



mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

ENVIRONMENTAL IMPACT 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: F. J Fourie

TEL NO: 082 702 5528

FAX NO: -

POSTAL ADDRESS: P.O. Box 36, Wesselsbron 9680

FILE REFERENCE NUMBER SAMRAD: NW30/5/1/1/2/13317 PR

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

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

1. 2. OBJECTIVE OF THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

The objective of the environmental impact assessment process is to, through a consultative process—

- (a) determine the policy and legislative context within which the activity is located and document how the proposed activity complies with and responds to the policy and legislative context;
- (b) describe the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location;
- (c) identify the location of the development footprint within the preferred site based on an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects of the environment;
- (d) determine the—
 - (i) nature, significance, consequence, extent, duration and probability of the impacts occurring to inform identified preferred alternatives; and
 - (ii) degree to which these impacts—
 - (aa) can be reversed;
 - (bb) may cause irreplaceable loss of resources, and
 - (cc) can be avoided, managed or mitigated;
- (e) identify the most ideal location for the activity within the preferred site based on the lowest level of environmental sensitivity identified during the assessment;
- (f) identify, assess, and rank the impacts the activity will impose on the preferred location through the life of the activity;
- (g) identify suitable measures to manage, avoid or mitigate identified impacts; and
- (h) identify residual risks that need to be managed and monitor

PART A
SCOPE OF ASSESSMENT AND ENVIRONMENTAL IMPACT ASSESSMENT
REPORT

3. Contact Person and correspondence address

a) Details of

(i) Details of the EAP

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 2 – 2. (1)(a)(iii)

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

Ms HM (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

(1) The qualifications of the EAP

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 2 – 2. (1)(a)(iv)

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** & **Figure 2** for copies of his qualifications and CV.

Figure 1 – Copy of Qualifications



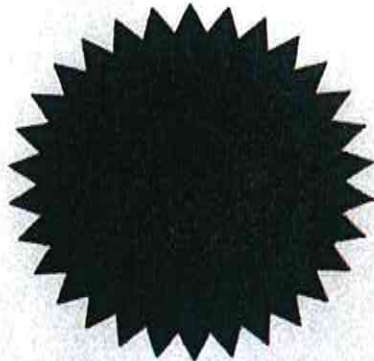

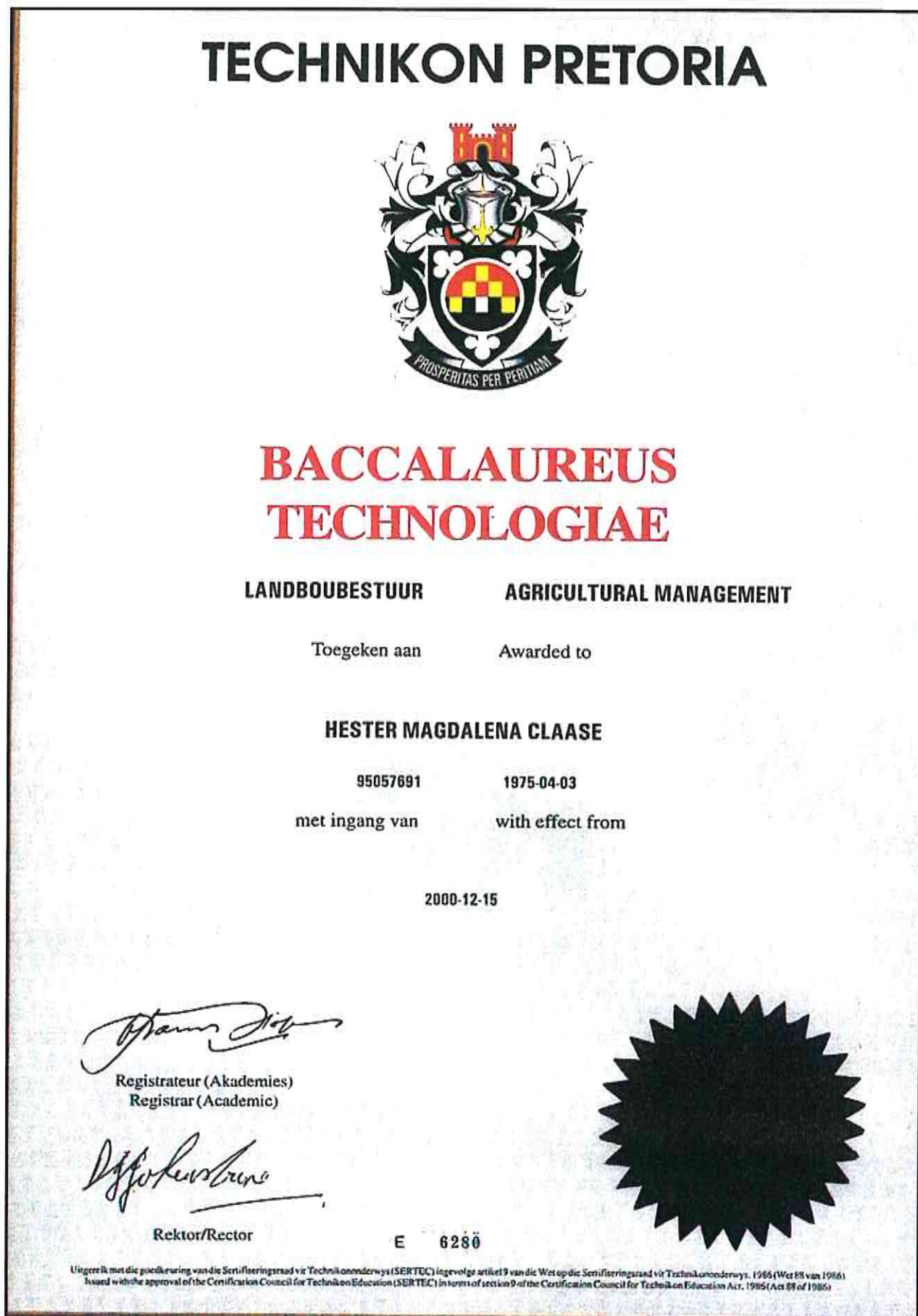
<h1>TECHNIKON PRETORIA</h1>	
	
<h2>NASIONALE NATIONAL DIPLOMA</h2>	
LANDBOU: HULPBRONBENUTTING	AGRICULTURE: RESOURCE UTILISATION
Toegeken aan	Awarded to
HESTER MAGDALENA CLAASE	
95057691	1975-04-03
met ingang van	with effect from
1998-01-01	
 Registrateur (Akademies) Registrar (Academic)	
 Rektor/Rector	
No. N ^o 30054	
<small>Uitgereik met die goedkeuring van die Sertifiseringsraad vir Technikononderwys (SERTTEC) ingevolge artikel 9 van die Wet op die Sertifiseringsraad vir Technikononderwys, 1986 (Wet 88 van 1986) Issued with the approval of the Certification Council for Technikon Education (SERTTEC) in terms of section 9 of the Certification Council for Technikon Education Act, 1986 (Act 88 of 1986)</small>	

Figure 2




(2) 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


HM (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 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.

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></p> <p><u>JUN 2002</u></p>	<p>SENIOR RESOURCE CONSERVATION INSPECTOR</p> <p><i>National Department of Agriculture – Potchefstroom, SA</i></p> <p>Manage Administration of Act 43 of 1983, 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></p> <p><u>FEB 2004</u></p>	<p>SENIOR ENVIRONMENTAL OFFICER</p> <p><i>Department of Minerals and Energy – Klerksdorp, SA</i></p> <p>Administration of Act 50 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></p> <p><u>PRESENT</u></p>	<p>ENVIRONMENTAL PRACTITIONER</p> <p><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



1993

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, II and III	
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

2000

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 Dbase 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:

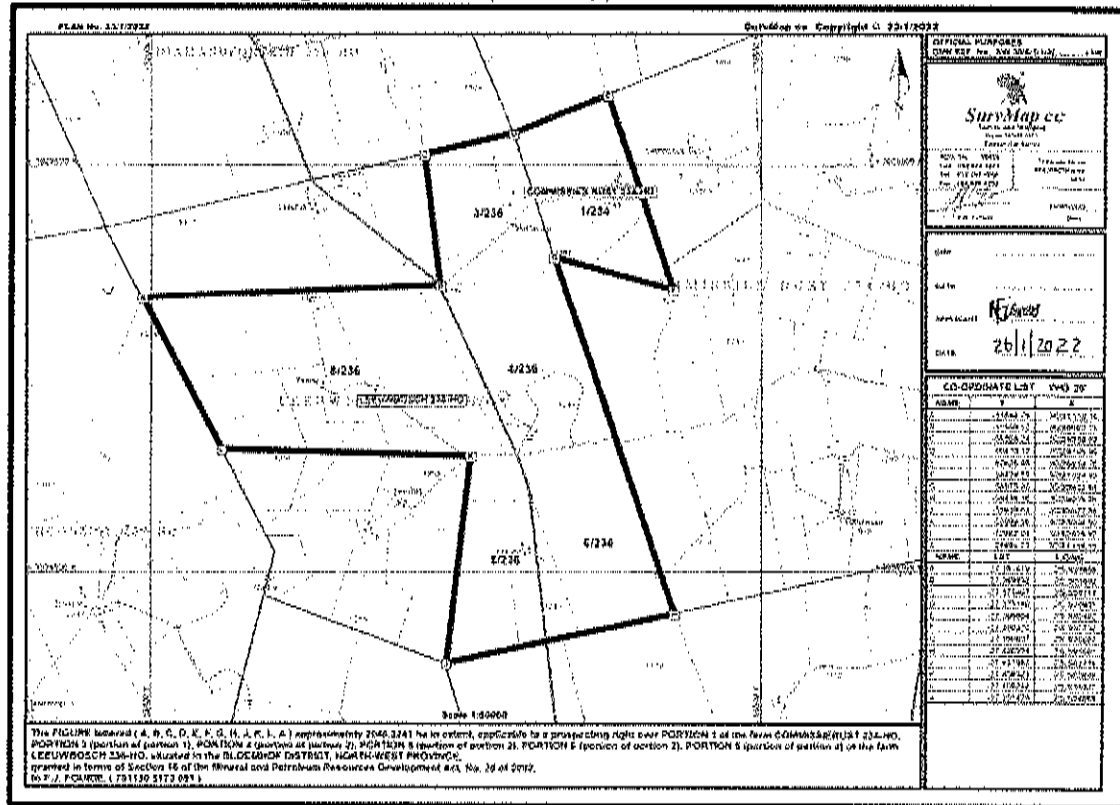
- FJ de Beer [Doornfontein] – was done as part of a Prospecting Right Application with Bulk Sampling, my role entailed: site visit, impact assessment and evaluation and compilation of report and handling of application process.
- Hartzer & Steyn Beleggers [Zwartplaat] - was done as part of Mining Right 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 Klip CC [Killarney] - 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 [Rietfontein] - 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

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 2 – 2. (1)(c)(i),(ii)

(i) 21 digit Surveyor General Code for each farm portion	T0H00000000023600003 T0H00000000023600004 T0H00000000023600005 T0H00000000023600006 T0H00000000023600008 T0H00000000023400001																																							
(ii) Farm Name:	✓ Commissies Rust 234 HO: <ul style="list-style-type: none"> ▪ Portion 1 ✓ Leeuwbosch 236 HO: <ul style="list-style-type: none"> ▪ Portion 3(-/-1), ▪ Portion 4 (-/-2), ▪ Portion 5 -/-2), ▪ Portion 6(-/-2), ▪ Portion 8 (-/-4) 																																							
(iii) Coordinates - Co-ordinates List WG 27°	<table border="1"> <thead> <tr> <th>NAME</th> <th>LAT</th> <th>LONG</th> </tr> </thead> <tbody> <tr><td>A</td><td>-27.391479</td><td>25.524668</td></tr> <tr><td>B</td><td>-27.389932</td><td>25.561802</td></tr> <tr><td>C</td><td>-27.375487</td><td>25.559714</td></tr> <tr><td>D</td><td>-27.373140</td><td>25.570831</td></tr> <tr><td>E</td><td>-27.368884</td><td>25.582492</td></tr> <tr><td>F</td><td>-27.390370</td><td>25.590732</td></tr> <tr><td>G</td><td>-27.386807</td><td>25.576007</td></tr> <tr><td>H</td><td>-27.426394</td><td>25.591007</td></tr> <tr><td>J</td><td>-27.431982</td><td>25.562734</td></tr> <tr><td>K</td><td>-27.408923</td><td>25.565648</td></tr> <tr><td>L</td><td>-27.408242</td><td>25.534527</td></tr> <tr><td>A</td><td>-27.391479</td><td>25.524668</td></tr> </tbody> </table>	NAME	LAT	LONG	A	-27.391479	25.524668	B	-27.389932	25.561802	C	-27.375487	25.559714	D	-27.373140	25.570831	E	-27.368884	25.582492	F	-27.390370	25.590732	G	-27.386807	25.576007	H	-27.426394	25.591007	J	-27.431982	25.562734	K	-27.408923	25.565648	L	-27.408242	25.534527	A	-27.391479	25.524668
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Application area (Ha)	2045,3241 ha																																							
Magisterial district:	The area is situated within the district of Bloemhof is a maize, peanut, cattle farming town situated on the R34 29,4 km north from Bloemhof in the <u>North West Province</u> of South Africa. The town lies in an important alluvial diamond-mining area and it is the main town of the <u>Lekwa-Teemane Local Municipality</u> , which further falls under the <u>Dr Ruth Segomotsi Mompati District Municipality</u> .																																							
Distance and direction from nearest town	The nearest town is Bloemhof, which is situated 29.4 km north from the application area.																																							
Minerals applied for	Alluvial Diamonds (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 2 – 2. (1)(c)(i)(ii)

(i) & (ii)

See Appendix 1(a) - Locality Map indication where the applied area are situated within the district of Bloemhof, North-west Plan and Appendix 1(b) – Infrastructure and Activity Map indication applied area with attached coordinates of the area.

Appendix 1(a) – Locality Map

&

Appendix 1(b) – Infrastructure and Activity 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 2 – 2. (1)(d)(i)(ii)

The applicant applied for a Prospecting Right over: Commissies Rust 234 HO (Portion 1); Leeuwbosch 236 HO (Portion 3(-/-1), Portion 4 (-/-2), Portion 5 (-/-2), Portion 6 (-/-2), Portion 8 (-/-4).

The application area is situated over a rural part of the Bloemhof district. The prospecting right application area is characterized by natural vegetation (grazing for cattle) and formerly cultivated fields (now grazing) and rehabilitated mining areas (grazing for cattle).

There are various farmsteads with associated buildings, various entrances from the main gravel road and Eskom power lines to the farmsteads, windmills with and associated storage dams.

All of the above infrastructure can be seen on the Infrastructure Plan - **Appendix 1(b1) & 1(b2)**. **The surrounding farms are mostly utilized as cultivated field for cash crops (maize) and natural grazing.** Access to the prospecting right application area will be from the **R34** running between Bloemhof and Schweizer-Reneke and a gravel road. Also see **Appendix 1(b1) & 1(b2)** for Infrastructure Plan and Google satellite image of the application area.

The scope of the prospecting activities: The extent of the prospecting area is **2045.3241 hectares**.

Phase 1: Geological desktop studies and surveys in order to try and identify the gravel run. Various geological maps and instruments will be used to identify if alluvial gravel deposits might be present on the application area. **6 months** needed for phase 1.

Phase 2: concentrate on **Test pits** which will be made on a grid of 100 x 100 meters. It is envisaged that **100 test pits** will be excavated. The applicant will assess the samples taken during phase 1 and will **Trenching (15)** be made during **Phase 3** in order to determine the grade of the Alluvial Diamonds that was found and if it is economical viable. In order to determine if the gravel does have diamonds the gravel needs to be taken out and tested, by putting it through the washing process.

See **Appendix 1(b)** – Infrastructure Map for detail of what the site looks like pre-prospecting. Only a small portion of the land will be impacted upon at any given time and land use on the rest of the area can proceed normally (**Phase 1 (100 test pits (surface area: 3m x 2m= 6m² x100 pits = total of 600m² or 0006 ha)** will be done over a period of 24 Months); **Phase 2: 15 Trenches (surface area will be 10m x 60m x 15 trenches = 0.90 ha total)** will be done over 33 months. **The grand total is 0.96 ha over 5 years and 3 months.**

The prospecting focus area will be clearly demarcated after Phase 1 is completed, but will probably be over the whole of the application area. It is foreseen that the main prospecting area will most probably be over the already disturbed areas as indicated below in **Figure 5**. The area applied for is over the prospecting right application area of the entire **2045.3241 hectares**. It is envisaged that all impacts on the environment can be properly managed and mitigated and no high negative long-term impacts will take place.

Figure 5 – Google Earth Images



(i) Listed and specified activities

Appendix 1(b) – Mine Infrastructure and Activity Map

Only a small portion of the land will be impacted upon at any given time and land use on the rest of the area can proceed normally. The prospecting focus area will be clearly demarcated after Phase 1 is completed. The area applied for is over the entire portion but the main prospecting focus area will be on the grazing land area. See Table 1 below as submitted as part of the prospecting works program indicating what the main listed prospecting activities will be. The area applied for is over the entire portion but the entire prospecting focus area will be over grazing land. Also see Table 2 below for NEMA Listed Activities as applied for in the Environmental Authorization which form part of the application.

Table 1: Main listed prospecting activities

Phase	Activity	Skill(s) required	Timeframe	Outcome	Timeframe for outcome	What technical expert will sign off on the outcome?
1.	Geological surveys	Geologist	1 - 6	Mapping	6 Months	Geologist
2.	Test pits	Excavator operator & Manager(applicant)		Areas where alluvial diamond gravel is found will be identified		Experienced applicant
3.	Bulk Sampling	Excavator operator; Frond end loader operator; Washing pan operators & manager	7 - 36	Diamonds found from bulk sample will be evaluated in terms of carats/100ton and value in \$/carat	30 Months	Experienced manager and applicant.

Table 2: Listed Activities

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 2 – 2. (1)(d)(i)

NAME OF ACTIVITY	Aerial extent of the Activity (Ha or m ²)	LISTED ACTIVITY	APPLICABLE LISTING
<p>Listing 1 – Activity 20: Any activity including the operation of that activity which requires a prospecting right in terms of section 16 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity as contained in this Listing Notice or in Listing Notice 3 of 2004, required to exercise the prospecting right —</p> <p>(a) associated infrastructure, structures and earthworks, directly related to prospecting 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>	2045.3241ha	X	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>the undertaking of a linear activity; or</p> <p>maintenance purposes undertaken in accordance with a maintenance management plan.</p>	Total = 0.96 ha	X	327
<p>Listing 2 – Activity 19: The removal and disposal of minerals, which requires a permission in terms of section 20 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity as contained in this Listing Notice, in Listing Notice 1 of 2004 or Listing Notice 3 of 2004, required to exercise the permission, including—</p> <p>(a) associated infrastructure, structures and earthworks, directly related to prospecting 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 this Notice applies.</p>	Total = 0.96 ha	X	325

(ii)Description of the associated structures and infrastructures

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 2 – 2. (1)(d)(ii)

The prospecting area was identified through aerial photographs. **The extent of the prospecting area will be 2045.3241 hectares.** Information from available Geological information will be used in order to determine where the test pits will take place. This will in turn help to determine the boundaries of the proposed prospecting area for more detailed surveying.

PHASE 1:

Geological desktop studies and surveys in order to try and identify the gravel run. Various geological maps and instruments will be used to identify if alluvial gravel deposits might be present on the application area. **6 months needed for phase 1.**

PHASE 2:

The testing pits will concentrate on the areas where the outcrops anticipated gravel potential. A 30 ton excavator will be used to make test pits on a grid of 100 x 100m and where necessary 50 x 50m grid. The pits will be (3m x 2m x \pm 2,5m deep) in order to determine the depth and boundaries of the gravel. These boundaries will be surveyed and mapped in order to determine where the bulk samples will be taken. Each test pit will be examined and closed immediately before moving to the next one. **It is envisage that 100 test pits will be done. 24 Months are needed for Phase 1.**

PHASE 3:

In order to determine if the gravel does have diamonds the gravel needs to be taken out and tested, by putting it through the washing process. Trenching will be used to open the gravel in order to get a representative sample for testing. **The 15 trenches will be 10 x 60 x \pm 3,5m (deep).** In one trench \pm 2'500m³ (2400 ton) gravel will be exposed and tested with 1 x 14 feet washing pans at a rate of 6m³ (10 ton) a hour. **The total prospecting area is 2045,3241 hectares**, thus it is anticipated that a total of 32'000 m³ (35 000 tons) will be tested by making trenches on different locations over the whole prospecting area, where the possibility of diamond bearing gravel were identified with the test pits. Taken at an 8 hour working day, 5 days a week and 20 days a month, the applicant will be able to process 960m³ a month. **The processing of 32'000m³ will take about 33 months for Phase 3.**

A. DESCRIPTION OF PLANNED NON-INVASIVE ACTIVITIES:

Table 3: Description of Activities to be followed, non-invasive

Activities	Description of phases	Associated structures and infrastructures
Phase 1	Geological desktop studies and surveys in order to try and identify the gravel run. Various geological maps and instruments will be used to identify if alluvial gravel deposits might be present on the application area. 6 months needed for phase 1.	

B. DESCRIPTION OF PLANNED INVASIVE ACTIVITIES:

TECHNICAL DETAIL REGARDING THE PROSPECTING METHODS

Table 4: Description of Activities to be followed, invasive

Activities	Description of phases	Associated structures and infrastructures
Phase 2	<p>The testing pits will concentrate on the areas where the outcrops anticipated gravel potential. A 30 ton excavator will be used to make test pits on a grid of 100 x 100m and where necessary 50 x 50m grid. The pits will be (3m x 2m x \pm 2.5 deep) in order to determine the depth and boundaries of the gravel. These boundaries will be surveyed and mapped in order to determine where the bulk samples will be taken. Each test pit will be examined and closed immediately before moving to the next one. It is envisage that 100 test pits will be done. 24 months are needed for phase 1.</p> <p>(Phase 2 (100 test pits (surface area: 3m x 2m= 6m² x 100 pits= total of 600m² or 0.06 ha) will be done over a period of 24 Months).</p>	<p>The topsoil and grass will be cleaned on the small area of 3m x 2m where the test pits will be excavated. After evaluation of the gravel the test pit will be closed. Rehabilitation of the test pits back to original land capability/use with topsoil and proper leveling.</p>
Phase 3	<p>In order to determine if the gravel does have diamonds the gravel needs to be taken out and tested, by putting it through the washing process. Trenching will be used to open the gravel in order to get a representative sample for testing. The trenches (15) will be 10 x 60 x \pm 3.5 m (deep). In one trench \pm 2100m³ (2400 ton) gravel will be exposed and tested with 14 feet washing pan at a rate of 6m³ (10 ton) an hour. The total prospecting area is 2045,3241hectares, thus it is anticipated that a total of 32'000 m³ (36'000 tons) will be tested by making trenches on different locations over the whole prospecting area, where the possibility of diamond bearing gravel were identified with the test pits. Taken at an 8 hour working day, 5 days a week and 20 days a month, the applicant will be able to process 960m³ a month. The processing of 32'000m³ will take about 33 months for Phase 3.</p> <p>(Phase3: 15 Trenches (surface area will be 10m x 60m x 15 trenches= 0.90 ha total) will be done over 33 months.</p>	<p>After evaluation of the gravel the test pit will be closed. Rehabilitation of the test pits back to original land capability/use with topsoil and proper leveling.</p> <p>Envisages equipment required:</p> <ul style="list-style-type: none"> ➤ 1 x excavator ➤ 2 x frond-end loader ➤ 1 x 14 feet pan ➤ 1x Power plant ➤ Pipes and water pumps

e) Policy and Legislative Context

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 2 – 2. (1)(e)

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 20, Listing 1 Activity 19, Listing 2, Activity 27, Listing 1	Prospecting Right application submitted and EA application with DMR
National Environmental Management Act, 1998 (Act 107 of 1998); Environmental Impact Assessment Regulations, 2014 (G38282 – R982-985) EA Authorization and EIA/EMP. Submit documents that will describe the impacts and sustainable mitigation thereof. Compliance to Act and Regulations during course of activities. Show impacts and mitigation thereof.	Regulation 21	Scoping Report in process following by EIA/EMP
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.
Conservation of Agricultural Resources Act No 43 of 1983 Compliance to Act and Regulations during course of activities. Stabilization of soil after rehab to be sustainable with no erosion. Eradication of declared weeds	Section 29	Regulation will be applicable during construction and operational phases of mining.
National Heritages Resources Act, 1999 (Act 25 of 1999) Compliance to Act and Regulations during course of activities. Ensure that no graves or heritage site will be disturbed,	Section 36	

f) Need and desirability of the proposed activities.

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 2 – 2. (1)(f)

The applicant believes that the applied area has prospects for: Alluvial Diamonds (DA) as applied for. The possible employee positions that could emerge could also be a great opportunity for revenue generation in this rural area. The desirability of this project can be motivated as the application area is amongst other mining and prospecting activities, indicating the potential for alluvial diamonds being also present and the fact that there have been previously worked over the application area. It is however anticipated that the impacts that will be caused by the activities can be mitigated and rehabilitated. **The specific activities as listed will be on this 2045.3241 hectares application area specific according to the sketch plan. The duration of the activities will be 5 years and 3 months.**

g) Motivation for the preferred development footprint within the approved site including a full description of the process followed to reach the proposed development footprint within the approved site

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 2 – 2. (1) [(h)](g)

The applicant believes that the applied area has prospects for: Alluvial Diamonds (DA) as applied for. The possible employee positions that could emerge could also be a great opportunity for revenue generation in this rural area. The desirability of this project can be motivated as the application area is amongst other mining and prospecting activities, indicating the potential for alluvial diamonds being also present and the fact that there have been previously worked over the application area. It is however anticipated that the impacts that will be caused by the activities can be mitigated and rehabilitated. The specific activities as listed will be on this 2045.3241 hectares application area specific according to the sketch plan. The duration of the activities will be 5 years and 3 months.

h) Full description of process followed to reach the proposed development footprint

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 2 – 2. (1)(h)(g)

Alternative is not applicable. The current land use is agriculture with grazing for cattle (natural vegetation and formerly cultivated lands (now grazing) and rehabilitated mining areas (grazing for cattle) on the prospecting right application area. Thus the option to prospect the area will be an alternative land use over some of the areas. The applicant, **F J FOURIE**, is not interested in any other alternative land use over this land aside for the prospecting for Alluvial Diamonds (DA), or continuing with his agricultural activities as is, or method use other than prospecting 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 area only. The prospecting focus area will only be determined after Phase 1 & 2 is completed. And the whole of the application area will systematically be prospected 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 in line with the submitted Prospecting Work Programme (PWP). Alluvial Diamonds (DA) prospecting normally uses the opencast prospecting method in order to access the mineral where after it is tested. Testing will be done on site by use of washing pans. There are no alternatives to the testing of the mineral as this is the conventional manner in which it is done. Better technology requires bigger volumes to be processed and this will not be possible under a prospecting right. As this is only prospecting 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 as submitted with the application. And the whole of the application area will systematically be prospected eventually. There are no preferred sites as the whole of the application area was identified as being favourable to be tested. This prospecting operation will also not be a static operations as the whole of the application area will be tested via test pits on a grid basis in order to determine where the possible Alluvial Diamonds (DA) run. They will perhaps have a temporary office building and but the gravel to be tested will be done 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 prospecting 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 PWP and the best options will be determined by the applicant, which will be test pits and bulk sampling through trenching. The technology used with regards to the testing 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. Phase 2 will be test pits and this will use an excavator to open pits which will only be visually inspected by the applicant, there are not much alternatives for this activity, Phase 3 will be excavation of a representative bulk sample and this will be done by conventional opencast excavations. The technology used in the activity will as described in the Prospecting Programme and the best options will be determined by the applicant. They will basically be using excavators to open the test pits and take out bulk samplings, as well as a front-end loader to move the material to be tested to the washing pan.

(e) the operational aspects of the activity, and

The operational aspect is only the prospecting for Alluvial Diamonds (DA) on this specific area, making use of a test pits and bulk sampling through trenching. Operations will be done through systematically test pits that will be made with a back-actor of the whole application area. Doing concurrent rehabilitation, meaning that as soon as the gravel in a test pit is inspected it will be placed back and the pit will be closed up and topsoil will be replaced. Where trenches were made and tested was completed the excavation will be backfilling 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 prospect the whole of the area not leaving any patches, but rather test 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 and cultivation. Thus not exploiting the mineral reserve and somebody else can apply.

ii. Details of the Public Participation Process Followed

The process as described by NEMA for Environmental Authorization was followed. See **Table 5** below for the identification of Interested and Affected Parties to be consulted with. The landowner (Mr FJ Fourie how is also the applicant) and the direct neighbours were consulted personally and through letters that was given to them by hand. The result of this consultation and responses as received are all attached under **Appendix 2**. An advertisement was placed in the local newspaper of Stellalander Newspaper of 4th May 2022 for the Scoping Report and again on the 13th July 2022, see copies of these attached. Notice was put up at the entrance to the application area, where all passers-by are invited to give through their comments of objections toward the proposed application. A copy of the Scoping Report was sent to all the State Departments. See proof of consultation under **Appendix 2**. The Scoping Report was send to all relevant State Departments for evaluation. Comments were only received from DEDECT and were incorporated in this document.

Appendix 2 – Proof of consultation

iii

Summary of issues raised by I & AP's

Table 5: Summary of I & AP's consultation

Interested and Affected Parties	Date sent and/or Comments Received	Issues raised	EAP's response to the applicant
AFFECTED PARTIES			
Landowner/s	X		
F.J. Fourie (Landowner) P.O. Box 36, Wesselsbron, 9680 Cell: 082 702 5528, E-mail: grootbrittanje@gmail.com	25 April 2022	No objection, as the applicant is also the landowner	
Lawful occupiers of the land			
Landowners or lawful occupiers on adjacent			
Mr. A.H. Griesel (Neighbour) P.O. Box 365, Bloemhof, 2660 Cell: 082 430 9670	25 April 2022 17 May 2022	Consultation letter send No objection, see signed consultation letter.	
Mr. E. Visser (Neighbour) Bloemhof, 2660 Cell: 079 547 8481	25 April 2022 17 May 2022	Consultation letter send No objection, see signed consultation letter	
Mr. C.F. Oldewage (Neighbour) P.O. Box 356, Bloemhof, 2660 Cell: 082 775 2487	25 April 2022 17 May 2022	Consultation letter send No objection, see signed consultation letter	
Municipal councilor			
Municipality	X		
Lekwa-Teemane Local Municipality LED Manager: Mr. Pakiso Lesego E-mail: leshagep@lekwa-teemane.co.za	25 April 2022	Consultation letter send to Mr. Leshage via e-mail	
Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA.			
Eskom			
Communities			
N/A			
Dept. Land Affairs	X		

EIAr /EMPr - [F J FOURIE - Commissies Rust 234 HO (Portion 1); Leeuwbosch 236 HO (Portion 3(-/-1), Portion 4 (-/-2), Portion 5 (-/-2), Portion 6 (-/-2), Portion 8 (-/-4) - NW 30/5/1/1/2/13317 PR]

KeabetsweMothupi Keabetswe.mothupi@drdlr.gov.za		25 April 2022	Request for verification of land claims	
Traditional Leaders				
N/A				
Dept. Rural, Environment and Agricultural OumaSkosana Agricentre Building, Cnr James Moroka & Stadium Road, Mmabatho, 2735 E-mail: oskosana@nwpg.gov.za	X	12 Aug 2022	EIA/EMPr send with Fastway couriers	
Dept. Water and Sanitation Lerato Mokhoanle 28 Central Road, Beaconsfield, Kimberley, 8300 Tel: 083 655 8312, E-mail: MokhoanleL@dws.gov.za	X	12 Aug 2022	EIA/EMPr send with Courier Guy	
Dept. Agriculture, Forestry and Fisheries 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	X	12 Aug 2022	EIA/EMPr send with Fastway couriers	
Other Competent Authorities				
OTHER AFFECTED PARTIES				
INTERESTED PARTIES				

An advertisement was placed in the local newspaper of Stellalander Newspaper of 4th May 2022 for the Scoping Report and again on the 13th July 2022.

PLACEMENT OF ADVERT AT GATE:

Photo 1		Photo 2	
GPS Location: S -27.419536° E 25.574120°			

The following specialist studies was done in order to quantify specific impacts as identified during the scoping process and which are now incorporated in the environmental impact assessment part of the document.

Appendix	Report	Compiled
Appendix	Quantum Calculation	DERA

iv) The Environmental attributes associated with the development footprint alternatives focusing on the geographical, physical, biological social economic, heritage and cultural aspects

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 2 – 2. (1){(h)}{(g)}{(iv)}

(1) Baseline Environment

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 2 – 2. (1){(h)}{(g)}{(iv)}

Introduction: The purpose of this section is to provide information on the environment in which the proposed prospecting activities will take place, with a view to identify sensitive issues/areas, which need to be considered when conducting the impact assessment. **The application is over:** Commissies Rust 234 HO (Portion 1); Leeuwbosch 236 HO (Portion 3 (-/-1), Portion 4 (-/-2), Portion 5 (-/-2), Portion 6 (-/-2), Portion 8 (-/-4). This area consists of natural vegetation (grazing for cattle) and formerly cultivated field's lands (now grazing for cattle) and rehabilitated mining areas (also used for grazing for cattle).

Magisterial District: The area is situated within the district of Bloemhof is a maize-farming, cattle, peanuts, 29,4 km from town situated on the R34 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/Wolmaransstad>). 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 29.4 km north NW from the application area.

Longitude (approximate centre of prospecting site): 25.561802° E

Latitude (approximate centre of prospecting site): -27.389932° S

Existing Surface Infrastructure: The application area is situated over a rural part of the Bloemhof district. The prospecting right application area is characterized by natural vegetation (grazing for cattle) and formerly cultivated fields (now grazing for cattle) and rehabilitated mining areas (also grazing for cattle/game).

There are various farmsteads with associated buildings, various entrances from the main gravel road and Eskom power lines to the farmsteads, windmills with and associated storage dams.

All of the above infrastructure can be seen on the **Infrastructure Plan - Appendix 1(b1)1 (b2)**. The **surrounding farms** are mostly utilized as cultivated field for cash crops and natural grazing for cattle and prospecting/mining can be seen. Access to the prospecting right application area will be from the R34 running between Bloemhof and Schweizer-Reneke and a farm gravel road. **Also see Appendix 1(b1) & 1(b2) 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 prospecting right application area of **2045.3241 hectares**. See Figure 6 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 6: 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 pospischilii*, *Digitaria argyrograptia*, *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, K Kalahari 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 **2045.3 ha**. Though the years the site have been disturbed by agricultural activities (formerly cultivation of some crop (withdrawn) and grazing for cattle) and historic mining activities. **This is a "brownfields site"**.

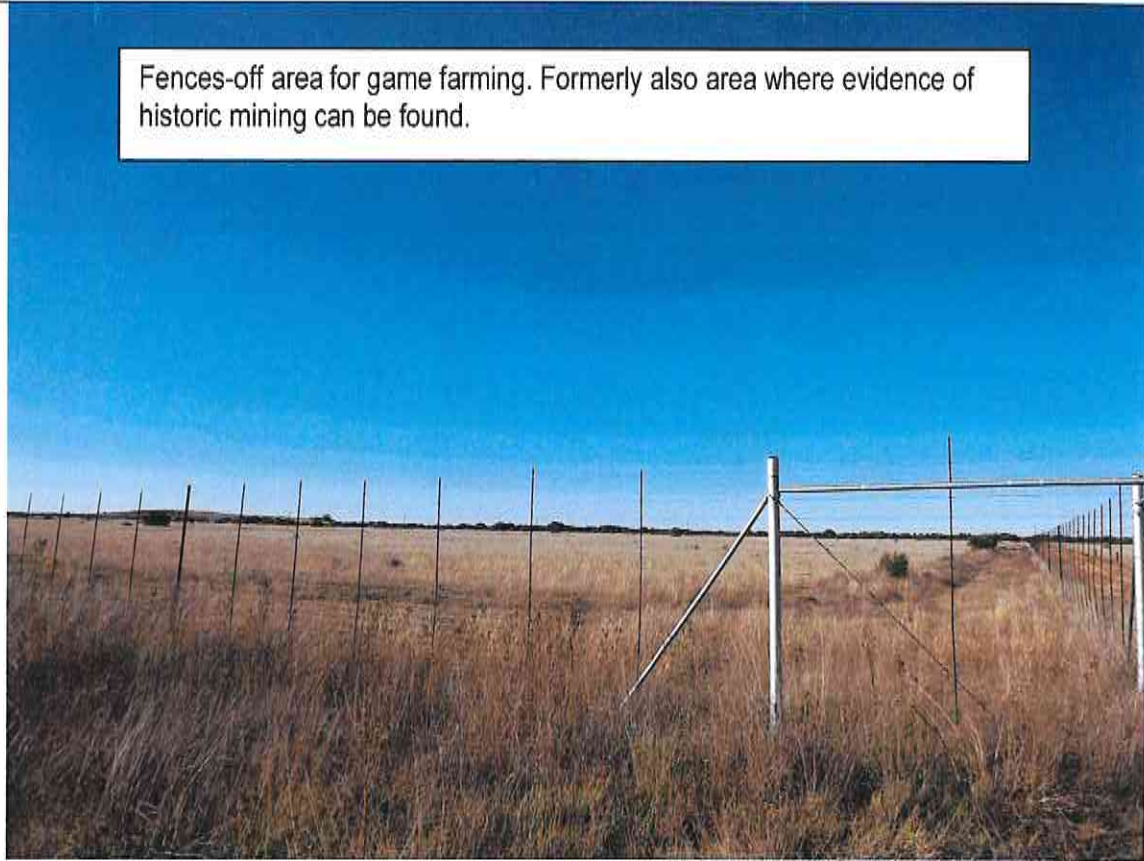
See photo table (next pages):



PHOTO

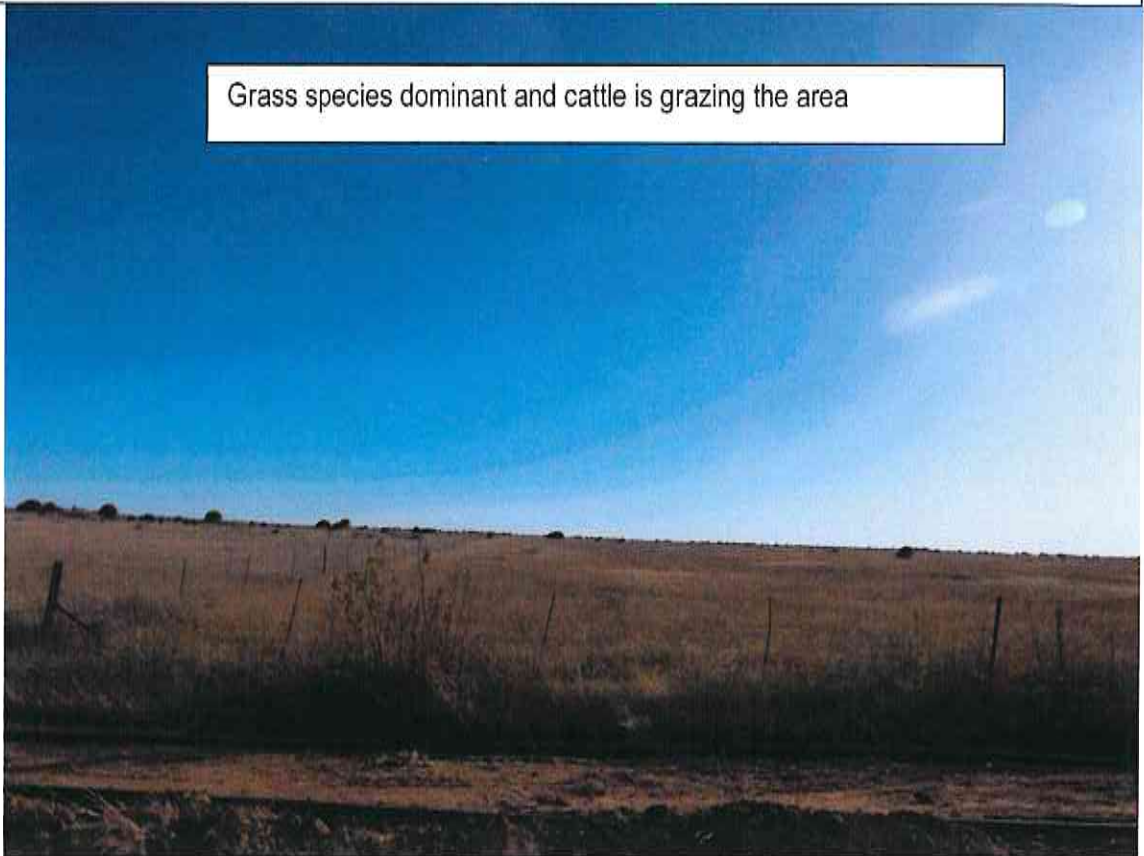
1

Fences-off area for game farming. Formerly also area where evidence of historic mining can be found.



2

Grass species dominant and cattle is grazing the area



3



4

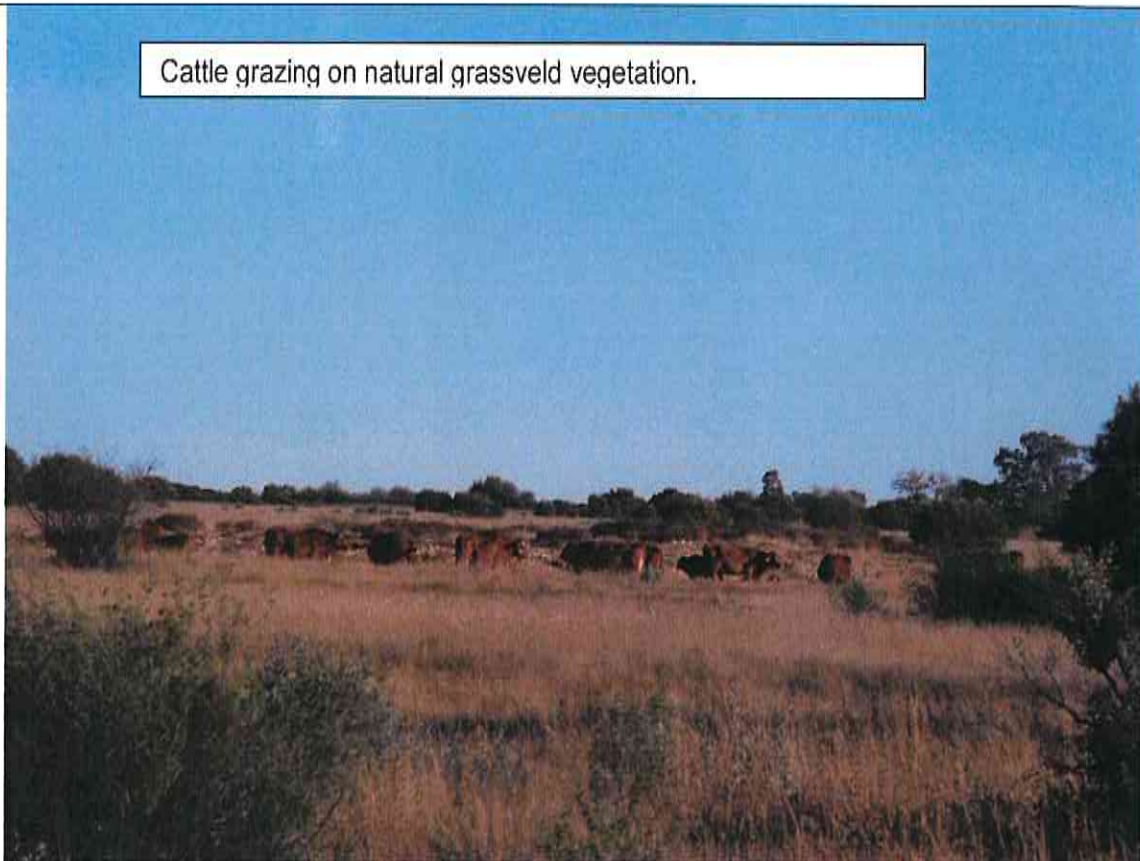


5



6

Cattle grazing on natural grassveld vegetation.



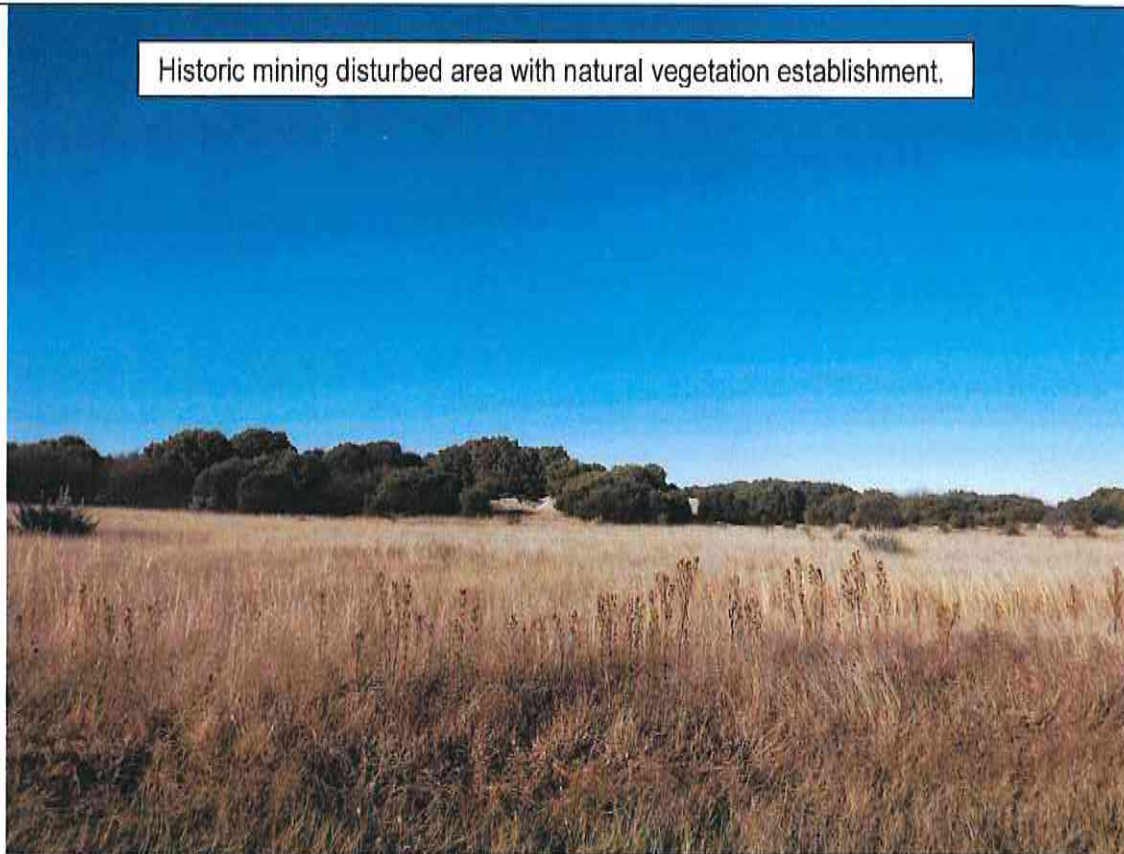
7

Historic mining disturbed area with natural vegetation establishment.
Within fenced-off game farm area



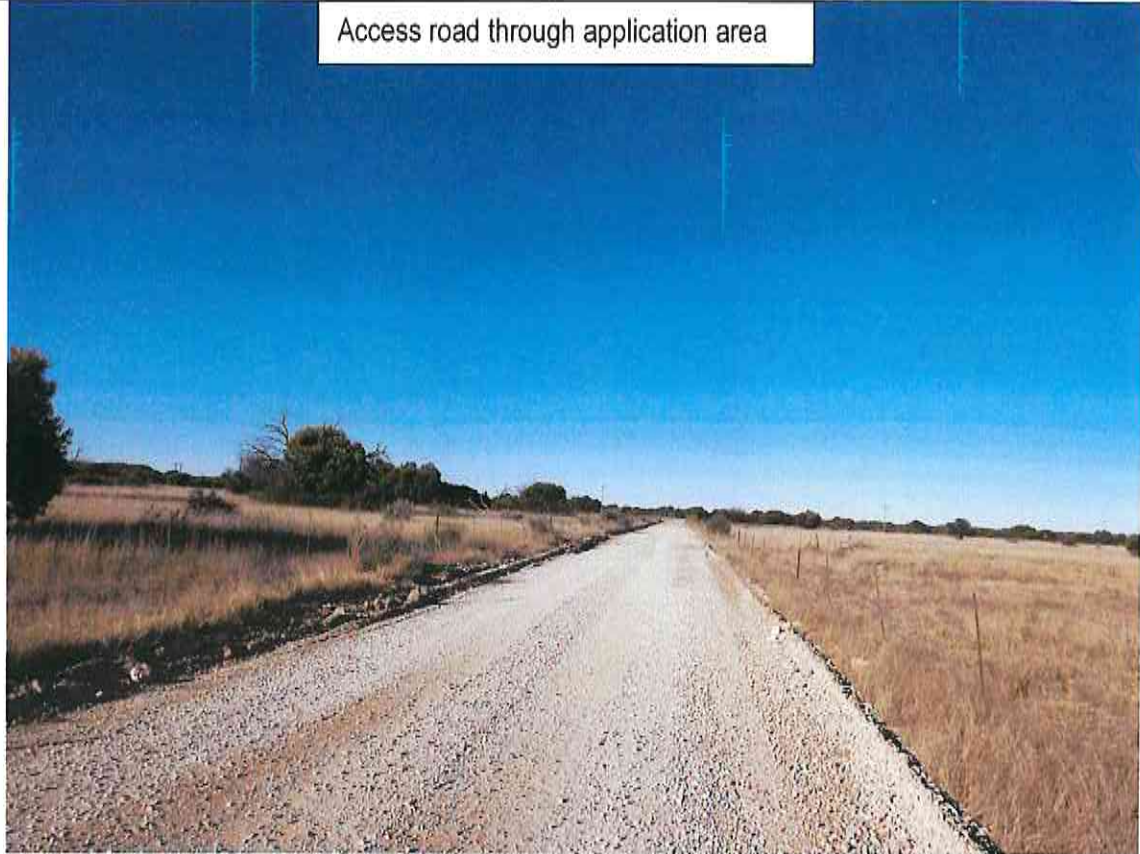
8

Historic mining disturbed area with natural vegetation establishment.



9

Access road through application area



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 prospecting (0.96 ha disturbed over 5 years & 3 months out of 2045.3 ha)**, are classified (by background reference to the whole prospecting right application area as per summary table below.

According to the **screening of environmental sensitivity of the proposed prospecting site (2045.3 ha)** it is indicated that **Terrestrial Biodiversity Theme** was classified as being LOW. Also the whole of the area is being regarded as to have a LOW environmental sensitivity with regard to animal and plant species. The majority of the areas have been disturbed by agricultural activities and historic mining activities. The **proposed prospecting site** should be regarded as a "**brownfields site**" as the site has been disturbed by agriculture activities and historical mining activities. The **Animal Species Theme** is regarded as of MEDIUM sensitivity. The **site has been disturbed by agricultural activities and mining 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. Game antelope (Springbucks) and warthogs are found in the game farm area.

Palaeontology Theme was further classified as being HIGH sensitive. 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 prospecting activity will be only alluvial gravel and not hard rock formations.** The prospecting 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 HIGH sensitivity. The prospecting sites will disturb **only**

0.96 ha in total over 5 years and 3 months (within the 2045.3 ha prospecting right application area) and should be regarded as a "brownfields site" as the site has been disturbed by agriculture activities and historic mining activities. No cultivation is taking place. Only grazing by cattle. Rehabilitation of the 0.96 ha sites 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 0.96 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 LOW sensitivity. Giving the fact that the majority of the prospecting right application area is regarded as of LOW environmental sensitivity and the fact that the remaining area have been impacted by historical mining activities and agricultural activities the site is actually "Brownfields site".

See Summary: (Results of screening report for the prospecting right application area of 2045.3 ha in total):

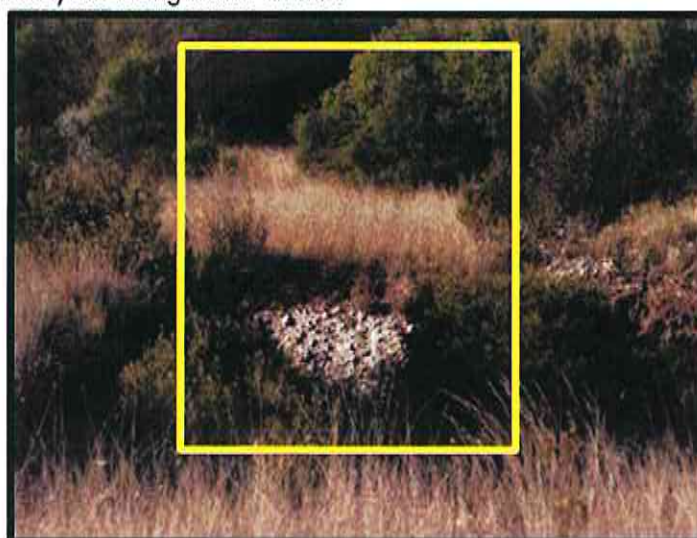
Table 6: DEDACT - Screening Report

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. Deep (0.9–1.2 m) sandy soils, with Hutton and Clovelly the dominant soil forms (Red and yellow, well drained sandy soils with high base status). Land types Ah and Ae and some Bc.

Also found on site associated with the Ventersdorp lavas (outcrops) is shallow lithosols (Mispah, Glenrosa) are being found on site.



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), and *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 **0,96 ha prospecting sites in total will have any effect on the surface run-off in the drainage catchment area (C91A).**

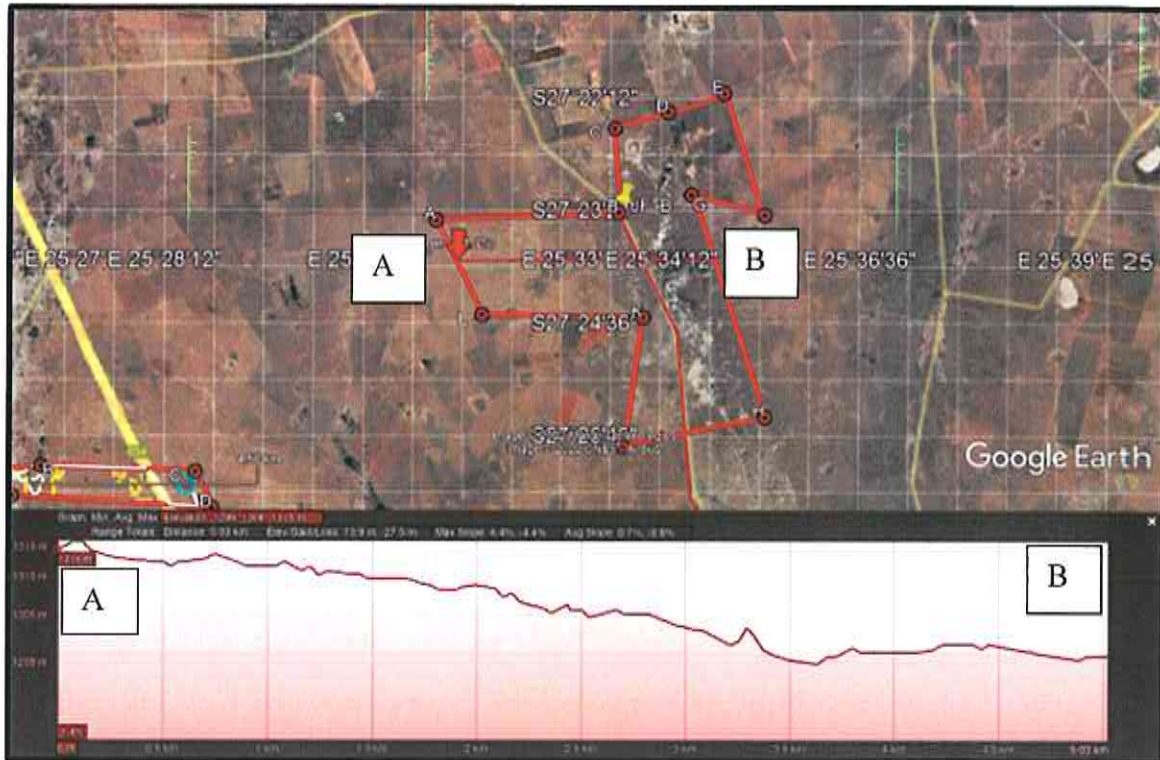
According to NEMA's Screening Tool the *Aquatic biodiversity sensitivity* was classified as being very high sensitive. *All prospecting activities need to be kept 100 m horizontally way from any surface water bodies (streams, pans, etc.).*

Ground Water: There are boreholes on the application area used for stock watering by the landowner as well as probably and domestic use. The applicant intends NOT TO USE WATER from these current boreholes but rather transport water via tanker to site for prospecting use. The water uses will be 100m³ 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 through wetting of the roads. This area fall in very rural area and the impact from 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 prospecting 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 2045.3ha, the sound will get lost and no residence on neighboring farms will be adversely affected. The farmsteads are located within the application area and roads to the application area and will they be the most affected by any noise of the prospecting 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 and cultivated maize crops. **The average slope is 0.7 % - 0.8 % that can be described as flat (see slope profile).** **The average elevation is between 1299-1355 m meters above sea level (masl) over most of the prospecting right application area.**



Sites of Archaeological and Cultural Interest:

No graveyards on site identified.

Sensitive Landscapes: Although severely disturbed by historical and previous prospecting/mining activities, there is a quality to these ecosystems in and around this stream area that's different from the neighbouring natural grasslands. This area can be seen as a sensitive landscape as the vegetation and soil in and around these areas are normally very different from normal vegetation cover and much more vulnerable to disturbance. **All prospecting associated activities should be kept 100 meter horizontally away from any (surface water body stream, pan).**

Visual Aspects: These prospecting activities will be visible to the landowner and neighbours and people travelling on the gravel road.

Social: The proposed activity will employ 8 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 ±29.4 km away from the proposed operation.

(b) Description of the current land uses.

The current land use (agricultural) is natural vegetation for grazing by cattle, game farming etc. There are also areas that were previously mined.

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

The application area is situated over a rural part of the Bloemhof district. The area is characterized by natural grazing land for cattle and game (antelope like Springbucks). There are various farmsteads with associated buildings and a gravel entrance road from the R34 road and Eskom power line to the farmsteads.

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 prospecting/mining. The evidence of years of alluvial diamond mining can clearly be seen over these areas. Access to farm will be from the R34 running between Bloemhof and Schweizer-Reneke via a gravel road. See **Appendix 1(b1 & b2)** for Infrastructure Plan of the application area.

(d) Environmental and current land use map.

Current land use on the application area is grazing over natural veld and agricultural cultivation. This is privately owned land. 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 2 – 2. (1)[(h)][(g)](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 EMP/EIA 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 during the Scoping Phase, which will be investigated further in the Impact Assessment Phase of the project are summarized in **Table 7** on the next page.

Table 7: Impact significance identification matrix for – Leeuwbosch 236 HO & Commissie Rust 234 HO

		A	B	C	D	E	F	G	H	I	J	K	L	M	N	
PHASE		Components			ABIOTIC				BIOTIC				VISUAL		SOCIO-ECONOMIC	
	Impacts	Geology	Topography	Soil	Land capability	Land use potenti	Surface water	Ground water	Air quality	Noise	Vegetat ion	Wildlife	Sensitive landscapes	Archaeological & cultural sites	Socio-economic impacts	Affected parties
	Activity, Product or Service															
1	Demarcation of prospecting focus area.			L	L	L						L				
2	Establishment (site preparation, vegetation clearance, topsoil removal and stockpiling) of proper access roads (upgrade existing road), site workshop & storage area (temporary containers), mineral processing plant conveyor, mobile screen and 1 x 14 feet washing pans, generator, ect.) Initial vegetation clearance, topsoil removal & stockpiling next to first open cast pit/berch within the mine focus area.	M		H	H			M	H	H	H	L	L		L	M
3	Establishment of bonded diesel and oil/chemical storage facilities, chemical toilets.	M		M	H		M	M			M					
4	Provision of storage tanks for potable (drinking water) and process water (dust suppression).		H	H	H	H	L	M	M	H	H		M		L	
5	Provision of waste handling/disposal facilities (domestic & industrial waste bins.			L			L	L					L			
6	Fencing –off active prospecting site as required in terms of the MHSFA. Ensure access control (gate), ect				M							M				H+
7	Vegetation clearance, topsoil removal & stockpiling next to open cast pit/berch within the mine focus area (0.5 ha of surface area disturbed at any given time)	M		H	H	M	L	L	L		H	L			M	H

		A	B	C	D	E	F	G	H	I	J	K	L	M	N	
	PHASE	Components		ABIOTIC			BIOTIC			VISUAL		SOCIO-ECONOMIC				
		Geology	Topography	Soil	Land capability	Land use potential	Surface water	Ground water	Air quality	Noise	Vegetation	Wildlife	Sensitive landscapes	Archaeological & cultural sites	Socio-economic impacts	Affected parties
		Activity, Product or Service														
8		H	H+	H	H	H	L	M	L	L	H	L		L+	M	H
9																
		Transport will trucks to mineral processing plant (conveyor, screen, 1x 14 belt washing pans) for processing and sorting of concentrate at set intervals.														
10		M	H	H	H	H	L	H	L	L				M+	M	H
		The wet waste tailings coming out of the pans will be pumped to open excavations & poured down from where excess water is re-cycled. Backfilling of excavations (as part of concurrent rehabilitation): the coarse gravel (rough) sifted from the pans will be transported back by front-end loaders towards all open pits for backfilling.														
11		H+	H+	H+	H+	H+	H+	H+	L	L				L	H+	H±
12																
		Compaction of backfilled sites														
13	Decommissioning and closure		H+	H+	H+	H+	H+	H+	H+	L	H+	H+		H+	H+	H+
14																
15																
		Establishment of vegetation cover.														
16																
		Removal of all temporary & demolition of all permanent structures (Section 44 of the MPRDA).														
16																
		Rehabilitation of all access roads, compacted areas, etc.														

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 2 – 2. (1)(h)(g)(vi)

I. Introduction:

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

IMPACT ASSESSMENT

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

ACTIVITIES:

1. Access Roads (Existing farm roads to be upgraded)
2. Temporary office, workshops, ablution facility, water tanks, diesel tanks and other Temporary buildings
3. Prospecting equipment (conveyor, drum screen, 14 feet washing pan, generator)
4. Stockpiles
5. Overburden dumps
6. Opencast and test pits & trenches (as part of bulk sampling)
7. Tailings dam (porrel dam)

II. Environmental Impact Assessment Summary:

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

Environmental aspect	Affected		Not affected
	Negligible	Substantial	
1. GEOLOGY		X	
2. TOPOGRAPHY	X		
3. SOIL		X	
4. LAND CAPABILITY		X	
5. LAND USE	X (Only 0,96 ha will be effected over a 5 year & 3 months period in total)		
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**

Prospecting will be a new land use over this area. The site that is earmarked for prospecting represents $\pm 0.048\%$ of the total area applied for. And it is further not foreseen that prospecting activities would disturbed an area of not more than 0,1ha at any given time. The rest of the terrain would continue to be used for agriculture purposes by the landowner.

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

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

Explanation of **probability** of impact occurrence

Probability of	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	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	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.

Table 8: Describes and evaluates the effects of the different prospecting projects and the associated activities

ASPECT	IMPACTS				CUMULATIVE IMPACTS
1. GEOLOGY					
Nature of the impact	The geology will be destroyed during the opencast prospecting operation. During operation which will be for the next 5 years and 3 months, the mineral resource (<i>Alluvial Diamonds</i>) will be extracted. Waste rock material/overburden material is disposed off/backfilled in existing excavations as part of the prospecting process.				
Extent	Site				Activity causing the impact
Duration	Permanent				An opencast prospecting method will be used to extract bulk samples. Therefore the original geology will be totally destroyed.
Probability	Definite				
Significance	High				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
	X	X	X		

ASPECT	IMPACTS				CUMULATIVE IMPACTS
2. TOPOGRAPHY					
Nature of the impact	<p>* Change in landform :</p> <p>* The prospecting site is situated over <u>level plains with some relief</u>.</p> <p>* Disturbance of the surface drainage:</p> <p>The prospecting of the (<i>Alluvial Diamonds</i>) deposits will result in the creation of 100 test pits (2m x3m x ± 2,5m deep) during Phase 2, and 15 trenches (10 m x 60 m x ± 3.5 m or less) during Phase 3, that act as depressions in the environment that captures run-off. Prospecting activities will be concentrated as indicated on Figure 3 on the application area (approximately 3 m depth).</p> <p>Normal surface drainage will be disturbed at a given point.</p> <p>Run-off if any will be diverted away from the specific site.</p> <p>All prospecting activities will be kept 100 m horizontally from any surface water feature (pans, streams).</p>				
Extent	Site				Activity causing the impact
Duration	Short				Bulk sampling trough trenches, etc.
Probability	Definite				
Significance	High				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
	X	X	X	X	

3.1 SOIL	IMPACTS				CUMULATIVE IMPACTS
Nature of the impact	The surface area is characterized by various soil depths. Any construction of infrastructure should be preceded by the removal of all available topsoil.				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	X		

3.2 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. Some areas already disturbed thus no topsoil. All prospecting activities will be concentrated on the identified prospecting focus area where (<i>Alluvial Diamonds</i>) deposits could be found. In the same time a certain surface area is therefore alienated. The active prospecting surface area (alienated) would be restricted within the 0.96 ha (in relation to area of application of the prospecting right of 2045.3 hectares) for the next 5 years and 3 months.				Activity causing the impact Site preparation for additional prospecting sites and the construction, operation of listed infrastructure.
Extent	Site				
Duration	Short				
Probability	High				
Significance	Moderate				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
	X	X	X	X	

ASPECT	IMPACTS				CUMULATIVE IMPACTS
3.3 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
Probability	Very low				
Significance	Low				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
	X	X	X	X	

ASPECT	IMPACTS				CUMULATIVE IMPACTS
3.4 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	X	

ASPECT	IMPACTS				CUMULATIVE IMPACTS
3.5 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	X		

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ASPECT	IMPACTS				CUMULATIVE IMPACTS
3.6 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 CAPABILITY					
Nature of the impact	Temporary loss of land capability to support grazing. The small area where the active prospecting activities occur (trenches, tailings dumps, stock piles, prospecting equipment) etc. will thus be temporary alienated, until the area is rehabilitated. All trenches would be rehabilitated as part of the prospecting process during which trenches are back-filled. If the old areas be re-worked this will make more land available for grazing. The rest of the application area will still be used by the landowner as agricultural land.				
Extent	Site				Activity causing the impact
Duration	Long				Site preparation for additional prospecting sites and the construction, operation of listed infrastructure, the land capability of the active prospecting area will be totally destroyed.
Probability	Definite				
Significance	Moderate				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
	X	X	X	X	

ASPECT	IMPACTS				CUMULATIVE IMPACTS
5. LAND USE					
Nature of the impact	This is a new prospecting operation and therefore the land use to support grazing on a certain portion of the 2045.3 hectares during the next 5 years will be lost. Only a small portions of land (0.96 ha) would be affected by the prospecting operation relation to the total prospecting right application area of 2045.3 hectares. All trenches would be rehabilitated as part of the prospecting process during which excavations are back-filled.				
Extent	Site				Activity causing the impact
Duration	Short				Site preparation for prospecting 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	X		

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ASPECT	IMPACTS				CUMULATIVE IMPACTS
6.1 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	Short				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
Probability	Definite				
Significance	High				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
	X	X	X	X	

ASPECT	IMPACTS				CUMULATIVE IMPACTS
6.2 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	X		

ASPECT	IMPACTS				CUMULATIVE IMPACTS
6.3 VEGETATION					
Nature of the impact	Dust coverage of plants.				None
Extent	Site				Activity causing the impact
Duration	Short				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	X		

ASPECT	IMPACTS				CUMULATIVE IMPACTS
7.1 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	X		

ASPECT	IMPACTS				CUMULATIVE IMPACTS
7.2 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	X		

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ASPECT	IMPACTS				CUMULATIVE IMPACTS
7.3 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	X	

ASPECT	IMPACTS				CUMULATIVE IMPACTS
8.1 SURFACE WATER					
Nature of the impact	<u>Increased silt load</u> 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 prospecting area.
Probability	Moderate				
Significance	Moderate				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
	X	X	X	X	

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

ASPECT	IMPACTS				CUMULATIVE IMPACTS
8.3 SURFACE WATER					
Nature of the impact	<u>Change in surface water quantity</u> Water management area (10) Lower Vaal 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 km ²). The streams only seem to carry standing water during heavy rainfall events. It is not expected that 0.96 ha prospecting sites in total will have any effect on the surface run-off in the drainage catchment area (C91A).				

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	Standing water in pits & trenches could as the result of rain/ surface run-off ending up in shallow depressions. All prospecting activities should be kept 100 meter horizontally away from this surface water body (pans, streams).				
Extent	Site				Activity causing the impact
Duration	Short				It is an operational objective to contain or divert all surface run-offs from the active prospecting trenches 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	X		

ASPECT	IMPACTS				CUMULATIVE IMPACTS
8.4. SURFACE WATER					
Nature of the impact	<u>Surface Water Quantity Use</u> No surface water abstraction will take place.				
Extent	Site				Activity causing the impact
Duration	Short				Opencast prospecting operation.
Probability	Low				
Significance	High				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
	X	X	X	X	

ASPECT	IMPACTS				CUMULATIVE IMPACTS
9.1 GROUND WATER					
Nature of the impact	<u>Reduction of groundwater quality</u> Prospecting activities are not likely to impact on local ground-water quality. No chemicals are used during the prospecting 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	X	

ASPECT	IMPACTS				CUMULATIVE IMPACTS
9.2 GROUND WATER					
Nature of the impact	Water supply will be transported in with tankers to the site. There are boreholes on the application area used for stock watering by the landowner as well as and domestic use. The applicant intends NOT TO USE WATER from these current boreholes but rather transport water via tanker to site for prospecting use. The water uses will be 100m³ a day for the primary processing in the bulk sampling phase.				Activity causing the impact Opencast prospecting operation.
Extent	Site				
Duration	Short				
Probability	Low				
Significance	High				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
	X	X	X	X	

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ASPECT	IMPACTS				CUMULATIVE IMPACTS
10. AIR QUALITY					
Nature of the impact	Dust will be generated during the prospecting operation (loading with an excavator on to a dump truck) and transportation to the plant (conveyor, drum screen & washing pans) and on gravel/dirt/farm roads. The processing of the gravel is a wet process and therefore minimum dust is generated.				
Extent	Site				Activity causing the impact
Duration	Short				Initial construction work with regard to infrastructure (roads) that involves earth moving equipment. During the phase 2 & 3, dust could be generated as indicated during prospecting.
Probability	Moderate				
Significance	Moderate				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
	X	X	X	X	

ASPECT	IMPACTS				CUMULATIVE IMPACTS
11. NOISE					
Nature of the impact	Noise will be generated during the prospecting operation (loading with an excavator on to a dump truck) and transportation to the plant (conveyor, drum screen & washing pans). The application area 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	Short				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	X	

ASPECT	IMPACTS				CUMULATIVE IMPACTS
12. ARCHAEOLOGICAL AND CULTURAL SITES					
Nature of the impact	The terrain is not archaeologically vulnerable. It is unlikely that the proposed development will result in any significant archaeological impact at the site. No graves were identified on site.				
Extent	Site				Activity causing the impact
Duration	Short				
Probability	Definite				
Significance	High				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
	X	X			

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ASPECT	IMPACTS				CUMULATIVE IMPACTS
13. SENSITIVE LANDSCAPE					
Nature of the impact	All prospecting activities must be kept 100 m horizontally away from this any stream or pan.				
Extent	Site				Activity causing the impact
Duration	Short				No activities will take within 100 m of the pan.
Probability	Definite				
Significance	High				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
	X	X	X		

ASPECT	IMPACTS				CUMULATIVE IMPACTS
14.VISUAL ASPECTS					
Nature of the impact	Prospecting will only be visible to landowners, neighbours and people traveling on the local gravel roads.				
Extent	Site				Activity causing the impact
Duration	Short				Diamond prospecting operation.
Probability	Definite				
Significance	Low				
Phase responsible for the impact	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 (including manager) 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 prospecting 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 Wolmaransstad already created by industry and prospecting.
Extent	Local				Activity causing the impact
Duration	Long				Additional employment opportunities created.
Probability	Definite				
Significance	High				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
	X	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 0.96ha that will not be available for agricultural activities over a period of 5 years and 3 months.				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					
Nature of the impact	Impact of activities on I&AP's Temporary loss of utilization of the prospecting focus areas for agricultural purposes. The long-term benefits far out-weight the current benefits from the current use. 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	Short				
Probability	High				
Significance	High				
Phase responsible for the impact	Phase 1	Phase 2	Phase 3	Closure	
	X	X	X	X	

vii) **The positive and negative impacts that the proposed activity 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 2 – 2. (1)(h)(g)(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.

There is not an alternative with regards to the position of the test pits (Phase 2). It will not be a static operation, the test pits will be made on a grid basis of 100m x 100m over the whole of the application area and where necessary 50m x 50m where the gravel outcrops. There is not an alternative for the location as this is the specific area where the applicant believes minerals can be found. The test pits will be made with a 30 ton excavator in order to demine if any diamond bearing gravel does occur. The pits will be (3m x 2m x ± 2.5m deep) in order to determine the depth and boundaries of the gravel. These boundaries will be surveyed and mapped in order to determine where the bulk samples will be taken. Each test pit will be examined and closed immediately before moving to the next one. It is envisage that 100 test pits will be done.

After the test pits phase (Phase 2) are completed can the applicant determine where more comprehensive testing of the gravel need to be done. Thus trenching (Phase 3) will be used over specific area as identified during Phase 2. In order to determine if the gravel does have diamonds the gravel needs to be taken out and tested, by putting it through the washing process. Trenching will be used to open the gravel in order to get a representative sample for testing. The 15 trenches will be 10 x 60 x ± 3.5 m (deep). In one trench ± 2'500m³ (2400 ton) gravel will be exposed and tested with 1 x 14 feet washing pans at a rate of 6m³ (10 ton) a hour. The total prospecting area is 2'045.3241 hectares , thus it is anticipated that a total of 32'000 m³ (35'000 tons) will be tested by making trenches on different locations over the whole prospecting area, where the possibility of diamond bearing gravel were identified with the test pits. Taken at an 8 hour working day, 5 days a week and 20 days a month, the applicant will be able to process 960m³ a month. The processing of 32'000m³ will take about

33 months for Phase 3. The only alternative will be whether what method of processing to be used, wet puddle out of the pans, into open excavations (wet method) or puddle dam (dry tailings method).

The applicant, FJ FOURIE has opted for the wet puddle method as this ensure that excavations are backfilled with wet puddle and overburden concurrent with operations. Thus no separate processing area is needed. And no open voids that are left open. The washing pan is positioned next to the open trench and wet puddle flow back directly into the open excavation. Where after overburden is also pushed back and after the wet puddle has dried out sufficiently to make it safe to drive over the trenches will be leveled and topsoil will be replaced. This method ensures that concurrent rehabilitation is done and the applicant does not have to drive over long distances with overburden. It also ensure that there will be no long terns residual impact to the environment with a slimes dam that is left and which in turn becomes part of the environment.

The footprint of the actual disturbance on site does have the alternative where the puddle can be deposited onto a puddle dam or back into the excavations whereby the latter will have a smaller footprint. The puddle dam method however can lead to quicker rehabilitation and re-use of the land for grazing as the excavations are backfilled with dry material and immediately rehabilitated. The usage of a puddle dam (Dry method) can have a positive impact on the environment as the excavations can be rehabilitated and grassed on a concurrent immediate basis. The usage of wet method will have a smaller footprint but it will take longer to fully rehabilitate and go back to grazing.

On geographical the dry method, it will be a little bit more negative as there will be a sloped area of 2 -3m high with closure. With wet method it will be flat. On heritage and cultural aspects there will be no effect of either of the methods. On biological the both the methods will be equal with very limited effects. On economical the dry tailings will have a bigger capital expense but as the rehabilitation can be finished quicker it will be financially better. On social aspect both these methods will have similar impacts as the same amount of workers will be used.

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 prospecting right is being applied for the sole purpose of prospecting (Alluvial Diamonds). The no-go option entails the continuation of the current land use (mainly natural grazing) on the study site. The project will contribute towards providing jobs for current staff. Should the proposed project therefore not be authorized to proceed, it is anticipated that current employment opportunities will be terminated. 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.

It is further foreseen that with responsible rehabilitation the agricultural land can again be utilized as grazing as it was pre-prospecting.

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 2 – 2. (1)(h)(g)(viii)

Refer to the results of consultation contained as **Appendix 2** for the issues that were raised by I&AP's and stakeholders during the review period of the Consultation phase, as well as the response to those issues made by the Environmental Assessment Practitioner.

There were no issues raised by any interested or affected parties or any one that was consulted. Up till now no comments were received from the State Departments, if comments still be received it will be addressed in the EIA.

The mitigation measures and technical management action plans which address potential impacts are discussed below:

Environmental Component	Geology
Environmental Management/Mitigation Measures/Action Plans/Commitments	
<ul style="list-style-type: none"> No mitigation exists except to backfill the excavations (pits & trenches) with the rock waste material and fine tailings. As prospecting 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 prospecting of the mineral resource (<i>Alluvial Diamonds</i>) should take place. Optimal utilization of the mineral resource should take place within the boundaries of the prospecting 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 prospecting would take place in a particular section or which might still be traversed by vehicles and disturbed in the process. Cognisance should be taken of the fact that bulk sampling would take place by means of an opencast prospecting method until such level is reach / cut-off point is reach where rehabilitation could begin. Care must be taken that the removal of (<i>Alluvial Diamonds</i>) deposits by means of earthmoving equipment is restricted to what is really necessary to achieve the objective. 	
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 pits & 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 bulk sampling excavation areas should be controlled. The active bulk sampling area should be fenced off. The necessary warning signs should be put in place. All prospecting 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>Prospecting would be done according to a definite PWP (only disturbing an area that is really necessary). As part of the PWP the handling of tailings material, overburden material, construction of dumps and back-filling of trenches should also form part of it.</p> <p>Rehabilitation of the new topographical landscape in such a way that it would blend in with the surrounding landscape and allow normal surface drainage to continue. As soon as a section of the prospecting 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 and old disturbances 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	
Handling of topsoil as a natural resource: Any future expansion of the trenches or construction of infrastructure should be preceded by the removal of <u>all available topsoil</u> . The surface of any new areas to be disturbed must be kept to a minimum. <u>All available topsoil/overburden material should be removed and stockpiled for rehabilitation purposes.</u>	
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.	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
The topsoil removed in the site preparation process should be replaced during the rehabilitation exercise.	

Environmental Component	Soil (soil compaction)
Environmental Management/Mitigation Measures/Action Plans/Commitments	
Soil compaction: The prospecting 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. Prospecting & rehabilitation should be done in a well-planned manner (according to a PWP) 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.	
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 prospecting terrain, including roads.	

EIAr /EMPr - [F J FOURIE - Commissies Rust 234 HO (Portion 1); Leeuwbosch 236 HO (Portion 3(-/-1), Portion 4 (-/-2), Portion 5 (-/-2), Portion 6 (-/-2), Portion 8 (-/-4) - NW 30/5/1/1/2/13317 PR]

Environmental Component	Soil (Soil erosion)
Environmental Management/Mitigation Measures/Action Plans/Commitments	
Soil Erosion: To take preventive steps against land disturbance like erosion. Implement and maintain cut-off trenches/berms to prevent erosion. 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.	
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	
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 concrete floor or over PVC lined area in an area allocated for that. Training w.r.t pollution hazards and their impact on the environment must be given as part of induction training. An incidence register for this purpose must be kept. Drip trays must be available and used where emergency repairs is done.	
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	
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 prospecting 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.	
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.	

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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 prospecting site only. Remove topsoil where it is available. Take care that roads needed are restricted to one entry to the area for prospecting purposes. If new land is used for roads to enter the area it must be done in consultation with the surface owner. All rehabilitation will be done according to the final rehabilitation plans after approval by the Department of Mineral Resources (DMR). Topsoil will be placed in areas where it was removed and the areas will be re-vegetated accordingly. Ensure that the rehabilitation plan is implemented.</p>	
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 prospecting site only. Remove topsoil where it is available. Take care that roads are the only areas used to enter the area for prospecting 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	
The opencast section requires the land to be totally disturbed. The replacement of tailings material, overburden and topsoil would ensure that the land is able to support some grazing.	

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Environmental Component	Vegetation
Environmental Management/Mitigation Measures/Action Plans/Commitments	
No mitigation exists except to replace the vegetation by reseeded of grasses and natural growth. Prospecting should be done in a well-planned manner (according to a PWP) and in the process ensuring that activities are only restricted to surface areas really required.	
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 prospecting site exposed surfaces, tailings dumps, etc.).	

Environmental Component	Vegetation
Environmental Management/Mitigation Measures/Action Plans/Commitments	
Habitat change, loss of species, spread of alien and invasive species: No mitigation exists except to replace the vegetation by reseeded of grasses. Prospecting should be done in a well-planned manner (according to a PWP) 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 implemented by the mine.	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
No invasive and alien species must be present after closure. A post-closure control program must also be implemented.	

Environmental Component	Vegetation
Environmental Management/Mitigation Measures/Action Plans/Commitments	
Ensure that all roads on the prospecting site (utilized by prospecting 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.	

EIAr /EMPr - [F J FOURIE - Commissies Rust 234 HO (Portion 1); Leeuwbosch 236 HO (Portion 3(-/-1), Portion 4 (-/-2), Portion 5 (-/-2), Portion 6 (-/-2), Portion 8 (-/-4) - NW 30/5/1/1/2/13317 PR]

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 prospecting 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 prospecting. 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	
Make game catching, traps, snares, poaching and any other unnecessary disturbance of animals a disciplinary offence. All staff must undergo basic environmental awareness lecture during induction training. Machine operators and drivers to undergo appropriate level of environmental impact training to ensure they understand their impact on the environment. Ensure all staff working on the opencast section undergo basic lecture during induction phase. Introduce the actions as listed above into disciplinary code as offence.	
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: Storm water control measures must be implemented to divert clean water away from the active prospecting site and keep contaminated water contained. Water control structures must be well designed and constructed to ensure a minimum down wash of topsoil. Vegetation disturbance must be as little as possible. The PWP must be strictly adhered to. Re-vegetation to be done as quickly as possible. Final re-vegetation to be done as per rehabilitation plan. All prospecting activities must be kept 100 meters horizontally away from any surface water body (exiting pan).</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. 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 prospecting 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. Vehicles to be inspected to ensure no oil and hydraulic fluid leaks occur. All oil spills on soil to be removed and bio-remediate immediately. No servicing of vehicles must occur except at the workshops. Training w.r.t pollution hazards and their impact on the environment must be given as part of induction training. Storage of fuel and oil should be done according to best practices, within a bunded area and in containers of which the integrity is sound. The prospecting processes will not introduce any harmful or toxic substances and the most likely sources of pollution to the groundwater system would be associated with the infrastructure and / or workshop area. The most likely contaminants is therefore nitrate and bacteria (from sewage / pit latrines), as well as hydrocarbons (from vehicle accidents, diesel storage and the workshop area). An incidence register for this purpose must be kept. Drip trays must be available and used where emergency repairs is done. All waste must be stored according to best practices and disposed at an authorized waste disposal facility.</p>	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
Post water quality need to indicate a positive trend/improvement.	

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Environmental Component	Ground Water (quantity)
Environmental Management/Mitigation Measures/Action Plans/Commitments	
In the case of the use of borehole water (although the intention is not use it) : Reduction of groundwater quantity, lowering of groundwater level: Water levels in the boreholes that are used for prospecting activities should be recorded monthly. Water volumes should be recorded continuously to ensure compliance with the water use authorization for abstraction.	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
Post water quality need to indicate a positive trend/improvement.	

Environmental Component	Air Quality
Environmental Management/Mitigation Measures/Action Plans/Commitments	
Dust: The prospecting method will serve as mitigation measure because prospecting will limit dust to the active prospecting 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.	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
Dust count must be the same as before prospecting. Rehabilitation of the bulk sampling site would ensure that no dust is generated from exposed surfaces.	

Environmental Component	Noise
Environmental Management/Mitigation Measures/Action Plans/Commitments	
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.	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	
No noise attributed to prospecting 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.	

Environmental Component	Archaeological and Cultural Sites
Environmental Management/Mitigation Measures/Action Plans/Commitments	
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. All excavator operators must be sensitized as to identify and report any occurrence of such sites of artefacts. No activities should take place 20 m from the site.	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	

EIAr /EMPr - [F J FOURIE - Commissies Rust 234 HO (Portion 1); Leeuwbosch 236 HO (Portion 3(-/-1), Portion 4 (-/-2), Portion 5 (-/-2), Portion 6 (-/-2), Portion 8 (-/-4) - NW 30/5/1/1/2/13317 PR]

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	
Pans & streams: - All prospecting activities must be kept 100 meters horizontally away from it.	
EMP Performance Assessment & Monitoring Reporting	
To be included in EMP/EIA.	
Closure Objective	

Environmental Component	Visual Aspects
Environmental Management/Mitigation Measures/Action Plans/Commitments	
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 prospecting activities progress.	
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 prospecting 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	
Access control should always be a priority. Active prospecting site should be fenced off and also any deep water holes. If any problem should arise, meetings will be held with the landowners and affected parties to consult them on certain matters like permission to prospect and pollution. No prospecting should be conducted under or near Eskom power line (10 m distance should be kept) (Permission of Inspector of Mines should be obtained.)	
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.	

ix) The outcome of the site selection Matrix. Final Site Layout Plan

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 2 – 2. (1)(h)(g)(ix)

As this is a prospecting application there will never be a final site layout as this will not be a static operation. The excavator will be moving over the application area on a grid basis in order to survey the entire prospecting area. Once phase 2 is completed and more in-depth investigation is necessary the trenches will be made, samples tested, backfilled and washing plant will be moved to the next position. Please see **Appendix 1(b)** for more detail.

As this is a prospecting operation of the whole of the application area (2'045.3241 ha) will have to be geologically surveyed in order to determine where economical viable mining sites could be located. It will also not be a static operation as the whole area will eventually be sampled and analysed.

x) Motivation where no alternative sites were considered

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 2 – 2. (1)(h)(g)(x)

Alternative is not applicable. The current land use is grazing by cattle and cultivation of maize crops. The option to explore the possibility for prospecting is not an alternative land use, as previous mining/prospecting has already taken place over certain areas. The applicant, F. J. FOURIE, is not interested in any other alternative land use over this land aside for exploration of the said minerals, or any other activity, or method use other than prospecting 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.

There is not an alternative for the location as this is the specific area where the applicant believes minerals can be found. The only alternative will be whether what method of processing to be used, puddle into the pans (wet method) or puddle dam (dry tailings method). The footprint of the actual disturbance on site does have the alternative where the puddle can be deposited onto a puddle dam or back into the excavations whereby the latter will have a smaller footprint. The puddle dam method however can lead to quicker rehabilitation and re-use of the land for grazing as the excavations are backfilled with dry material and immediately rehabilitated.

The applied area is the specific area need for prospecting thus no alternative. The whole of the application will be prospected, but on a grid basis, thus it will only be a small area that will be affected ant any given time. The current land use can thus continue on the rest of the unaffected areas. The current land use is natural grazing. The option to explore the possibility for prospecting is already in itself an alternative land use. The applicant **F J FOURIE** is not interested in any other alternative land use over this land aside for the exploration of the said minerals, or any other activity, or method use other than prospecting for the said minerals in the conversional way, which is the most cost effective.

xi) Statement motivating the preferred site

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 2 – 2. (1)(h)(g)(xi)

The prospecting operation will not be a static operation, the mobile plant will move as prospecting progress, thus the whole application is to determine a potential site for when the mining phase is reached. The feasibility of prospecting the diamond material from an environmental, social and economic perspective also plays a role.

(i) Plan of study for the Environmental Impact Assessment process

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 2 – 2. (1)(i)(h)(a)

i. Description of alternatives to be considered including the option of not going ahead with the activity

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 2 – 2. (1)(i)(h)(a)(i)

Alternative is not applicable. For this specific project, no alternatives have been investigated. The activities included in this application are determined by the location of the mineral reserves in the study area, and the proposed prospecting method to be employed as was assessed. The current land use is agricultural and is being utilized as grazing for cattle at present by the landowner.

The option to explore the possibility for prospecting is not an alternative land use as previous mining/prospecting has already taken place over some areas. The applicant, **F J FOURIE**, is not interested in any other alternative land use over this land aside of diamonds exploration, or any other activity, or method use other than prospecting for diamonds in the conversational way, which is the most cost effective.

The No-Go option entails the continuation the **current land use (grazing of cattle)** on the application area without exploiting the mineral reserves. The prospecting activities will contribute towards the achievement of providing employment opportunities for members of the surrounding communities, thus aiding socio-economic development. Should the project therefore not be authorized to proceed, the current employment opportunities (8) (manager included) will be terminated. Therefore, the No-Go alternative is not a feasible option in this case, as it suggests that the mineral reserves should not be exploited and current employment opportunities should not be prolonged. Alternative is not applicable for the application area. The current land use is agricultural and is being utilized as mainly natural grazing for cattle by the landowner.

ii. Description of the aspects to be assessed as part of the environmental impact assessment process

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 2 – 2. (1)(i)(h)(a)(ii)

The aspects that will be assessed as part of the proposed project and its area include:

- Geology
- Soil Erosion
- Rehabilitation of previously disturbed areas
- Fauna [Wildlife/Wildlife habitat destruction]
- Changes is surface water quality
- Dust
- Noise
- Archaeological/Cultural Sites

Geology:

(Alluvial Diamonds) deposits will be destroyed during the opencast prospecting operation. During operation which will be for the next 5 years and 3 months, the mineral resource *(Alluvial Diamonds)* will be extracted from gravel deposits. Waste rock material/overburden material is disposed off/backfilled in excavations as part of the backfilling process.

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.

Temporary loss of land capability to support grazing for cattle. The small area (0.5 ha) where the active prospecting activities occur (trenches, tailings dumps, stock piles, prospecting equipment) etc. will thus be temporary alienated, until the area is rehabilitated.

All trenches would be rehabilitated as part of the prospecting process during which trenches are back-filled. The rest of the application area will still be used by the landowner as agricultural land.

Rehabilitation:

This is a new prospecting operation and therefore will lose its land use to support grazing on a certain portion of the **2'024.3 hectares during the next 5 years and 3 months. Only a small portion of land (0.96 ha) would be affected by the prospecting operation relation to the total prospecting right application area of 2'045.3 hectares. All pits & trenches would be rehabilitated as part of the prospecting process during which excavations are back-filled.**

Wildlife or wildlife habitat destruction/change / disturbance:

Increase 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).

Change in surface water quality:

Spillages from vehicles and also surface water run-off that is not adequately diverted away from the active prospecting excavations could end-up in the excavations creating problems regarding water quality and hindering the prospecting process.

Surface run-off from active prospecting sites (overburden dumps & tailings dam/dump) if not adequately contained on site could end-up in the adjacent undisturbed natural veld.

If the natural surface run-off is not adequately diverted in the case of the **dry-water course area**, prospecting sections it could become silted-up.

Dust:

Dust will be generated during the prospecting operation (loading with an excavator on to a dump truck) and transportation to the plant (conveyor, drum screen & washing pans) and on gravel/dirt/farm roads. The processing of the gravel is a wet process and therefore minimum dust is generated.

Noise:

Dust will be generated during the prospecting operation (loading with an excavator on to a dump truck) and transportation to the plant (conveyor, drum screen & washing pans). 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.

Archaeological/Cultural Sites:

The terrain is not archaeologically vulnerable. It is unlikely that the proposed development will result in any significant archaeological impact at the site.

iii. Description of aspects to be assessed by specialists

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix2 – 2. (1)(i)(h)(a)(iii)

As this is only a prospecting application and although the pans and streams should be treated as sensitive areas, all prospecting activities will be kept 100 metres horizontally away from this surface water body. No heritage areas of significance were noted on the application area there will be no specialist studies. All impacts noted will be mitigated.

iv. Proposed method of assessing the environmental aspects including the proposed method of assessing alternatives

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix2 – 2. (1)(i)(h)(a)(iv)

A thorough foot survey and site inspection was done by the EAP and further visit will be done before compiling the EIA. Each aspect was then assessed individually with the 24 year experience of the EAP.

v. The proposed method of assessing duration significance

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix2 – 2. (1)(i)(h)(a)(v)

The assessing of the duration is done on hand of the different phases as described in the Prospecting Works Program (PWP) which is also described under **Point ii) h)**. The significance is assessed from experience and from the actual situation on the specific site. Please see **Point vi)** for detail.

vi. The stages at which the competent authority will be consulted

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix2 – 2. (1)(i)(h)(a)(vi)

Consultation with all competent authorities will be done. The Scoping Report was send to them from the office of the EAP. This will also be done for the EIAr/EMP, whereby a copy of the document will be circulated to all competent authorities and their comment or concerns will be forwarded to DMRE for further attention.

vii. Particulars of the public participation process with regard to the Impact Assessment process that will be conducted

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 2 – 2. (1)(i)(h)(a)(vii)

1. Steps to be taken to notify interested and affected parties.
 - ✓ The landowner and neighbours was consulted personally and through a letter that was given to them by hand.
 - ✓ A site notice was put up at the entrance to the application area.
 - ✓ A notice for the both the Scoping and EMP report was published in the local Stellalander newspaper to inform the general public.
 - ✓ Copies of the Scoping Report (was) and the EMPr/EIA will be circulated to all the competent authorities for comments.

Please see **Table 6** for more detail on public participation process.

2. Details of the engagement process to be followed.

The process as described by NEMA for Environmental Authorization was followed. See **Table 6** for the identification of Interested and Affected Parties to be consulted with. The landowner (Mr FJ Fourie how is also the applicant) and the direct neighbours were consulted personally and through letters that was given to them by hand. The result of this consultation and responses as received are all attached under **Appendix 2**. An advertisement was placed in the local newspaper of Stellalander Newspaper of 4th May 2022 for the Scoping Report and again on the 13th July 2022, see copies of these attached. Notice was put up at the entrance to the application area, where all passers-by are invited to give through their comments of objections toward the proposed application. The Scoping Report was send to all relevant State Departments for evaluation. Comments were only received from DEDECT and were incorporated in this document. See proof of consultation under **Appendix 2**. The Public Participation process is still on going and the documents will be updated as more feedback is received back. The EIAr/EMP was send to all relevant State Departments for evaluation. No comments were received.
3. Description of the information to be provided to Interested and Affected Parties.

A copy of the map, and Prospecting Works Programme and draft EIAr/EMP was handed to the neighbours and landowners. A copy of the Scoping Report was send to the State Departments and a copy of the EMP/EIA will also be circulated to their offices.

viii. Description of the tasks that will be undertaken during the environmental impact assessment process

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 2 – 2. (1)(i)(h)(a)(viii)

Site inspection by foot survey, discussions with applicant and landowner as well as discussions with competent authorities where necessary. Completion of the EIA template.

ix. Measures to avoid, reverse, mitigate, or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored.

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 2 – 2. (1)(i)(h)(a)(ix)

This will be kept in mind with the site inspection where each impact will again be evaluated and the mitigation and management thereof will be confirmed on site. The risk of each impact will be evaluated and if any residual risks the management thereof.

i) Description of process undertaken to identify, assess and rank the impacts, the activities and associated structures and infrastructure will impose on the development footprint

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

(i) & (ii) Description of all environmental issues and risk and assessment of significance of each issue

NAME OF ACTIVITY	POTENTIAL	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE if mitigated
Prospecting for diamonds	1.1 Removal of the alluvial gravel up to 3.5 m. Disturbance of 0.96 hectare at any given time.	Geology & soil	Operational	High -	The impact will be mitigated by backfilling and sloping the sides and stabilizing the soil to prevent erosion	Low +
	1.2 Change in landform. The entire prospecting area will be lowered by 3.5m and normal surface drainage will be disturbed at this specific point. The pit will be backfilled	Topography	Operational and closure	Moderate -	The pit 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 prospecting site in order to prevent surface run-off water on the prospecting 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. Stockpile and plant area of 0.96 hectare at any given time.	Soil	Construction and Operational	Low -	Any area on the prospecting area where disturbance will take place the top soil must be removed and stockpiled for rehabilitation purposes in a demarcated area.	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 preventive steps against erosion. Implement and maintain cut-off trenches and or berms around the prospecting 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 tested. 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 grazing.	Land capability & Land use	Operational and closure	Low-	As this is only a very small area of 0.96 hectare, 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.	

**EIAr /EMPr - [F J FOURIE - Commissies Rust 234 HO (Portion 1); Leeuwbosch 236 HO (Portion 3(-/-1),
Portion 4 (-/-2), Portion 5 (-/-2), Portion 6 (-/-2), Portion 8 (-/-4) - NW 30/5/1/12/13317 PR]**

1.6 Generation of dust by excavating and vehicle movement	Air quality	Operational	Low -	The prospecting method will serve as mitigation measure because it will limit dust to the active prospecting area, where the excavator and trucks operating. Daily spraying of the roads with water.	
1.7 Waste handling, which includes but are not limited to overburden from excavations, domestic waste and hazardous waste	Water & Soil	Construction, Operational & Closure	Low – to Medium-	All overburden generated by the opening up of pits and trenches must be backfilled back into the places it was taken out and in the reverse order it was taken out. Domestic waste must be collected on site and taken off site on a weekly basis. All bid services to vehicles must be done off site. Minor services must be done over PVS sheeting it order to prevent any hazardous fluids ending up in adjacent soils or water ways. Hazardous waste must be collected on site and taken to license hazardous waste disposal sites.	

j) An assessment of each identified potentially significant impact and risk

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

NAME OF ACTIVITY	POTENTIAL IMPACT	(i) CUMULATIVE IMPACTS	(ii) SIGNIFICANCE	(iii) EXTEND AND DURATION	(iv) PROBABILITY OF THE IMPACT OCCURRING	(v) DEGREE TO WHICH IMPACT/RISK CAN BE REVERSED	(vi) DEGREE TO WHICH IRREPLACEABLE LOSS MAY OCCUR	(vii) DEGREE TO WHICH IMPACT/RISK CAN BE MITIGATED
Prospecting for diamonds	1.1 Removal of the alluvial gravel up to 3,5m. Disturbance of 0.96 hectare at any given time.	None	High -	At open excavations 5 years & 3 months	High	Impossible	Not reversible at all	Not mitigated
	1.2 Change in landform. The entire prospecting area will be lowered by 3,5m and normal surface drainage will be disturbed at this specific point. The pit will be backfilled.	Topography on adjacent farms if prospecting is also practised	Moderate -	5 years & 3 months	Moderate	Possible	Partly reversible	Fully Mitigated
	1.3 Stripping of all available topsoil and stockpiled. Stockpile and plant area of 0.96 hectare at any given time.	Localized	Low -	5 years & 3 months	High	Impossible	Partly reversible	Fully Mitigated
	1.4 Soil erosion: Due to the fact that certain surface areas would become devoid of any vegetation cover and compacted this would lead to lesser infiltration of rain water and more run-off that could cause erosion on bare disturbed areas and side slopes.	Localized	Low-	5 years & 3 months	Low	Possible	Reversible	Fully mitigated
	1.5 Land capability and land use. Loss of land to support grazing.	If old disturbances not rehabilitated.	Low-	5 years & 3 months	Low	Possible	Reversible	Full mitigated
	1.6 Generation of dust by excavating and vehicle movement	Air quality	Low -	5 years & 3 months	Low	Possible	Reversible	Fully mitigated.
	1.7 Waste handling, which includes but are not limited to overburden from excavations, domestic waste and hazardous waste.	Water & Soil	Low - to Medium-	5 years & 3 months	Low	Possible	Reversible	Fully mitigated

k) Summary of findings and recommendations of any specialist reports

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

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED.
None required			

The bulk sampling will not be deeper than 3m thus groundwater table will not be intersected. With the site visit there were no environmental sensitive area identified. All the impacts identified can be mitigated and will not be significant. This will only be a prospecting for short period.

l) Environmental impact statement

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

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

The prospecting 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 (*Alluvial Diamonds*) resource will be prospected over a period of 5 years & 3 months. The existing land-use is utilized mainly as natural grazing. This is a small operation (0.96 ha out of 2'045.3241 ha = 0,05 %) and for the next 5 years & 3 months 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 0.5 ha, the top at least 30 cm topsoil need to be removed prior to prospecting of the underlying alluvial gravel (up to 3 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 excavation 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

As this is a prospecting application there will never be a final site layout as this will not be a static operation. The excavator will be moving over the application area on a grid basis in order to survey the entire prospecting area. Once Phase 2 is completed and a more in-depth investigation is necessary the trenches (Phase 3) will be made, samples tested, backfilled and washing plant will be moved to the next position. Attach as **Appendix 1 (b) – Mine Infrastructure and Activity Map.**

(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 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 such a way that it allows the establishment of a grass cover again. The rest of the farm will still be continued to be used for grazing for cattle. Although this is small (*Alluvial Diamonds*) prospecting operation it would also add to the increased economic activity within the farming and exiting mining community around Bloemhof. Jobs for 8 permanent laborers (manager included) 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 Diamonds* deposit dictates the selection of the specific prospecting site.

m) Based on the assessment and where applicable, recommendations from specialist reports, 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 3 – 3. (1)(m)

The main closure objective of F J FOURIE is to rehabilitate the entire prospecting 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) Final proposed alternatives

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

As mentioned before the only alternatives will be the no go option as the application is not interested in any alternative over this property beside for the prospecting for Diamonds. Where is also no a preferred of alternative site selection as this will be a prospecting operation thus the whole of the application area will eventually be prospected.

o) Aspects for inclusion as conditions of Authorisation

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

None

p) Description of any assumptions, uncertainties and gaps in knowledge

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

None

q) Reasoned opinion as to whether the proposed activity should or should not be authorized

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

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 prospecting activities will have no significant impacts on them or their surrounding environment.

Conditions that must be included in the authorization

None

r) Period for which the Environmental Authorization is required

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

5 years & 3 months

s) Undertaking

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

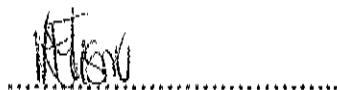
The Environmental Management Programme will, should it comply with the provisions of section 39 (4) (a) of the Act and the right be granted, be approved and become an obligation in terms of the right issued. As part of the proposed Environmental Management Programme, the applicant is required to provide an undertaking that it will be executed as approved and that the provisions of the Act and regulations thereto will be complied with.

UNDERTAKING BY EAP TO THE CORRECTNESS OF THE INFORMATION

UNDERTAKING

I, H.M. Erasmus, the undersigned and duly authorised thereto by DERA Omgewingskonsultante (PTY) Ltd hereby confirm the inclusion of comments from stakeholders, inclusion of specialist recommendations where applicable and all information provided to the interested and affected parties a true reflection of this document.

Signed at Klerksdorp on this day 12th day of August 2022.



Signature of EAP

t) Financial Provision

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

In total there will be 15 trenches ($10\text{m} \times 60\text{m} = 600\text{m}^2$ ($0.06\text{ ha} \times 15$ (trenches) = 0.9 ha) where it is taken on worst case scenario that 15 trenches of 0.9 ha will be open at any given time and 0.5 ha will be used for the plant area, and 100 test pits ($3\text{m} \times 2\text{m} = 6\text{m}^2 \times 100 = 0.06\text{ ha}$). Thus the total opencast rehabilitation area amount to $0.90\text{ ha} + 0.06\text{ ha} = 0.96\text{ ha}$ total disturbance. According to the DME Quantum Calculator (2022) the rehabilitation was calculated to be R 325'030.89. See quantum attached as Appendix 4.

Appendix 4: Quantum Calculation

u) Indicate any deviation from the approved Scoping Report

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

(i) The same methodology was used for determining the significance of the potential environmental impacts and risks with no deviation.

(ii) No deviation.

v) Any specific Information required by the competent Authority

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

No specific information by Authority.

w) 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 3 – 3. (1)(w)

There are no alternatives, as the application area applied for is the area where the applicant believes is potential for alluvial gravel deposits.

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

1) Environmental management programme

a) Details of the EAP

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 4 – 1. (1)(a)

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

Ms HM (Esna) Erasmus

Tel No.: 018-468 5355

Fax No. : 018 011 3760

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

The EAP Ms HM (Esna) Erasmus (maiden name Claase) 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** & **Figure 2** for copies of his qualifications and CV.

b) Description of the Aspects of the Activity

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 4 – 1. (1)(b)

Phase	Activities	Biophysical environment to be impacted upon
2 – Test pits	Clearing of area to be investigated. Stripping of topsoil and vegetation layer. Excavation of overburden. Excavation of underlying mineral and investigation of underlying gravel layer.	<u>Geology</u> – disturbed as a result of the excavation of test pits. Excavation of the mineral sample in order to investigate for presence of mineral applied for. <u>Topography</u> – creation of small heaps, but will be closed up before the excavator move on to the position of the next pit. <u>Topsoil and plant cover</u> to be stripped and stored for rehabilitation. Mixture of soil layers and placing it on side of pit. <u>Air quality</u> - dust accumulation because of earth moving equipment will only be around site. <u>Noise</u> – caused by excavator movement but because of extent of application area this will fade away. <u>Surface water source</u> – will not be affected as long as prospecting activities stay away from these water bodies. <u>Ground water</u> – no impact is anticipated. <u>Wildlife</u> – animal life will move away as a result of the noise associated with excavation of gravel. Small rodents/animals may be affected if their nesting habitats are over the areas to be excavated.
3 – Trenching	Clearing of area to be investigated. Stripping of topsoil and vegetation layer. Excavation of overburden. Excavation of underlying mineral and investigation of underlying gravel layer.	<u>Geology</u> – disturbed as a result of the excavation of trenches. Excavation of the mineral sample in order to investigate for presence of mineral applied for. <u>Topography</u> – creation of overburdens heaps, but will be closed up before the excavator move on to the position of the next trench. <u>Topsoil and plant cover</u> to be stripped and stored for rehabilitation. Mixture of soil layers and placing it on

		<p>side of pit. This layer must be used as final layer after backfilling because it terrain the seed mixture that will help with re-establishment of vegetation layer.</p> <p><u>Air quality</u> - dust accumulation because of earth moving equipment will only be around site. Cause by excavation of topsoil and subsoil layers. Movement of prospecting vehicle and equipment.</p> <p><u>Noise</u> - caused by excavator movement but because of extent of application area this will fade away.</p> <p><u>Surface water source</u> - will not be affected as long as prospecting activities stay away from these water bodies. Possible pollution by domestic and hazardous waste if it is not collected/stored responsibly and removed for site on a regular basis.</p> <p><u>Ground water</u> - water will be required for dust suppression on prospecting roads and are required as part of the washing process to test the mineral. Water will be pump back into open trenches as part of the wet tailings (puddle). There will be no chemical used as part of the washing process. The water that will be used will result in the fine being suspended solids, but this will be pumped back into the excavations as part of backfilling. It will settle and together with the water will actually promote re-vegetation in these dry arid areas. Possible pollution by domestic and hazardous waste if it is not collected/stored responsibly and removed for site on a regular basis.</p> <p><u>Wildlife</u> - animal life will move away as a result of the noise associated with excavation of gravel. Small rodents/animals may be affected if their nesting habitats are over the areas to be excavated. Prospecting machine operators need to be sensitizing to habitats and move position of trenches in order to accommodate and safe nesting habitats of animals.</p> <p><u>Land- use /capability</u> - will be affected over the areas where trenches area made and will be unavailable for agricultural practices till such time as the area have been rehabilitated and vegetation cover has re-establish. This will represent about 0,05 ha of application area at any given time.</p> <p><u>Visual impact</u> - prospecting activities will only really be visible to the landowner and perhaps to neighbours if prospecting activities come with sight of the boundary fences.</p>
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c) Composite Map

In term of NEMA - EIA Regulations No. 326 of 7 April 2017 - Reg. 21, Appendix 4 - 1. (1)(c)

As this is a prospecting application there will never be a final site layout as this will not be a static operation. The excavator will be moving over the application area on a grid basis in order to survey the entire prospecting area. Once phase 2 is completed and more in-depth investigation is necessary the trenches (Phase 3) will be made, samples tested, backfilled and washing plant will be moved to the next position. Attach as **Appendix 1 (b) - Mine Infrastructure and Activity Map.**

d) Description of Impact management objectives including management statements

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 4 – 1. (1)(d)

i) Planning and design

The main closure objective of **F J FOURIE** is to rehabilitate the entire prospecting 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. The application area, which is un-disturbed all available top soil will be stripped and stockpiled.

F J FOURIE 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.

F J FOURIE 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 (*Diamonds Alluvial*);
- ✓ Ensure that the prospecting 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) Pre-construction activities

Clearing of vegetation and stockpiling of top soil

iii) Construction activities

F J FOURIE will ensure that the Operation/Sites are:

- ✓ Neither a danger to public health and safety nor to animal health and safety;
- ✓ Not a source of any pollution;
- ✓ Stable (ecological and geophysical);
- ✓ Rehabilitated to the state that is suitable for the predetermined and agreed land use;

- ✓ Compatible with the surrounding biophysical environment;
- ✓ A sustainable environment;
- ✓ Aesthetically acceptable;
- ✓ Not an economic, social or environmental liability to the local community or the state now or in the future.

iv) **Rehabilitation of environment after construction and post closure**

The main closure objective of F J FOURIE is to rehabilitate the entire prospecting 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. The application area, which is un-disturbed all available top soil will be stripped and stockpiled. **See tables under subsection (v) specifically dealing with rehabilitation/closure and rehabilitation plan.**

v) **If relevant, operational activities**

The "Environmental Management/Mitigation Measures/Action Plans/Commitments" and "Measures to rehabilitate the environment" affected by the undertaking of any prospecting listed activity are spelled out in detail per listed environmental component that could be affected and that should be managed in order to minimize impacts during operations in order to obtain sustainable closure over these aspects. Also included is a **Rehabilitation Plan** for more detail of what should be done. **See tables below with details with regard to above (section: "Rehabilitation/Closure" with regard to specific closure objectives that need to be obtained).**

All these Environmental Management/Mitigation Measures/Action Plans/Commitments" and "Measures to rehabilitate the environment" are applicable to the whole of the application area in order to address possible environmental impacts from the prospecting activities.

Although the prospecting area is 2045.3241 hectares, in total the whole surface will not be disturbed by pits and trenches. The surface area to be disturbed is as follows:

* Surface area of 1 test pit = 6m²

Total surface area to be disturbed by 100 test pits is only: 6 x 100 = 600m² = 0,06 ha.

* Surface area of 1 trench = 10 m X 60 m = 600m²

Total surface area to be disturbed by 15 trenches is only: 0.06 ha x 15 = 0.90 ha.

The Grand total of: 0.96 ha = This is only 0.05 % of the total application area surface of 2045,3241 hectares.

The mitigation measures and technical management action plans which address potential impacts are discussed below:

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 (puddle). • As prospecting 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 prospecting of the mineral resource (Alluvial Diamonds) should take place. • Optimal utilization of the mineral resource should take place within the boundaries of the prospecting 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 prospecting would take place in a particular section or which might still be traversed by vehicles and disturbed in the process. Cognisance should be taken of the fact that bulk sampling would take place by means of an opencast prospecting method until such level is reach / cut-off point is reach where rehabilitation could begin. • Care must be taken that the removal of (Alluvial Diamonds) deposits by means of earthmoving equipment is restricted to what is really necessary to achieve the objective. 	
Rehabilitation/ Closure:	
<ul style="list-style-type: none"> * Concurrent backfilling of the excavations (pits and trenches) with the rock waste material (overburden) and fine tailings (puddle). * The impact will be mitigated by backfilling and sloping the sides of the excavation and stabilizing the soil to prevent soil erosion. * The side of pit will be sloped and the soil stabilized to prevent erosion. * Rehabilitation of the new sloped landscape in such a way that it would blend in with the surrounding landscape. 	
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 (puddle) material and eventually overburden material, covered with a shallow layer of topsoil (if available). • Access to all active bulk sampling excavation areas should be controlled. The active bulk sampling area should be fenced off. The necessary warning signs should be put in place. All prospecting 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 overburden dumps in order to prevent the loss of growth medium on top of the dumps. <p>Prospecting would be done according to a definite PWP (only disturbing an area that is really necessary). As part of the PWP the handling of tailings material (puddle), overburden material, construction of dumps and back-filling of trenches should also form part of it.</p>	
Rehabilitation/ Closure:	
<ul style="list-style-type: none"> • All trenches should be back-filled with waste tailings (puddle) material and eventually overburden material, covered with a shallow layer of topsoil (if available). • 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 prospecting site would not be explored anymore it should be rehabilitated (planned and phased manner). 	
Closure Objective	
Rehabilitation of the new disturbances 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 trenches or construction of infrastructure should be preceded by the removal of <u>all available topsoil</u>. The surface of any new areas to be disturbed must be kept to a minimum. <u>All available topsoil/overburden material should be removed and stockpiled for rehabilitation purposes.</u></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 kept next to open excavations for easy backfilling and rehabilitation.</p>	
Rehabilitation/ Closure:	
Closure Objective	
The topsoil removed in the site preparation process should be replaced during the rehabilitation exercise.	

Environmental Component	Soil (soil compaction)
Environmental Management/Mitigation Measures/Action Plans/Commitments	
<p>Soil compaction: The prospecting operation should only be restricted to what is really required (demarcated area of exploitation) within the fenced-off area.</p> <p>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.</p> <p>Prospecting & rehabilitation should be done in a well-planned manner (according to a PWP) and in the process ensuring that activities are only restricted to surface areas really required.</p>	
Rehabilitation/ Closure:	
<p>Compaction of soil surface areas would be alleviated once rehabilitation of certain area starts.</p> <p>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>	
Closure Objective	
Alleviation of compaction of soils would be done during rehabilitation of the prospecting 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>	
Rehabilitation/ Closure:	
<p>Re-vegetation of exposed soil surfaces (man-made surfaces such as tamps 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>	

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	
Potential for soil contamination: Vehicles to be inspected to ensure no oil and hydraulic fluid leaks occur. No servicing of vehicles must occur except on a concrete floor or over PVC lined area in an area allocated for that. Training w.r.t pollution hazards and their impact on the environment must be given as part of induction training. An incidence register for this purpose must be kept. Drip trays must be available and used where emergency repairs is done.	
Rehabilitation/ Closure:	
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).	
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	
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 prospecting area is allowed due to soil compaction that may occur.	
Rehabilitation/ Closure:	
The soil must also be compacted as backfilling is done. Use organic material e.g. manure to restore the soil structure during rehabilitation (if available). Ensure that the rehabilitation plan makes provision for ripping of roads and spreading of organic material and that this is used during rehabilitation.	
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	
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.	
Rehabilitation/ Closure:	
See above section: Soil fertility : Environmental Management/Mitigation Measures/Action Plans/Commitments	
Closure Objective	
The soil must be fertile enough to sustain vegetation.	

Environmental Component	Land Capability
Environmental Management/Mitigation Measures/Action Plans/Commitments	
The disturbance of land must be restricted (kept to a minimum) to the planned fenced-off, active prospecting site only. Remove topsoil where it is available. Take care that roads needed are restricted to one entry to the area for prospecting purposes. If new land is used for roads to enter the area it must be done in consultation with the surface owner.	
Rehabilitation/ Closure:	
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.	
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	
The disturbance of land must be restricted (kept to a minimum) to the planned active, fenced-off prospecting site only. Remove topsoil where it is available. Take care that roads are the only areas used to enter the area for prospecting purposes. If new land is used for roads to enter the area it must be done in consultation with surface owner.	
Rehabilitation/ Closure:	
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.	
Closure Objective	
The opencast mining requires the land to be totally disturbed. The replacement of tailings material, overburden and topsoil would ensure that the land is able to support some grazing.	

Environmental Component	Vegetation
Environmental Management/Mitigation Measures/Action Plans/Commitments	
No mitigation exists except to replace the vegetation by reseeding of grasses and natural growth. Prospecting should be done in a well-planned manner (according to a PWP) and in the process ensuring that activities are only restricted to surface areas really required.	
Rehabilitation/ Closure:	
Replace the vegetation by reseeding of grasses and natural growth.	
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 prospecting site exposed surfaces, tailings dumps, etc.).	

Environmental Component	Vegetation
Environmental Management/Mitigation Measures/Action Plans/Commitments	
<p>Habitat change, loss of species, spread of alien and invasive species: No mitigation exists except to replace the vegetation by reseeding of grasses. Prospecting should be done in a well-planned manner (according to a PWP) and in the process ensuring that activities are only restricted to surface areas really required. An invasive and alien control programme must be implemented by the mine.</p>	
Rehabilitation/ Closure:	
<p>Replace the vegetation by reseeding of grasses and natural growth. <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.</p>	
Closure Objective	
No invasive and alien species must be present after closure. A post-closure control program must also be implemented.	

Environmental Component	Vegetation
Environmental Management/Mitigation Measures/Action Plans/Commitments	
<p>Ensure that all roads on the prospecting site (utilized by prospecting vehicles) are daily sprayed with water to control dust. Site inspections to ensure the spraying are done.</p>	
Rehabilitation/ Closure:	
No excessive dust must be present during the normal growth season after closure.	
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	
<p>Wildlife or wildlife habitat destruction /change / disturbance : To take care that no new or unnecessary destruction of habitats, other than the demarcated prospecting site should take place.</p>	
Rehabilitation/ Closure:	
Restoration of habitat: Ensure the rehabilitation plan is implemented	
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	
<p>Injury and death to wildlife: Keep incidence register on killings and disturbances.</p>	
Rehabilitation/ Closure:	
<p>Re-establish trees and grass cover as soon as possible during and after prospecting. Fence area off to ensure that no person can enter without permission. Ensure that the rehabilitation plan is compiled and executed</p>	
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.</p> <p>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.</p> <p>Introduce the actions as listed above into disciplinary code as offence.</p>	
Rehabilitation/ Closure:	
All staff must undergo basic environmental awareness lecture (rehabilitation) during induction training.	
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 prospecting 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>All domestic waste must be collected in bins and taken off site to Bloemhof license waste disposal site.</p> <p>All used oils and filters must be collected and responsibly recycled.</p> <p>The PWP 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>	
Rehabilitation/ Closure:	
<p>Water control structures must be well designed and constructed to ensure a minimum down wash of topsoil.</p> <p>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>Re-vegetation to be done as quickly as possible. Final re-vegetation to be done as per rehabilitation plan.</p>	
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.</p> <p>The disturbed surface area must be rehabilitated to ensure some normal drainage.</p> <p>Minimal run-off should end-up in trenches.</p>	
Rehabilitation/ Closure:	
<p>Water control structures must be well designed and constructed to ensure a minimum down wash of topsoil.</p> <p>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>Re-vegetation to be done as quickly as possible. Final re-vegetation to be done as per rehabilitation plan. Final rehabilitation will be done according to the final rehabilitation plans after approval by the Department of Mineral Resources.</p>	
Closure Objective	
Ultimately rehabilitation of the disturbed prospecting 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.</p> <p>No servicing of vehicles must occur except at the workshops.</p> <p>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 prospecting 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.</p> <p>The most likely contaminants is therefore nitrate and bacteria (from sewage / pit latrines), as well as hydrocarbons (from vehicle accidents, diesel car and the workshop area).</p> <p>An incidence register for this purpose must be kept.</p> <p>Drip trays must be available and used where emergency repairs is done.</p> <p>All waste must be stored according to best practices and disposed at an authorized waste disposal facility.</p>	
Rehabilitation/ Closure:	
<p>All oil spills on soil to be removed and bio-remediate immediately.</p> <p>All waste must be stored according to best practices and disposed at an authorized waste disposal facility.</p>	
Closure Objective	
Post water quality need to indicate a positive trend/improvement.	

Environmental Component	Ground Water (quantity)
Environmental Management/Mitigation Measures/Action Plans/Commitments	
<p>Reduction of groundwater quantity, lowering of groundwater level:</p> <p>Water will be supplied via a tanker.</p>	
Rehabilitation/ Closure:	
Post water quality need to indicate a positive trend/improvement	
Closure Objective	
Post water quality need to indicate a positive trend/improvement.	

Environmental Component	Air Quality
Environmental Management/Mitigation Measures/Action Plans/Commitments	
<p>Dust: The prospecting method will serve as mitigation measure because prospecting will limit dust to the active prospecting area (area where the excavator and the trucks are operating).</p> <p>Daily spraying of roads with water. Inspection should be done on a daily basis.</p> <p>If new roads are constructed, in coordination with surface owner, dust pollution must be mitigated by means of spraying the roads with water.</p>	
Rehabilitation/ Closure:	
Rehabilitation of the bulk sampling site would ensure that no dust is generated from exposed surfaces.	
Closure Objective	
Dust count must be the same as before prospecting. Rehabilitation of the bulk sampling site would ensure that no dust is generated from exposed surfaces.	
Environmental Component	Noise
Environmental Management/Mitigation Measures/Action Plans/Commitments	
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.

Rehabilitation/ Closure:

During decommissioning and closure phase some earth moving equipment and trucks would be utilized for rehabilitation.

Closure Objective

No noise attributed to prospecting 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.

Environmental Component	Archaeological and Cultural Sites
Environmental Management/Mitigation Measures/Action Plans/Commitments	
<p>No graveyard found on site.</p> <p>However, the potential occurrence of OTHER 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. All excavator operators must be sensitized as to identify and report any occurrence of such sites of artefacts. No activities should take place 20 m from the site. The area are however identify as being high sensitive.</p> <p>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. All excavator operators must be sensitized as to identify and report any occurrence of such sites of artefacts.</p>	
Rehabilitation/ Closure:	
A 20m buffer zone must be marked around any graveyard in order to avoid potential damage during prospecting activities	
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	
EXITING PAN: - All prospecting activities must be kept 100 meters horizontally away from it.	
Rehabilitation/ Closure:	
No impact = no rehabilitation necessary	
Closure Objective	
No surface water bodies, its flow or stream areas must be disturbed during the prospecting activities.	

Environmental Component	Visual Aspects
Environmental Management/Mitigation Measures/Action Plans/Commitments	
<p>Visual impact would be addressed by means of;</p> <ul style="list-style-type: none"> * re-vegetation of disturbed areas with grasses; re-establish vegetation cover as soon as possible after closure of excavations * removal of any temporary building, scrap, domestic waste, etc. that would otherwise contribute to a negative visual impact. <p>Concurrent rehabilitation should be done simultaneously as prospecting activities progress.</p>	
Rehabilitation/ Closure:	
<p>Visual impact would be addressed by means of;</p> <ul style="list-style-type: none"> * re-vegetation of disturbed areas with grasses; re-establish vegetation cover as soon as possible after closure of excavations. * removal of any temporary building, scrap, domestic waste, etc. that would otherwise contribute to a negative visual impact. <p>Concurrent rehabilitation should be done simultaneously as prospecting activities progress.</p>	

Closure Objective

No residual visual impacts will remain after closure. The terrain should blend in with the surrounding landscape.

REHABILITATION PLAN:

Rehabilitation:

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

Rehabilitation of the surface prospecting/mining site

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

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

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

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

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

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

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

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

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

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

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

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

Visual impact would be addressed by means of;

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

Fertilising of Areas to be Rehabilitated

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

Seeding of Grass Seed Mixture and planting of Woody Species

The eventual seed mixture takes into account the availability of seed, different soil situations and the prevailing climatic conditions of the area. The following mixture will be applicable to the prospecting right site: *Cenchrus ciliaris*; *Cynodon dactylon*; *Digitaria eriantha*; *Heteropogon contortus*; *Panicum maximum*.

a. Demolition of infrastructure/buildings

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

b. Invasive and alien control programme

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

EIAR /EMPr - [F J FOURIE - Commissies Rust 234 HO (Portion 1); Leeuwbosch 236 HO (Portion 3(-/-1), Portion 4 (-/-2), Portion 5 (-/-2), Portion 6 (-/-2), Portion 8 (-/-4) - NW 30/5/1/12/13317 PR]

e) Impact Management Outcomes

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 4 – 1. (1)(e)

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
1. Excavations for alluvial gravel	1.1 Removal of the gravel up to 3,5m	Geology & soil	Operational	The impact will be mitigated by backfilling and 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 prospecting area will be lowered by 3,5m 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 prospecting site in order to prevent surface water on the prospecting 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.	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	To take preventive steps against erosion. Implement and maintain cut-off trenches and or berms around the prospecting area to prevent water entering that can cause excessive erosion.	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 0,96 hectare, 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 prospecting site. Daily spraying of roads with water	No excessive dust that can be harmful to the environment and humans.

EIAr /EMPr - [F J FOURIE - Commissies Rust 234 HO (Portion 1); Leeuwbosch 236 HO (Portion 3(-/-1), Portion 4 (-/-2), Portion 5 (-/-2), Portion 6 (-/-2), Portion 8 (-/-4) - NW 30/5/1/1/2/13317 PR]

f) Description of Proposed Impact Management Actions

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 4 – 1. (1)(f)

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
Excavations for alluvial gravel	1.1 Removal of the gravel up to 3,5 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 prospecting area will be lowered by 3,5 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 prospecting site in order to prevent surface water on the prospecting 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 runoff 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 prospecting 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 0.96 ha, 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 prospecting site. Daily spraying of roads with water		

g) Method of monitoring the implementation of impact management actions

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 4 – 1. (1)(g)

Monitoring by daily checks by manager

h) Frequency of monitoring the implementation of impact management actions

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 4 – 1. (1)(h)

Report Monitoring will be done continuously and annual Audit.

i) Indication of person responsible for implementation of the impact management actions

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 4 – 1. (1)(i)

The applicant.

j) Time periods within which actions must be implemented

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 4 – 1. (1)(j)

The rehabilitation liability will be reviewed annually and a Performance Assessment report will be submitted annually.

k) Mechanisms for monitoring compliance with the impact management actions

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 4 – 1. (1)(k)

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
Prospecting 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
Prospecting site/Topography	Concurrent backfilling of excavations.	Checking stability of slope and erosion preventive measures	Manager and applicant	Quarterly
Prospecting site/Air quality	Dust pollution from prospecting activities.	Regular wetting of roads and stockpile area where loading take place.	Manager and applicant	Daily
Prospecting site	Chemical toilet	Make sure that it is used and hygienic.	Manager and Applicant	Weekly.

l) Program for reporting on compliance

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 4 – 1. (1)(l)

An EMP Performance Assessment will be submitted to the Management and the DMR on an annual basis.

m) 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

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 4 – 1. (1)(m)

F J FOURIE 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) 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 **F J FOURIE** is to rehabilitate the entire prospecting 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. The risks will be dealt with by proper management actions as described in 1d

n) Specific information required by the Competent Authority

In term of NEMA – EIA Regulations No. 326 of 7 April 2017 – Reg. 21, Appendix 4 – 1. (1)(n)

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

Table 9: 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 Leveled 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 Bloemhof 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 Environmental Assessment Practitioner

I, H.M. Erasmus declare that –

General declaration:

- I act as the independent environmental practitioner in this application
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting environmental impact assessments, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I will take into account, to the extent possible, the matters listed in regulation 8 of the regulations when preparing the application and any report relating to the application;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- I will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;
- I will ensure that the comments of all interested and affected parties are considered and recorded in reports that are submitted to the competent authority in respect of the application, provided that comments that are made by interested and affected parties in respect of a final report that will be submitted to the competent authority may be attached to the report without further amendment to the report;
- I will keep a register of all interested and affected parties that participated in a public participation process; and
- I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favorable to the applicant or not
- all the particulars furnished by me in this form are true and correct;

- will perform all other obligations as expected from an environmental assessment practitioner in terms of the Regulations; and
- I realize that a false declaration is an offence in terms of regulation 71 and is punishable in terms of section 24F of the Act.

Disclosure of Vested Interest (delete whichever is not applicable)

- I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2010;
- I have a vested interest in the proposed activity proceeding, such vested interest being:

The EAP herewith confirms

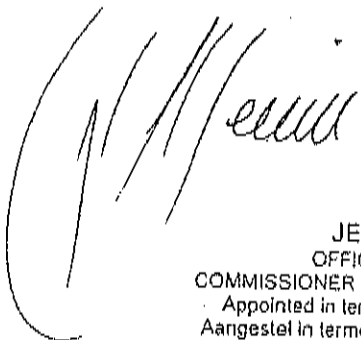
- a) the correctness of the information provided in the reports
- b) the inclusion of comments and inputs from stakeholders and I&APs;
- c) the inclusion of inputs and recommendations from the specialist reports where relevant; and
- d) that the information provided by the EAP to interested and affected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



Signature of the environmental assessment practitioner

DERA Omgewingskonsultante (Pty) Ltd
Name of company

-END-



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