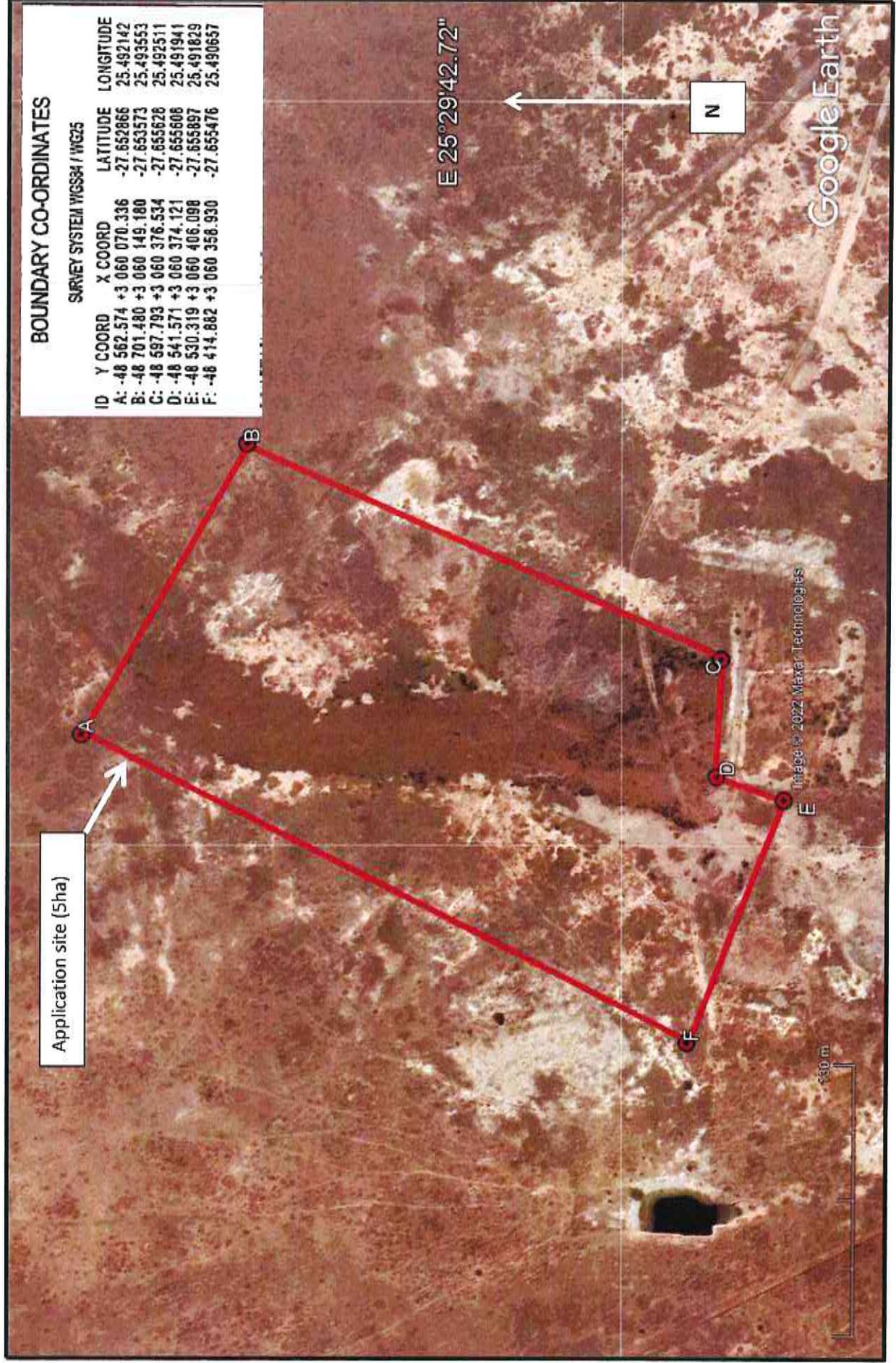
JERRY DEAN MENIN
OFFICE MANAGER / AUDITOR
COMMISSIONER OF OATHS / KOMMISSARIS VAN EDE
Appointed in terms of Section 5(1) of Act 16 of 1963
Aangestel in terme van Artikel 5(1) van Wet 16 van 1963
Centrallaan 32 Central Avenue, Flamwood, Klerksdorp
Appointed/Aangestel: 23 Oktober 2012
Referenco/Verwysing: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

LOCALITY MAP: APPENDIX 1(A) & INFRASTRUCTURE AND ACTIVITY MAP: APPENDIX 1(B) & APPENDIX 1(C)

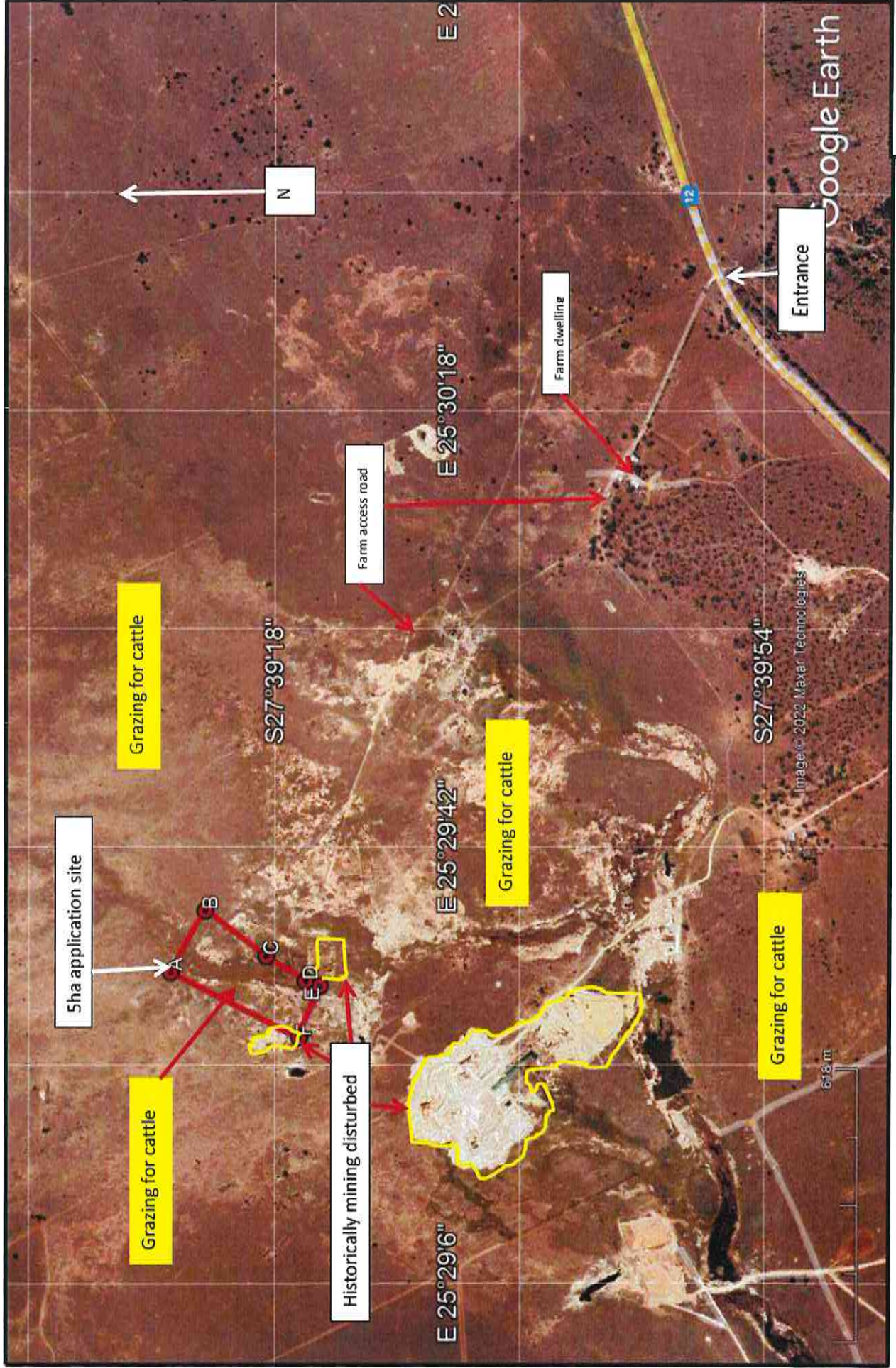
General location of Mine permit site (5ha)



SURFACE INFRASTRUCTURE PLAN (Google satellite image)



Land use composite map



PROOF OF CONSULTATION: APPENDIX 2

APPENDIX 2: DETAILS OF THE PUBLIC PARTICIPATION PROCESS

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
AFFECTED PARTIES			
Landowners			
Barry Wentzel Trust (Landowner) Bloemhof, 2660 Cell: 0826320114 E-mail:	3 Nov 2022 7 Nov 2022	Consultation letter send No objection, see attached signed consultation letter	
Lawful occupiers of the land			
Landowners or lawful occupiers on adjacent properties			
Mr. P. J. Roos (Neighbour) P.O. Box 77, Bloemhof, 2660 Cell: 072 626 6908	3 Nov 2022 4 Nov 2022	Consultation letter send No objection, see signed consultation letter	
Mr. C.L. Roos The farm tshyik Bloemhof, 2660 Cell: 072 064 8418 E-mail:	3 Nov 2022 4 Nov 2022	Consultation letter send No objection, see signed consultation letter attached.	
Municipal councillor			
Municipality			
Lekwa Teemane Local Municipality Municipal Manager: Mr. T. Mbonani Tel: 053 441 2206 E-mail: contact@lekwa-teemane.co.za	3 Nov 2022	Consultation letter send to Mr. Mbonani	
Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA.			
Eskom			
Communities			
N/A			
Dept. Land Affairs			
KeabeisweMothupi Keabeiswe.mothupi@dell.gov.za	3 Nov 2022 7 Nov 2022	Request for verification of land claims send to Ms. Mothupi	Acknowledge letter received
Traditional Leaders			
N/A			
Dept. Rural, Environment and Agricultural Development			
DumaSkosana Agricentre Building, Cnr James Moroka & Stadium Road, Mmabatho, 2735 e-mail: oskosana@nwpg.gov.za Dept. Water and Sanitation	9 Nov 2022	BARCEMP sent with Fastway couriers for comments	

<p>Lerato Mokhoanile 28 Central Road, Beaconsfield, Kimberley, 83100 Tel: 053 830 8800 e-mail: MokhoanileL@dws.gov.za Dept. Agriculture, Forestry and Fisheries</p>	<p>9 Nov 2022</p>	<p>BAR/EMP/Pr sent with Courier Guy couriers for comments</p>	<p>X</p>
<p>Maurice Vuyega Louis le Grange Building, Chr Pater Mokaba & Wilmars street, 3rd Floor, Office no 318, Pochiesstroom, 2520 Tel: 018-389 5156 e-mail: MauriceV@daff.gov.za Other Competent Authorities</p>	<p>9 Nov 2022</p>	<p>BAR/EMP/Pr sent with Fastway couriers for comments</p>	
<p>OTHER AFFECTED PARTIES</p>			
<p>INTERESTED PARTIES</p>			

Public Notice – Stelalander 9 November 2022

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

DERA

3 November 2022

Environmental Consultants

To whom it may concern

CONSULTATION WITH INTERESTED AND AFFECTED PARTIES WITH REGARD TO AN APPLICATION FOR A MINING PERMIT IN TERMS SECTION 27(2) OF THE MINERALS AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (ACT 28 OF 2002) AND NEMA, EIA 2014 OVER: A CERTAIN PORTION OF PORTION 12 OF THE FARM KAREEFONTEIN 340 HO, MAGISTERIAL DISTRICT OF BLOEMHOF.

You are herewith informed that **Bitflow Investments 20 (Pty) Ltd.** has submitted an application in terms of Section 27(2) of the Minerals and Petroleum Resources Development Act, 2002 (Act 28 of 2002) and NEMA, EIA 2014, to the Regional Manager: Mineral Regulation, North West Region in respect of the mining of **Diamonds Alluvial** in the magisterial district of Bloemhof.

Bitflow Investments 20 (Pty) Ltd. is in the process of compiling the Basic Assessment Report (BAR), which needs to be submitted at the Regional Office of DMR. The BAR will be available on request for I&AP's for comments. See attached the Sketch plan & Environmental Authorisation.

In terms of Section 10 of the Minerals and Petroleum Resources Development Act, 2002 (Act 28 of 2002), and in terms of Regulation 39(1) of the regulations published in the Government Notice No. R10328 (of 4 December 2014) under Chapter 6 of the NEMA, EIA 2014, the landowner or legal occupier of the land, as well as any other interested party must be notified and consulted with in terms of the proposed project.

Bitflow Investments 20 (Pty) Ltd. deems it necessary to consult with inter alia yourself / your company/ your organization, and you are therefore kindly requested to comment very clearly and unambiguously with regards to the proposed mining project. You are requested to submit in writing, any interest/ objection and/or comments you may have and return it to the appointed consultants (**Reference no. NW30/5/1/3/2/11138MP**) within 30 days from the date of receipt of this letter. If no correspondence is received from you within the mentioned time frame, the applicant shall accept that you have no objection with the proposed mining activities.

Please call me if any further information is needed.

Your co-operation will be appreciated.

Yours faithfully


Esna Erasmus
DERA Environmental Consultants

.....

**REGISTRATION FORM AND COMMENT FOR THE PUBLIC PARTICIPATION PROCESS
PROPOSED MINING PERMIT ON A CERTAIN PORTION OF PORTION 12 OF THE FARM KAREEFONTEIN 340 HO,
MAGISTERIAL DISTRICT OF BLOEMHOF.**

Esna Erasmus
P.O. Box 6499
KLERKSDORP
2572

Tel. 018-468 5355
Fax: 018-011 3760
Mobile: 082 895 3516
E-mail: daane@dera.co.za & dera.office@dera.co.za

PERSONAL INFORMATION:

Title/Titel: Mrs Initials/Voorletters: BC First Name/Eerste naam: Berry

Surname/Van: Wentzel

E-mail/E-pos:

Telephone/Telefoon: 082 632 0114 Fax/Faks:

Organisation (if applicable)/Organisasie (indien van toepassing):

Capacity (member, etc.)/Kapasiteit (lid ens):

Landowner/Grondeienaar/Neighbour/Buurman/ Interested and/or affected party on the farm/ op die plaas: Kareefontein 340 HO

Postal Address/ Posadres:

Town/City/Dorp/Stad: Bloembat Code/Kode: 2660

COMMENT/OBJECTION:

1. What is the nature of your interest in the proposed project/Wat is u belang in die voorgename projek?
grond eienaar

2. Do you have any ground for objection towards the proposed project/Het u enige gronde vir beswaar ten opsigte van die bogenoemde projek?
/

YES/NO JA/NEE
If "Yes", please list shortly/Indien 'JA', lys asseblief kortliks.
/

3. Do you foresee that this activity will have a negative impact on yourself or the environment/Voorsien u dat die voorgename projek 'n negatiewe inpak kan ha op uself of die omgewing?
YES/NO JA/NEE
If "Yes", please describe shortly/Indien 'JA', verduidelik asseblief kortliks.
/

Filled in on/ingevul op: 7 day of /dag van: NOV (month/maand) 2022

Name and Surname/ Company: BC Wentzel Signature/Handtekening: [Signature]
Naam en Van/Maatskappy

**REGISTRATION FORM AND COMMENT FOR THE PUBLIC PARTICIPATION PROCESS
PROPOSED MINING PERMIT ON A CERTAIN PORTION OF PORTION 12 OF THE FARM KAREEFONTEIN 340 HO,
MAGISTERIAL DISTRICT OF BLOEMHOF.**

Esna Erasmus
P.O. Box 6499
KLERKSDORP
2572

Tel. 018-488 5355
Fax: 018-011 3760
Mobile: 082 895 3516
E-mail: daane@dera.co.za & dera.office@dera.co.za

PERSONAL INFORMATION:

Title/Titel: Mr. Initials/Voorletters: P.J. First Name/Eerste naam: Piet
Surname/Van: Roos
E-mail/E-pos: _____
Telephone/Telefoon: 0726266808 Fax/Faks: _____
Organisation (if applicable)/Organisasie (indien van toepassing): _____
Capacity (member, etc.)/Kapasiteit (lid ens): _____
Landowner/Grondeienaar/Neighbour/Buurman/ Interested and/or affected party on the farm/ op die plaas: uit kyk.
Postal Address/ Posadres: Bus 77
Town/City/Dorp/Stad: Bloemhof Code/Kode: 2660

COMMENT/OBJECTION:

1. What is the nature of your interest in the proposed project/Wat is u belang in die voorgename projek?
Buurman

2. Do you have any ground for objection towards the proposed project/Het u enige gronde vir beswaar ten opsigte van die bogenoemde projek?
Nee

YES/NO JA/NEE

If "Yes", please list shortly/Indien 'JA', lys asseblief kortliks.

3. Do you foresee that this activity will have a negative impact on yourself or the environment/Voorsien u dat die voorgename projek 'n negatiewe inpak kan he op uself of die omgewing?

YES/NO JA/NEE

If "Yes", please describe shortly/Indien 'JA', verduidelik asseblief kortliks.

Filled in/on/ingevul op... 04 day of /dag van... November (month)/(maand) 2022

Piet Roos

Name and Surname/ Company
Naam en Van/Maatskappy

Signature/Handtekening

P. Roos

**REGISTRATION FORM AND COMMENT FOR THE PUBLIC PARTICIPATION PROCESS
PROPOSED MINING PERMIT ON A CERTAIN PORTION OF PORTION 12 OF THE FARM KAREEFONTEIN 340 HO,
MAGISTERIAL DISTRICT OF BLOEMHOF.**

Esna Erasmus
P. O. Box 6499
KLERKSDORP
2572

Tel. 018-468 5355
Fax: 018-011 3760
Mobile: 082 895 3516
E-mail: daane@dera.co.za & dera.office@dera.co.za

PERSONAL INFORMATION:

Title/Titel: Mr Initials/Voorletters: C.L First Name/Eerste naam: Chris
Surname/Van: Roos
E-mail/E-pos: _____
Telephone/Telefoon: 07206618418 Fax/Faks: _____
Organisation (if applicable)/Organisasie (indien van toepassing): _____
Capacity (member, etc.)/Kapasiteit (lid ens): _____
Landowner/Grondeienaar/Neighbour/Buurman/ Interested and/or affected party on the farm/ op die plaas: Uitkyk
Postal Address/ Posadres: _____
Town/City/Dorp/Stad: Bloemhof Code/Kode: 2660

COMMENT/OBJECTION:

1. What is the nature of your interest in the proposed project/Wat is u belang in die voorgename projek?

2. Do you have any ground for objection towards the proposed project/Het u enige gronde vir beswaar ten opsigte van die bogenoemde projek?

YES/NO JA/NEE

If "Yes", please list shortly/Indien 'JA', lys asseblief kortliks.

3. Do you foresee that this activity will have a negative impact on yourself or the environment/Voorsien u dat die voorgename projek 'n negatiewe inpak kan he op uself of die omgewing?

YES/NO JA/NEE

If "Yes", please describe shortly/Indien 'JA', verduidelik asseblief kortliks.

Filled in on/Ingevol op 04 day of /dag van 11 (month)/(maand) 2022

Chris Roos

CR Roos

Name and Surname/ Company

Signature/Handtekening

Naam en Van/Maatskappy

.....

Gerda

From: Gerda <dera.office@dera.co.za>
Sent: Thursday, 03 November 2022 13:15
To: 'contact@lekwa-teemane.co.za'
Subject: Consultation letter - Bitflow Investments 20 (Pty) Ltd - Proposed Mining Permit
Attachments: Consultation letter - Bitflow Investments 20 (Pty) Ltd - Proposed Mining Permit.pdf

Good day Mr. Mbonani

See attached our consultation letter regarding a proposed Mining Permit application in the district of Bloemhof.

It will be appreciated if you can complete the form and return to dera.office@dera.co.za

Kind regards.

Gerda Els
Cell: 083 225 1593

Esna Erasmus
Dera Omgewingskonsultante (Pty) Ltd.
Reg no: 2014/051013/07
P.O. Box 6499, Flamwood, 2572
VAT no: 4590284073
Tel: 018 468 5355
Fax: 018 011 3760
Cell: 082 895 3516
e-mail: dera.office@dera.co.za

Your message is ready to be sent with the following file or link attachments:

Consultation letter - Bitflow Investments 20 (Pty) Ltd - Proposed Mining Permit

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.

P O Box 6499
Flamwood
2572
Tel: 018-468 5355
Fax: 018-01 1 3760
Cell: 082 895 3516
E-mail: dera_office@dera.co.za
daane@dera.co.za

.....
DERA

3 November 2022

Environmental Consultants

Lekwa-Teemane Local Municipality

Attention: Municipal Manager: Mr. T. Mbonani

E-mail: contact@lekwa-teemane.co.za

RE: CONSULTATION WITH INTERESTED & AFFECTED PARTIES

It is hereby confirmed that Bitflow Investments 20 (Pty) Ltd. has applied for a mining permit over a certain Portion of Portion 12 of the farm Kareefontein 340 HO, situated in the magisterial district of Bloemhof.

The Department of Mineral Resources has requested that the Lekwa-Teemane Local Municipality must be informed about the proposed mining permit application.

Please find attached the consultation letter with the information regarding the proposed mining permit application.

It would be highly appreciated if you could return the attached consultation letter to Dera Environmental Consultants at Fax: 018 011 3760 or dera.office@dera.co.za

Should you have any questions regarding the above, please call Mrs. Erasmus at 082 895 3516

DERA Environmental Consultants can be contacted for any further enquiries.

Yours sincerely

p.p. 

Esna Erasmus
DERA Environmental Consultants

.....

.....

P O Box 6499
Flamwood
2572
Fax: 018 011 3760
Mobile: 082 895 3516
E-mail: dera.office@dera.co.za
daane@dera.co.za

DERA

3 November 2022

Environmental Consultants

To whom it may concern

CONSULTATION WITH INTERESTED AND AFFECTED PARTIES WITH REGARD TO AN APPLICATION FOR A MINING PERMIT IN TERMS SECTION 27(2) OF THE MINERALS AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (ACT 28 OF 2002) AND NEMA, EIA 2014 OVER: A CERTAIN PORTION OF PORTION 12 OF THE FARM KAREEFONTEIN 340 HO, MAGISTERIAL DISTRICT OF BLOEMHOF.

You are herewith informed that **Bitflow Investments 20 (Pty) Ltd.** has submitted an application in terms of Section 27(2) of the Minerals and Petroleum Resources Development Act, 2002 (Act 28 of 2002) and NEMA, EIA 2014, to the Regional Manager: Mineral Regulation, North West Region in respect of the mining of **Diamonds Alluvial** in the magisterial district of Bloemhof.

Bitflow Investments 20 (Pty) Ltd. is in the process of compiling the Basic Assessment Report (BAR), which needs to be submitted at the Regional Office of DMR. The BAR will be available on request for I&AP's for comments. See attached the Sketch plan & Environmental Authorisation.



In terms of Section 10 of the Minerals and Petroleum Resources Development Act, 2002 (Act 28 of 2002), and in terms of Regulation 39(1) of the regulations published in the Government Notice No. R10328 (of 4 December 2014) under Chapter 6 of the NEMA, EIA 2014, the landowner or legal occupier of the land, as well as any other interested party must be notified and consulted with in terms of the proposed project.

Bitflow Investments 20 (Pty) Ltd. deems it necessary to consult with inter alia yourself / your company/ your organization, and you are therefore kindly requested to comment very clearly and unambiguously with regards to the proposed mining project. You are requested to submit in writing, any interest/ objection and/or comments you may have and return it to the appointed consultants (**Reference no. NW30/5/1/3/2/11138MP**) within 30 days from the date of receipt of this letter. If no correspondence is received from you within the mentioned time frame, the applicant shall accept that you have no objection with the proposed mining activities.

Please call me if any further information is needed.

Your co-operation will be appreciated.

Yours faithfully


P.P. 

Esna Erasmus
DERA Environmental Consultants

.....

Gerda

From: Gerda <dera.office@dera.co.za>
Sent: Thursday, 03 November 2022 13:11
To: keabetswe.mothupi@dalrrd.gov.za
Subject: Verification of land claims - Bitflow Investments 20 (Pty) Ltd - Kareefontein
Attachments: Verification of land claims - Bitflow Investments 20 (Pty) Ltd - Kareefontein.pdf

Good day Kea

Please find attached our request for verification of land claims on a certain Portion of the farm Kareefontein in the Bloemhof district.

Kind regards.

Gerda Els
Cell: 083 225 1593

Esna Erasmus
Dera Omgewingskonsultante (Pty) Ltd.
Reg no: 2014/051013/07
P.O. Box 6499, Flamwood, 2572
VAT no: 4590284073
Tel: 018 468 5355
Fax: 018 011 3760
Cell: 082 895 3516
e-mail: dera.office@dera.co.za

Your message is ready to be sent with the following file or link attachments:

Verification of land claims - Bitflow Investments 20 (Pty) Ltd - Kareefontein

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.

.....
DERA

Environmental Consultants

3 November 2022

Department of Land Affairs & Rural Development

Attention: Keabetswe Mothupi

Re: Verification of Land Claims

We are Environmental Consultants situated in Klerksdorp and has applied on behalf of Biffow Investments 20 (Pty) L:td. for a mining permit application on the following farm in the Bloemhof district.


- Certain Portion of Portion 12 of the farm Kareefontein 340 HO
Lekwa- Teemane Local Municipality

Could you please be so kind to verify if there are any land claims over the farms as mentioned above?

It would be highly appreciated if you could help us in this matter as soon as possible.

Please feel free to contact the office of Dera Environmental Consultants or Mrs. Erasmus on his cell: 082 895 3516 for any further information.

Yours truly,

P.P - 

Esna Erasmus

.....

Dera 2

From: Gerda <dera.office@dera.co.za>
Sent: Monday, 07 November 2022 11:11
To: dera.office2@dera.co.za
Subject: FW: Acknw-Letter
Attachments: Kareefontein 340 HO.pdf

Gerda Els
Cell: 083 225 1593

Esna Erasmus
Dera Omgewingskonsultante (Pty) Ltd.
Reg no: 2014/051013/07
P.O. Box 6499, Flamwood, 2572
VAT no: 4590284073
Tel: 018 468 5355
Fax: 018 011 3760
Cell: 082 895 3516
e-mail: dera.office@dera.co.za

From: Florence Bahurutshe [mailto:Florence.Bahurutshe@dalrrd.gov.za]
Sent: Monday, 07 November 2022 10:58
To: dera.office@dera.co.za
Cc: Agnes Montwedi
Subject: Acknw-Letter

Good Morning

Please find the attached document for your attention .

Thank You .

Disclaimer

The information contained in this e-mail may be confidential, legally privileged and protected by law. Access by the intended recipient only is authorised. If you are not the intended recipient, kindly notify the sender immediately. Unauthorised use, copying or dissemination hereof is strictly prohibited. Save for bona fide departmental purposes, the Department of Agriculture, Land Reform and Rural Development does not accept responsibility for the contents or opinions expressed in this e-mail, nor does it warrant this communication to be free from errors, contamination, interference or interception.



OFFICE OF THE REGIONAL LAND CLAIMS COMMISSIONER: NORTH WEST

Cnr James Moroka and Sekame drive, West gallery, Megacity, MMABATHO
Tel: (018) 388 7000/7800

Reference: R/7/009/11/2022
Enquiries: Agnes Montwedi
Tel: 018 388 7252
E-mail: Agnes.Montwedi@dalrrd.gov.za

DERA Environmental Consultants
By email: dera.office@dera.co.za

Dear Esna Erasmus ,

LAND CLAIM ENQUIRY: Certain Portion of Portion 12 of Kareefontein 340 HO

I acknowledge receipt of your letter 3rd of November 2022, regarding the above-mentioned matter.

Kindly note that a formal response could be expected from our office within the next 14 (fourteen) working days.

Should you however require any additional information, you can contact **Ms K.A. Montwedi** at the above-mentioned contact details.

Yours faithfully,


MR L.J BOGATSU
CHIEF DIRECTOR
OFFICE OF THE REGIONAL LAND CLAIMS COMMISSIONER
NORTH WEST PROVINCE
DATE: 03/11/2022

PUBLIC NOTICE

APPLICATION FOR AN ENVIRONMENTAL AUTHORIZATION FOR THE PROPOSED ACTIVITIES.

Notice is given for the following application:

- 1) Environmental authorization application for mining.

- **Proponent:** The applicant Bitflow Investments 20 (Pty) Ltd.
- **Ref. no:** NW30/5/1/3/2/11138MP
- **Property description:** The proposed mining area is over a certain Portion of Portion 12 of the farm Kareefontein 340 HO, district of Bloemhof. The total extent of the prospecting area is 5 hectares. (21 SG digital code: TOHO00000000034000012).
- **Location:** The property is situated ±14.8km west of Bloemhof.
- **Project description:** The purpose of the application is to obtain the required authorisation from the Department to successfully: undertake opencast mining.
- **Process of BAR/EMPr is followed.**
- **Activity applied for:** the following activities as listed in terms of NEMA (Act No. 107 of 1998) as amended and EIA Regulations, 2014 was applied for under Activity 21 (Listing Notice 1) GNR327 & and Activity 27 (Listing Notice 1) GNR 327
- **Minerals applied for:** Diamonds Alluvial.
- **Date submitted:** 22 September 2022.
- **Stakeholder involvement:** Stakeholders are invited to register as interested and affected parties and to participate in the application process by identifying issues of concern and suggestions for consideration in the Basic Assessment Report (BAR/EMPr) and may contact Dera Environmental Consultants for any further information. Please submit your written comments by mail, fax or e-mail in this 30 day of this notice to:
Mrs. Esna Erasmus of DERA Environmental Consultants
PO Box 6499 E-mail: daane@dera.co.za
Flamwood Tel: 018 468 5355
2572 Fax: 018 011 3760
 Cell: 082 895 3516
- **Date of advertisement:** Wednesday 9 November 2022

SITE NOTICE

APPLICATION FOR AN ENVIRONMENTAL AUTHORIZATION FOR THE PROPOSED ACTIVITIES.

Notice is given for the following application:

- 1) Environmental authorization application for mining.
- **Proponent:** The applicant Bitflow Investments 20 (Pty) Ltd.
 - **Ref. no:** NW30/5/1/3/2/11138MP
 - **Property description:** The proposed mining area is over a certain Portion of Portion 12 of the farm Kareefontein 340 HO, district of Bloemhof. The total extent of the prospecting area is 5 hectares. (21 SG digital code: T0HO0000000034000012).
 - **Location:** The property is situated \pm 14.8km west of Bloemhof.
 - **Project description:** The purpose of the application is to obtain the required authorisation from the Department to successfully: undertake opencast mining.
 - **Process of BAR/EMPr is followed.**
 - **Activity applied for:** the following activities as listed in terms of NEMA (Act No. 107 of 1998) as amended and EIA Regulations, 2014 was applied for under Activity 21 (Listing Notice 1) GNR327 & and Activity 27 (Listing Notice 1) GNR 327
 - **Minerals applied for:** Diamonds Alluvial.
 - **Date submitted:** 22 September 2022.
 - **Stakeholder involvement:** Stakeholders are invited to register as interested and affected parties and to participate in the application process by identifying issues of concern and suggestions for consideration in the Basic Assessment Report (BAR/EMPr) and may contact Dera Environmental Consultants for any further information. Please submit your written comments by mail, fax or e-mail in this 30 day of this notice to:
Mrs. Esna Erasmus of DERA Environmental Consultants
PO Box 6499 E-mail: daane@dera.co.za
Flamwood Tel: 018 468 5355
2572 Fax: 018 011 3760
 Cell: 082 895 3516
 - **Date of advertisement:** Wednesday 9 November 2022

PLACEMENT OF ADVERT AT GATE:

	<p>Photo 1</p> 	<p>Photo 2</p> 
	<p>Location: 27°40'12.67" S 25°30'0.19" E</p>	

.....



P O Box 6499
Flamwood
2572
Tel: 018-468 5355
Fax: 018-011 3760
Cell: 083 225 1593
E-mail: dera.office@dera.co.za

DERA

Environmental Consultants

9 November 2022

Department of Rural, Environment and Agricultural Development
Agricentre Building
Cnr James Moroka & Stadium Road
Mmabatho
2735

Attention: Ouma Skosana

RE: Basic Assessment Report (BAR) & EMPr

Reference Number: NW30/5/1/3/2/11138MP

It is hereby confirmed that Bitflow Investments 20 (Pty) Ltd. has applied for a mining permit over a certain Portion of Portion 12 of the farm Kareefontein 340 HO, situated in the district of Bloemhof, North West Province.

The application was accepted by the Department of Mineral Resources and they have requested that the Department of Rural, Environment and Agricultural Development (North West Regional Office) must be consulted about the proposed mining permit. See attached the BAR/EMPr for comments.

Should you have any questions regarding the above, please call Mrs. Erasmus at 082 895 3516

DERA Environmental Consultants can be contacted for any further enquiries.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Esna Erasmus', is written over the typed name.

Esna Erasmus
DERA Environmental Consultants

.....

Bitflow Investments 20 (Pty) Ltd - 6AE ENA - NW 1178MP

To

Company Name:

Street Address: (no PO Boxes)

TO:

Department of Rural, Environment and Agricultural Development
Agricentre Building

Cnr Dr James Moroka Drive & Stadium Road

Office no. E36

Mmabatho

2735

Phone: 018 389 5095/5156

Attention: Ms. Ouma Skosa

No Dangerous Goods Declaration

I hereby certify that this consignment does not contain any dangerous or prohibited goods, eg. explosives, flammables, corrosives, aerosols or poisonous substances.

Name: E. Kruger

Signature: *E. Kruger*

Pickup
Lit & Peel
XA0005764257

Delivery
Lit & Peel
XA0005764257

XA0005764257

.....

P O Box 6499
Flamwood
2572
Tel: 018-468 5355
Fax: 018-011 3760
Cell: 082 895 3516
E-mail: dera.office@dera.co.za

DERA

Environmental Consultants

9 November 2022

Department of Water and Sanitation
28 Central Road
Beaconsfield
Kimberley
8300

Attention: Lerato Mokhoantle

RE: Basic Assessment Report (BAR) & EMPr

Reference Number: NW30/5/1/3/2/11138MP

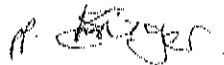
It is hereby confirmed that Bitflow Investments 20 (Pty) Ltd. has applied for a mining permit over a certain Portion of Portion 12 of the farm Kareefontein 340 HO, situated in the district of Bloemhof, North West Province.

The Department of Mineral Resources have requested that the Department of Water & Sanitation (North West Regional Office) must be consulted about the proposed mining permit. See attached BAR/EMPr for comments.

Should you have any questions regarding the above, please call Mrs. Erasmus at 082 895 3516

DERA Environmental Consultants can be contacted for any further enquiries.

Yours sincerely



Esna Erasmus
DERA Environmental Consultants

.....



Worldwide Express
We would love to handle your package

HEAD OFFICE: Sharnoll No:
PO BOX 532 0861 203 203
Lammerla Fax:
1748 086 043 3385
After Hours
Whatsapp:
082 823 3254



GZZJCN

ACC NO. DQ2KRO	WAYBILL NO. GZZJCN	CUSTOMER REF.	DATE 2022-11-24	PARCELS 1	MASS 2	CH. MASS 3	ORIGIN KLK	DEST. KIM	OFFICE REFERENCE
-------------------	-----------------------	---------------	--------------------	--------------	-----------	---------------	---------------	--------------	------------------

Contact name: **Gerda Els** Contact number: **0832251593**

Company name:

Street address:
27 Lewis Street

Wilkopies

City: **Klerksdorp** Country: **South Africa** Postal Code: **2571**

Special instructions:
Collect before 16h00

Contact name: **Lerato Mokhoantle** Contact number: **0836558312**

Company name:
Department of Water and Sanitation

Street address:
28 Central Road

Beaconsfield

City: **Kimberley** Country: **South Africa** Postal Code: **8301**

Special instructions:

PARCEL NO	DESCRIPTION	WEIGHT	DIMENSIONS
1	Standard flyer	2.0 kg	40.0 cm x 30.0 cm x 8.0 cm

By virtue of the client's signature, the client acknowledges having read, understood, and agreed to be bound by the standard conditions of service of The Courier Guy (Pty) Ltd., which standard conditions are attached hereto.

LIABILITY COVER Y N

(ONLY DECLARE VALUE IF YES)

DECLARED VALUE R

SERVICE LEVEL:
Economy (ECO)

SERVICES REQUIRED

CLIENT SIGNATURE (VERY IMPORTANT)

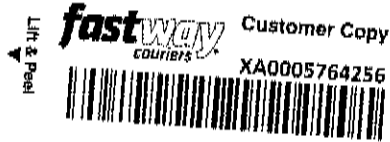
RECEIVED BY THE COURIER GUY (Pty) Ltd.

DATE: TIME:

Consent to use goods, services and special services

RECEIVERS SIGNATURE: NAME:

PRINT NAME AND INITIALS: PHONE:



P O Box 6499
Fiamwood
2572
Tel: 018-468 5355
Fax: 018-011 3760
Cell: 082 895 3516
E-mail: dera.office@dera.co.za

DERA

Environmental Consultants

9 November 2022

Department of Agriculture, Forestry and Fisheries
Louis le Grange Building
Cnr Peter Mokaba & Wolmarans street
3rd Floor, Office 318
Potchefstrom
2520

Attention: Maurice Vukeya

RE: Basic Assessment Report BAR & EMPr

Reference Number: NW30/5/1/3/2/11138MP

It is hereby confirmed that Bitflow Investments 20 (Pty) Ltd. has applied for a mining permit over a certain Portion of Portion 12 of the farm Kareefontein 340 HO, situated in the district of Bloemhof, North West Province.

The Department of Mineral Resources has requested that the Department of Agriculture, Forestry and Fisheries (North West Regional Office) must be consulted about the proposed mining permit. See attached BAR/EMPr for comments.

Should you have any questions regarding the above, please call Mrs. Erasmus at 082 895 3516.

DERA Environmental Consultants can be contacted for any further enquiries.

Yours sincerely

Esna Erasmus
DERA Environmental Consultants

.....

NW 11138 MP
Bidslow Investments 20 (Pty) Ltd - BAE/Ent

To

Company Name:

Street Address: (no PO Boxes)

To: Department of Agriculture, Forestry & Fisheries

Louis Le Grange Building (Court Building)

Cnr Peter Mokaba & Wolmarans Street

3rd Floor

Office nr 318

Potchefstroom

2520

- Phone: 018 299 6739

Attention: Maurice Vukeya

Cell: 082 459 6479

No Dangerous Goods Declaration

I hereby certify that this consignment does not contain any dangerous or prohibited goods, eg. explosives, flammables, corrosives, aerosols or poisonous substances.

Name:

E. Küger

Signature:

E. Küger

fastWAY couriers Customer Copy
XA0005764256

Lift & Peel

Pickup
XA0005764256

Lift & Peel

Delivery
XA0005764256

XA0005764256

SCREENING REPORT: APPENDIX 3

**SCREENING REPORT FOR AN ENVIRONMENTAL AUTHORIZATION AS
REQUIRED BY THE 2014 EIA REGULATIONS – PROPOSED SITE
ENVIRONMENTAL SENSITIVITY**

EIA Reference number:

Project name: Kareefontein 340 HO

Project title: MiningPermit

Date screening report generated: 29/08/2022 07:30:42

Applicant: Bitflow Investments 20 (Pty) Ltd

Compiler: DERA Omgewingskonsultante (Pty) Ltp

Compiler signature:



Application Category: Mining|Mining Permit

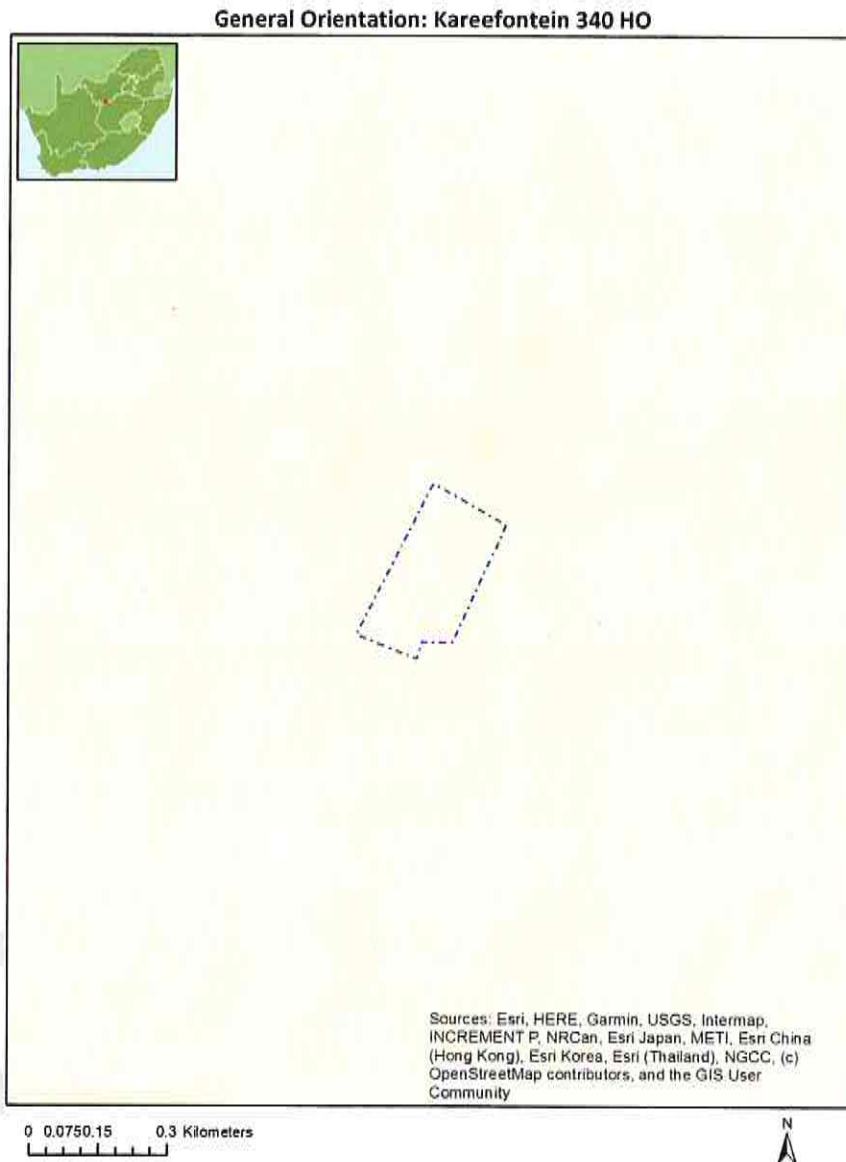
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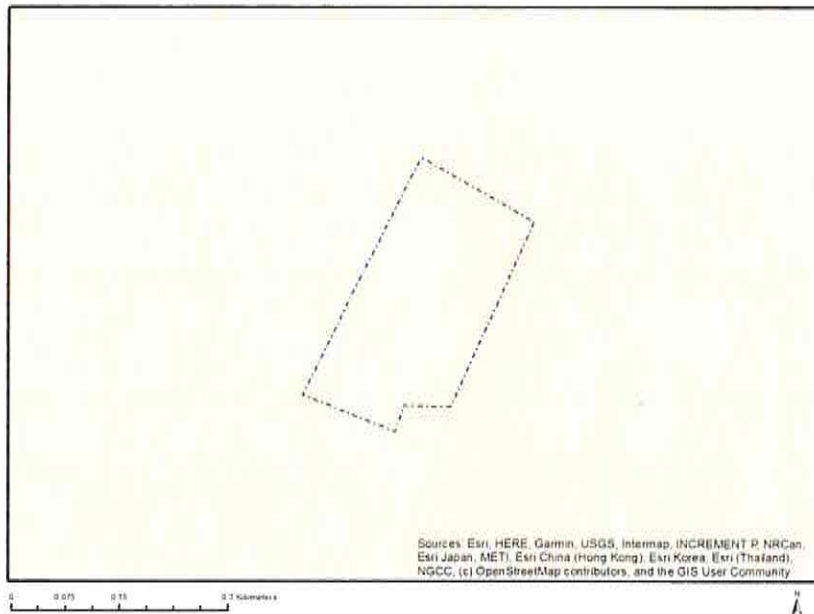
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Proposed Project Location

Orientation map 1: General location



Map of proposed site and relevant area(s)



Cadastral details of the proposed site

Property details:

No	Farm Name	Farm/ Erf No	Portion	Latitude	Longitude	Property Type
1	KAREEFONTEIN	340	0	27°37'53.61S	25°31'9.58E	Farm
2	KAREEFONTEIN	340	12	27°38'59.97S	25°29'38.47E	Farm Portion

Development footprint¹ vertices:

No development footprint(s) specified.

Wind and Solar developments with an approved Environmental Authorisation or applications under consideration within 30 km of the proposed area

No	EIA Reference No	Classification	Status of application	Distance from proposed area (km)
1	12/12/20/2343	Solar PV	Approved	20.3

¹ "development footprint", means the area within the site on which the development will take place and includes all ancillary developments for example roads, power lines, boundary walls, paving etc. which require vegetation clearance or which will be disturbed and for which the application has been submitted.

Environmental Management Frameworks relevant to the application

No intersections with EMF areas found.

Environmental screening results and assessment outcomes

The following sections contain a summary of any development incentives, restrictions, exclusions or prohibitions that apply to the proposed development site as well as the most environmental sensitive features on the site based on the site sensitivity screening results for the application classification that was selected. The application classification selected for this report is: **Mining | Mining Permit.**

Relevant development incentives, restrictions, exclusions or prohibitions

The following development incentives, restrictions, exclusions or prohibitions and their implications that apply to this site are indicated below.

No intersection with any development zones found.

Map indicating proposed development footprint within applicable development incentive, restriction, exclusion or prohibition zones



Proposed Development Area Environmental Sensitivity

The following summary of the development site environmental sensitivities is identified. Only the highest environmental sensitivity is indicated. The footprint environmental sensitivities for the proposed development footprint as identified, are indicative only and must be verified on site by a suitably qualified person before the specialist assessments identified below can be confirmed.

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Agriculture Theme			X	
Animal Species Theme				X

Aquatic Biodiversity Theme	X			
Archaeological and Cultural Heritage Theme				X
Civil Aviation Theme			X	
Defence Theme				X
Paleontology Theme		X		
Plant Species Theme			X	
Terrestrial Biodiversity Theme	X			

Specialist assessments identified

Based on the selected classification, and the environmental sensitivities of the proposed development footprint, the following list of specialist assessments have been identified for inclusion in the assessment report. It is the responsibility of the EAP to confirm this list and to motivate in the assessment report, the reason for not including any of the identified specialist study including the provision of photographic evidence of the site situation.

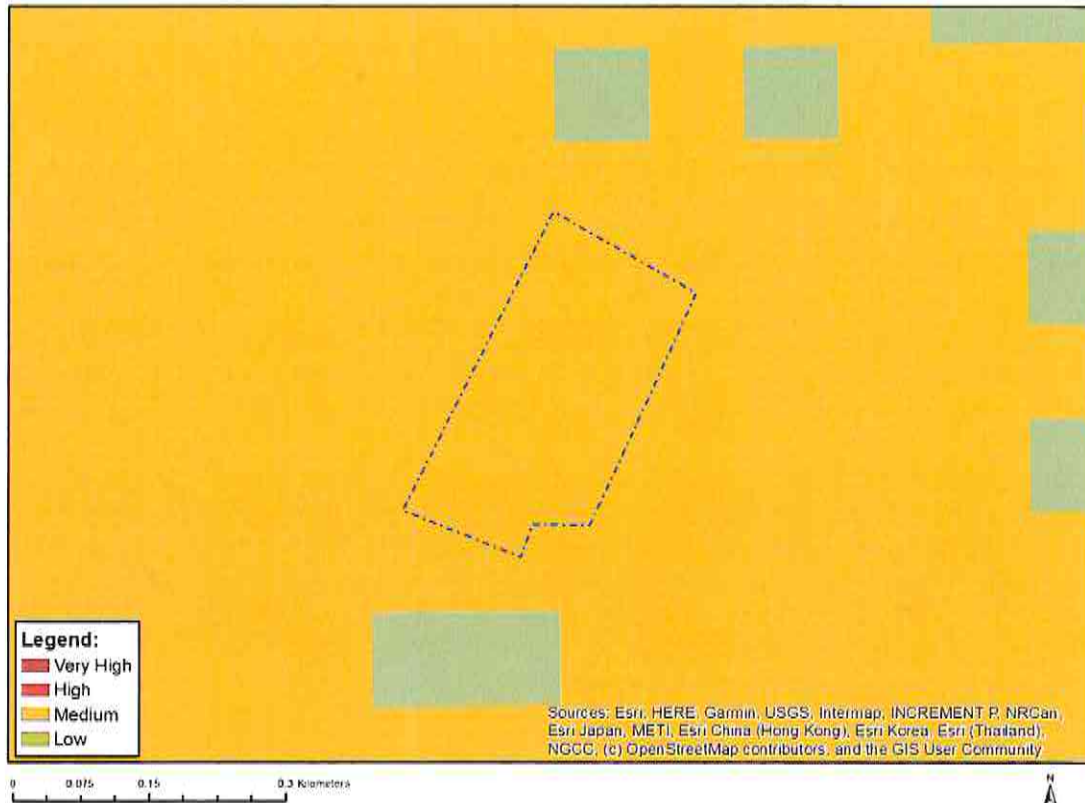
N o	Specialist assessment	Assessment Protocol
1	Agricultural Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted General Agriculture Assessment Protocols.pdf
2	Archaeological and Cultural Heritage Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted General Requirement Assessment Protocols.pdf
3	Paleontology Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted General Requirement Assessment Protocols.pdf
4	Terrestrial Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted Terrestrial Biodiversity Assessment Protocols.pdf
5	Aquatic Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted Aquatic Biodiversity Assessment Protocols.pdf
6	Hydrology Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted General Requirement Assessment Protocols.pdf

	ment	
7	Noise Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted Noise Impacts Assessment Protocol.pdf
8	Radioactivity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted General Requirement Assessment Protocols.pdf
9	Traffic Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted General Requirement Assessment Protocols.pdf
10	Geotechnical Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted General Requirement Assessment Protocols.pdf
11	Socio-Economic Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted General Requirement Assessment Protocols.pdf
12	Plant Species Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted Plant Species Assessment Protocols.pdf
13	Animal Species Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted Animal Species Assessment Protocols.pdf

Results of the environmental sensitivity of the proposed area.

The following section represents the results of the screening for environmental sensitivity of the proposed site for relevant environmental themes associated with the project classification. It is the duty of the EAP to ensure that the environmental themes provided by the screening tool are comprehensive and complete for the project. Refer to the disclaimer.

MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY

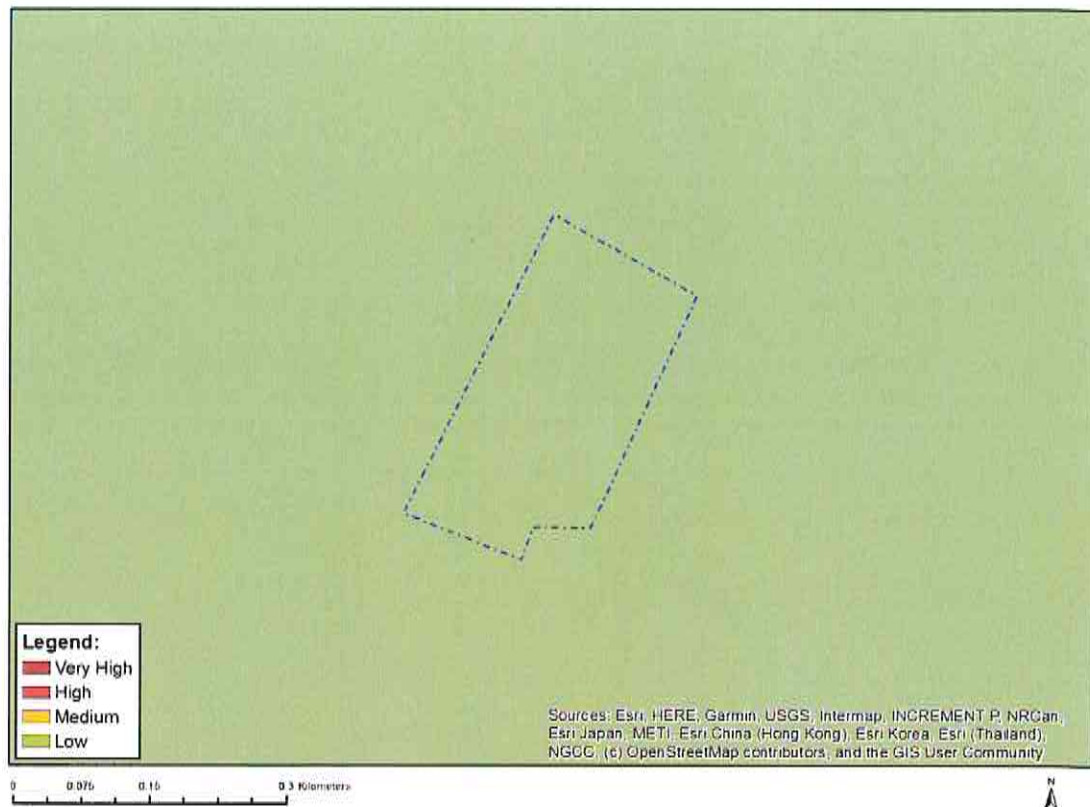


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Medium	Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate

MAP OF RELATIVE ANIMAL SPECIES THEME SENSITIVITY



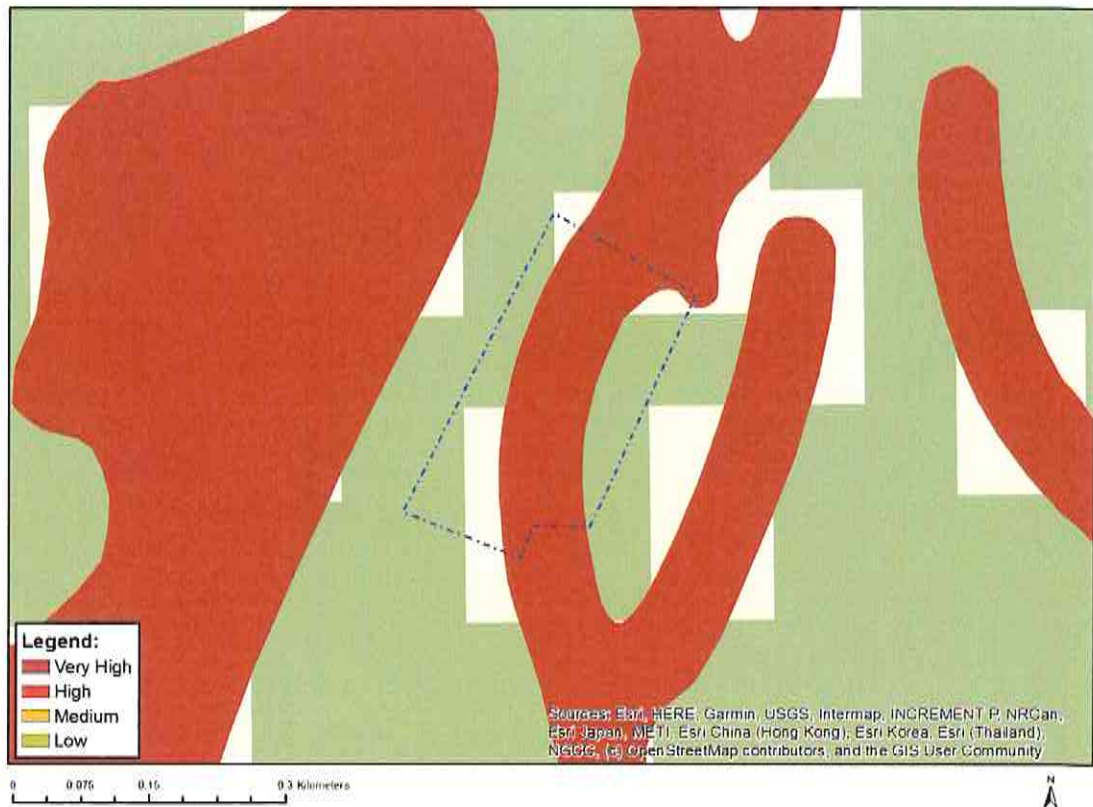
Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Subject to confirmation

MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity
Very High	Aquatic CBAs

MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY

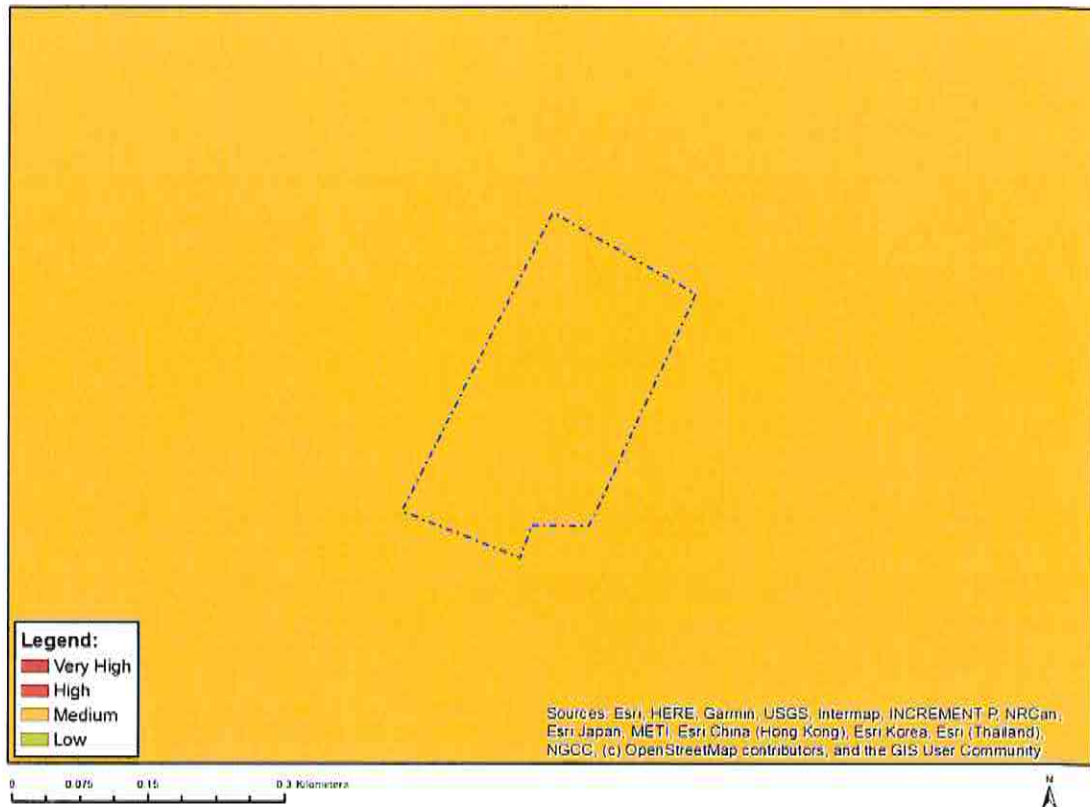


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity

MAP OF RELATIVE CIVIL AVIATION THEME SENSITIVITY

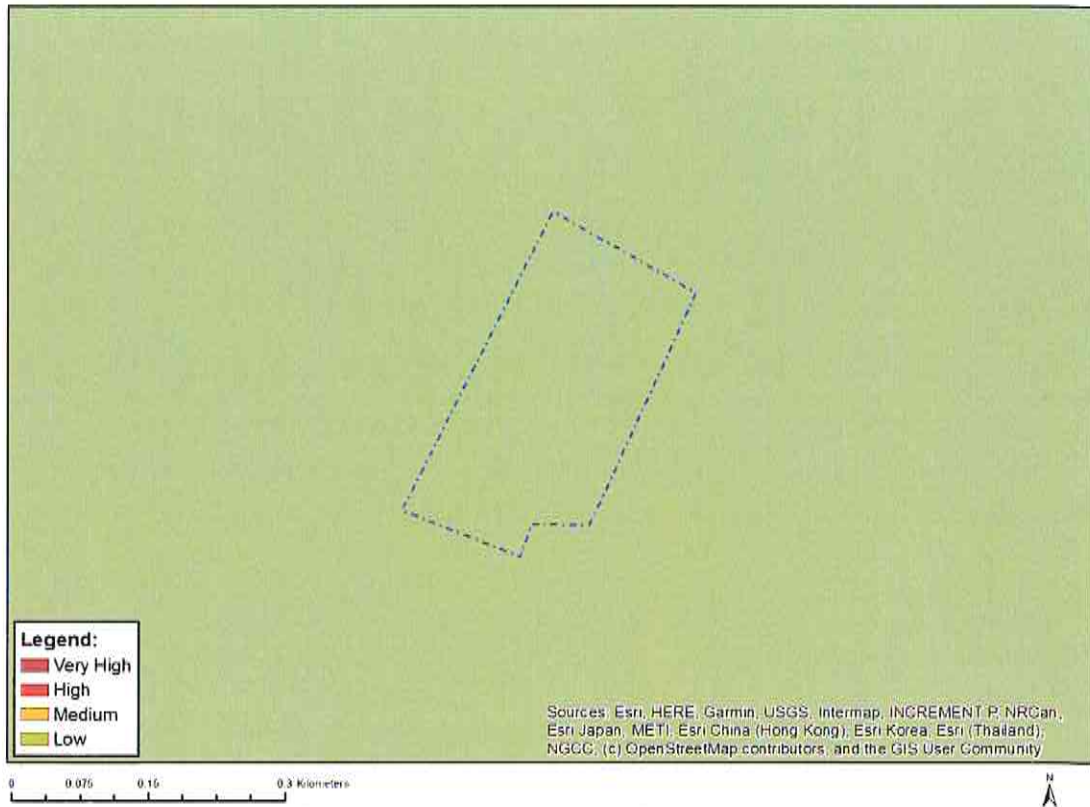


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Medium	Between 8 and 15 km of other civil aviation aerodrome

MAP OF RELATIVE DEFENCE THEME SENSITIVITY

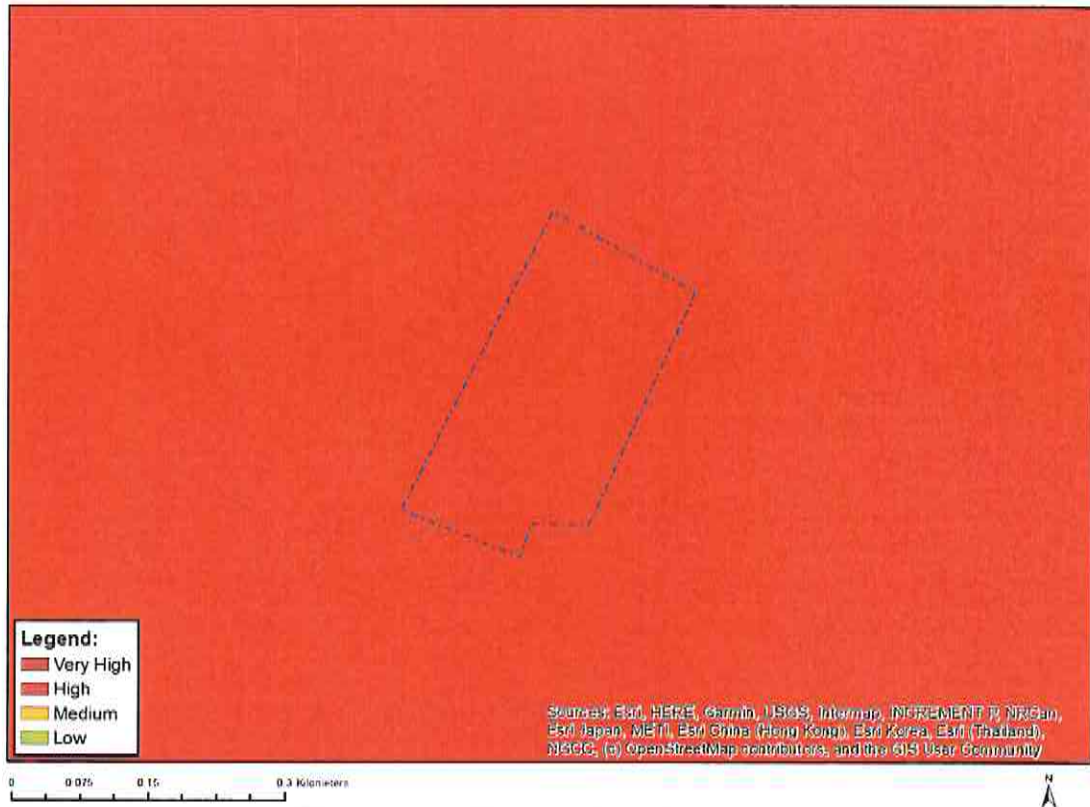


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity

MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY

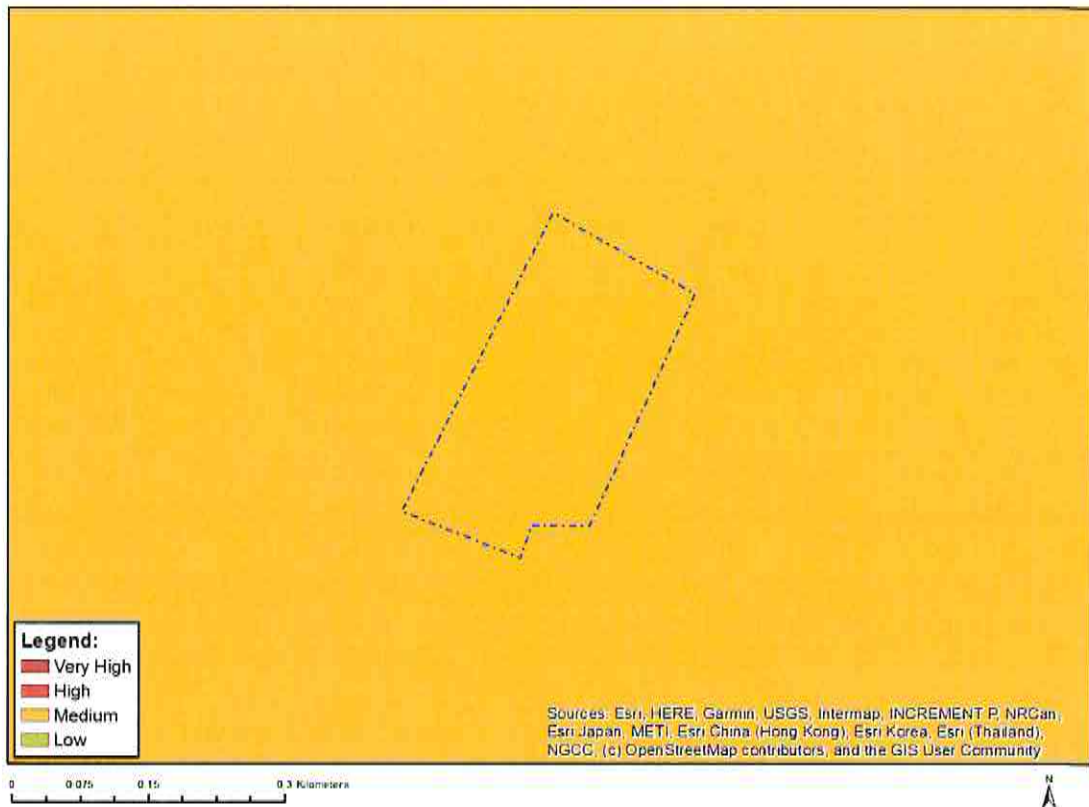


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Features with a High paleontological sensitivity
Medium	Features with a Medium paleontological sensitivity

MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY



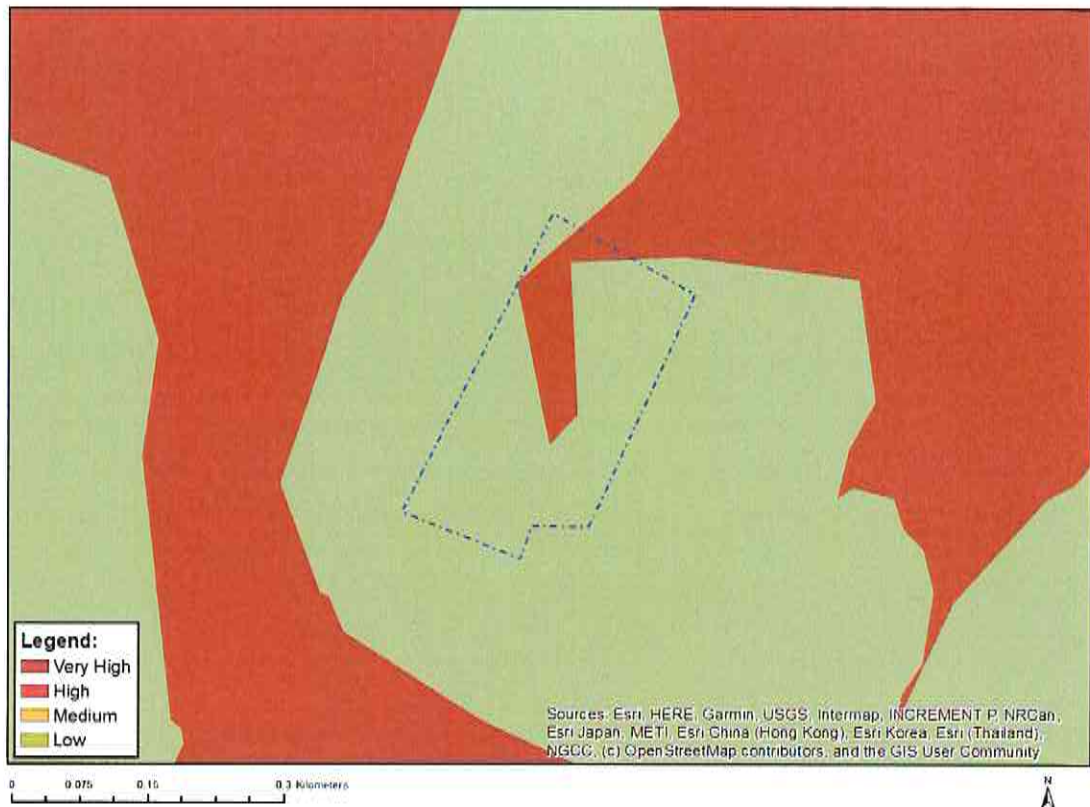
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Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity
Medium	Sensitive species 257

MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity
Very High	Critical biodiversity area 2
Very High	Protected Areas Expansion Strategy

QUANTUM CALCULATION: APPENDIX 4

Calculation of the Financial Provision

Mine : Bitflow Investments (Pty) Ltd

Location: Kareefontein 340 HO

NW 30/5/1/3/2/11138 MP

No	Description	Unit	Quantity (A)	Master Rate (B)	Multiplication Factor (C)	Weighting Factor (D)	Amount (E)=A*B*C*D
1	Dismantling of the Processing Plant and related Structures (Including Overland conveyors and power lines)	m ³	-	17.91	1	1	-
2 (A)	Demolition of Steel buildings and structures (including floor slabs)	m ²	-	249.45	1	1	-
2(B)	Demolition of reinforced concrete buildings and structures	m ²	-	367.62	1	1	-
3	Rehabilitation of access Roads	m ²	50.00	44.64	1	1	2,232.00
4 (A)	Demolition and rehabilitation of electrified railway lines	m	-	433.26	1	1	-
4 (B)	Demolition and rehabilitation of non-electrified railway lines	m	-	236.33	1	1	-
5	Demolition of housing and facilities (including floor slabs)	m ²	-	498.91	1	1	-
6	Opencast Rehabilitation (including final voids and ramps)	ha	0.20	253,918.43	1	1	50,783.69
7	Sealing of shafts and adits and inclines (including concrete cap)	m ³	-	133.92	1	1	-
8 (A)	Rehabilitation of Overburden and Spoils	ha	-	174,355.57	1	1	-
8 (B)	Rehabilitation of processing waste Deposits an eveporation ponds (basic, salt-producing waste)	ha	-	217,156.72	1	1	-
8 (C)	Rehabilitation of processing waste Deposits an eveporation pond (acidic, metal-rich waste)	ha	-	630,726.04	1	1	-
9	Rehabilitation of subsided areas	ha	-	145,996.53	1	1	-
10	General Surface Rehabilitation, including grassing of all denuded areas	ha	0.20	138,119.02	1	1	27,623.80
11	River diversions	ha	-	138,119.02	1	1	-
12	Fencing	m	-	157.55	1	1	-
13	Water Management (Separating clean and dirty water and managing the impact on groundwater, including treatment, when required)	ha	-	52,516.74	1	1	-
14	2 to 3 Years of Maintenance and aftercare	ha	0.20	18,380.86	1	1	3,676.17
15 (A)	Specialist Study	Sum	-				-
15(B)	Specialist Study	Sum	-				-
Total Sum of all items							84,315.66
12% of subtotal							
6% of subtotal							5,058.94
10% Contingency							8,937.46
Subtotal 1 plus sum of Management and contingency)							98,312.06
VAT@15% of the Total							14,746.81
Grand Total							113,058.87
1 Preliminary and General							
2 Contingencies							