



**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:** Jagersfontein Developments (Pty) Ltd

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**FAX NO:** 018 297 2083

**POSTAL ADDRESS:** P.O. Box 24, Jagersfontein, 9974

**PHYSICAL ADDRESS:** Jagersfontein Diamond Extraction Operations, Jagersfontein

**FILE REFERENCE NUMBER SAMRAD:** FS 30/5/1/1/3/2/1 (10505)EM

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## 1. IMPORTANT NOTICE

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

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

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

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

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

un-interpreted information and that it unambiguously represents the interpretation of the applicant.

## **2. OBJECTIVE OF THE 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 monitored.

## PART A

### SCOPE OF ASSESSMENT AND ENVIRONMENTAL IMPACT ASSESSMENT REPORT

#### 3. Contact Person and correspondence address

##### a) Details of

##### i) Details of the EAP

Name of The Practitioner: Louis De Villiers (Turn 180 Environmental Consultants)

Tel No.: 072 967 7962

Fax No. : N/A

e-mail address: louis@turn180.co.za

##### ii) Expertise of the EAP.

###### (1) The qualifications of the EAP

(with evidence).

B.sc. degree in Environmental Geography - Refer to CV in Appendix 1

###### (2) Summary of the EAP's past experience.

(In carrying out the Environmental Impact Assessment Procedure)

Refer to CV in Appendix 1

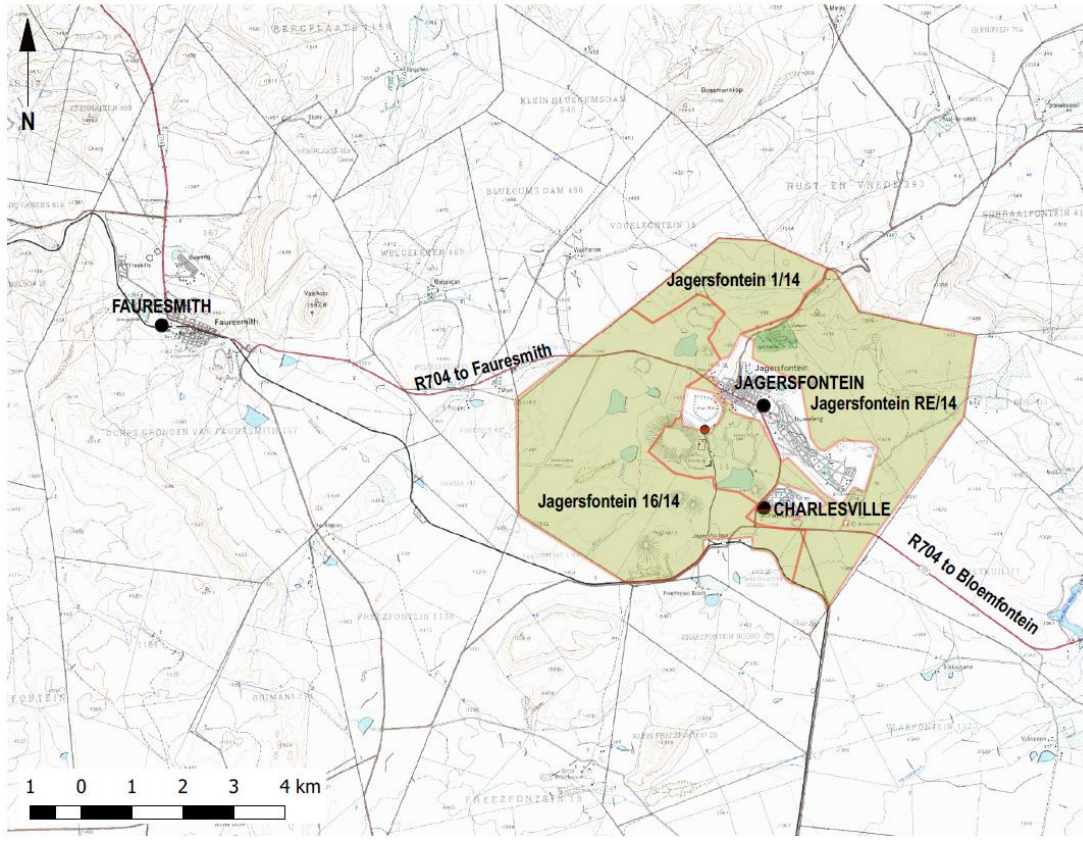
##### b) Description of the property.

<b>Farm Name:</b>	Remainder, portion 1 and portion 16 of the farm Jagersfontein 14
<b>Application area (Ha)</b>	3853.78 ha
<b>Magisterial district:</b>	Fauresmith
<b>Distance and direction from nearest town</b>	The application area is located directly adjacent to the town of Jagersfontein
<b>21 digit Surveyor General Code for each farm portion</b>	F0110000000001400016 F0110000000001400001 F0110000000001400000

##### c) Locality map

(show nearest town, scale not smaller than 1:250000). Attached A3 Locality Map in Appendix 2.

**MAP INDICATING THE LOCALITY OF THE PROPOSED PROSPECTING AREA ON PORTION 1, 16 AND THE REMAINDER OF THE FARM JAGERSFONTEIN 14, FAURESMTIH DISTRICT**



**APPLICANT DETAILS:**

Jagersfontein Developments  
(Pty) Ltd  
P.O. Box 263  
Durbanville  
7550

**CONSULTANT DETAILS:**



Suite 221, Private Bag X01  
Brandhof  
9324  
072 967 7962  
louis@turn180.co.za

**SITE INFORMATION:**

Coordinates:  
29°45'49.50"S 25°25'9.12"E

- Towns
- Pit
- Shaft
- Jagersfontein 14/15

**MAP INFORMATION:**

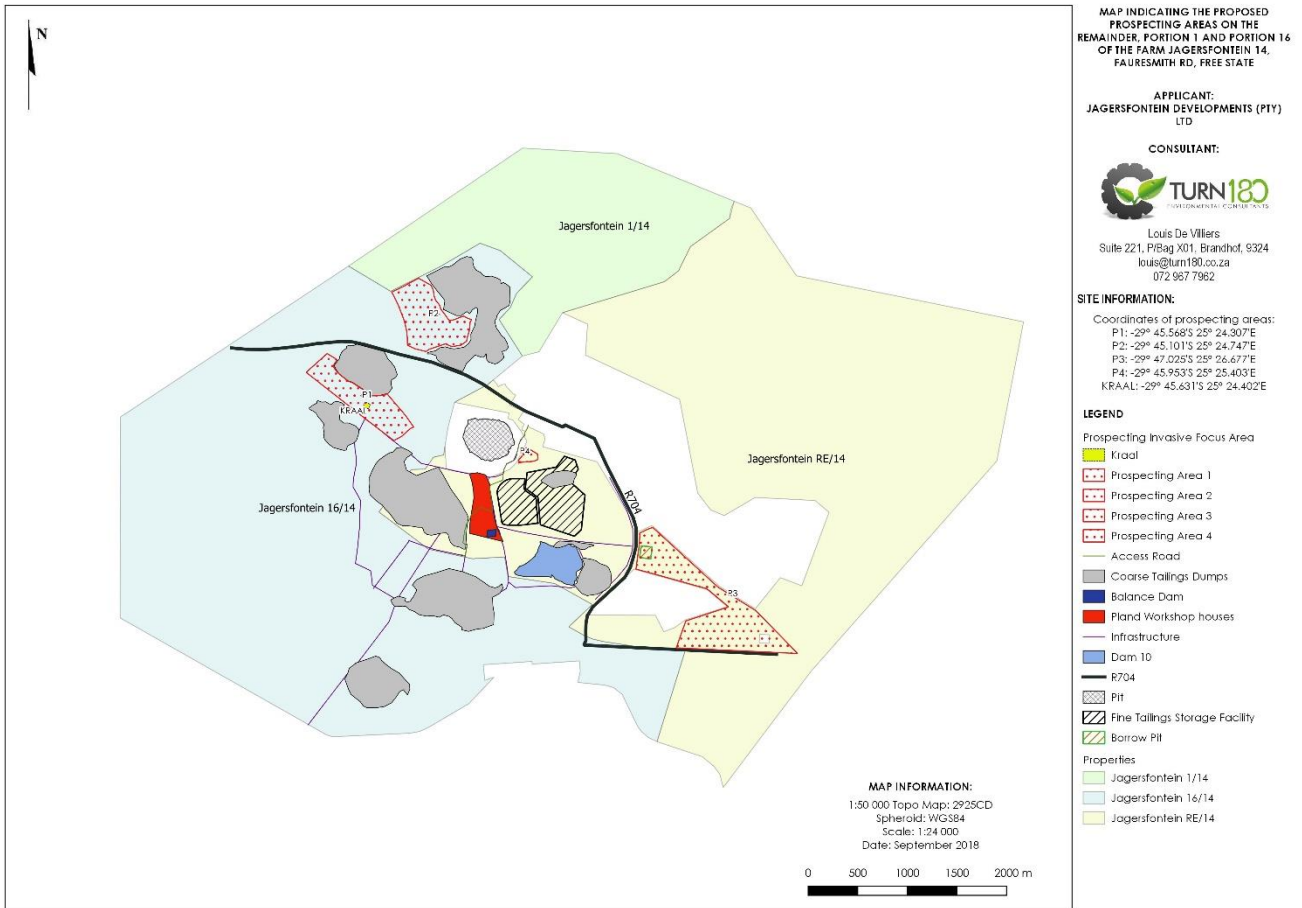
1:50 000 Topo Map - 2925CD  
Projection - WGS84

**d) Description of the scope of the proposed overall activity.**

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

Refer to Appendix 2





**(i) Listed and specified activities**

<p><b>NAME OF ACTIVITY (All activities including activities not listed)</b> <b>(E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)</b></p>	<p><b>Aerial extent of the Activity</b> <b>Ha or m<sup>2</sup></b></p>	<p><b>LISTED ACTIVITY</b> <b>Mark with an X where applicable or affected.</b></p>	<p><b>APPLICABLE LISTING NOTICE</b> <b>(GNR 544, GNR 545 or GNR 546)/NOT LISTED</b></p>
<p>Application for a prospecting right: <b>Note:</b> <b>No prospecting activities will take place on the existing surface tailing dumps of the Jagersfontein Developments diamond extraction operation as these areas falls outside the jurisdiction of the Department of Mineral Resources (“DMR”). Although the surface tailings dumps are located on the footprint of the proposed prospecting right area there will be no prospecting to occur on them.</b></p> <p>The prospecting carried out by Jagersfontein Development (PTY) Ltd (<b>“the Applicant”</b>) will involve the drilling of boreholes, trenching and bulk sampling over the entire property to prospect for minerals. It is expected that approximately 100 boreholes will be drilled over the entire area to prospect for minerals</p>	<p>3 853.78ha Although this is the entire prospecting area it will only involve the drilling of approximately 100 boreholes and, depending on the results of the samples of the boreholes, will result in trenching/pitting. 10 trenches will be made to remove</p>	<p>Activity 19 of GN R. 325 (Refer to description in column 1),  Activity 20 of GN R. 327(Refer to description in column 1),  Activity 27 of GN R. 327 (Refer to description in column 1).</p>	<p>GNR 325 and GNR 327</p>

<p>and trenches will be made to sample between 30 000 - 40 000 Tons/trench. It is however very difficult to indicate where the trenching and bulk sampling will occur as this will be dependent on the drilling. It is confirmed again that none of these activities associated with the prospecting for minerals will be conducted on the footprints of the existing surface tailings.</p> <p>Listed activity 19 of GN. R. 325 of the 2014 EIA Regulations as amended on 7 April 2017 under the National Environmental Management Act 107 of 1998 ("NEMA") is hereby applied for and reads as follows: "The removal and disposal of minerals contemplated in terms of section 20 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including</p> <p>(a) associated infrastructure, structures and earthworks, directly related to 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> <p>Listed activity 20 and 27 of GN. R. 327 of the 2017 EIA Regulations under the NEMA is also applied for and reads:</p> <p>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, 2002 (Act No. 28 of 2002), 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 Listing Notice 2 applies."</p> <p>Activity 27: "The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for</p> <p>(i) the undertaking of a linear activity; or</p> <p>(ii) maintenance purposes undertaken in accordance with a maintenance management plan."</p>	<p>between 30 000 - 40 000 tons/trench. Trenches will be made to a width of 20m X 8m (160m<sup>2</sup>) with ramps of 20m X 4m (80m<sup>2</sup>) each.</p>		
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<p>The overall activities associated with the prospecting right will include the following:</p> <ol style="list-style-type: none"> <li>1) Desktop studies and geological interpretation of all available geological data including any historic soil sampling data and any airborne geophysical and remote sensing data.</li> <li>2) Target detection by means of geophysical surveying.</li> <li>3) Desktop studies involving interpretation of the geophysical survey results in order to plan the next phase of work in detail.</li> <li>4) Testing of targets       <ol style="list-style-type: none"> <li>a) First stage small diameter (up to 165mm) percussion exploratory drilling and/or minor pitting and/or minor trenching, aimed at testing targets identified as being of interest, with the aim of proving the presence of kimberlite.</li> <li>b) Processing of drill or rock samples for the various types of test as required, such as petrography and physical roc properties.</li> </ol> </li> <li>5) Desktop studies involving interpretation of the initial drilling (or excavations) and testing in order to plan the next phase of work in detail.</li> <li>6) Delineation and initial testing of kimberlite(s).       <ol style="list-style-type: none"> <li>a) Detailed geophysical surveys over kimberlites, for delineation and borehole positioning purposes. This would be conducted using a variety of survey techniques such as magnetometry, electromagnetic methods and gravity.</li> <li>b) Second stage small diameter (up to 165mm) percussion and core drilling and/or excavations. Aimed at determining the extend of any kimberlite discovered and whether it has the potential to host diamonds. This involves collecting material for testing, such as further petrographic examination, HMA and MiDA. This stage could include downhole geophysical logging.</li> <li>c) Processing of drill samples for the various types of test as required.</li> </ol> </li> <li>7) Desktop studies involving interpretation of all drilling (or excavations) and test results, in conjunction with geophysical survey results, in order to plan the next phase of work in detail. Data available in this stage will be used to construct a Geological model to allow for size estimation. All the above, combined with the thickness of overburden, micro diamond analyses, petrographic interpretations and mineral chemistry analyses will be used to assess the potential of any discoveries and therefore justification of any further work.</li> </ol>			
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<p>8) Bulk sampling (initial evaluation)</p> <p>a) Carry out a bulk sampling programme to test for the presence of macro-diamonds. This may take the form of trenching or pitting or large diameter (up to 450mm) drilling. The number of excavations and/or boreholes and quantity of material to be collected will be based on the size of the kimberlite(s) and their internal geology such facies variations.</p> <p>b) Processing of macro-diamonds samples to obtain a concentrate for diamond sorting in a dense media separation (DMS) sampling plant.</p> <p>c) Recovery of macro-diamond from the concentrate to obtain an initial grade estimate at the diamond recovery laboratory in Johannesburg.</p> <p>9) Based on a review of initial bulk sampling results and other information, the preliminary economic potential of the kimberlite(s) will be determined. Depending on the outcome of this, a larger bulk sampling exercise will be required to provide sufficient information for a pre-feasibility study.</p> <p>10) Bulk sampling (evaluation sampling)</p> <p>a) Carry out a bulk sampling programme in order to determine the economic potential of any kimberlite(s) discovered. This may take the form of trenching or pitting or large diameter (up to 450mm) drilling. Again, the number of excavations and/or boreholes and quantity of material to be collected will be based on the size of the kimberlite(s) and their internal geology such as facies variations. This programme will determine the macro-diamond content and quality to evaluate the economic potential of any kimberlite(s) discovered.</p> <p>b) Processing of micro-diamond samples to obtain a concentrate for diamond sorting in a DMS sampling plant.</p> <p>c) Recovery of macro-diamonds from the concentrate and the classification of these diamonds (in terms of size and quality) at the diamond recovery laboratory in Johannesburg.</p> <p>11) Pre-feasibility study. Based on a review of bulk sampling results and other information such as the geological model and geotechnical information, the mineral resource will be defined and a decision made as to further work required.</p> <p>12) Mining feasibility studies. Depending on the value of the estimated resource determined in Phase 15, a mining feasibility study may be conducted by a multidisciplinary team. This would include all relevant socio-economic and environmental impact studies, with the aim being to define mineral reserves and in support of an application for a mining right.</p>			
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<p>13) Supplementary drilling, sampling, geological modelling and more dressing studies may be required to obtain additional information in order to finalise the mining feasibility study.</p> <p><b>It is again hereby confirmed that none of the above activities will be carried out on the footprints of the existing surface tailings dumps.</b></p>			
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**(ii) Description of the activities to be undertaken**

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

- 1) Desktop studies and geological interpretation of all available geological data including any historic soil sampling data and any airborne geophysical and remote sensing data.
- 2) Target detection by means of geophysical surveying.
- 3) Desktop studies involving interpretation of the geophysical survey results in order to plan the next phase of work in detail.
- 4) Testing of targets
  - a) First stage small diameter (up to 165mm) percussion exploratory drilling and/or minor pitting and/or minor trenching, aimed at testing targets identified as being of interest, with the aim of proving the presence of kimberlite.
  - b) Processing of drill or rock samples for the various types of test as required, such as petrography and physical rock properties.
- 5) Desktop studies involving interpretation of the initial drilling (or excavations) and testing in order to plan the next phase of work in detail.
- 6) Delineation and initial testing of kimberlite(s).
  - a) Detailed geophysical surveys over kimberlites, for delineation and borehole positioning purposes. This would be conducted using a variety of survey techniques such as magnetometry, electromagnetic methods and gravity.
  - b) Second stage small diameter (up to 165mm) percussion and core drilling and/or excavations. Aimed at determining the extend of any kimberlite discovered and whether it has the potential to host diamonds. This involves collecting material for testing, such as further petrographic examination, HMA and MiDA. This stage could include downhole geophysical logging.
  - c) Processing of drill samples for the various types of test as required.
- 7) Desktop studies involving interpretation of all drilling (or excavations) and test results, in conjunction with geophysical survey results, in order to plan the next phase of work in detail. Data available in this stage will be used to construct a Geological model to allow for size estimation. All the above, combined with the thickness of overburden, micro diamond analyses, petrographic interpretations and mineral chemistry analyses will be used to assess the potential of any discoveries and therefore justification of any further work.
- 8) Bulk sampling (initial evaluation)
  - a) Carry out a bulk sampling programme to test for the presence of macro-diamonds. This may take the form of trenching or pitting or large diameter (up to 450mm) drilling. The number of excavations and/or boreholes and quantity of material to be collected will be based on the size of the kimberlite(s) and their internal geology such facies variations. The trenching and drilling will be done to recover 200 tonnes of material. Two pits of 7 x 6 meters (42m<sup>2</sup>) plus ramps of 20 x 4 meters (80m<sup>2</sup>) will be made.

b) Processing of macro-diamonds samples to obtain a concentrate for diamond sorting in a dense media separation (DMS) sampling plant.

c) Recovery of macro-diamond from the concentrate to obtain an initial grade estimate at the diamond recovery laboratory in Johannesburg.

9) Based on a review of initial bulk sampling results and other information, the preliminary economic potential of the kimberlite(s) will be determined. Depending on the outcome of this, a larger bulk sampling exercise will be required to provide sufficient information for a pre-feasibility study.

10) Bulk sampling (evaluation sampling)

a) Carry out a bulk sampling programme in order to determine the economic potential of any kimberlite(s) discovered. This may take the form of trenching or pitting or large diameter (up to 450mm) drilling. Again, the number of excavations and/or boreholes and quantity of material to be collected will be based on the size of the kimberlite(s) and their internal geology such as facies variations. This programme will determine the macro-diamond content and quality to evaluate the economic potential of any kimberlite(s) discovered.

Assuming that only pitting is used and that 40,000 tonnes is required, ten pits of up to 20 x 8 metres (160m<sup>2</sup>) plus ramps of 20 x 4 metres (80m<sup>2</sup>) each will be required

b) Processing of macro-diamond samples to obtain a concentrate for diamond sorting in a DMS sampling plant.

c) Recovery of macro-diamonds from the concentrate and the classification of these diamonds (in terms of size and quality) at the diamond recovery laboratory in Johannesburg.

11) Pre-feasibility study. Based on a review of bulk sampling results and other information such as the geological model and geotechnical information, the mineral resource will be defined and a decision made as to further work required.

12) Mining feasibility studies. Depending on the value of the estimated resource determined in Phase 15, a mining feasibility study may be conducted by a multidisciplinary team. This would include all relevant socio-economic and environmental impact studies, with the aim being to define mineral reserves and in support of an application for a mining right.

13) Supplementary drilling, sampling, geological modelling and more dressing studies may be required to obtain additional information in order to finalise the mining feasibility study.

**It Should be noted that none of the activities as described above which are carried out during the prospecting activities will be done on the existing surface tailings dumps which are currently being reprocessed as these areas falls outside the jurisdiction of the DMR. The surface tailings dumps will be excluded from the prospecting right activities although it is located on the footprint of the prospecting right area.**

**e) Policy and Legislative Context**

<b>APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT</b>  (A description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process);	<b>REFERENCE WHERE APPLIED</b>  (i.e. Where in this document has it been explained how the development complies with and responds to the legislation and policy context)	<b>HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE POLICY AND LEGISLATIVE CONTEXT</b>  (E.g In terms of the National Water Act:- Water Use License has/has not been applied for).
National Environmental Management Act (Act 107 of 1998) 2014 Regulations as amended in 2017	Department of Mineral Resources	An application is made for the prospecting right. Regulations as indicated in GN R. 326 will be followed to obtain Environmental Authorisation.
National Water Act (Act 36 of 1998)	Department Water and Sanitation	Application made i.t.o. S21(c) and (i) if required.
Conservation of Agriculture Resources Act (Act 43 of 1993)	Department of Agriculture, Forestry and Fisheries	Notified of project. None
National Heritage Resources Act (Act 25 of 1999)	South African Heritage Resource Agency	Phase 1 HIA conducted
Occupational Health and Safety Act and Regulations (Act 85 of 1993)	Department of Labour	None (Implemented by contractor on site)
Minerals and Petroleum Resources Development Act (Act 28 of 2002)	Department of Mineral Resources	Environmental Authorization applied for
Restitution of Land Rights Act (Act 22 of 1994)	Department of Rural Development and Land Affairs	Request for land claims certificate

**f) Need and desirability of the proposed activities.**

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

The Applicant will perform the prospecting on the properties as indicated above to locate any remains of Kimberlite and/or gravel which may contain diamond which can be mined. The prospecting will include the entire footprint as indicated in Fig.1 and 2 but will not include existing surface tailings dumps.

Although the prospecting for diamonds will not create a high number of job opportunities directly, the mining for diamonds if results of prospecting is positive will require additional people to be employed at the operation and will therefore create job opportunities.

The prospecting for diamonds will be undertaken by The Applicant whom also conducts the existing tailings operation at Jagersfontein and who contributes to the town and community by providing jobs to local residents and assisting in service delivery from time-to-time. The tailings operation and plant which will be used during prospecting will ensure that people from the local community will have jobs and will improve the socio-economic status in the community. Furthermore, the tailings operation make use of

local products where possible or purchases products (i.e. building material and machine and vehicle parts) from larger urban areas in the area (i.e. Bloemfontein and Kimberley) which has a positive economic impact on the region.

The prospecting of the diamonds at this stage will also ensure that, if any diamonds can be mined it can occur while the current tailings operation is in progress whereby the area can be rehabilitated more effectively for future land use.

**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.**

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

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

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

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

Note:

No prospecting activities will take place on the tailing dumps currently being reprocessed and is excluded from this application as the DMR has no jurisdiction on these areas and cannot authorise any prospecting and related activities on the dumps.

The following should be considered in terms of the alternatives:

Due to the nature of the activities to be undertaken (i.e. prospecting for diamonds) the applicant is limited to the area where the minerals may potentially be located. This is based on desktop studies according to geological maps and existing data of the area. Therefore, the applicant cannot identify any location alternatives as the properties and sites applied for are most likely to contain the mineral.

The activity is limited to the drilling of boreholes, trenching/pitting and bulk sampling. There are no alternatives to these activities as this is the only way to prospect for diamonds in order to locate the mineral to be mined.

Most of the prospecting will be conducted on areas where historic mining and/or disturbance during mining activities occurred and will also be limited to the areas where there is the highest potential to locate diamonds.

Technology to be used during prospecting is limited to the drilling of boreholes and excavations for trenching/pitting. This may also involve large diameter drilling to up to 450mm. The existing operation has a Dense Medium Separation (DMS) plant which will be used for the processing of the samples.

The option of not implementing the activity will result in the applicant not having the opportunity to prospect for diamonds on the properties. No further mining of diamonds will occur on the properties by the applicant which will result in job losses after completion of the current reprocessing of surface tailings. The applicant will remove all existing infrastructure after completion of the current activities and will rehabilitate the site.

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

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



The following process was/will be undertaken during the Public Participation Process in :

- Site notices were placed on the fence of the properties and on site to notify the public of the proposed prospecting,
- Advertisements were placed in the Volksblad on 10 May 2018 and the Express on 16 May 2018,
- A Background Information Document (BID) was sent to all potential Interested and Affected Parties (I&AP) to notify them of the project and to request to submit comments and/or register as and I&AP. The Potential I&AP included the following:

Authorities:

- Me L.Y. Moletsane - Xhariep District Municipality Municipal Manager
- Mr. M. Kubeka - Kopanong Local Municipality Municipality Manager
- Mr. J. Moitse - Ward 7 Ward Councillor - Kopanong Local Municipality
- Dr. Ntli - Department of Water and Sanitation
- Mr. Khomotso Mahlatji - Department of Rural Development and Land Reform
- Ms. G. Mkhosana - DESTEA
- Mr. J. Morton - Department of Agriculture
- Mr. A. Salomon - SAHRA
- Me. L. Philip - FSHA

Stakeholders and Neighbouring landowners:

- Mr. L. Dreyer - Farm Nebo 313
- Mr. P. Louw - Farms Rietkuil RE/21 and Commissiepoort 174
- Mr. D. Louw - Farm Vlakfontein 1/1173
- Mr. N. Booysen (JJ Van Niekerk Familie Trust) - Farm Preezfontein North 927 and Preezfontein RE/19
- Mr. M. Eksteen - Farm Vogelfontein 15
- Kopanong Local Municipality - Annex Preezfontein North 1063
- Mr. H. Hamman - Farm Mara 205
- Prospect Boerdery Trust (Mr. J. Van Tonder) - Farm Prospect 487
- Mr. J. Botha - Farm Thomas RE/678
- Mr. G. Snyman - Farms Rust en Vrede 1/393 and Thomas 1/678
- Mr. P. De Lange - Farm Waterval 329
- Mr. J Kolver - Farms Gamma 492 and Paardeplaat A 964
- Me. G. Vermaak - Itumeleng Community Trust
- Mr. S. Van Wyk - Farm 733

Comments received by I&AP was logged in a comments and response register and all completed reports were sent to them for review and commenting.

Please refer to Appendix 3 for the Public Participation Process and Comments and Response Report.

A Public Meeting was scheduled on 20 September 2018 at the Jagersfontein Combined School whereby all authorities, adjacent landowners and the community was invited to attend. This was done through e-mail, registered mail, site notices at both entrances to the property, notices placed in town (Jagersfontein and Itumeleng) and newspaper advertisements in both the Volksblad and Express. This meeting was attended by 2 residents of Jagersfontein with no objections raised. Please refer to the minutes of this meeting in Appendix 3.

A second meeting was scheduled for 25 January 2019 as the DMR received a dispute from community members indicating amongst other that they were not consulted. All I&AP was again invited to attend the meeting via e-mail, mail, notices at both entrances of the operation, notices placed at various locations in town and newspaper advertisements in both the Volksblad and the Express. Furthermore, a mail drop was arranged whereby flyers were distributed in Jagersfontein and Itumeleng on 23 January 2019 to remind the community of the meeting. The meeting was also discussed telephonically and via e-mail on various occasions prior to the meeting with members of the community who requested that all shareholders of all companies associated with the Applicant should attend the meeting. These members of the community were not satisfied with the venue where the meeting was to be held. The venue of the meeting changed twice as the venues cancelled and the final venue where the meeting was held was the Itumeleng Community Trust (“ICT”) building in Jagersfontein. This meeting was attended by approximately 45 – 55 members of the community. The amount of attendees is estimated as the majority of attendees refused to sign the attendance register on the day. The approximation

is derived from the number of chairs placed in the venue on the day and the estimation of the empty chairs in the hall.

Please refer to the minutes and transcript in Appendix 3.

iii) **Summary of issues raised by I&Aps**  
 (Complete the table summarising comments and issues raised, and reaction to those responses)

Interested and Affected Parties		Date	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
List the names of persons consulted in this column, and Mark with an <b>X</b> where those who must be consulted were in fact consulted.		Comments Received			
<b><u>AFFECTED PARTIES</u></b>					
<b>Landowner/s</b>					
Jagersfontein Developments (Pty) Ltd	X	No comments received	No issues raised	N/A	N/A
Kopanong Local Municipality	X	No comments received	No issues raised	N/A	N/A
<b>Lawful occupier/s of the land</b>					
Residents of Jagersfontein, Charlesville and Itumeleng	X (Site notices and adverts. Public meeting held)	7 December 2018 and 25 January 2019	A dispute to the prospecting right application was received on 7/12/2018 from the Jagersfontein Multi-stakeholders Forum (“ <b>JMMF</b> ”). The JMMF commented that no public meeting was held on 20/9/2018 as indicated in the Final EIA Report. The JMMF also commented that the Applicant has not adhered to the sales agreement between SuperKolong Consortium and DBCM. The also commented that the Applicant established a community trust which has not	A public meeting was held at the Itumeleng Community Trust hall on 25/01/2019. These matters were not addressed as the attendees requested that the meeting be postponed. The EAP will respond to the comments made by the JMMF in writing upon submission of the Amended EIA and EMPr report.	Appendix 3

			benefitted the community. The JMMF indicated that they are not satisfied with the Applicant to continue with the prospecting right application. The JMMF further indicated that was for SuperKolong and not JDP (i.e. the Applicant) and they are not happy with the company. The asked if the 2007 judgement granted for SuperKolong applied to JDP. The JMMF claimed that the community trust was set up in line with the Social and Labour Plan but have failed to implement what DBCM intended in the sales agreement.		
<b>Landowners or lawful occupiers on adjacent properties</b>					
Mr. M. Eksteen	X	15/5/2018	Requested confirmation that prospecting will not occur on his property.	Confirmation was sent to Mr. Eksteen that the prospecting right application does not include his property.	H(ii)
Mrs. G. Vermaak	X	9/5/2018	<ul style="list-style-type: none"> <li>- Will further mining occur if prospecting results are positive,</li> <li>- If future mining occurs Mrs. Vermaak requested that the applicant should consider residing in town to contribute to value of properties and socio-economics of town,</li> <li>- What will the impact be on water resources.</li> </ul>	<ul style="list-style-type: none"> <li>- If results of prospecting is positive further mining will be considered. However, this decision will be made after investigation of other factors which will determine the feasibility of the mining.</li> <li>- It was confirmed that managerial staff resides at the tailings operation for safety reasons. If further mining will occur this issue will be discussed during the mining right application process.</li> <li>- There will not be an additional impact on the quality and quantity of water resources as the existing process plant will be used during the prospecting operations. Water Use License Applications will be made if prospecting activities will occur within watercourses.</li> </ul>	H(ii)
Mr. J. Van Tonder	X	23/5/2018	<ul style="list-style-type: none"> <li>- Requested information regarding the water monitoring and requested the previous results of the monitoring and that water should be analysed on his property to establish a baseline.</li> <li>- It was also requested that more details be</li> </ul>	<ul style="list-style-type: none"> <li>- The water monitoring programme and intervals was discussed with Mr. Van Tonder and the latest results were sent to Mr. Van Tonder. It was confirmed that water from one of his boreholes closest to the boundary of the tailings operation will be sampled to establish a</li> </ul>	H(ii)

			given of how dust and noise will be mitigated.	baseline. - The Final Scoping Report, and all future reports will have more clear mitigation of dust and noise.	
Mr. J. Kolver	X	23/5/2018 and 24/01/2019	Requested confirmation that prospecting will not occur on his property. During a conversation Mrs. Kolver and Mr. and Mrs. Schader (i.e. daughter and son in law of Mr. Kolver) asked whether they, or the property of Mr. Kolver will be impacted on by the prospecting for diamonds. This conversation occurred on 24/01/2018.	Confirmation was sent to Mr. Kolver that the prospecting right application does not include his property. During the conversation between Turn 180 and the representatives of the landowner Mr. De Villiers indicated that the proposed invasive prospecting will occur far away from Mr. Kolvers property and that neither the property, not the residents of that property will be directly impacted on apart from elevated noise levels during drilling, although this will only occur during normal daytime working hours. There will not be an impact on the quantity of water as the existing water uses will occur. No additional water will be abstracted.	H(ii)
<b>Municipal councillor</b>	X	23/08/2018	The Ward Councillor requested a meeting	A notification was sent out inviting all I&AP and stakeholders to a public meeting.	I(ii)
<b>Municipality</b>	X	No comments received	No comments received	N/A	N/A
<b>Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA e</b>					
<b>Communities</b>					
Meeting to be held					
<b>Dept. Land Affairs</b>	X	11/05/2018	Land claims certificate issued	N/A	N/A
<b>Traditional Leaders</b>					

<b>Dept. Environmental Affairs</b>	X	N/A	No comments received	N/A	N/A
<b>Other Competent Authorities affected</b>					
Department of Agriculture - Free State	X	30/07/2018	Referred the project to the National Department of Agriculture, Forestry and Fisheries.	None	N/A
<b><u>OTHER AFFECTED PARTIES</u></b>					
Mr. D. Badenhorst		25/1/2019	<p>A letter was submitted by Mr. Badenhorst on 25/1/2019 which indicates his comments. The conclusion to his letter reads as follows:</p> <ul style="list-style-type: none"> <li>• The area of the prospecting right application on Portion 16 should be reviewed as the court ruling could be challenged again,</li> <li>• “the whole systematic withholding of the mining industry to the community of Jagersfontein since the 2000’s can also result in a long stretched out litigation process also affecting division 16”,</li> <li>• “Jagersfontein is a mining town, any mining industry should be focussed on the development of the town and its future, otherwise it is just exploitation and colonization. The mining companies’ approach towards the development of industries should be changed.</li> </ul> <p>Please refer to Appendix 3 for the full letter from Mr. Badenhorst.</p>	Comments addressed in a letter to Mr. Badenhorst upon submission of Amended Draft Final EIA and EMPr.	Appendix 3

<b><u>INTERESTED PARTIES</u></b>				

## Summary of issues raised by I&APs

The following points indicates a summary of the issues raised by I&AP throughout the application process:

1. Adjacent landowners (i.e. Mr. Kolver, Mr. P. Louw and Mr. M. Eksteen) requested confirmation that prospecting is not applied for on their properties,
2. Adjacent landowners also asked how the prospecting for diamonds will affect their properties and themselves and residents on their properties,
3. Community members asked what the impact of prospecting will be on the water, noise and dust in the area,
4. A comment was received that the part of the prospecting right application on Portion 16 should be "carefully looked at" as the court ruling could be challenged again,
5. The systematic withholding of the mining industry to the Jagersfontein community since the 200's can result in lengthy litigation processes affecting Portion 16,
6. Any mining industry should be focussed on the development of the town and the future of Jagersfontein which a mining town, otherwise it is exploitation and colonization. It was commented that the "mining companies' approach towards the development of industries should be changed".
7. It was asked if subcontractors have been appointed to assist with prospecting and who these contractors will be.

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

#### **(1) Baseline Environment**

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

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

##### \* Geology and Soil

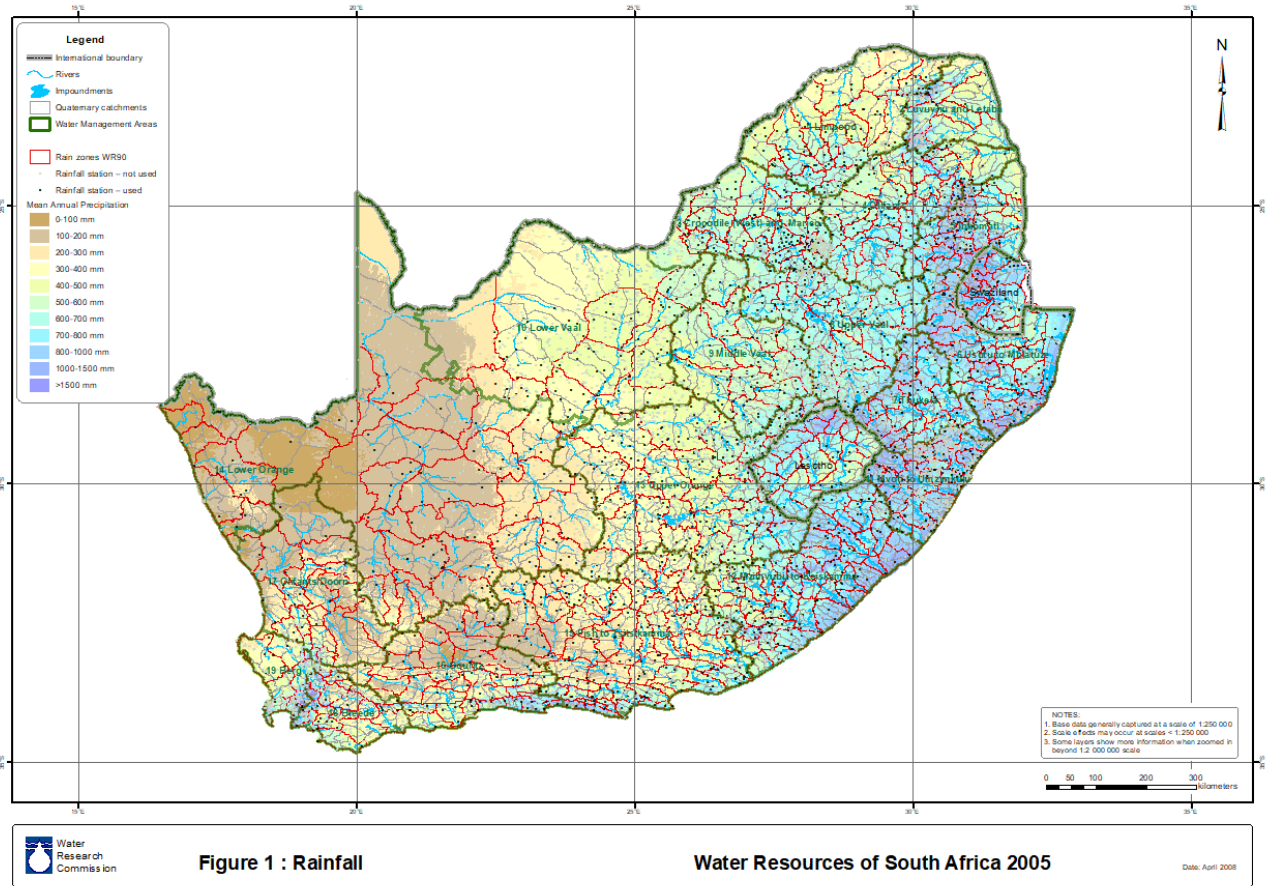
The farm Jagersfontein 14 is situated on the Karoo Supergroup. The geology is mainly of the Adelaide Subgroup of the Beauford Group in the northeast of the farm and the Tierberg Formation of the Ecca Group southwest. Both of these lithologies are intruded by an extensive Karoo dolerite sill. The Adelaide Subgroup is made up of blue-grey and purple mudstone inter-bedded with yellow sandstone and siltstone, mudstone and sandstone. The Tierberg Formation is made up of blue-grey to dark grey shale with carbonate concretions, subordinate sandstone and siltstone in the upper part.

Two soil types are common in this area. The Hutton soil is common in the north while the Tierberg soil is more common in the south. This prospecting area is on an existing old mine, extensively mined up to 1972.

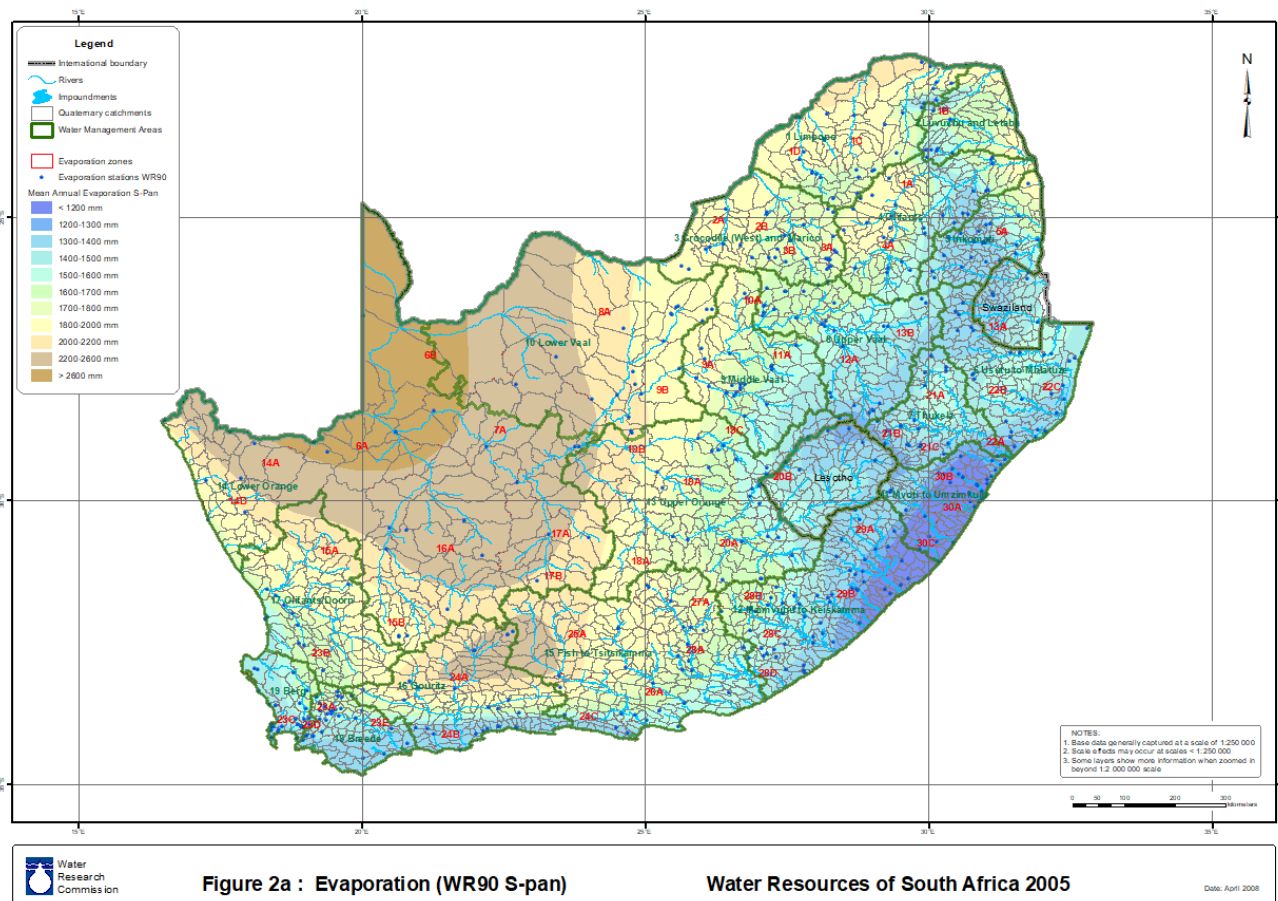
##### \* Climate

Historical rainfall data received from the DWS indicates the Mean Annual Precipitation ("MAP") to be approximately 439mm / annum (DWS, 2018) at the Kalkfontein Dam, located approximately 19km north of the proposed area. The Study Area is located in the C5B Rainfall Zone and the MAP is between 400 - 500mm/annum (WRC, 2005).





The study area is located in Evaporation Zone 19A and the Mean Annual Evaporation in this area is between 1 800 - 2 000mm/annum (WRC, 2005).



Please refer to the maps attached in Appendix 2 which indicates the climatic data of the area.

\* Air Quality

The Jagersfontein area has, save for the Tailings Operation, no major industrial facilities with atmospheric emissions, the overall air quality is good. The surrounding area is mainly associated with agricultural activities.

A Dustfallout Monitoring Programme is implemented by the applicant for the current activities. The Programme will be implemented throughout the lifetime of both the Tailings Operation and Prospecting Right. It should be noted that the prospecting will not be done on surface tailings dumps.

\* Surface and groundwater

The geology of the Jagersfontein area consists mainly of sediments from the Karoo Supergroup. These are predominantly sandstone, shale and mudstones formations of the Dwyka-, Ecca- and Beaufort group, with intrusion of post Karoo dolerite sills and dykes along weak contact zones between different formations or fault zones.

The Karoo sediments are characterised by low permeability; groundwater movement mainly occurs along jointed and fractured zones caused by faults or on the contact zones with dolerite intrusions.

Based on the water levels of sources in the area (The Shaft and the boreholes) and the variability in water quality, it is evident that there are two aquifer systems in the study area. At the top is a shallow aquifer with a rest water level (water table level) of approximately 5m below ground level ("mbgl"). At the bottom is a deeper aquifer with a current drawdown water level at 379mbgl (6 August 2018) and a rest water level at approximately 160mbgl. The two aquifer systems are separated by an impermeable dolerite sill. This is based on early geological maps that indicate a dolerite sill from surface to depth of approximately 300m.

It is very likely that the dolerite sill is a major geological feature due to its thickness, the large area it covers over the Site and Operational Site and the important role it plays in the movement of groundwater in the study area.

The shallow aquifer will most probably be very recently recharged by rain water and will move along the weathered zone of the dolerite sill and / or fractures along the contact with the Karoo sediments that can be associated with the dolerite sill intrusion.

The aquifer systems are, to a large extent, independent of each other because of the impermeable sill that separates them. There may however be some isolated zones of connectivity between the two aquifer systems.

The surrounding groundwater users in the Jagersfontein Town abstract water from the shallow aquifer, as it is not feasible to drill boreholes to the depths required to abstract from the deeper aquifer. The shallow aquifer is not affected by the drawdown created in the deep aquifer. Abstraction from the deeper aquifer therefore has an insignificant impact on the shallow aquifer's water levels.

Jagersfontein is situated in the C51H quaternary drainage region of the Upper Orange Catchment.

The main surface water features on the Operational Site is Dam 10 with a capacity of 459 126m<sup>3</sup>; Loskop Dam with a capacity of 52 698m<sup>3</sup>; and the watercourse that drains into Dam 10. However, the watercourse draining to Dam 10 is mostly dry. However, almost the entire catchment of the seasonal stream drains into Dam 10 which essentially acts as a sediment trap (Van Rensburg, 2013).

\* Land use

The land as indicated is used for the reprocessing of the surface tailings on it and forms part of the tailings operation and activities associated with it (i.e. ploughing, loading, transportaion of material, processing in the plant). The other areas include parts of the town of Jagersfontein. The area surrounding the tailings operation is mainly used for agriculture.

\* Vegetation

The area consist of Xhariep Karroid Grassland which is currently listed as least threatened within the National List of Threatened Ecosystems (Notice 1477 of 2009) (National Environmental Management Biodiversity Act, 2004) and is not currently subjected to any pronounced development pressures. The proposed prospecting footprint is listed as being an Ecological Support Area 1 and 2. It therefore functions in ecological support of surrounding watercourses and wetlands although it is not a Critical Biodiversity Area.

The prospecting area was subdivided into 4 separate areas by the ecologist. The following is a description of the vegetation of each of the areas according to him:

Western Prospecting Area

The terrestrial vegetation is dominated by a low grass layer with a significant dwarf karroid shrub component. The grass layer is dominated by only a few species and is therefore not very diverse. "The dominant species are *Eragrostis lehmanniana*, *Aristida congesta* and *Heteropogon contortus*. This assemblage of species are natural to the vegetation type but where they dominate as is the case here this indicates some disturbance of the natural vegetation. Other grass species which occur as scattered clumps include *Eragrostis curvula*, *Themeda triandra*, *Stipagrostis obtusa* and *Melica decumbens*. The dwarf karroid shrub component is especially prominent and although this indicates disturbance of the vegetation may also be a consequence of the current drought, i.e. the aboveground portions of the grasses disintegrate while the karroid shrubs are more persistent and therefore more visible and prominent. Common dwarf shrubs include *Eriocephalus ericoides*, *E. spinescens*, *Rosenia humilis*, *Pentzia incana*, *Lycium cinerium*, *Asparagus suaveolens*, *Searsia ciliata*, *Gnidia polycephala* and *Helichrysum lucilioides*. Where boulder piles and rock walls remain these promote the establishment of trees and shrubs. These include *Searsia pyroides*, *Vachellia karroo*, *Diospyros austro-africana*, *Buddleja saligna*, *Searsia burchellii*, *S. pyroides* and *Olea europaea subsp. africana*. These can be considered a modification of the natural vegetation since, without the boulder piles they would not have succeeded in establishing here. The last named, *O europaea subsp. africana*, is a protected species although widespread and relatively common. They are not of old age, large size and do not form a high density of individuals and are therefore not considered to be of high conservation value. Where they will

be affected by prospecting operations permits must be obtained to remove them. The establishment of trees increase considerably toward the east of the site and seem to be most likely associated with sediment deposition from the adjacent tailings dump. The trees are dominated by *Vachellia karroo* to a large extent although specimens of *Diospyros lycioides* and *Searsia pyroides* are also present. The understory often contains the climbing shrub, *Asparagus larcinus*. The exotic shrubs, *Pyracantha angustifolia* and *Cotoneaster franchettii* has also become established as scattered clumps. Other exotic weeds are also abundant but mostly associated with degradation associated with the small drainage line and will be discussed in the wetland assessment” (Van Rensburg. D, 2019).

#### Central Small Hill

This area contains remnants of the natural vegetation which is more representative of the Besemkaree Koppies Shrubland (Gh 4) of the surrounding hills, but it is heavily modified. Exotic weeds and invaders are common as the majority of the area is transformed and dominated by pioneer species.

Shrubs and small trees establishing on hills and exposed dolerite dominates the vegetation of the natural vegetation type. Trees and shrubs include *Ehretia rigida*, *Searsia burchellii*, *S. ciliata*, *Euclea crispa* subsp. *ovata*, *Buddleja saligna*, *Diospyros lycioides* and *Olea europaea* subsp. *Africana*. Although widespread and relatively common the *Olea europaea* subsp. *Africana* is a protected species which are not considered to be of high conservation value as they are not of old age, large size and do not form a high density of individuals. Permits must be obtained to remove them where prospecting will occur. A sparse grass layer is present as scattered clumps as it is heavily degraded.

#### Northern prospecting area

“The terrestrial portion of the site, although being largely natural, does not contain a high species diversity. However, two protected species do occur, *Olea europaea subsp. africana* and *Haemanthus humilis*. *Olea europaea subsp. africana*, occurs but is also a consequence of historical delving boulder piles which promote the establishment of trees. The species is widespread and common and not of 23 high conservation value. However, it is still recommended that where prospecting operations will affect them the necessary permits be obtained to remove them. *Haemanthus humilis* is also considered uncommon and therefore of significant conservation value. It is confined to the low dolerite ridge along the western border of the site and should be easily avoided by prospecting operations. Where specimens will be affected by prospecting the necessary permits should be obtained to transplant them to an adjacent area where they will remain unaffected. Prospecting operations should not have a high impact as long as the discussed protected species are managed appropriately as recommended” (Van Rensburg. D, 2019).

#### Eastern prospecting area

“The natural vegetation is heavily degraded and the current vegetation is dominated by a sparse grass layer with dwarf karroid shrubs prominent. The condition of the vegetation may be decreased by the current drought but the species composition will remain the same and clearly indicates high levels of disturbance. The grass layer is dominated by *Cynodon dactylon*, *Eragrostis lehmanniana* and *Aristida congesta*. This assemblage of species is dominated by pioneers and indicate a degraded grass layer. Other species include *Eragrostis obtusa* and *Themeda triandra*, but is represented by rare specimens which can only survive inside bushes where they escape overgrazing. The low diversity of grass species should also indicate the degraded condition. Dominant dwarf karroid shrubs include *Hertia pallens*, *Lycium horridum*, *Asparagus suaveolens*, *Pentzia incana*, *Rosenia humilis*, *Nenax microphylla* and *Eriocephalus ericoides*. Although these species form a natural component of the vegetation type where some of these dominate such as *L. horridum* and *H. pallens*, it clearly indicates overgrazing. Several herbs also become dominant and are also indicators of a disturbed vegetation layer. They include *Salvia disermas*, *Moraea palida*, *Arctotis arctotheca* and *Stachys hyssopoides*. Due to the degraded condition several exotic species have become established. These include weeds, *Argemone ochroleuca* and *Xanthium spinosum*, invasive succulent species, *Cyllindropuntia imbricata*, *Opuntia humifusa*, *Yucca aloifolia* and *Agave americana* and invasive tree species, *Prosopis glanduosa* and *Eucalyptus camaldulensis*. From the above description it should be clear that the area is heavily degraded and low in species diversity” (Van Rensburg. D, 2019).

(Please refer to the attached Ecological and Wetland Assessment by Mr. D. Van Rensburg for detailed vegetation descriptions).

\* Demographics

According to STATS SA (2011 census) the Jagersfontein population consists of 1 819 people, with 63.4% of that being people of working age (15-64). The young (0-14) constitutes 26.4% of the population and the elderly (65+) 10.2%. Black Africans constitute the largest population group in Jagersfontein (59.1%), followed by Coloured (22.5%), White (16.5%), Indian/Asian (0.7%) and Other (1.2%). The population of Jagersfontein includes the residents in Charlesville (490 residents) and the people residing on the Operational Site (40 people). There are 3, 910 people residing in Itumeleng.

#### \* Heritage and Palaeontology

##### Palaeontology

“Bedrock geology along the proposed route is characterized by argillaceous rocks of the Tierberg Formation. The formation represents the uppermost unit of the Ecca Group (Karoo Supergroup) and primarily comprises well-laminated, dark shales with abundant carbonate concretions, interbedded by siltstones and fine-grained sandstones. Fish scales and sponge spicules have previously been found in some of the carbonate concretions and trace fossils commonly occur throughout the sequence, but terrestrial vertebrates and plant remains are generally absent from the Tierberg Formation. Geologically recent sediments overlying the Tierberg Formation are made of Quaternary-aged channel fills and sheetwash deposits, including unconsolidated wind-blown sands and limited alluvium from the nearby Prosesspruit. Overbank deposits and alluvial terraces of large river courses such as the nearby Riet River have previously yielded numerous Quaternary vertebrate fossil remains. Unfortunately, vertebrate fossils are usually not well-preserved in shallow alluvial deposits along small river courses and stream beds in this region. The current study areas fall within the same sensitivity zone as the area exempted by SAHRA in 2013 (L. Rossouw, 2013). It is recommended that should the core areas change or expand that they be subjected to a full PIA” (S. Gaigher, 2019).

Terms used by the specialist (i.e. Mr. S. Gaigher) such as “core areas” and “current study areas” relates to the 4 areas identified where invasive prospecting will occur. These areas were subject to a field assessment whereas a desktop assessment was undertaken for the rest of the footprint of the prospecting right area.

##### Heritage

The following are the findings of the field based investigation of the 4 core study areas as per the HIA:

#### **Area A**

Although a stone tool concentration was indicated in the 2013 study by Me. L. Philip to the southwest of Area A (refer to Figure 33 of the HIA attached in Appendix 4) it was found to be well outside the proposed prospecting site. “The site has been subjected to severe alterations due to mining activities in the past and it is not anticipated that any sites of heritage significance will be found intact here” (S. Gaigher, 2019).

#### **Area B**

Please refer to Figure 33 in the HIA for reference to the location of Area B as described by the specialist.

Area B, although severely altered in many of its parts by a haulage road through it contains a site of high significance in terms of heritage. The historic Cavalry Quarters are located at this site. “Much of the intricate stone walling is still in place and well preserved. Due to its historic importance and intact nature it is of paramount importance that this site be preserved. This is a large neatly constructed stone-walled enclosed area with a wide opening (approximately 6m wide) to the east. Only three of the four sides are still standing and consists of a double row of stone-packed walls with a + 3m wide space between the two walls to form an enclosed channel that presumably ran right around to form a courtyard space in the middle. The eastern and southern sides have only one opening to these areas facing the courtyard area of the enclosed area. The foundations on the northern side are too low to determine whether it had a similar opening. The western corner of the southern wall still has a portion of the original wall constructed of sundried mudstone brick on top and it is assumed the stone walls served as foundation for these walls. These foundation walls were constructed with large stones filled with smaller stones and blue gravel (similar to that found on the mine dumps) in-between. No associated midden (rubbish dump) could be found in the vicinity. Apparently, a large amount of old horse shoes were collected from this area over the years. Feeding troughs constructed of wood and long strips of metal sheets fashioned into a hollow shape suggests an area where animals were kept. It is, however, possible that the latter could have been a later edition and therefore, might be a secondary use.

According to the war records the British occupied Jagersfontein during the Anglo-Boer War and used the old mine dumps as entrenchments. If this area was not constructed by the miners, then it might have been constructed during this time to stable the cavalry soldiers' horses. The mine itself also made extensive use of horses for a variety of reasons ranging from pulling the rollers that compacted and ploughed the floors areas to patrolling the mining area. On the outside of the western wall are a long thin cement foundation and a scatter of more modern bricks.

Even if no further activities are planned within this area the impact of past developments close to the structure should be mitigated" (S. Gaigher, 2019).

### **Area C**

"Although the site might have contained mining structures of historic nature these have long since been obliterated by newer mining activities. No sites of any heritage importance were noted here" (S. Gaigher, 2019).

### **Area D**

"The site is open and devoid of developments in most areas. It lies between the main access road to the town of Jagersfontein and the formal township of Ithumeleng.

A large drainage ditch runs diagonally through the study area. This has caused much erosion in the past and it was hoped that any Stone Age deposits would have been exposed, however none were found. Isolated stone chips and possible cores were noted, however non were thought to be diagnostic of either the Fauresmith or Smithfield Industries that would be expected in these areas.

Two areas of development were noted in Area D. The first seemed to be the remains of an old water treatment or supply plant. It had concrete flooring, a round concrete reservoir and several rectangular dams. These dams were filled with water due to the rain of the previous day.

Through analysis of the historic topographic maps available it is evident that this site is only referred to as a "Reservoir" with no indications of the dams. The site is indicated on the 1988 and 2005 maps as "Res." The 1948 map does show green rectangles that could possibly be the dams. The concrete structures are however not older than 60 years and are therefore not protected under the NHRA. It is very doubtful if the dams could be older than 60 years and if they are their heritage value is negligible" (S. Gaigher, 2019).

Due to the magnitude of information and data relating to the heritage sites over the remainder of the footprint of the prospecting right area which were subject to a desktop assessment reference is made to the HIA for a description of these areas. The area contains a large number of significant heritage resources due to the historical nature of the area.

## **(b) Description of the current land uses.**

The land is currently used for activities associated with the diamond reprocessing operation where surface tailings are transported from the surface tailings dumps, left during historic mining activities, to the process plant for reprocessing to extract the diamonds from the tailings. Parts of the land on which the tailings operation is located is used for grazing of cattle and small game (i.e. antelope). Portion 1 and Portion 16 and a portion of the Remainder which forms part of the tailings operation has been disturbed as a result of the historical diamond mining activities and the current tailings operation and is only used for activities associated with the tailings operation. It is only the northern and western parts of portion 16 where the environment has not been extensively disturbed during historic mining activities and the tailings operation, although some impacts have occurred on these parts. Although the existing tailings dumps are located on the footprint of the prospecting right it should be noted that no prospecting will be done on these dumps as the DMR has no jurisdiction over these areas and can therefore not authorise prospecting and related activities.

The towns of Jagersfontein, Charlesville and Itumeleng are located adjacent to the tailings operation on the Remainder of Jagersfontein 14. These towns includes all structures and infrastructure associated with a town including, but not limited to roads, sewage system, houses, shops and other businesses, a hospital, police station, schools, churches and other public facilities. There are no major industrial facilities in the area apart from the activities associated with the tailings operation.

The largest parts of the surrounding areas are mainly used for agriculture, especially towards the north, south and west.

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

The proposed site for prospecting has the following environmental features and infrastructure:

\* Infrastructure relating to the tailing operation:

The tailings operation consist of a process plant which processes the surface tailings dumps located on the Remainder, Porion 16 and Portion 1 of the farm Jagersfontein 14. The footprints of the surface tailings dumps will be excluded from the prospecting right as the DMR cannot authorise prospecting and related activities on these dumps. Furthermore, there are numerous conveyors located on the properties to transport tailings from the surface tailings dumps to the processing plant. The process plant area also contains the offices, workshop and the employee houses.

A Fine Tailings Storage Facility is also located on the proposed area. This is the structure where the fine tailings suspended in water (i.e. Paste) is stored. The walls of this facility is constructed with coarse tailings. The tailings operation has a balancing dam of 0.75ha located directly south of the process plant and a Process Water Dam of 0.33ha located at the plant.

\* Water features:

The Kalkfontein - Fauresmith water pipeline crosses the proposed area. This pipeline transports water from the Kalkfontein Dam to Fauresmith and Jagersfontein.

The proposed prospecting area has 2 surface water features (i.e. Dam 10 and Loskop Dam) and a non-perennial watercourse which drains into Dam 10.

The northern and western prospecting areas (refer to the Ecological and Wetland Assessment in Appendix 4) contains small drainage tributaries while the eastern prospecting area contains the main stream shannel. Wetlands are present on all 3 of these sites.

The proposed area also has numerous boreholes where water is either abstracted to be used in the process plant or for domestic use and monitoring of groundwater.

\* Agriculture / Vacant land:

The largest part of the proposed prospecting area consists of vacant land which is used for agriculture (i.e. grazing). Furthermore, the area also has some dolerite capped hills and ridges.

\* Powerlines:

There are Eskom powerlines located on the proposed land which provides electricity to the tailings operation.

\* Town infrastructure:

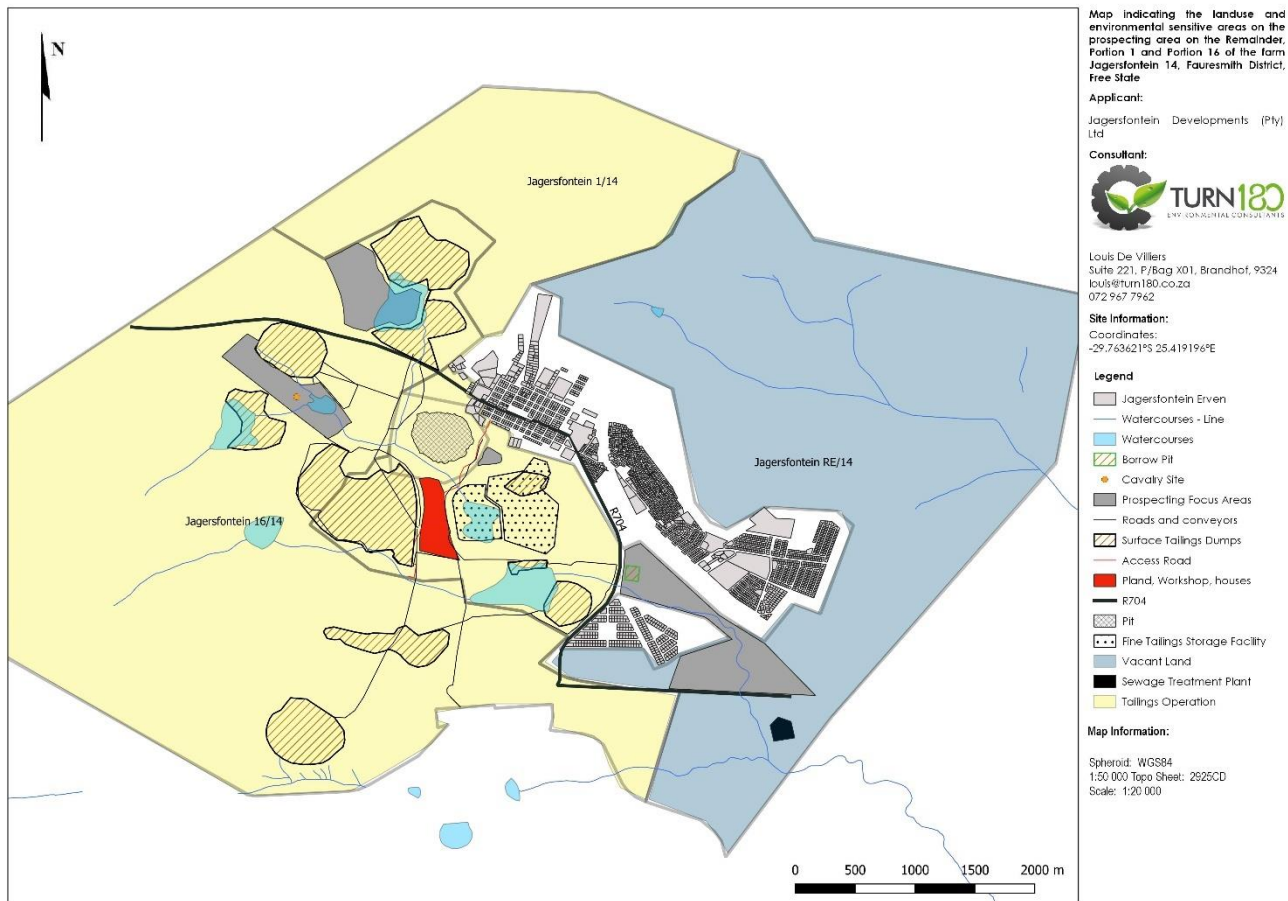
A portion of the proposed prospecting area includes the town infrastructure of Jagersfontein.

\*Roads:

The proposed prospecting area has a road network consisting of gravel roads used on the tailings operation. The portion of the prospecting area located outside the tailings operation has tarred roads.

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

(Show all environmental, and current land use features)



Attached in Appendix 2.

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

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

The following potential impacts were identified:

- \* Loss of topsoil and vegetation,
- \* Loss of animal life,
- \* Pollution of surface and groundwater,
- \* Littering,
- \* Change in land use,
- \* Noise pollution,
- \* Impact on air quality,
- \* Socio-economic impact,
- \* Loss of heritage and/palaeontological artefacts.

Refer to the impact assessment in Appendix 5

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

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

Refer to the Impact Assessment in Appendix 5



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

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

No comments were raised by affected parties regarding the land use.

There are no alternative site layouts to be considered. Four areas were identified where invasive prospecting will occur. These were identified from desktop studies. The layout of the entire footprint is already established with the infrastructure of the current tailings operation and the layout will not change. Invasive prospecting will however only be conducted on the 4 focus areas as indicated on all maps in Appendix 2. No prospecting will be done on the existing surface tailings as the DMR cannot authorise the prospecting and any associated activities on these dumps.

Trenching / pitting and bulk sampling can only commence in specific places as identified during the drilling of boreholes. Therefore, the site layout cannot indicate the specific sites where these activities will occur. However, a layout plan is attached which indicates the areas of interest where prospecting will occur which excludes the current tailing dumps.

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

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

Note:

No prospecting activities will take place on the surface tailing dumps as the DMR cannot authorise the prospecting and associated activities on these dumps.

The following concerns were raised by affected parties:

- 1) How will the prospecting activities impact on groundwater and will monitoring of groundwater quality be implemented during prospecting,
- 2) How will dust emissions and noise be controlled.

Mitigation of impacts raised by affected parties:

- 1.1) The prospecting activities will not have any additional impacts on groundwater as the prospecting activities will be undertaken with the existing tailings operation. No additional water will be abstracted for the prospecting operation as the same DMS plant will be used.

The existing water resource monitoring programme will remain active and water resources will be sampled and analysed quarterly throughout the prospecting activities to determine the extent of pollution caused by the tailings operation and prospecting. The monitoring programme also involves the measuring of volumes of water abstracted for the processing of tailings. The monthly volumes are logged. It is not expected that the prospecting activities will have any additional impacts on the water resources.

- 2.1) The tailings operation has an existing Dust Fallout monitoring programme which entails the monthly measuring of dust levels at the tailings operation. The Dust Fallout monitoring programme will remain active during the prospecting operation. The following are mitigation measures implemented to limit dust emissions:
  - Roads are sprayed with water during dry times when trucks travel on them during very windy conditions. It should be noted that water in the area is scarce and used sparingly; therefore, roads are not sprayed daily or unnecessarily.
  - Coarse material is placed on road surfaces to limit the contact between fine dust and tyres of vehicles which reduces dust emissions.
  - Speed of trucks travelling on the site will be limited to 40km/hr to minimise dust emissions.

- Conveyors are used for the transportation of tailings to the plant to limit the number of vehicles using roads. The use of conveyors limit dust emissions.
- Material from the processing plant is wet and therefore does not contribute to dust emissions.
- During the prospecting activities (trenching) vegetation and topsoil will be removed from the surface and stockpiled after which material will be excavated and loaded directly onto trucks and transported to the processing plant. After excavation of all material from a trench it will be backfilled with the material from the trench and rehabilitated.
- Drilling will contribute to dust emissions. Drilling will not be undertaken in very windy conditions to limit nuisance dust to adjacent landowners. Drilling activities will also only be temporary.
- Noise levels will be limited to the noise associated with the current tailings operation as excavators and drills will be used during the same time as the Tailings Operation. Drilling will contribute to an increase in noise levels as it is not associated with the current activities associated with the tailings operation. However, drilling will only be done during normal working conditions (i.e. daytime) to reduce noise levels at night.

The following mitigation measures will be implemented in order to minimize potential impacts on the environment:

- Surface and groundwater quality and quantity:
  - \* Storm water management measures will be implemented to divert clean storm water around the prospecting area and to contain any "dirty water" on the operational area.
  - \* Comply with all conditions of the National Water Act (Act 36 of 1998) and submit all required Water Use License Applications. The applicant is in the process of applying for the WUL,
  - \* Any spill of potentially hazardous substances (e.g. oil, grease, diesel, etc.) should be cleaned and the spill managed immediately.
  - \* Storm water mitigation measures will be implemented to ensure that clean run-off water is not contaminated by any activities related to the proposed prospecting.
- Ambient Air Quality:
  - \* The existing dust fallout monitoring programme will continue to monitor dust emissions from the operation.
  - \* If dust becomes problematic, further management of the dust must be implemented (refer to above mitigation measures)
  - \* The speed of trucks and other vehicles on the roads should be limited to 40 km/hour to avoid dangerous conditions, excessive dust or excessive deterioration of the road being used.
  - \* A complaints register will be kept on site to log any complaints from adjacent landowners.
- Noise Levels:
  - \* Machines should be equipped with silencers.
  - \* Machines should be maintained in a good condition to prevent excessive noise.
  - \* A complaints register will be kept on site to log any complaints from adjacent landowners.
  - \* The dust fallout monitoring programme will remain in place and monthly monitoring of dust levels will be implemented to monitor dust levels from the tailings operation.
- Waste:
  - \* Non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc., shall be disposed and stored in a suitable container at a collecting point and collected on a regular basis and disposed of at an authorized waste disposal facility in the area. Specific precautions shall be taken to prevent refuse from being dumped on or in the vicinity of the prospecting site.
  - \* Suitable covered receptacles shall be available at all times and conveniently placed for the disposal of waste for general and hazardous waste.
  - \* Spills of any product such as paint, oil, cleaning agents etc. should be cleaned up immediately by removing the spillage together with the polluted soil and by disposing of it at a recognised facility.
  - \* All used oils, grease or hydraulic fluids, paints, thinners etc. that cannot be re-used shall be placed in a hazardous waste container for disposal at a suitable waste disposal facility.
  - \* Existing toilet facilities will be used by employees throughout the project lifetime.
- Loss Of Vegetation:

- \* It is not anticipated that the vegetation on adjacent property will be influenced due to the proposed mining activities as these activities will be carried out on a specific site (i.e. the prospecting area).
- \* No open fires will be allowed on site as the site will be treated as a fire-free zone to protect the loss of vegetation.
- \* A permit must be obtained to transplant protected / red data species to other areas where it will not be disturbed. However, it is not anticipated that there are any of these species which will be disturbed.
- \* Only areas where prospecting activities occur will be cleared of vegetation.
- \* The entire prospecting area will be rehabilitated and revegetated after prospecting to ensure the re-growth of vegetation. This will be relevant on areas where no future mining will occur.

- Loss of animals:

- \* No animals will be harmed or killed on the proposed site.
- \* The site will be rehabilitated in such a manner to promote habitat establishment for animals on the site.

- Soil loss:

- \* Topsoil, if available, will be removed and stockpiled to preserve the soil for re-use during rehabilitation.
- \* Measures will be implemented to protect topsoil stockpiles from erosion. This includes covering of the soil with vegetation and making berms at the highest part of the stockpiles to divert water around them.
- \* Topsoil stockpiles will not be made on steep slopes.
- \* Topsoil will not be sold or used for any other purposes.

- Safety:

- \* No employee at the prospecting area will be allowed to wander on adjacent land without consent from that landowner.
- \* No animals in the surrounding area will be injured or killed.
- \* Employees will cook food and eat at home and will not be allowed to gather food from the environment surrounding the proposed site.
- \* Only qualified personnel will be allowed to operate machinery.
- \* Machinery and vehicles will be serviced as needed to ensure safety of personnel.

- Archaeology and Palaeontology:

The following management and mitigation measures are included on the areas where invasive prospecting will be done (i.e. the focus areas). Other areas where artefacts of heritage significance are located on the rest of the footprint of the prospecting area will be implemented to prevent any impacts from occurring as a result of other activities on the site.

- \* Ground works at Area D must be monitored by a qualified heritage expert to assess the possible occurrence of Fauresmith and Smithfield Industry remains,
- \* The Cavalry Enclosure site should be subjected to a second phase investigation as recommended by the specialist. No alteration of the site is permitted without a permit from SAHRA.

**ix) Motivation where no alternative sites were considered.**

The project is for the prospecting for minerals (i.e. diamonds). Due to the nature of the project the prospecting can only occur in specific areas where the mineral is most likely to be found. The project is therefore very site specific. This area was identified by geological maps and desktop studies of the area.

No prospecting will occur on the existing surface tailing dumps

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

Please refer to the above.

- h) Full description of the process undertaken to identify, assess and rank the impacts and risks the activity will impose on the preferred site (In respect of the final site layout plan) through the life of the activity. (Including (i) a description of all environmental issues and risks that were identified during the environmental impact assessment process and (ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures.)**

Please refer to the Environmental Impact Assessment in Appendix 5.

**i) Assessment of each identified potentially significant impact and risk**

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

Note:

No prospecting activities will take place on the tailing dumps as the DMR cannot authorise prospecting and associated activities on these areas.

<b>ACTIVITY</b> whether listed or not listed.  (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.).	<b>POTENTIAL IMPACT</b>  (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc...)	<b>ASPECTS AFFECTED</b>	<b>PHASE</b> In which impact is anticipated  (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)	<b>SIGNIFICANCE</b> if not mitigated	<b>MITIGATION TYPE</b>  (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc)  E.g. Modify through alternative method. Control through noise control Control through management and monitoring through rehabilitation..	<b>SIGNIFICANCE</b> if mitigated
Drilling	<ul style="list-style-type: none"> <li>Loss of topsoil through erosion or contamination</li> </ul>	Soil	Operational, Rehabilitation	Low- Moderate	<ul style="list-style-type: none"> <li>Stop through avoidance,</li> <li>Control through maintenance,</li> <li>Avoid through storm-water control.</li> </ul>	Low
	<ul style="list-style-type: none"> <li>Dust (Air Pollution).</li> <li>Noise.</li> </ul>	Air	Operational, Rehabilitation	Moderate - High	<ul style="list-style-type: none"> <li>Control through noise control measures,</li> <li>Control through dust control measures.</li> </ul>	Moderate
	<ul style="list-style-type: none"> <li>Loss of vegetation type and protected species,</li> <li>Infestation of weeds.</li> </ul>	Vegetation	Operational, Rehabilitation	Moderate	<ul style="list-style-type: none"> <li>Control through relocation,</li> <li>Remedy through rehabilitation,</li> <li>Control through monitoring and removal.</li> </ul>	Low
	Impact on fauna	Fauna	Operational	Moderate	<ul style="list-style-type: none"> <li>Stop through avoidance.</li> </ul>	Low - Moderate
	Loss of	Surface water	Operational,	Moderate - High	<ul style="list-style-type: none"> <li>Control through avoidance</li> </ul>	Moderate

<b>ACTIVITY</b> whether listed or not listed.  (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.).	<b>POTENTIAL IMPACT</b>  (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc...)	<b>ASPECTS AFFECTED</b>	<b>PHASE</b> In which impact is anticipated  (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)	<b>SIGNIFICANCE</b> if not mitigated	<b>MITIGATION TYPE</b>  (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc)  E.g. Modify through alternative method. Control through noise control Control through management and monitoring through rehabilitation..	<b>SIGNIFICANCE</b> if mitigated
	watercourse		Rehabilitation		(if possible) • Remedy through rehabilitation.	
	Groundwater contamination.	Groundwater	Operational, Rehabilitation	Moderate	• Control through maintenance, • Stop through avoidance,	Low
	Damage or loss of archaeological and/or palaeontological significant artefacts	Heritage and Palaeontology	Operational, Rehabilitation	High	• Stop through avoidance of heritage sites • Control through monitoring of sites.	Low
	Change in land use	Land use	Operational, Rehabilitation	Low – Moderate	• Remedy through rehabilitation	Low
Trenching/pitting	Loss of topsoil through erosion or contamination	Soil	Operational, Rehabilitation	Moderate	• Control through maintenance, • Avoid through storm-water control, • Remedy through rehabilitation.	Low - Moderate
	• Dust (Air Pollution). • Noise.	Air	Operational, Rehabilitation	Moderate	• Control through noise control measures, • Control through dust control measures.	Low - Moderate
	• Loss of vegetation	Vegetation	Operational, Rehabilitation	Moderate	• Control through relocation, • Remedy through	Low - Moderate

<b>ACTIVITY</b> whether listed or not listed.  (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.).	<b>POTENTIAL IMPACT</b>  (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc...)	<b>ASPECTS AFFECTED</b>	<b>PHASE</b> In which impact is anticipated  (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)	<b>SIGNIFICANCE</b> if not mitigated	<b>MITIGATION TYPE</b>  (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc)  E.g. Modify through alternative method. Control through noise control Control through management and monitoring through rehabilitation..	<b>SIGNIFICANCE</b> if mitigated
	type and protected species, • Infestation of weeds.				rehabilitation, • Control through monitoring and removal.	
	Impact on fauna	Fauna	Operational	Moderate	Stop through avoidance.	Moderate
	Loss of watercourse	Surface water	Operational, Rehabilitation	Moderate - High	• Control through avoidance (if possible) • Remedy through rehabilitation.	Moderate
	Groundwater contamination.	Groundwater	Operational, Rehabilitation	Moderate	• Control through • aintenance, • Stop through avoidance,	Low
	Damage or loss of archaeological and/or palaeontological significant artefacts	Heritage and Palaeontology	Operational, Rehabilitation	High	• Stop through avoidance of heritage sites, • Control through monitoring of sites.	Low
	Change in land use	Land use	Operational, Rehabilitation	Moderate	Remedy through rehabilitation	Low - Moderate
Stockpiling	Loss of topsoil through erosion or contamination	Soil	Operational, Rehabilitation	Moderate	• Control through maintenance, • Avoid through storm-water control,	Low - Moderate

<b>ACTIVITY</b> whether listed or not listed.  (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.).	<b>POTENTIAL IMPACT</b>  (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc...)	<b>ASPECTS AFFECTED</b>	<b>PHASE</b> In which impact is anticipated  (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)	<b>SIGNIFICANCE</b> if not mitigated	<b>MITIGATION TYPE</b>  (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc)  E.g. Modify through alternative method. Control through noise control Control through management and monitoring through rehabilitation..	<b>SIGNIFICANCE</b> if mitigated
					<ul style="list-style-type: none"> <li>Remedy through rehabilitation.</li> </ul>	
	<ul style="list-style-type: none"> <li>Dust (Air Pollution).</li> <li>Noise.</li> </ul>	Air	Operational, Rehabilitation	High	<ul style="list-style-type: none"> <li>Control through noise control measures,</li> <li>Control through dust control measures.</li> </ul>	Moderate
	<ul style="list-style-type: none"> <li>Loss of vegetation type and protected species,</li> <li>Infestation of weeds.</li> </ul>	Vegetation	Operational, Rehabilitation	Moderate	<ul style="list-style-type: none"> <li>Control through relocation,</li> <li>Remedy through rehabilitation,</li> <li>Control through monitoring and removal.</li> </ul>	Low - Moderate
	Impact on fauna	Fauna	Operational	Moderate	Stop through avoidance.	Moderate
	Loss of watercourse	Surface water	Operational, Rehabilitation	Moderate - High	<ul style="list-style-type: none"> <li>Control through avoidance (if possible)</li> <li>Remedy through rehabilitation.</li> </ul>	Low
	Groundwater contamination.	Groundwater	Operational, Rehabilitation	Moderate	<ul style="list-style-type: none"> <li>Control through maintenance,</li> <li>Stop through avoidance,</li> </ul>	Low
	Damage or loss of archaeological and/or palaeontological significant	Heritage and Palaeontology	Operational, Rehabilitation	High	<ul style="list-style-type: none"> <li>Stop through avoidance of heritage sites,</li> <li>Control through monitoring of sites.</li> </ul>	Low



<b>ACTIVITY</b> whether listed or not listed.  (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.).	<b>POTENTIAL IMPACT</b>  (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc...)	<b>ASPECTS AFFECTED</b>	<b>PHASE</b> In which impact is anticipated  (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)	<b>SIGNIFICANCE</b> if not mitigated	<b>MITIGATION TYPE</b>  (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc)  E.g. Modify through alternative method. Control through noise control Control through management and monitoring through rehabilitation..	<b>SIGNIFICANCE</b> if mitigated
	artefacts					
	Change in land use	Land use	Operational, Rehabilitation	Moderate	Remedy through rehabilitation	Low - Moderate
Loading, hauling and transport	Loss of topsoil through erosion or contamination	Soil	Operational, Rehabilitation	Moderate – High	<ul style="list-style-type: none"> <li>Control through maintenance,</li> <li>Stop through avoidance,</li> <li>Stop through storm-water control,</li> <li>Remedy through rehabilitation.</li> </ul>	Moderate
	<ul style="list-style-type: none"> <li>Dust (Air Pollution).</li> <li>Noise.</li> </ul>	Air	Operational, Rehabilitation	High	<ul style="list-style-type: none"> <li>Control through noise control measures,</li> <li>Control through dust control measures.</li> </ul>	Moderate
	<ul style="list-style-type: none"> <li>Loss of vegetation type and protected species,</li> <li>Infestation of weeds.</li> </ul>	Vegetation	Operational, Rehabilitation	Moderate	<ul style="list-style-type: none"> <li>Control through relocation,</li> <li>Remedy through rehabilitation,</li> <li>Control through monitoring and removal.</li> </ul>	Low - Moderate
	Impact on fauna	Fauna	Operational	Moderate	Stop through avoidance.	Moderate
	Loss of watercourse	Surface water	Operational, Rehabilitation	Moderate - High	<ul style="list-style-type: none"> <li>Control through avoidance (if possible)</li> <li>Remedy through rehabilitation.</li> </ul>	Moderate

<b>ACTIVITY</b> whether listed or not listed.  (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.).	<b>POTENTIAL IMPACT</b>  (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc...)	<b>ASPECTS AFFECTED</b>	<b>PHASE</b> In which impact is anticipated  (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)	<b>SIGNIFICANCE</b> if not mitigated	<b>MITIGATION TYPE</b>  (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc)  E.g. Modify through alternative method. Control through noise control Control through management and monitoring through rehabilitation..	<b>SIGNIFICANCE</b> if mitigated
	Groundwater contamination.	Groundwater	Operational, Rehabilitation	Moderate	<ul style="list-style-type: none"> <li>Control through maintenance,</li> <li>Stop through avoidance,</li> </ul>	Low
	Damage or loss of archaeological and/or palaeontological significant artefacts	Heritage and Palaeontology	Operational, Rehabilitation	High	<ul style="list-style-type: none"> <li>Stop through avoidance of heritage sites,</li> <li>Control through monitoring of sites.</li> </ul>	Low
	Change in land use	Land use	Operational, Rehabilitation	Moderate	Remedy through rehabilitation	Low - Moderate
NOTE: THE PROCESSING PLANT, OFFICES AND OTHER INFRASTRUCTURE ASSOCIATED WITH IT FORMS PART OF THE EXISTING TAILINGS OPERATION AND WILL BE REHABILITATED UPON CLOSURE OF THE TAILINGS OPERATION. IT WILL NOT BE DECOMMISSIONED AND REHABILITATED						

<b>ACTIVITY</b> whether listed or not listed.  (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.).	<b>POTENTIAL IMPACT</b>  (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc...)	<b>ASPECTS AFFECTED</b>	<b>PHASE</b> In which impact is anticipated  (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)	<b>SIGNIFICANCE</b> if not mitigated	<b>MITIGATION TYPE</b>  (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc)  E.g. Modify through alternative method. Control through noise control Control through management and monitoring through rehabilitation..	<b>SIGNIFICANCE</b> if mitigated
AFTER PROSPECTING.						

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

Refer to Appendix 5

**j) Summary of specialist reports.**

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

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED.
Heritage and Paleontological Impact Assessment	<p>Recommendation of findings on the focus areas:</p> <ul style="list-style-type: none"> <li>• The Cavalry Enclosure needs to be managed and mitigated before any impact on it is allowed. A second phase investigation is required for this site and no alteration to the site may be done without a permit from SAHRA,</li> <li>• Ground warks in the unidentified stone age deposit area (i.e. Area D) should be monitored by a qualified heritage expert to assess the possible occurrence of Fauresmith and Smithfield Industry remains.</li> </ul> <p>Other recommendations made in relation to the area where invasive prospecting is not planned:</p> <ul style="list-style-type: none"> <li>• The open pit area should be nominated as National Heritage Site and no further development can take place that would alter its appearance or endanger it in any way.</li> <li>• All buildings in the mine square area are nominated to be declared as Provincial Heritage sites and that the necessary precaution is taken to maintain it accordingly.</li> <li>• That immediate attention is paid to the maintenance of the graveyard in the following:               <ol style="list-style-type: none"> <li>a. Ensuring it is properly fenced in</li> <li>b. Graves that have eroded out require immediate repair by a suitably qualified person (e.g. an archaeologist specializing in grave relocation).</li> <li>c. That a specialist report is obtained regarding the condition of the graveyard as well as providing a maintenance plan for its upkeep.</li> <li>d. That a concerted effort is made in determining its origin</li> </ol> </li> </ul>	X	1(c)(viii)

	<p>e. That the cattle pen immediately adjacent the graveyard is moved to a suitable distance away from the graveyard so that underground seepage and cattle traffic can cause no further damage.</p> <ul style="list-style-type: none"> <li>• A specialist report should be obtained from a suitably qualified person (e.g. a heritage architect) on all structures within the mining area to include the historical components mentioned in table 3 of the HIA, the compound, offices and remains of support service buildings, e.g. study office, etc.</li> <li>• Arrangements should be made for the necessary mitigation (under permit) of structures and buildings as identified in table 3 of the HIA,</li> <li>• Care should be taken that no buildings/structures with a field rating of “Local Grade III” and higher deteriorate any further than its current recorded state and in that render it (or portion thereof depending on its rating) useless for retaining as heritage site and similarly that no site that requires mitigating in any way is allowed to fall in such a state that mitigation is no longer possible.</li> <li>• No further mining activities (e.g. reworking the mine dumps) or any other development and/or activities should take place within the reported area unless the necessary mitigation of structures as recommended in table 3 of the HIA have been completed and the Heritage Management Plan mentioned below is in place.</li> <li>• A complete heritage audit should be done of the remainder of the town not included in this report. The majority of these structures were erected during the early lifetime of the mine, not to mention as a direct result of the mine, and provided the necessary infrastructure by means of shops, churches, recreation, etc. and should therefore not be viewed as separate from the mine (and its associated buildings).</li> <li>• A Heritage Management and Maintenance Plan should be drawn up for all the heritage structures and features mentioned in this report and should form part of the global environmental management plan to ensure future preservation of all heritage factors.</li> </ul> <p>Please note that the recommendation as above were cited from the HIA by Mr. S. Geigher.</p>		
Biodiversity and ecological report	<ul style="list-style-type: none"> <li>• A comprehensive rehabilitation and monitoring plan should be compiled and strictly adhered to where prospecting activities occurs to ensure comprehensive rehabilitation and monitoring of rehabilitation.</li> <li>• The protected species encountered (i.e. <i>Olea europaea subsp. africana</i> and <i>Haemanthus humilis</i>) should be managed as follows: <ul style="list-style-type: none"> <li>– <i>The necessary permits must be obtained to remove the Olea europaea subsp. Africana where prospecting activities will affect</i></li> </ul> </li> </ul>	X	1(c)(viii)

	<p><i>them.</i></p> <ul style="list-style-type: none"> <li>– <i>Haemanthus humilis</i> should be easily avoided by prospecting operations due to its location. “Where specimens will be affected by prospecting the necessary permits should be obtained to transplant them to an adjacent area where they will remain unaffected”.</li> <li>• None of the faunal species on site may be harmed. “The hunting, capturing or harming in any way of mammals on the site should not be allowed”.</li> <li>• Voids should continuously be monitored, and any trapped fauna removed and released in adjacent natural areas. This should include mammals, reptiles and amphibians.</li> <li>• Prospecting activities should be excluded from the watercourses as described in the Ecological and Wetland Assessment report (Map 1) as far as possible. Where mining within watercourses are desired strict adherence to a comprehensive rehabilitation and monitoring plan should be adhered to.</li> <li>• “A natural riparian vegetation should be re-instated where this was disturbed/removed”.</li> <li>• “When excavating in watercourses the upper 30 cm, or topsoil, should be removed together with the vegetation and stored as sods on the site. This will mostly be applicable to areas where wetland conditions are present These should then be replaced on top of the rehabilitated soil surface. Subsoil should be used as backfilling and not as top dressing. Only removed sods and topsoil should be utilised to rehabilitate the bed and bank surface. The soil surface and geomorphology should also be re-instated to its natural condition and shape”.</li> <li>• “Watercourses and wetlands should constantly be monitored for erosion, especially where prospecting has occurred in the bed or banks. Where erosion is evident this must be remedied”.</li> <li>• “The watercourse bed and bank geomorphology should also be re-instated as far as possible”.</li> <li>• Geotextiles (i.e. contouring, berms, gabions and netting) will be used to stabilise soils on steep banks.</li> <li>• “Due to the susceptibility of disturbed areas, especially where watercourses are involved, it is recommended that weed control be judiciously and continually practised. Monitoring of weed establishment should form a prominent part of management of the prospecting areas and should be extended into the rehabilitation phase”.</li> <li>• “The necessary authorisations must be acquired from Department of</li> </ul>		
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	<p>Water and Sanitation (“<b>DWS</b>”) for prospecting within watercourses and wetlands or within 100 meters or within the floodplain of watercourses and within 500 meters of wetland areas”.</p> <p>Recommendation as above were cited, and quoted in some instances from the Ecological and Wetland Assessment Report by Mr. D. Van Rensburg.</p>		
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Attach copies of Specialist Reports as appendices

Refer to Appendix 4.

## **k) Environmental impact statement**

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

- Due to the presence of major sensitive archaeological sites, prospecting operations should be conducted in a manner to prevent any damage to these sites. All heritage sites will be avoided and specialists will be appointed to monitor the operations where needed as per the HIA.
- A Water Use License Application should be submitted to the Department of Water and Sanitation to authorise areas where prospecting will occur within 100 m from watercourses and 500 m from wetlands.
- All watercourses will be regarded as sensitive features and management and mitigation measures as per the Ecological and Wetland Assessment will be implemented.
- Drilling may only be done during normal working hours (i.e. 7am – 6pm) to limit the noise levels which may result in disturbance to neighbors and residents of Jagersfontein, Itumeleng and Charlesville.
- Prospecting activities will not occur on the existing tailings dumps as the DMR cannot authorise these activities.
- Dust control measures will be implemented throughout the prospecting activities to limit the dust emissions. The Dust Fallout Monitoring Programme will remain implemented throughout the lifetime of the prospecting operations.
- The correct storage and handling of hazardous substances and hazardous waste is very important as this may cause contamination of ground and surface- and groundwater.
- Topsoil removed from the surface should be stockpiled in a correct manner and only used for rehabilitation of voids. Topsoil will only be returned as top layer and will not be used for any other purpose than rehabilitation.

### **(ii) Final Site Map**

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

Refer to Appendix 2

### **(iii) Summary of the positive and negative implications and risks of the proposed activity and identified alternatives;**

No prospecting will be undertaken on existing surface tailing dumps as these areas cannot be authorised by the DMR.

The advantages and disadvantages of prospecting on the proposed site are as follows:

\* Advantages:

The prospecting will be done by the applicant which currently employs local residents from Jagersfontein at the surface tailings operation. Should the prospecting require more people it will result in more people from the local community being employed at the operation which will have a positive impact on the socio-economic conditions of local residents. Furthermore, the prospecting for diamonds will be done to establish the feasibility of future mining. Should it be found that future mining is possible it will extend the life of operations and will create numerous new job opportunities.

Most of the proposed site is already disturbed due to the tailings operation that is present on the site.



\* Disadvantages:

The proposed site is located within close proximity of some of the residents. These residents may experience high noise and dust levels associated with the prospecting activities (i.e. drilling, excavation and/or pitting, hauling etc.).

Prospecting is planned for sensitive areas, including watercourses and wetlands and areas with protected plant species. The prospecting will have a negative impact on watercourses if activities are undertaken inside the watercourses.

Prospecting activities will result in a change in land use until the site is rehabilitated. This will prevent residents to use the land for grazing for their animals. This impact will therefore be temporary.

## **I) Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr;**

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

- Surface and groundwater quality and quantity:

- \* No excavating activities will exceed the level of the natural water table.
- \* Comply with all conditions of the National Water Act (Act 36 of 1998) (“**NWA**”).
- \* A Water Use License will be applied for in terms of Section 21(c) and (i) of the NWA before prospecting occurs inside watercourses.
- \* Water will not be used without the necessary authorisation.
- \* Storm water channels, berms and other storm water management systems will be implemented to ensure that clean storm water is diverted around the site.
- \* Any spills of potentially hazardous substances should be cleaned and managed immediately.
- \* Temporary toilets will be placed on site. The toilets and the disposal of effluent from the toilets will be managed by an outside contractor.

- Ambient Air Quality:

- \* The existing Dust Fallout Monitoring Programme will continue to ensure that dust levels fall within the national standards.
- \* If dust levels exceed the standards, further mitigation must be implemented.
- \* Inspection should be done on a daily basis.
- \* Vehicles should be serviced and maintained to lower CO<sup>2</sup> emissions.
- \* Vehicles will be restricted to 40km/h on dust roads.
- \* Conveyors will be used for transportation of materials over long distances to reduce dust emissions.

- Noise Levels:

- \* No work that may increase noise levels will be done after normal working hours.
- \* Ensure the required silencers are placed on all engines.
- \* 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.

- Waste:

- \* Non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc., shall be disposed and stored in a suitable container at a collecting point and collected on a regular basis and disposed of at an authorized waste disposal facility in the area. Specific precautions shall be taken to prevent refuse from being dumped on or in the vicinity of the site.
- \* Suitable covered receptacles shall be available at all times and conveniently placed for the disposal of waste for general and hazardous waste.
- \* Spills of any product such as paint, oil, cleaning agents etc. should be cleaned up immediately by removing the spillage together with the polluted soil and by disposing it at a recognised facility.
- \* All used oils, grease or hydraulic fluids, paints, thinners etc. that cannot be re-used shall be placed in a hazardous waste container for disposal at a suitable waste disposal facility.
- \* Temporary toilet facilities must be made available on site during construction, operational and decommissioning phase.

- \* Sewage from these toilets should be managed appropriately and not be disposed of on site or the surrounding environment to cause water or other pollution.
  - Loss Of Vegetation:
    - \* Activities will be restricted to the invasive prospecting focus areas. Should invasive prospecting be planned outside these areas the DMR will be contacted to amend the Prospecting Right (should it be issued) before commencement of activities outside the focus areas. This will also require additional specialist studies to be undertaken.
    - \* Vegetation will not be removed from any area where it is not part of the prospecting or current tailings operation activities.
    - \* No firewood will be collected on site or the surrounding environment.
    - \* No open fires will be allowed on site to prevent veld fires.
    - \* Replace the vegetation by reseeding of grasses.
    - \* Protected vegetation types will either be transplanted to other areas where it will not be affected or may be removed after permits have been granted.
    - \* Vegetation will not be cleared during the drilling phase to limit the impact on vegetation and topsoil. However, care should be taken to limit the disturbance area.
  - Heritage and Paleontology
    - \* A Heritage Management and Maintenance Plan will be drawn up as per the HIA.
    - \* All sites as indicated in the HIA will be avoided and no activities will occur at these sites.
    - \* The recommendations of the archaeologist should be implemented as a matter of urgency.
  - Soil loss and contamination
    - \* 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.
    - \* Vehicles to be inspected to ensure no oil and hydraulic fluid leaks occur.
    - \* All oil spills on soil to be removed with the contaminated soil and disposed of as hazardous waste.
    - \* No servicing of vehicles must occur except on a concrete floor in an area allocated for that. Emergency repairs must be done with drip trays placed underneath the vehicles/machinery.
    - \* Training with reference to pollution hazards and their impact on the environment must be given as part of induction.
    - \* An incidence register for this purpose must be kept.
  - Safety:
    - \* No employee at the proposed site will be allowed to wander on adjacent land to the site.
    - \* No animals in the surrounding area to the site will be injured or killed.
    - \* Employees at the quarry will cook food and eat at home and will not be allowed to gather food from the environment surrounding the proposed quarry site.
    - \* Employees will be transported to and from work before and after every shift to ensure that no one trespasses on adjacent property.
    - \* No employee will be permitted to stay at the site if it is not during his shift. Employees not working, should be transported to their homes in town.
  - Land Use:
    - \* The disturbance of vacant land must be restricted to the authorised area.
    - \* Remove topsoil where it is available.
    - \* Existing roads should be used as far as practically possible.
    - \* If new land is used for roads to enter the area it must be done in consultation with surface owner.
      - \* Topsoil will be placed in areas where it was removed and the areas will be re-vegetated accordingly.

#### **m) Final proposed alternatives.**

**(Provide an explanation for the final layout of the infrastructure and activities on the overall site as shown on the final site map together with the reasons why they are the final proposed alternatives which respond to the impact management measures, avoidance, and mitigation measures identified through the assessment)**

Note:

No prospecting activities will take place on the existing surface tailing dumps as the DMR cannot authorise the prospecting and associated activities on these areas.

Due to the nature of the activities to be undertaken (i.e. prospecting for diamonds) the applicant is limited to the area where the minerals may potentially be located. This is based on desktop studies according to geological maps and existing data of the area. Therefore, the applicant cannot identify any location alternatives as the properties applied for are most likely to contain the mineral.

The activity is limited to the drilling of boreholes, trenching/pitting and bulk sampling. There are no alternatives to these activities as this is the only way to prospect for diamonds in order to locate the mineral to be mined.

Technology to be used during prospecting is limited to the drilling of boreholes and excavations for trenching/pitting. This may also involve large diameter drilling to up to 450 mm. The existing operation has an Dense Medium Separation (“DMS”) plant which will be used for the processing of the samples.

The option of not implementing the activity will result in the applicant not having the opportunity to prospect for diamonds on the properties. No further mining of diamonds will occur on the properties by the applicant which will result in job losses after completion of the current reprocessing of surface tailings. The applicant will remove all existing infrastructure after completion of the current activities and will rehabilitate the site.

#### **n) Aspects for inclusion as conditions of Authorisation.**

Any aspects which have not formed part of the EMPr that must be made conditions of the Environmental Authorisation

- No water will be abstracted from sources without the necessary water use license applications submitted to Department of Water and Sanitation.
- Watercourses (i.e. Drainage Lines and wetlands) will not be disturbed by the prospecting activities without the necessary Water Use License in terms of Section 21(c) and (i) of the NWA.
- Important archaeological artefacts as included in the HIA will be avoided and recommendations of the HIA will be implemented.
- A comprehensive monitoring and rehabilitation plan will be compiled by a specialist before commencement with the prospecting activities.
- All recommendations will be followed as per the Ecological and Wetland Assessment.

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

(Which relate to the assessment and mitigation measures proposed)

No assumptions, uncertainties and gaps in knowledge.

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

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

The proposed activity should be authorized due to the following reasons:

- The prospecting will be done by the applicant which currently employs local residents from Jagersfontein at the surface tailings operation. Should the prospecting require more people it will result in more people from the local community being employed at the operation which will have a positive impact on the socio-economic conditions of local residents.
- The Applicant already obtained a Water Use License and has access to water for the processing plant. A new processing plant will not have to be established which limits the area of disturbance and the use of additional water.
- Should it be determined that it is economically feasible to mine the area further after prospecting it will result in large scale job creation and a positive impact on the local socio-economic conditions.
- With to the current activities in the area associated with the tailings operation being

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

## **(1) Specific conditions to be included into the compilation and approval of EMPr**

- People from the local community must be employed at the prospecting site where possible,
- No water will be abstracted from sources without the necessary water use license applications submitted to Department of Water and Sanitation.
- Watercourses (i.e. Drainage Lines and wetlands) will not be disturbed by the prospecting activities without the necessary Water Use License in terms of Section 21(c) and (i) of the NWA.
- Important archaeological artefacts as included in the HIA will be avoided and recommendations of the HIA will be implemented.
- A comprehensive monitoring and rehabilitation plan will be compiled by a specialist before commencement with the prospecting activities.
- All recommendations will be followed as per the Ecological and Wetland Assessment.

## **(2) Rehabilitation requirements**

The following requirements should be met during rehabilitation:

- After all the foreign matter has been removed from the sites, the excavations shall be backfilled with subsoil, compacted and levelled with previously stored topsoil. No foreign matter such as cement or other rubble shall be introduced into such backfilling.
- On completion of the prospecting operation, the area shall be cleared of any contaminated soil.
- Where vegetation is lacking or compacted, the surface shall then be ripped or ploughed and levelled in order to re-establish a growth medium.
- 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.

- NOTE: THE PROCESSING PLANT, OFFICES AND OTHER INFRASTRUCTURE ASSOCIATED WITH IT FORMS PART OF THE EXISTING TAILINGS OPERATION AND WILL BE REHABILITATED UPON CLOSURE OF THE TAILINGS OPERATION. IT WILL NOT BE DECOMMISSIONED AND REHABILITATED AFTER PROSPECTING.

### **q) Period for which the Environmental Authorisation is required.**

5 years

### **r) Undertaking**

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

I confirm that the undertaking is provided.

### **s) Financial Provision**

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

**R126 675.00**

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

The amount required for rehabilitation was determined by using the Quantum Calculation. Furthermore, the prospecting areas will be rehabilitated concurrently by closing each prospecting

trench/pit after completion of prospecting and rehabilitating that trench and the entire disturbed surrounding environment before relocating and opening the next trench. In total 10 trenches will be made with area of 0.24 ha (ramps and voids included). Immediate closure of the operation (i.e. Prospecting) will therefore require this amount for closure.

It should be noted that the prospecting operation will make use of infrastructure, structures and machinery used for the current tailings operation. This processing plant and machinery will therefore not be demolished and rehabilitated as part of the prospecting project.

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

The amount above can be provided for by the applicant.

**t) Deviations from the approved scoping report and plan of study.**

- i) Deviations from the methodology used in determining the significance of potential environmental impacts and risks.**

(Provide a list of activities in respect of which the approved scoping report was deviated from, the reference in this report identifying where the deviation was made, and a brief description of the extent of the deviation).

Specialists were appointed to undertake updated specialist investigations and write new reports. Although this resulted in a change in the ratings of impacts the methodology remained the same. However, the methodology was implemented by the specialists when conducting the impact assessments for their respected fields.

- ii) Motivation for the deviation.**

Previously used specialist reports were deemed to be outdated and did not cover the specific project applied for.

**u) Other Information required by the competent Authority**

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

- (1) Impact on the socio-economic conditions of any directly affected person.** (Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any directly affected person including the landowner, lawful occupier, or, where applicable, potential beneficiaries of any land restitution claim, attach the investigation report as **Appendix 2.19.1** and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6.and 2.12.herein).

The socio-economic condition of no person will be negatively affected by the proposed prospecting for diamonds on the land as described. However, the prospecting will be done by the applicant which currently employs local residents from Jagersfontein at the surface tailings operation. Should the prospecting require more people it will result in more people from the local community being employed at the operation which will have a positive impact on the socio-economic conditions of local residents.

- (2) Impact on any national estate referred to in section 3(2) of the National Heritage Resources Act.** (Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) with the exception of the national estate contemplated in section 3(2)(i)(vi) and (vii) of that Act, attach the investigation report as **Appendix 2.19.2** and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6.and 2.12.herein).

Numerous artefacts of archaeological significance were recorded and included in the HIA which may not be damaged or destroyed in any way. The HIA also included sites which are not located on the focus areas where invasive prospecting is planned. Although these sites are located on the overall footprint of the prospecting right area it is unlikely that these sites will be disturbed or that the prospecting activities will have any impact on them. However, the Cavalry Enclosure will not be disturbed in any way and further investigations will be undertaken on this site. A qualified heritage expert will be appointed to monitor ground works at Area D (as per the HIA).

Refer to the recommendations of the HIA in Appendix 4.

**v) Other matters required in terms of sections 24(4)(a) and (b) of the Act.**

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

Note:

No prospecting activities will take place on the tailing dumps of Jagersfontein Development and is excluded from this application.

Due to the nature of the activities to be undertaken (i.e. prospecting for diamonds) the applicant is limited to the area where the minerals may potentially be located. This is based on desktop studies according to geological maps and existing data of the area. Therefore the applicant cannot identify any location alternatives as the properties applied for are most likely to contain the mineral.

The activity is limited to the drilling of boreholes, trenching/pitting and bulk sampling on the focus areas and desktop studies on the remaining areas. There are no alternatives to this activities as this is the only way to prospect for diamonds in order to locate the mineral to be mined.

Technology to be used during prospecting is limited to the drilling of boreholes and excavations for trenching/pitting. This may also involve large diameter drilling to up to 450mm. The existing operation has an Dense Medium Separation (DMS) plant which will be used for the processing of the samples.

The option of not implementing the activity will result in the applicant not having the opportunity to prospect for diamonds on the properties. No further mining of diamonds will occur on the properties by the applicant which will result in job losses after completion of the current reprocessing of surface tailings. The applicant will remove all existing infrastructure after completion of the current activities and will rehabilitate the site.

# PART B

## ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

### 1) Draft environmental management programme.

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

Details included in Part A, Section 1(a).

- b) **Description of the Aspects of the Activity** (Confirm that the requirement to describe the aspects of the activity that are covered by the draft environmental management programme is already included in PART A, section (1)(h) herein as required).

Details included in Part A, Section 1(h).

### c) **Composite Map**

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

Attached in Appendix 2

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

- i) **Determination of closure objectives.** (ensure that the closure objectives are informed by the type of environment described in 2.4 herein)

- The topsoil removed in the site preparation process should be replaced during the rehabilitation exercise.
- Alleviation of compaction of soils will be done during rehabilitation of the terrain, including roads.
- No soil erosion must be visible and no potential for soil erosion must be present at closure.
- No soil contamination must be visible or known before closure can be given.
- No compaction of any roads or any other area must be present during closure. It should be noted that this relates to new roads established where necessary to gain access to the prospecting areas as the tailings operation has an existing road network which will be used as far as practically possible.
- If the soil structure is disturbed mitigation measures e.g. the use of organic material, lime and fertilisers must be implemented to restore the soil structure.
- The soil must be fertile enough to sustain vegetation.

- Rehabilitate the area by backfilling excavations to such a state that vegetation can recover and sustain sustainable growth and be used for natural grazing again.
- No invasive and alien species must be present after closure.
- The animal life habitat must be restored after decommissioning.
- Rehabilitation of the excavation areas would ensure that no dust is generated from exposed surfaces.
- No noise attributed to prospecting will be generated from the site after closure anymore.
- The economic development must deliver a multiplier effect that will contribute to the local economy long after closure.
- All archaeological structures must be as they were before prospecting and must remain protected where necessary after closure.

ii) **The process for managing any environmental damage, pollution, pumping and treatment of extraneous water or ecological degradation as a result of undertaking a listed activity.**

Permits must be obtained to either transplant or remove protected vegetation species on the focus areas if they are to be disturbed. These species can be returned to these areas after rehabilitation.

A comprehensive monitoring and rehabilitation plan must be drawn up to ensure that the areas, especially sensitive areas such as watercourses and wetlands are rehabilitated sufficiently.

The prospecting must be undertaken as per the recommendations of the Ecological and Wetland Assessment to prevent environmental damage and ecological degradation.

iii) **Potential risk of Acid Mine Drainage.** (Indicate whether or not the mining can result in acid mine drainage).

None

iv) **Steps taken to investigate, assess, and evaluate the impact of acid mine drainage.**

Due to the method and the mineral prospected for (daimonds), acid mine drainage will not occur.

v) **Engineering or mine design solutions to be implemented to avoid or remedy acid mine drainage.**

N/A



- vi) **Measures that will be put in place to remedy any residual or cumulative impact that may result from acid mine drainage.**

N/A

- vii) **Volumes and rate of water use required for the mining, trenching or bulk sampling operation.**

Water will not be used for the prospecting operation. A WUL was obtained for the tailings operation and the existing process plant will be used.

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

A Water Use License was obtained for the tailings operation. However, a new WULA is being compiled for the prospecting activities in terms of Section 21(c) and (i). The proof of commencement with the WULA is attached in Appendix 6.

**ix) Impacts to be mitigated in their respective phases**

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

ACTIVITIES	PHASE	SIZE AND SCALE of disturbance	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
(as listed in 2.11.1)	of operation in which activity will take place.  State; Planning and design, Pre-Construction' Construction, Operational, Rehabilitation, Closure, Post closure.	(volumes, tonnages and hectares or m <sup>2</sup> )	(describe how each of the recommendations in herein will remedy the cause of pollution or degradation and migration of pollutants)	(A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)	Describe the time period when the measures in the environmental management programme must be implemented. Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. .With regard to Rehabilitation, therefore state either:- Upon cessation of the individual activity or. Upon the cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.
Clearance of vegetation	Pre-operational	2 400m <sup>2</sup>	<ul style="list-style-type: none"> <li>- No petrochemical substances and/or dangerous goods will be stored outside designated areas to prevent spillages of hazardous substances which will lead to contamination of soil and water.</li> <li>- Topsoil and overburden will be stored in a manner to prevent erosion of topsoil in order to return topsoil to the rehabilitated area to improve revegetation.</li> <li>- Machinery will be serviced to prevent spillage of potentially</li> </ul>	<ul style="list-style-type: none"> <li>- Best practices</li> <li>- NHRA</li> </ul>	Upon commencement of the clearance of the area.

			<p>hazardous substances to prevent contamination of soil and water. To maintenance of machinery will also reduce noise levels.</p> <ul style="list-style-type: none"> <li>- Machinery and vehicles will make use of existing access roads to limit soil compaction and unnecessary disturbance of vegetation.</li> <li>- No material, substances and/or stockpiles will be placed within the 1:100 year flood line of any watercourse.</li> <li>- Dust control measures will be implemented.</li> <li>- The area will be investigated pre-clearance to determine the presence of any heritage artefacts.</li> <li>- No known heritage artefacts as per the HIA will be damaged in any way.</li> <li>- Bags/drums will be placed on prospecting areas to dispose of general waste to prevent littering. The refuse bins will be removed after every day.</li> </ul>		
Excavation (trenching/pitting)	Operational	2 400m <sup>2</sup>	<ul style="list-style-type: none"> <li>- No petrochemical substances and/or dangerous goods will be stored outside designated areas to prevent spillages of hazardous substances which will lead to contamination of soil and water.</li> <li>- Topsoil stockpiles will be monitored and measures will be implemented (where necessary) to limit erosion and the growth of alien vegetation.</li> <li>- Machinery will be serviced to prevent spillage of potentially hazardous substances to prevent contamination of soil and water. To maintenance of machinery will also reduce noise levels.</li> </ul>	Best Practices	Loading and hauling phase

			<ul style="list-style-type: none"> <li>- Machinery and vehicles will make use of existing access roads to limit soil compaction and unnecessary disturbance of vegetation.</li> <li>- No material, substances and/or stockpiles will be placed within the 1:100 year flood line of any watercourse.</li> <li>- The area will be investigated during excavation to determine the presence of any heritage artefacts.</li> <li>- Known Heritage artefacts will not be damaged in any way.</li> <li>- Material will be hauled to the plant as soon as possible.</li> <li>- The Dust Fallout on the site will be monitored to determine the impact of excavation on air quality. In the event that dust from the prospecting is a problem, measures will be implemented to reduce dust emissions.</li> <li>- Bags/drums will be placed on prospecting areas to dispose of general waste to prevent littering. The refuse bins will be removed after every day.</li> </ul>		
Rehabilitation of trenches	Rehabilitation	2 400m <sup>2</sup>	<ul style="list-style-type: none"> <li>- Non-diamond bearing material from the process plant will be returned to the voids as backfilling.</li> <li>- No chemicals are used in the process plant as material is only washed with water.</li> <li>- Apart from the material from the process plant, overburden and topsoil will be returned from stockpiles to the voids to level the area.</li> <li>- The prospected areas will be revegetated, and vegetation establishment will be monitored to</li> </ul>	Dust fallout limits Best practice Biodiversity Management Plan	During rehabilitation

			<p>ensure regrowth. This will prevent erosion and dust emissions.</p> <ul style="list-style-type: none"><li>- Existing roads will be used when returning material to voids and roads will be ripped after ceasing of the backfilling.</li><li>- Bags/drums will be placed on prospecting areas to dispose of general waste to prevent littering. The refuse bins will be removed after every day.</li></ul>		
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### e) Impact Management Outcomes

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

<b>ACTIVITY</b> whether listed or not listed.  (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.).	<b>POTENTIAL IMPACT</b>  (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc...)	<b>ASPECTS AFFECTED</b>	<b>PHASE</b> In which impact is anticipated  (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)	<b>MITIGATION TYPE</b>  (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc)  E.g. <ul style="list-style-type: none"> <li>• Modify through alternative method.</li> <li>• Control through noise control</li> <li>• Control through management and monitoring</li> <li>• Remedy through rehabilitation..</li> </ul>	<b>STANDARD TO BE ACHIEVED</b>  (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
Drilling	Loss of topsoil through erosion or contamination	Soil	Operational, Rehabilitation	<ul style="list-style-type: none"> <li>• Stop through avoidance,</li> <li>• Control through maintenance,</li> <li>• Avoid through storm-water control.</li> </ul>	Impact avoided
	<ul style="list-style-type: none"> <li>• Dust (Air Pollution).</li> <li>• Noise.</li> </ul>	Air	Operational, Rehabilitation	<ul style="list-style-type: none"> <li>• Control through noise control measures,</li> <li>• Control through dust control measures.</li> </ul>	Comply with dust fallout limits and noise levels
	<ul style="list-style-type: none"> <li>• Loss of vegetation type and protected species,</li> <li>• Infestation of weeds.</li> </ul>	Vegetation	Operational, Rehabilitation	<ul style="list-style-type: none"> <li>• Control through relocation,</li> <li>• Remedy through rehabilitation,</li> <li>• Control through monitoring and removal.</li> </ul>	Rehabilitation standards
	Impact on fauna	Fauna	Operational	Stop through avoidance.	Impact avoided
	Loss of watercourse	Surface water	Operational, Rehabilitation	<ul style="list-style-type: none"> <li>• Control through avoidance (if possible)</li> <li>• Remedy through rehabilitation.</li> </ul>	Water Use License conditions
	Groundwater contamination.	Groundwater	Operational, Rehabilitation	<ul style="list-style-type: none"> <li>• Control through maintenance,</li> </ul>	Baseline values

				<ul style="list-style-type: none"> <li>• Stop through avoidance,</li> </ul>	
	Damage or loss of archaeological and/or palaeontological significant artefacts	Heritage and Palaeontology	Operational, Rehabilitation	<ul style="list-style-type: none"> <li>• Stop through avoidance of heritage sites</li> <li>• Control through monitoring of sites.</li> </ul>	Impact avoided
	Change in land use	Land use	Operational, Rehabilitation	Remedy through rehabilitation	End use objectives
Trenching/Pitting	Loss of topsoil through erosion or contamination	Soil	Operational, Rehabilitation	<ul style="list-style-type: none"> <li>• Stop through avoidance,</li> <li>• Control through maintenance,</li> <li>• Avoid through storm-water control.</li> </ul>	Impact avoided
	<ul style="list-style-type: none"> <li>• Dust (Air Pollution).</li> <li>• Noise.</li> </ul>	Air	Operational, Rehabilitation	<ul style="list-style-type: none"> <li>• Control through noise control measures,</li> <li>• Control through dust control measures.</li> </ul>	Comply with dust fallout limits and noise levels
	<ul style="list-style-type: none"> <li>• Loss of vegetation type and protected species,</li> <li>• Infestation of weeds.</li> </ul>	Vegetation	Operational, Rehabilitation	<ul style="list-style-type: none"> <li>• Control through relocation,</li> <li>• Remedy through rehabilitation,</li> <li>• Control through monitoring and removal.</li> </ul>	Rehabilitation standards
	Impact on fauna	Fauna	Operational	<ul style="list-style-type: none"> <li>• Stop through avoidance.</li> </ul>	Impact avoided
	Loss of watercourse	Surface water	Operational, Rehabilitation	<ul style="list-style-type: none"> <li>• Control through avoidance (if possible)</li> <li>• Remedy through rehabilitation.</li> </ul>	Water Use License conditions
	Groundwater contamination.	Groundwater	Operational, Rehabilitation	<ul style="list-style-type: none"> <li>• Control through maintenance,</li> <li>• Stop through avoidance,</li> </ul>	Baseline values
	Damage or loss of archaeological and/or palaeontological significant artefacts	Heritage and Palaeontology	Operational, Rehabilitation	<ul style="list-style-type: none"> <li>• Stop through avoidance of heritage sites</li> <li>• Control through monitoring of sites.</li> </ul>	Impact avoided

	Change in land use	Land use	Operational, Rehabilitation	<ul style="list-style-type: none"> <li>• Remedy through rehabilitation</li> </ul>	End use objectives
Stockpiling	Loss of topsoil through erosion or contamination	Soil	Operational, Rehabilitation	<ul style="list-style-type: none"> <li>• Control through maintenance,</li> <li>• Avoid through storm-water control,</li> <li>• Remedy through rehabilitation.</li> </ul>	Impact avoided
	<ul style="list-style-type: none"> <li>• Dust (Air Pollution).</li> <li>• Noise.</li> </ul>	Air	Operational, Rehabilitation	<ul style="list-style-type: none"> <li>• Control through noise control measures,</li> <li>• Control through dust control measures.</li> </ul>	Comply with dust fallout limits and noise levels
	<ul style="list-style-type: none"> <li>• Loss of vegetation type and protected species,</li> <li>• Infestation of weeds.</li> </ul>	Vegetation	Operational, Rehabilitation	<ul style="list-style-type: none"> <li>• Control through relocation,</li> <li>• Remedy through rehabilitation,</li> <li>• Control through monitoring and removal.</li> </ul>	Rehabilitation standards
	Impact on fauna	Fauna	Operational	<ul style="list-style-type: none"> <li>• Stop through avoidance.</li> </ul>	Impact avoided
	Loss of watercourse	Surface water	Operational, Rehabilitation	<ul style="list-style-type: none"> <li>• Control through avoidance (if possible)</li> <li>• Remedy through rehabilitation.</li> </ul>	Water Use License conditions
	Groundwater contamination.	Groundwater	Operational, Rehabilitation	<ul style="list-style-type: none"> <li>• Control through maintenance,</li> <li>• Stop through avoidance,</li> </ul>	Baseline values
	Damage or loss of archaeological and/or palaeontological significant artefacts	Heritage and Palaeontology	Operational, Rehabilitation	<ul style="list-style-type: none"> <li>• Stop through avoidance of heritage sites,</li> <li>• Control through monitoring of sites.</li> </ul>	Impact avoided
	Change in land use	Land use	Operational, Rehabilitation	<ul style="list-style-type: none"> <li>• Remedy through rehabilitation</li> </ul>	End use objectives
Loading and hauling	Loss of topsoil through erosion or contamination	Soil	Operational, Rehabilitation	<ul style="list-style-type: none"> <li>• Control through maintenance,</li> <li>• Stop through avoidance,</li> <li>• Stop through storm-water control,</li> <li>• Remedy through rehabilitation.</li> </ul>	Impact avoided
	<ul style="list-style-type: none"> <li>• Dust (Air</li> </ul>	Air	Operational,	<ul style="list-style-type: none"> <li>• Control through noise control</li> </ul>	Comply with dust fallout



	<ul style="list-style-type: none"> <li>Pollution).</li> <li>Noise.</li> </ul>		Rehabilitation	<ul style="list-style-type: none"> <li>measures,</li> <li>Control through dust control measures.</li> </ul>	limits and noise levels
	<ul style="list-style-type: none"> <li>Loss of vegetation type and protected species,</li> <li>Infestation of weeds.</li> </ul>	Vegetation	Operational, Rehabilitation	<ul style="list-style-type: none"> <li>Control through relocation,</li> <li>Remedy through rehabilitation,</li> <li>Control through monitoring and removal.</li> </ul>	Rehabilitation standards
	Impact on fauna	Fauna	Operational	Stop through avoidance.	Impact avoided
	Loss of watercourse	Surface water	Operational, Rehabilitation	<ul style="list-style-type: none"> <li>Control through avoidance (if possible)</li> <li>Remedy through rehabilitation.</li> </ul>	Water Use License conditions
	Groundwater contamination.	Groundwater	Operational, Rehabilitation	<ul style="list-style-type: none"> <li>Control through maintenance,</li> <li>Stop through avoidance,</li> </ul>	Baseline values
	Damage or loss of archaeological and/or palaeontological significant artefacts	Heritage and Palaeontology	Operational, Rehabilitation	<ul style="list-style-type: none"> <li>Stop through avoidance of heritage sites,</li> <li>Control through monitoring of sites.</li> </ul>	Impact avoided
	Change in land use	Land use	Operational, Rehabilitation	Remedy through rehabilitation	End use objectives

**f) Impact Management Actions**

(A description of impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated in paragraphs (c) and (d) will be achieved).

<p><b>ACTIVITY</b> whether listed or not listed.  (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.).</p>	<p><b>POTENTIAL IMPACT</b>  (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc...)</p>	<p><b>MITIGATION TYPE</b>  (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc)  E.g.  <ul style="list-style-type: none"> <li>• Modify through alternative method.</li> <li>• Control through noise control</li> <li>• Control through management and monitoring</li> </ul>                     Remedy through rehabilitation..</p>	<p><b>TIME PERIOD FOR IMPLEMENTATION</b>  Describe the time period when the measures in the environmental management programme must be implemented Measures must be implemented when required.  With regard to Rehabilitation specifically this must take place at the earliest opportunity. .With regard to Rehabilitation, therefore state either:-..  Upon cessation of the individual activity  or.  Upon the cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.</p>	<p><b>COMPLIANCE WITH STANDARDS</b>  (A description of how each of the recommendations in 2.11.6 read with 2.12 and 2.15.2 herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)</p>
<p>Drilling</p>	<p>Loss of topsoil through erosion or contamination</p>	<ul style="list-style-type: none"> <li>• Stop through avoidance,</li> <li>• Control through maintenance,</li> <li>• Avoid through storm-water control.</li> </ul>	<p>During drilling</p>	<p>Best practices and Stormwater Management Plan</p>
	<ul style="list-style-type: none"> <li>• Dust (Air Pollution).</li> <li>• Noise.</li> </ul>	<ul style="list-style-type: none"> <li>• Control through noise control measures,</li> <li>• Control through dust control measures.</li> </ul>	<p>During drilling</p>	<p>Comply with dust fallout limits and noise levels as per dust fallout regulations and OHSA.</p>
	<ul style="list-style-type: none"> <li>• Loss of vegetation type and protected species,</li> <li>• Infestation of weeds.</li> </ul>	<ul style="list-style-type: none"> <li>• Control through relocation,</li> <li>• Remedy through rehabilitation,</li> <li>• Control through monitoring</li> </ul>	<ul style="list-style-type: none"> <li>• Before drilling</li> <li>• Cessation of activity</li> <li>• During drilling and cessation of activity</li> </ul>	<p>Biodiversity Management Plan</p>

		and removal.		
	Impact on fauna	Stop through avoidance.	During drilling	Impact avoided
	Loss of watercourse	<ul style="list-style-type: none"> <li>Control through avoidance (if possible)</li> <li>Remedy through rehabilitation.</li> </ul>	During drilling and cessation of individual activity	Water Use License conditions and NWA
	Groundwater contamination.	<ul style="list-style-type: none"> <li>Control through maintenance,</li> <li>Stop through avoidance,</li> </ul>	During drilling	Water sampling and analysis to comply with standards
	Damage or loss of archaeological and/or palaeontological significant artefacts	<ul style="list-style-type: none"> <li>Stop through avoidance of heritage sites</li> <li>Control through monitoring of sites.</li> </ul>	During drilling	NHRA
	Change in land use	Remedy through rehabilitation	Cessation of individual activity	End use objectives
Trenching/pitting	Loss of topsoil through erosion or contamination	<ul style="list-style-type: none"> <li>Stop through avoidance,</li> <li>Control through maintenance,</li> <li>Avoid through storm-water control.</li> </ul>	Before and during trenching	Best practices and Stormwater Management Plan
	<ul style="list-style-type: none"> <li>Dust (Air Pollution).</li> <li>Noise.</li> </ul>	<ul style="list-style-type: none"> <li>Control through noise control measures,</li> <li>Control through dust control measures.</li> </ul>	Before and during trenching	Comply with dust fallout limits and noise levels as per dust fallout regulations and OHSA.
	<ul style="list-style-type: none"> <li>Loss of vegetation type and protected species,</li> <li>Infestation of weeds.</li> </ul>	<ul style="list-style-type: none"> <li>Control through relocation,</li> <li>Remedy through rehabilitation,</li> <li>Control through monitoring and removal.</li> </ul>	Before and during trenching and at cessation of activity	Biodiversity Management Plan
	Impact on fauna	Stop through avoidance.	Before and during trenching	Impact avoided
	Loss of watercourse	<ul style="list-style-type: none"> <li>Control through avoidance (if possible)</li> <li>Remedy through rehabilitation.</li> </ul>	Before and during trenching and at cessation of individual activity	Water Use License conditions and NWA
	Groundwater contamination.	<ul style="list-style-type: none"> <li>Control through maintenance,</li> <li>Stop through avoidance,</li> </ul>	Before and during trenching	Water sampling and analysis to comply with standards

	Damage or loss of archaeological and/or palaeontological significant artefacts	<ul style="list-style-type: none"> <li>• Stop through avoidance of heritage sites</li> <li>• Control through monitoring of sites.</li> </ul>		NHRA
	Change in land use	Remedy through rehabilitation	Before and during trenching	End use objectives
Stockpiling	Loss of topsoil through erosion or contamination	<ul style="list-style-type: none"> <li>• Control through maintenance,</li> <li>• Avoid through storm-water control,</li> <li>• Remedy through rehabilitation.</li> </ul>	Before and during trenching and stockpiling	Best practices and Stormwater Management Plan
	<ul style="list-style-type: none"> <li>• Dust (Air Pollution).</li> <li>• Noise.</li> </ul>	<ul style="list-style-type: none"> <li>• Control through noise control measures,</li> <li>• Control through dust control measures.</li> </ul>	Before and during trenching and stockpiling	Comply with dust fallout limits and noise levels as per dust fallout regulations and OHSA.
	<ul style="list-style-type: none"> <li>• Loss of vegetation type and protected species,</li> <li>• Infestation of weeds.</li> </ul>	<ul style="list-style-type: none"> <li>• Control through relocation,</li> <li>• Remedy through rehabilitation,</li> <li>• Control through monitoring and removal.</li> </ul>	Before and during trenching and stockpiling	Biodiversity Management Plan
	Impact on fauna	Stop through avoidance.	Before and during trenching and stockpiling	Impact avoided
	Loss of watercourse	<ul style="list-style-type: none"> <li>• Control through avoidance (if possible)</li> <li>• Remedy through rehabilitation.</li> </ul>	Before and during trenching and stockpiling	Water Use License conditions and NWA
	Groundwater contamination.	<ul style="list-style-type: none"> <li>• Control through maintenance,</li> <li>• Stop through avoidance,</li> </ul>	Before and during trenching and stockpiling	Water sampling and analysis to comply with standards
	Damage or loss of archaeological and/or palaeontological significant artefacts	<ul style="list-style-type: none"> <li>• Stop through avoidance of heritage sites,</li> <li>• Control through monitoring of sites.</li> </ul>	Before and during trenching and stockpiling	NHRA
	Change in land use	Remedy through rehabilitation	Before and during trenching and stockpiling	End use objectives
Loading and hauling	Loss of topsoil through erosion or contamination	<ul style="list-style-type: none"> <li>• Control through maintenance,</li> <li>• Stop through avoidance,</li> <li>• Stop through storm-water</li> </ul>	During loading and hauling	Best practices and Stormwater Management Plan

		control, <ul style="list-style-type: none"> <li>• Remedy through rehabilitation.</li> </ul>		
	<ul style="list-style-type: none"> <li>• Dust (Air Pollution).</li> <li>• Noise.</li> </ul>	<ul style="list-style-type: none"> <li>• Control through noise control measures,</li> <li>• Control through dust control measures.</li> </ul>	During loading and hauling	Comply with dust fallout limits and noise levels as per dust fallout regulations and OHSA.
	<ul style="list-style-type: none"> <li>• Loss of vegetation type and protected species,</li> <li>Infestation of weeds.</li> </ul>	<ul style="list-style-type: none"> <li>• Control through relocation,</li> <li>• Remedy through rehabilitation,</li> <li>• Control through monitoring and removal.</li> </ul>	During loading and hauling	Biodiversity Management Plan
	Impact on fauna	Stop through avoidance.	During loading and hauling	Impact avoided
	Loss of watercourse	<ul style="list-style-type: none"> <li>• Control through avoidance (if possible)</li> <li>• Remedy through rehabilitation.</li> </ul>	During loading and hauling	Water Use License conditions and NWA
	Groundwater contamination.	<ul style="list-style-type: none"> <li>• Control through maintenance,</li> <li>• Stop through avoidance,</li> </ul>	During loading and hauling	Water sampling and analysis to comply with standards
	Damage or loss of archaeological and/or palaeontological significant artefacts	<ul style="list-style-type: none"> <li>• Stop through avoidance of heritage sites,</li> <li>• Control through monitoring of sites.</li> </ul>	During loading and hauling	NHRA
	Change in land use	Remedy through rehabilitation	During loading and hauling	End use objectives

**i) Financial Provision**

**(1) Determination of the amount of Financial Provision.**

- (a) Describe the closure objectives and the extent to which they have been aligned to the baseline environment described under Regulation 22 (2) (d) as described in 2.4 herein.**

The trench will be backfilled and levelled. Topsoil will be returned to the backfilled area and will be seeded (before the rainy season).

All machinery, equipment, infrastructure and waste products will be removed from the prospecting site and compacted areas, including access roads not to be used for the tailings operation will be ripped.

The site will be monitored monthly to ensure regrowth of vegetation and alien vegetation will be monitored and removed throughout.

Watercourses in close proximity to trenches will be monitored to ensure that there are no impacts on the watercourses as a result of the prospecting operation.

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

The closure objectives were discussed with the landowner whom is also an I&AP. No comments have been received regarding the closure objectives.

It should be noted that if the results from prospecting indicates that mining is feasible, a mining right will be applied for to undertake the mining operation. Should it not be feasible to undertake mining the area will be rehabilitated to be used for agricultural activities (i.e. grazing).

- (c) Provide a rehabilitation plan that describes and shows the scale and aerial extent of the main mining activities, including the anticipated mining area at the time of closure.**

Refer to Appendix 2

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

The rehabilitation plan and objectives for closure indicates that the area will be used for either diamond mining or agriculture after closure depending of the results of the prospecting.

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

The quantum of the financial provision was calculated using the DMR template and the "GUIDELINE DOCUMENT FOR THE EVALUATION OF THE QUANTUM OF CLOSURE-RELATED FINANCIAL PROVISION PROVIDED BY A MINE".

The quantum of the financial provision is R126 675.00.

Note that the quantum will be reviewed and updated annually during the prospecting operation to ensure relevance to disturbed areas. This initial quantum makes provision for the area disturbed by 10 trench and VAT at 15%. Furthermore, the prospecting operation will make use of the facilities of the existing tailings operation which does not form part of the rehabilitation.

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

Financial provisions will be provided by the applicant before commencement of prospecting.

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

- g) Monitoring of Impact Management Actions
- h) Monitoring and reporting frequency
- i) Responsible persons
- j) Time period for implementing impact management actions
- k) Mechanism for monitoring compliance

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
Drilling	Elevated dust levels	Dust fallout monitoring programme	External Environmental Consultant	Monthly
	Elevated noise levels	Occupational Health monitoring (noise levels)	Occupational hygenest	Bi-annually
	Surface and groundwater contamination	Water sampling and analysis	External Environmental Consultant or geohydrologist	Quarterly
	Erosion, loss of soil and siltation of water resources (storm water)	Storm water management plan and sampling and analysis	External Environmental Consultant or geohydrologist	Quarterly
	Animal life and habitat loss and loss of vegetation	Biodiversity monitoring	Ecologist	Bi-annually
	Impact on heritage resources	Monitoring of heritage resources	Heritage Specialist	Before undertaking activities in sensitive areas.
Trenching/pitting	Elevated dust levels	- Dust fallout monitoring programme	External Environmental Consultant	Monthly
	Elevated noise levels	Occupational Health monitoring (noise levels)	Occupational hygenest	Bi-annually
	Surface and groundwater contamination	Water sampling and analysis	External Environmental Consultant or geohydrologist	Quarterly
	Erosion, loss of soil and siltation of water	Storm water management plan and sampling and analysis	External Environmental Consultant or geohydrologist	Quarterly



	resources (storm water)			
	Animal life and habitat loss and loss of vegetation	Biodiversity monitoring	Ecologist	Bi-annually
	Impact on heritage resources	Monitoring of heritage resources	Heritage Specialist	Before undertaking activities in sensitive areas.
Stockpiling	Elevated dust levels	Dust fallout monitoring programme	External Environmental Consultant	Monthly
	Elevated noise levels	Occupational Health monitoring (noise levels)	Occupational hygenest	Bi-annually
	Surface and groundwater contamination	Water sampling and analysis	External Environmental Consultant or geohydrologist	Quarterly
	Erosion, loss of soil and siltation of water resources (storm water)	Storm water management plan and sampling and analysis	External Environmental Consultant or geohydrologist	Quarterly
	Animal life and habitat loss and loss of vegetation	Biodiversity monitoring	Ecologist	Bi-annually
	Impact on heritage resources	Monitoring of heritage resources	Heritage Specialist	Before undertaking activities in sensitive areas.
Loading, hauling and transport	Elevated dust levels	Dust fallout monitoring programme	External Environmental Consultant	Monthly
	Elevated noise levels	Occupational Health monitoring (noise levels)	Occupational hygenest	Bi-annually
	Surface and groundwater contamination	Water sampling and analysis	External Environmental Consultant or geohydrologist	Quarterly
	Erosion, loss of soil and siltation of water resources (storm water)	Storm water management plan and sampling and analysis	External Environmental Consultant or geohydrologist	Quarterly
	Animal life and habitat loss and loss of	Biodiversity monitoring	Ecologist	Bi-annually

	vegetation			
	Impact on heritage resources	Monitoring of heritage resources	Heritage Specialist	Before undertaking activities in sensitive areas.
Rehabilitation	Elevated dust levels	Dust fallout monitoring programme	External Environmental Consultant	Monthly
	Elevated noise levels	Occupational Health monitoring (noise levels)	Occupational hygenest	Bi-annually
	Surface and groundwater contamination	Water sampling and analysis	External Environmental Consultant or geohydrologist	Quarterly
	Erosion, loss of soil and siltation of water resources (storm water)	Storm water management plan and sampling and analysis	External Environmental Consultant or geohydrologist	Quarterly
	Animal life and habitat loss and loss of vegetation	Biodiversity monitoring	Ecologist	Bi-annually
	Impact on heritage resources	Monitoring of heritage resources	Heritage Specialist	Before undertaking activities in sensitive areas.

**l) Indicate the frequency of the submission of the performance assessment report.**

The Environmental Performance Assessment will be submitted to DMR Annually with the updated Quantum.

**m) Environmental Awareness Plan**

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

- Daily toolbox talks before every shift,
- Weekly meetings,
- Induction given to employees with employment,
- Induction given to all sub-contractors before commencement of activities,

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

An environmental risk assessment will be undertaken for all activities before commencement. Once risks are identified and assessed, employees will be made aware of risks associated with the activities on site. Employees will be made aware of how to manage certain pollutants and dangerous goods, waste and effluent to minimize the risks on site. Employees will be trained on the management programmes.

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

An annual environmental performance assessment will be undertaken.

## 2) UNDERTAKING

The EAP herewith confirms

- a) the correctness of the information provided in the reports
- b) the inclusion of comments and inputs from stakeholders and I&APs ;
- c) the inclusion of inputs and recommendations from the specialist reports where relevant; and
- d) the acceptability of the project in relation to the finding of the assessment and level of mitigation proposed;

**-END-**

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**EAP Signature**

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**Commissioner of oaths signature and stamp**