NAME OF APPLICANT: ROOIPOORT DEVELOPMENTS (PTY) LTD

REFERENCE NUMBER:

ENVIRONMENTAL IMPACT ASSESSMENT AND ENVIRONMENTAL MANAGEMENT PROGRAMME

SUBMITTED FOR AN APPLICATION FOR A MINING RIGHT IN TERMS OF SECTION 39 AND OF REGULATIONS 50 AND 51 OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002, (ACT NO. 28 OF 2002) (the Act)

mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

STANDARD DIRECTIVE

All applicants for mining rights are herewith, in terms of the provisions of Section 29 (a) and in terms of section 39 (5) of the Mineral and Petroleum Resources Development Act, directed to submit an environmental Impact Assessment, and an Environmental Management Programme strictly in accordance with the subject headings herein, and to compile the content according to all the sub items to the said subject headings referred to in the guideline published on the Departments website, within 30 days of notification by the Regional Manager of the acceptance of such application.

SECTION 1

ENVIRONMENTAL IMPACT ASSESSMENT

REGULATION 50 (a).

1. **Description of the baseline environment**

1.1. Concise description of the environment on site relative to the environment in the surrounding area.

Baseline Environment

The baseline environment was fully assessed, recorded and documented during the preparation of the EIA and EMPr which were submitted in 2008 with the application for the Mining Right.

The Rooipoort Nature Reserve is located approximately 60 km west of Kimberley in the Northern Cape Province. The Rooipoort Nature Reserve comprises the farms Waterkolk 95, Zandplaats 102, Vogelstruispan 101, Vogelstruispan 98, Bergplaats 100, Randtplaats 96, Grasrandt 109 and Klipfontein 99.

All of these 8 properties are owned by De Beers Consolidated Mines Ltd. (DBCM). The four proposed mining areas (Diamond Koppie, M5, M6 and L2), situated on five of these farms (Zandplaats 102, Vogelstruispan 101, Vogelstruispan 98, Klipfontein 99 and Bergplaats 100), are reached via a private gravel road from the Kimberley/Griekwastad/Uppington regional road.

The farms are located within the Kimberley Magisterial District of the Northern Cape Province. In particular, the Rooipoort Nature Reserve falls under the jurisdiction of Frances Baard District Municipality, very close to its western border with the Pixley Ka Seme District Municipality.

Rooipoort is situated 60 to 70km west of the city of Kimberley, 10km south of Delportshoop, and immediately adjacent to the small settlement of Schmidtsdrif.

The Rooipoort Nature Reserve is surrounded by mixed landuse areas. To the north and west, the majority of the farms have extensive diamond mining and prospecting operations adjacent to stock farming activities. To the south and east, game farming and commercial hunting activities predominate.

The baseline receiving environment has not changed since the approval of the 2008 Environmental Management Programme (EMPr), submitted by the landowner, DBCM.

1.2. Concise description of each of the existing environmental aspects both on the site applied for and in the surrounding area which may require protection or remediation.
Existing Environmental Aspects:

The granted Mining Right area, measuring 20,721 hectares, is situated within the Rooipoort Nature Reserve; a conservation area of approximately 42,000 hectares comprising 8 adjacent farms.

During the course of the original Environmental Impact Assessment (EIA) (conducted in 2007 & 2008), all the different aspects and impacts of the proposed mining operation were identified and rated to determine significance. Various specialists were engaged to do more detailed studies and provide the necessary information and to correctly assess the appropriate mitigatory measures and necessary monitoring for the different aspects applicable to the proposed mining sites.

Each mining site has a slightly different set of parameters and these needed to be taken into account in determining the critical factors for each, what would be best practice and the relevant mitigation to alleviate significant impacts or potential impacts.

An extensive public participation exercise was carried out in order to engage the various stakeholders.

Reference is made to the original EMPr document of June 2008; and the annexures thereto:

1. Cultural Resources Management Impact Assessment : Rooipoort Mine - prepared by Karen van Ryneveld; McGregor Museum Archaeology Department; CRM Unit.

2. Noise Impact Assessment for the proposed alluvial diamond mining at Rooipoort Nature Reserve - prepared by Simpson Ryder & Associates cc (Environmental and Occupational Health Consultants).

3. Social Impact Assessment - Proposed Mining at Rooipoort Nature Reserve - prepared by Fonda Lewis; Institute of Natural Resources (Dec 2007).

4. Visual Impact Assessment - Proposed Mining at Rooipoort Nature Reserve - prepared by Jonathan Marshall : Environmental Planning and Design (Nov 2007)

Copies of these specialist reports are presented as Appendices (B to E) to this document.

The Department of Mineral Resources (DMR) - approved EMPr deals with the implementation of a programme to manage the significant aspects and is aimed to be a practical approach to guide the mining company as how to best implement the Mining Works Programme (MWP), whilst simultaneously addressing any concerns regarding impacts or potential impacts on the biophysical, social or economic environment by applying appropriate mitigatory measures and ensuring legal compliance.

The EMPr provides documented criteria; operational policies and procedures; standards, management actions, mitigatory measures and monitoring plans against which the mine operator, external auditors and the DMR can assess if the mining operation is proceeding as planned - with due consideration for the conservation of biophysical, social and economic factors.

An extract from the EMPr Report (reference b. below) called Table 1: Summary of Management of Significant Impacts has been adopted as a working document used for the effective management of impacts and a record of updates seen as material enough to be highlighted in this revision of the DMR - approved EMPr.

References:
a. Proposed Alluvial Mining - Rooipoort Nature Reserve Environmental Impact Assessment - Reference compiled by the Institute of Natural Resources - June 2008.

b. Proposed Alluvial Mining - Rooipoort Nature Reserve EMPr compiled by J Phelan for DBCM by the Institute of Natural Resources - June 2008.

(This document (b) was approved by the Regional Manager DMR - Northern Cape on 1st April 2010).

1.3. Concise description of the specific land uses, cultural and heritage aspects and infrastructure on the site and neighbouring properties/farms in respect of which the potential exists for the socio-economic conditions of other parties to be affected by the proposed mining operation.

The Rooipoort Nature Reserve is a pristine conservation area as well as a commercially-operated game farm. The mining operation will coexist alongside the regular functions of the Reserve until all the economically minable diamond deposits have been mined out.

The landowner (DBCM) has appointed a technically competent and finacially robust operator to implement and conduct an efficient MWP, EMPr and SLP.

The agreements in place between DBCM and the mine operator, Rooipoort Developments, provide for the execution of an effective mining programme with due regard for respect for the receiving environment of this sensitive and valuable biodiversity on the Nature Reserve.

The method changes noted in the revised MWP submitted to the DMR highlight the advantages of mining at an increased rate such that the shortened life of mine results in the identified impacts being managed in a much tighter fashion and therefore bringing the desired mine closure status forward in time. Pivotal to this objective is the mine site rehabilitation programme that has been implemented to run concurrently with the paddock/panel mining activities i.e. the rehabilitation is an integral part of the mining methods deployed.
On completion of the mining of the seven identified sites on Rooipoort, the primary objective is to have the Reserve formally declared a Protected Area. It is therefore considered expedient to allow for the beneficiation of the mineral resources prior to Rooipoort being declared a protected area.

The conservation activities currently practiced on Rooipoort such as hunting, game capture, research, birding, recreational wildlife viewing and photography, environmental education and bird shooting will continue during the mining period and thereafter under the new protected status.

With these goals in mind, the effective management of the aspects which could cause significant impacts will be undertaken in order to minimise, ameliorate or rehabilitate any potential negative impacts so as to return the environment as close to the pre-mining condition as possible.

The goals within the Social and Economic environment are to enhance benefits, particularly job and economic opportunities, and to minimize negative impacts for local residents and business through appropriate mitigation; in the immediate surrounding environment as well as in the broader municipality.

As far as possible, endeavours will be made to protect and conserve the archaeological, historical and cultural heritage and resources of the area in collaboration with local stakeholders and relevant authorities. A detailed working relationship with the McGregor Museum Cultural Resources Management Unit is in place; with assisted fieldwork programmes already implemented within the Mining Right area.

1.4. Annotated map showing the spatial locality and aerial extent of all environmental, cultural/heritage, infrastructure and land use features identified on site and on the neighbouring properties and farms.

Maps are presented in Appendix A of this Report.

A map of the Rooipoort Nature Reserve showing the distribution of the alluvial gravel terraces identified by the DBCM Exploration Division. This extensive prospecting programme gave effect to the Mining Right appplication - submitted in 2008; and subsequently approved in 2010.

A map of the Mining Right area - granted in May 2010.

1.5. Confirmation that supporting documents in the form of specialist studies are attached as appendices.

The following specialist study reports are appended to this document:

Appendix B:
Cultural Resources Management Impact Assessment:
ROOIPOORT (portions of) Klipfontein 99; Bergplaats 100; Vogelstruis Pan 98; Vogelstruis Pan 101; and Zandplaats 102; Kimberley District, Northern Cape, South Africa. (8th December 2005) Prepared by McGregor Museum Archaeology Department CRM Unit.

Appendix C:
Noise Impact Assessment for the proposed alluvial diamond mining at Rooipoort Nature Reserve - prepared by Simpson Ryder & Associates (Environmental and Occupational Health Consultants).

Appendix D:
Social Impact Assessment - Proposed Mining at Rooipoort Nature Reserve - prepared by Fonda Lewis; Institute of Natural Resources (Dec 2007).

Appendix E:
Visual Impact Assessment - Proposed Mining at Rooipoort Nature Reserve - prepared by Jonathan Marshall : Environmental Planning and Design (Nov 2007).

2. **The proposed mining operation.**

2.1. The mineral to be mined.

The Rooipoort Mine has been established to mine diamonds; in both kimberlite and alluvial settings.

2.2. The mining method to be employed at the level of opencast, underground, stoping, stooping, total extraction, bord and pillar, block caving, shrinking, dredging, pumping, monitoring, etc. and provide a concise description of the intended magnitude thereof, in terms of volumes, depth and aerial extent.

The various identified mining sites, demarcated by an extensive prospecting programme conducted by De Beers, will be mined by conventional open cast alluvial mining methods.
All of the gravel resources on Rooipoort will be mined using the strip mining method, which utilises excavators, front-end loaders and dumper trucks.

The areas to be mined will be surveyed and a survey base line will be established across the working area of each resource. In the case of Diamond Koppie, blocks of approximately 100m X 50m will be demarcated along its base line, whereas 100m X 200m strips will be demarcated for each of the remaining deposits (M5, M6 and L2). One block at a time will be opened for each deposit, but three blocks will be

open at any given time. One block will be stripped from overburden, gravel will be removed from a second block and a third block will be backfilled and rehabilitated. Any topsoil from these blocks will be removed and stockpiled on the high ground side of the excavation. Overburden will also be removed and kept separate from the topsoil.

The gravels will be extracted from each block using a 70 ton excavator. The gravels will be transported to the Dense Medium Separator (DMS) plant by haul trucks where it will be screened through rotary barrel screens to <75mm. The remaining <75mm material will be scrubbed and screened to -32mm, +2mm, where after it will be processed through the DMS plant and the final recovery section.

Once processed, the Plant tailings and oversize material will be hauled back to the excavation and deposited in the same trench from which it was extracted. This will be performed by the haul trucks that were used to transport the gravels from the excavation site to the Plant.

During the processing of the material, the grits and FINE TAILINGS will continuously be pumped TO THE FINE TAILINGS SETTLING PANELS ON SITE. THE FINE TAILINGS SETTLING PANELS WERE DESIGNED TO ALLOW THE SUSPENDED FINE TAILINGS TO SETTLE. CLEAN WATER WILL BE PUMPED FROM THE PANEL TO THE FIRST CUT FROM WHERE THE WATER WILL BE PUMPED BACK TO THE PROCESSING PLANT TO BE RE-USED. AFTER WATER IS PUMPED FROM THE PANEL, THE FINE TAILINGS WILL DRY. PLANT- AND DRY FINE TAILINGS WILL THEN BE BACKFILLED INTO OPEN VOIDS. The overburden and topsoil will be replaced TO THE VOIDS TO COVER THE BACKFILLED DRY FINE TAILINGS AND PLANT TAILINGS (REFER TO THE DESIGN DRAWING OF THE PANELS IN APPENDIX A)

Having mined out a designated block, an adjacent block to the one mined previously will be opened and the same process, as detailed above, followed.

2.3. List of the main mining actions, activities, or processes, such as, but not limited to, access roads, shafts, pits, workshops and stores, processing plant, residue deposition sites, topsoil storage sites, stockpiles, waste dumps, access roads dams, and any other basic mine design features.

The following list features the mining activities occuring in the Mining Right area at Rooipoort:

- access-controlled Mining Areas demarcated by fencing and signage;
- controlled Access Roads;
- Haul Roads and Service Roads;
- DMS Processing Plant;
- Mine Offices;
- Off-site Workshops & Stores;
- Off-site Contractor Camp;
- controlled access to fenced mine excavations;

- Water Dams;
- Water pumping;
- Water Pipelines;
- fences;
- demarcated topsoil and overburden stockpiling areas; and
- demarcated FINE TAILINGS SETTLING PANELS;

2.4. Plan showing the location and aerial extent of the aforesaid main mining actions, activities, or processes as required to calculate the financial provision in accordance with the Department's published guideline. (Reg. 51 (b) (v)).

A Survey Plan of the South-western Mining Sector of the Rooipoort Mine (i.e. the Diamond Koppie & M6 Mine Sites) together with the DMS Plant Site is presented in Appendix A.

2.5. Listed activities (in terms of the NEMA EIA regulations) which will be occurring within the proposed project.

The NEMA listed activities, as contained in the EIA regulations are clearly identified and incorporated in this document where these pertain to the mining operation.

In addition, these listed activities were considered during the compilation of the several supporting documents presented here.

2.6. Indication of the phases (construction, operational, decommissioning) and estimated time frames in relation to the implementation of these actions, activities or processes and infrastructure.

The Table and Graph presented in Table 4 and Figure 8 of the updated MWP indicates the Mine construction and operational build-up profile, together with the expected high-level Life of Mine production statistics is presented in the Revised MWP, which is submitted as part of this Section 102 Application.

The Rooipoort gravel deposits have an estimated total resource of some 10 million tonnes, of which only 8 million tonnes is anticipated to be of economic significance. With the overburden comprising an additional 20 million tonnes, Rooipoort Developments has determined the optimal opportunity to be a 2.772 million ton per annum mining operation.

The Life of Mine is therefore anticipated to be at least 10 years, of which 8 years are at full production with the remaining 2 years being operational ramp-up and closure.

The anticipated production schedule is shown in Table 4 and Figure 8 of the updated MWP.

Further investigations into extending the life of mine beyond 2018 will start once the mining operations have advanced.

Once the mining operations and treatment plant activities are implemented, the option of alternative power provision will be explored with Eskom.

2.7. Confirmation if any other relevant information is attached as appendices.

An Application under Section 102 of the MPRDA (Act 28; of 2002) is presented together with this EMPr Amendment.

In addition, this Application includes a revised MWP; as well as an updated Social & Labour Plan (SLP) - which focusses on relevant upliftment projects that have been identified by Rooipoort Developments since Project inception in order to comply with the approved 2008 SLP commitments.

3. The potential impacts

3.1. List of the potential impacts, on environmental aspects separately in respect **of each** of the aforesaid main mining actions, activities, processes, and activities listed in the NEMA EIA regulations.(include all the items to be included in the list referred to in the concomitant section of the guideline posted on the official website of the Department)

Table 1 (presented in Appendix A) provides a summary of the significant aspects and impacts and the proposed management of these. Many of these were identified in the Specialist Reports, compiled together with the 2008 EMPr document. These Reports give greater detail and are also included in the appendices to this document.

3.2. List of all potential cumulative environmental impacts.

Local level (Rooipoort Nature Reserve)
Loss of high value biodiversity (floodplain habitat and DK floral diversity), cultural resources (archaeological resources), and cumulative impact on river system.

Landscape Level
Consider impacts in context of likely mining in old Vaalbos Park.
Further mining on opposite bank of Vaal River.

Provincial Level
Most pristine and longest contiguous stretch of river and floodplain habitat (more than 85% under impacting land-use)

Local Level Impact

Mining could potentially compromise the overall objective of proclaiming Rooipoort Nature Reserve as a protected area.

Provincial / National Impact
Limit or reduce the opportunity for Government to meet its conservation and protected area targets.

3.3. State specifically whether or not there is a risk of acid mine drainage or potential groundwater contamination associated with the mineral to be mined. (If such a risk is associated with the mineral to be mined provide a summary of the findings and recommendations of a specialist geo-hydrological report in that regard).

The mining of diamonds from alluvial gravel terraces presents no risk to the groundwater quality. The mining methods implemented place emphasis on responsible use and management of water resources.

The gravel processing activities employed in the DMS Plant make no use of hazardous chemicals; and water reclamation (estimated to be 60% recycled) is an integral part of the process and operating procedures already in place.

REGULATION 50 (b)

4. **The alternative land use or developments that may be affected**.

4.1. Concise description of the alternative land use of the area in which the mine is proposed to operate.

The Rooipoort Mine is within a managed private conservation and game farming reserve. The post-mining areas will be returned to these land use activities as each of the identified mine sites are rehabilitated.

4.2. List and description of all the main features and infrastructure related to the alternative land uses or developments.

The main features if the Rooipoort Nature Reserve is declared a protected area under the Protected Areas Act are:

- avoiding the many negative impacts associated with mining.
- securing high value biodiversity in the long term would be a major positive impact.
- the positive impact could be of high magnitude at a national scale, permanent and definite - the significance would rate as very high (85).

4.3. Plan showing the location and aerial extent of the aforesaid main features of the alternative land use and infrastructure related to alternative land developments identified during scoping.

See 1.4 (above) and plans presented in Appendix A.

5. **The potential impacts of the alternative land use or development**

5.1. List of the potential impacts **of each** of the aforesaid main features and infrastructure related to the alternative land use or development and related listed activities.

The main features of the Rooipoort Nature Reserve will be the successful declaration as a protected area under the Protected Areas Act.

5.2. Description of all potential cumulative impacts of the main features and infrastructure related to the identified alternative land uses or developments.

No alternative development is proposed - apart from securing the significant conservation legacy of Rooipoort Nature Reserve under the Protected Areas Act.

REGULATION 50 (c)

6. **Identification of potential social and cultural impacts.**

6.1. List of potential impacts of the proposed mining operation on the socio-economic conditions of other parties' land use activities. .(include all the items to be included in the list referred to in the concomitant section of the guideline posted on the official website of the Department)

1. Implications of a land claim on Mining Activities and Operational Agreements between the landowner and the mine operator.
2. Disturbance of Burial Grounds and Graves.
3. Optimisation of the economic benefit in the Region.
4. Alteration of the Visual Landscape.
5. Noise pollution.
6. Decreased water quality for downstream users.
7. Conflict with Land Use and activities on the Rooipoort Nature Reserve and surrounding properties.
8. Increased risk of crime.
9. Loss of Heritage Resources - archaeological sites, etc.

6.2. Description of the cultural aspect that will potentially be affected, and describe the potential impact on such cultural aspect. .(In cases where such features are not applicable the applicant must still include the item in the list and describe it as not applicable).

Disturbance of Burial Grounds and Graves.

An extensive field study was commissioned by DBCM during the compilation of the EIA and EMP in the period leading up to the submission of the application for the Mining Right in 2008.

Any potential impact is minimised and effectively covered in the subsequent working agreement established between the operator and the Cultural Management Unit of the Archaeology Department at the McGregor Museum in Kimberley.

No burial grounds or graves will be disturbed.

6.3. Description of heritage features and the potential impact on such heritage feature. . (In cases where such features are not applicable the applicant must still include the item in the list and describe it as not applicable).

Loss of Heritage Resources - archaeological sites etc.

The field study referred to in 6.2 above, and the associated approved EMP will ensure that potential impacts are minimised during the mining operation.

The working agreement between the mine operator and the CMU at the Museum will ensure that suffient mitigation field work is done well before the areas are mined. The required SAHRA destruction permit system is in place and is reviewed regularly.

6.4. Quantification of the impact on the socio-economic conditions of directly affected persons, as determined by the findings and recommendations of a specialist report in that regard.

6.4.1. The amount of the quantified potential impact on property or infrastructural assets.

The Specialist Studies presented in Appendices B and C capture the potential impacts and conclude by recommending mitigatory steps for the preservation of these features on Rooipoort.

These recommended action plans have been captured in the 2008 EMPr and have also been adopted in the Systems and Operational Procedures implemented on the Rooipoort Mine operation.

Mitigatory archaeological surveying and assessment work has already commenced within the Mine Sites.

A table presented in the conclusion of the SIA report (on page 71; Appendix D) - provides a good summary of the "NO MINING" scenario option.

It is unlikely (<5%) that the proposed Protected Area status will not be achieved post-mining.

This will be achieved by a combination of concurrent rehabilitation, close monitoring and measurement, and diligent application of the recommended Procedures that are in place.

6.4.2. State the amount of the quantified potential impact on commercial, economic or business activity which will be impacted upon as a result of the mining activity.

Impacts by mining activities will be small and short-term in duration. Good working relationships are in place between Rooipoort Developments and the management team of the Rooipoort Nature Reserve.

In addition, procedures and communication methods have been implemented such that any impact on the commercial activities is minimised.

In the short term, and during the mining operations, the commercial support, creation of job opportunities, and the regulatory oversight required all create commercial, economic and business activity.

6.4.3. The sum of the amounts, referred to in paragraphs 6.6.1 and 6.6.2 above.
It should be noted that if further prospecting and mining activities are prevented on Rooipoort, the chances of declaration of the Reserve as a Protected Area are dramatically reduced.

The minerals must be mined in such a way that minimum disturbace is caused to the reduced existing pre-mining land use; and as quickly as possible such that the full commercial activities practiced on the Nature Reserve can recommence.

The mining and concurrent rehabilitation should take place in a manner such that current land use activities can return on an improved, broader scale than before.

7. **Assessment and evaluation of potential impacts.**

7.1. List of each potential impact identified in paragraphs 3 and 6 above. (Include all the items to be included in the list referred to in the concomitant section of the guideline posted on the official website of the Department)

These are well covered in the EMPR document compiled for DBCM in 2008; and accepted by the DMR in April 2010.

All the potential impacts identified during the EIA process are captured in Table 1 of the 2008 EMPR; and are presented here in Annexure A (Table 1) of this revision document.

7.2. Concomitant impact rating for each potential impact listed in paragraph 7.1 above in terms of its nature, extent, duration, probability and significance.(Provide a definition of the criteria used for each of the variables used for rating potential impacts and ensure that the potential impacts are rated specifically with the assumption that no mitigation measures are applied).

Table 2 of Annexure A presents a summary of the assessed significance of each identified potential impact.

7.3. Indication of the phases (construction, operational, decommissioning) and estimated time frames in relation to the potential impacts rated.

The MWP document accompanying this revision has details of the Life Of Mine phases. In particular, Table 4 and Figure 8 of the updated MWP deals with the proposed phases.

REGULATION 50 (d)

8. Identification of the alternative land uses which will be impacted upon. (Include all the items to be included in the list referred to in the concomitant section of the guideline posted on the official website of the Department)

Alternative land use options are straight forward: "mine or no mine".

The impacts identified during the EIA arise directly out the planned mining activities and associated destruction of the environment at the site of the proposed mining.

9. Listed results of a specialist comparative land use assessment. (Refer to the concomitant section of the guideline posted on the official website of the Department and attach the specialist study as an appendix)

The only alternative that has been presented to the proposed mining application is a "no-mine" option - with no mining resulting and the alternative implementation of an initiative to strengthen the protected area status on Rooipoort Nature Reserve.

This option is not considered by the landowner; given the legislation contained in the MPRDA with the principle of "use it or lose it".

Reference: The SIA in Appendix D (in particular page 71) - A table of revised status of impacts of a mining operation.

REGULATION 50 (e)

10. List of all the significant impacts as identified in the assessment conducted in terms of Regulation 50 (c) (Include all the items to be included in the list referred to in the concomitant section of the guideline posted on the official website of the Department)

1. Implications of a Land Claim on Activities and Agreements.
2. Disturbance of Burial Grounds and Graves.
3. Optimisation of the economic benefit in the Region.
4. Alteration of the Visual Landscape.
5. Noise pollution.
6. Decreased Water Quality for downstream users.
7. Conflict with existing Land Use and commercial activities on Rooipoort Nature Reserve and surrounding properties.
8. Increased risk of crime.
9. Loss of Heritage Resources - archaeological sites etc.

REGULATION 50 (f)

11. **Identification of interested and affected parties.** (Including the community, and list as identified according to the scoping report guideline and identified in the scoping report)

During the compilation of the 2008 EIA / EMPR by INR, public engagement played a key role in the identification of I & APs and the recording of concerns raised during this process. This engagement involved a range of methods used to gather data for the effects of the proposed mining operation.

Refer to Appendices A to F - The EIA / EMPR / Etc. - specialist inputs compiled by the Institute of Natural Resources - December 2007.

12. **The details of the engagement process**. (Including the community, and list as identified according to the scoping report guideline and identified in the scoping report and any further consultation since the compilation of the scoping report)

The principle components of the 2007/8 EIA methodology included:

1. Interviews with key stakeholders;
2. Site visits and observations on Rooipoort and surrounding areas;
3. Telephonic communications with stakeholders and key informants;
4. Technical assessment of noise impacts;
5. Technical investigation of visual impacts;
6. Desktop study into economic impacts;
7. Review of additional documentation.

13. **Details regarding the manner in which the issues raised were addressed**. (Include all the items to be included in the list referred to in the concomitant section of the guideline posted on the official website of the Department)

The EIA, with particular focus on the potential impacts of mining - inclusive of the cultural and social impacts - was compiled with the full participation of the landowner, DBCM; interested and affected parties; and the communities as described in Appendix D.

Issues identified during the public participation process described above, were rated in terms of impact extent, magnitude, likelyhood, severity, duration, and ease of mitigation.

The more significant impacts were then captured in a matrix with recommended mitigatory actions, should the mining commence. These are described in full in the 2008 EMPR and are presented here in Table 1 of Appendix A.

REGULATION 50 (g)

14. The appropriate mitigatory measures for each significant impact of the proposed mining operation.

14.1. Adequacy of predictive methods utilised.
The 2008 EMPR and EMP documents prepared by the Institute of Natural Resources are thorough in this area of identification of mitigatory measures.

A set of recommended policies and procedures is included in the EMPR.

14.2. Adequacy of underlying assumptions
Solid and well informed assumptions are based on the range of specialist studies conducted during the EIA process. The INR work called on the specialist inputs of some top scientists and the core team of the INR had a very good grasp of the area and fully understood the aspects and impacts that would be made.

14.3. Uncertainties in the information provided.
Negliable uncertainty - given the composition of the technical team assembled to conduct the specialist work and to compile the EMPR.

REGULATION 50 (h)

15. **Arrangements for monitoring and management of environmental impacts**.

15.1. List of identified impacts which will require monitoring programmes.

As part of the general terms and conditions for a mining right and in order to ensure conformance with the environmental management programme, monitoring of the key characteristics and significant aspects of the mining operation is essential.

1. Water use
2. Water quality
3. Management of Stockpiles
4. Water Reservoir & pump
5. River pump & pipeline
6. Vehicles & Equipment
7. Adherence to pegs/markers:
a) Graves
b) Riparian/closed canopy woodland
c) Drainage lines
d) Mining area
8. Rehabilitation of pits concurrent with mining
9. Placing of overburden, topsoil etc in sequence & within time frame
10. Roads
11. Waste management
12. Hazardous substance management
13. Vegetation:
a. Marking riparian, pan & wetland exclusion areas
b. Marking drainage lines
c. Presence of alien invasive species
d. Revegetation & rehabilitation of mined areas
14. Removal of invasive alien species in rehabilitated areas

15. Birds
16. Aquatic ecosystems:
a. Impact on drainage lines
b. Potential impact on river
c. Potential impact on pans/wetlands in mining area
d. Potential loss of riparian vegetation
e. Degradation of habitat for fish species
17. Adherence to marking of mining site to exclude hunting
18. Marking of grave sites and adherence
19. Agreed archaeological mitigatory measures
20. Induction & ongoing environmental awareness
21. Communication regarding complaints
22. Reporting of any incidents or accidents and the taking of corrective and preventative action
23. Emergency preparedness drills
24. Performance assessments

Refer to Table 3 - List of Monitoring and Measurement of Performance Indicators in the Mining Operation.

15.2. Functional requirements for the said monitoring programmes
These are well covered in the EMPR document accepted by the DMR in April 2010.

The recommended monitoring programmes have been integrated into a set of procedures and operational procedures. These have been \adopted by the mine operator and are in place and working.

15.3. Roles and responsibilities for the execution of the monitoring programmes.
The roles and responsibilities of managers and competent persons are clearly detailed in Table 3 of this document.

15.4. Time frames for monitoring and reporting.
The frequency of the recommended monitoring, measurement and reporting timelines are detailed in Table 3 (in Appendix A).

REGULATION 50 (i)

16. **Technical and supporting information.**
Please refer to the Appendices to this EMPR Revision document.

1. Cultural Resources Management Impact Assessment : Rooipoort Mine - prepared by Karen van Ryneveld; McGregor Museum Archaeology Department; CRM Unit.

2. Noise Impact Assessment for the proposed alluvial diamond mining at Rooipoort Nature Reserve - prepared by Simpson Ryder & Associates cc (Environmental and Occupational Health Consultants.

3. Social Impact Assessment - Proposed Mining at Rooipoort Nature Reserve - prepared by Fonda Lewis; Institute of Natural Resources (Dec 2007).

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Copies of these specialist reports are presented as appendices to this document.

(Include all the items to be included in the list referred to in the concomitant section of the guideline posted on the official website of the Department)

SECTION 2

ENVIRONMENTAL MANAGEMENT PROGRAMME

Regulation 51 (a)

1. **Description of environmental objectives and specific goals for mine closure**.

1.1. Environmental aspects that describe the pre-mining environment.

On completion of mining of the seven identified sites on Rooipoort, namely Diamond Koppie, M5, M6, M1, L2, M3 and M4 (Ref: the approved EMPR), the primary objective for Rooipoort is to have it formally declared a Protected Area.

The most appropriate category of Protected Area, from the suite available according to the Protected Areas Act, has yet to be decided. As the owners of the land, DBCM, the first choice would be to declare the property a Protected Area now, and not mine it at all, but in depth investigations have indicated that the chances of approval for this option are not good.

It is therefore thought to be expedient to allow beneficiation of the mineral resources prior to it being declared a protected area.

1.2. Measures required to contain or remedy any causes of pollution or degradation or the migration of pollutants, both for closure of the mine and post-closure.

The conservation activities currently practiced on Rooipoort such as hunting, game capture, research, birding, recreational wildlife viewing and photography, environmental education and bird shooting will continue during mining and in the new PA status - i.e. post-mining.

With these goals in mind, the management of the aspects which could cause significant impacts will be undertaken in order to minimise, ameliorate or rehabilitate any potential impacts so as to return the environment as close to the pre-mining condition as possible.

The MWP describes how the mining activities will be implemented. The concurrent rehabilitation methods built into the progress of the mine excavations are designed in a way that very little remedial action will be required once a mine site has been completed. This methodology will ensure that only minor work will be required after the closure of the mine.

Procedures to manage possible impacts of pollution and degradation are in place and being monitored. These include water management (both quantity and quality); hydrocarbon handling; dust prevention; alien vegetation ingress; destabilisation of existing drainages; animal injury; and hazardous substance and waste production.

2. **Description of environmental objectives and specific goals for the management of identified environmental impacts emanating from the proposed mining operation.** (As informed by the information provided in the EIA in terms of Regulation 50 (h)).

2.1. List of identified impacts which will require monitoring programmes.

1. Soil erosion;
2. Loss of topsoils;
3. Impact on vegetation, land use, and land value;
4. Loss of existing biodiversity;
5. Impact on commercial activities of Rooipoort Nature Reserve;
6. Impact on water quality - underground and Vaal River;
7. Invasive plant introduction;
8. Use of existing road network;
9. Vehicles possibly injuring/killing birds and animals;
10. Possible increased poaching;
11. Falling hazards presented by open mine excavations;
12. Threatened vegetation communities - i.e. riparian forests;
13. Disturbance of freshwater ecosystems in adjacent Vaal River;
14. Noise of mine machinery and vehicles;
15. Increased dust pollution;
16. Use of river and underground water;
17. Pollution by hydrocarbons;
18. Destruction of graves and heritage areas;
19. Mining on river flood plain;
20. Destabilisation of existing drainage lines;
21. Compromise of browser habitat;
22. Waste production;
23. Adjacent community disturbance;

Reference: The original DMR-accepted EMPR (dated June 2008) - Table 1.

2.2. List of the source activities that are the cause of the impacts which require to be managed.

1. Use of roads;
2. Access to mining sites;
3. Mining workforce operating in existing Nature Reserve;
4. Mining of gravels;
5. General mining activities;
6. Mining near graves and identified heritage areas;
7. Mining in close proximity to river;
8. Stripping of topsoils and overburden;
9. Mining of basal gravels;
10. Storage of mining equipment & machinery;
11. Transport, storage and use of hazardous substances e.g. oils & fuels;
12. Pumping and reticulation of water;
13. Use of power generators;

14. Use of waterhole / drinking site;
15. Removal / disturbance of vegetation;

2.3. Management activities which, where applicable, will be conducted daily, weekly, monthly, quarterly, annually or periodically as the case may be in order to control any action, activity or process which causes pollution or environmental degradation.
The mining operation has a set of Policies, Procedures and Working or Operating Instructions guiding daily activities.

One of the key Operational Procedures provides for the monitoring and measurement of all activities that might cause pollution or degradation of the environment.

Likewise, environmental awareness is supported throughout the operations in the quest for better understanding of the principles of responsible mining in a sensitive conservation area.

2.4. The roles and responsibilities for the execution of the monitoring and management programmes.
As part of the general terms and conditions for a mining right and in order to ensure conformance with the environmental management programme, monitoring of the key characteristics and significant aspects of the mining operation is essential.

The procedure mentioned in 2.3 above, covers the roles and responsibilties of operational, supervisory, and managerial staff. In addition, Table 3 in Appendix A, details these responsibilities.

3. **Description of <u>environmental objectives</u> and specific goals for the socio-economic conditions as identified in the social and labour plan.** (Include all the items to be included in the list referred to in the concomitant section of the guideline posted on the official website of the Department)
The mining operation SIA is presented in Appendix D; and the social and labour aspects are captured in the matrix of all envisaged significant impacts considered - in Table 1 in Appendix A.

4. Description of environmental objectives and specific goals for historical and cultural aspects.

4.1. Environmental objectives and goals in respect of historical and cultural aspects identified in specialist studies conducted during the EIA phase.
A long-term consulting relationship between the landowner (DBCM) and the Cultural Management Unit (the CMU) at the McGregor Museum was established as far back as 2006. The Rooipoort Nature Reserve has several areas of historical and cultural significance worth protecting.

The impacts of mining on these cultural aspects is well covered in the scientific work presented in Appendix B.
The mine operator, Rooipoort Developments, has established a continuing working relationship with the CMU. All mitigatory work in the pre-mining site areas is well covered in this working agreement. Where required, destruction permits are obtained from SAHRA.

Regulation 51 (b) – Outline of the implementation programme

5. **The appropriate technical and management options chosen for each environmental impact, socio-economic condition and historical and cultural aspect in each phase of the mining operation, as follows;**

5.1. Actions, activities or processes, including any NEMA EIA Regulation listed activities, which cause pollution or environmental degradation. (Include all the items to be included in the list referred to in the concomitant section of the guideline posted on the official website of the Department)

Table 1, presented in Appendix A, describes the actions, activities or processes together with recommended procedures to manage any possible pollution or degradation of the environmental conditions within the Mining Right area.

5.2. Concomitant list of appropriate technical or management options chosen to modify, remedy, control or stop any action, activity, or process which will cause significant impacts on the environment, socio-economic conditions and historical and cultural aspects as identified. (attach detail of each technical or management option as appendices)

Table 1 also covers the technical or management options and methods put in place to minimise or prevent degradation of the particular environment, socio-economic conditions and cultural aspects identified.

In addition, the set of policies and procedures developed from those recommended in the EMPR have been adopted by Rooipoort Developments to guide responsible mining of the mineral resources.

6. Action plans to achieve the objectives and specific goals contemplated in Regulation 50 (a).

17. Time schedules of deadlines for each action to be undertaken to implement each technical or management option chosen. (Include all the items to be included in the list referred to in the concomitant section of the guideline posted on the official website of the Department)

These are well covered in the EMPR document accepted by the DMR in April 2010.

In particular reference is made to:
Table 3 - List of Monitoring and Measurement of Performance Indicators in the Mining Operation. This table also details the roles and responsibilities of managers and competent persons. Likewise, the frequency of the recommended monitoring, measurement and reporting timelines are detailed here.

7. Procedures for environmentally related emergencies and remediation
(An environmental emergency plan that includes all the items referred to in the concomitant section of the guideline posted on the official website of the Department)

The Emergency Preparedness Procedure is one of the Systems Procedures implemented by Rooipoort Developments.

The following were identified as potential emergency situations which could occur during the mining operation:

- **Flood or excessive rains locally.**
- **Wildfire on Nature Reserve or started accidentally in mine area.**
- **Vehicle accident.**
- **Wounded animal running onto mine site.**
- **Health &Safety accident on site.**
- **Diesel Tanker Discharge onto ground.**

Each of these is dealt with in the procedure.

8. **Planned monitoring and environmental management programme performance assessment.**

8.1. Description of planned monitoring of the aspects of the environment which may be impacted upon. (Include all the items referred to in the concomitant section of the guideline posted on the official website of the Department)

As part of the general terms and conditions for a mining right and in order to ensure conformance with the EMP, monitoring of the key characteristics and significant aspects of the Mining Operation is essential.

Table 3 (in Appendix A) contains a list of the items which will require monitoring. Included here is the frequency, method and responsibility for each item as detailed.

Furthermore, the System and Operational Procedures together with a set of work instructions describe in more detail on these where this is necessary.

8.2. Provide a description as to how the implementation of the action plans contemplated in regulation 51 (b) (ii) as described will be monitored as described in paragraph 6 of the EMP will be monitored.

Audits will confirm that monitoring is being done according to the criteria set out in Table 3.

Adherence to procedures and work instructions will be confirmed.

Monitoring is done in order to ensure legal compliance or to meet the requirements of the EMPR or because it is best practice and where there are non-conformities e.g. with regard to the limits, or where the progamme requirements have not been met, this will be documented. The corrective and preventive actions to address these non-conformities or deficiencies will be recorded so they can be demonstrated if requested during the performance assessment. Exceeding limits or serious pollution incidents will be reported to the relevant authorities as required by legislation.

8.3. Frequency of proposed reporting for assessment purposes.

All records from monitoring and measurement are filed in a way such that these are identifiable, traceable, safe from damage and harm and are readily accessible.

The annual performance assessment will be undertaken as follows:

• conducted by the environmental officer or an appropriate competent person nominated by the Company.
• the assessment will include a legal compliance audit.
• the assessment will form the basis of the annual report to the DMR.
• the scope will be defined in relation to the mining area/s mined at the time
> the method of conducting the assessment will be outlined.
~ the interpreted information evaluating conformance with the EMP will be documented.
~ the evaluation criteria used will be the EMP document, the procedures and work instructions, relevant legislation, the list of monitoring necessary and other documents as may be included during the course of mining.
~ the results of the assessment will be documented.
~ recommended actions for any non-conformance will be included.

9. Financial provision in relation to the execution of the environmental management programme:-

9.1. Plan showing the location and aerial extent of the aforesaid main mining actions, activities, or processes anticipated. (Include all the items referred to in the concomitant section of the guideline posted on the official website of the Department)
The initial financial quantum calculation and provision, as presented by DBCM in 2010, has been accepted by the DMR for this mining operation.

Rooipoort Developments has undertaken to fully honour this provision.

In addition, Rooipoort Developments regularly revisits the quantum and the required assessment methodology associated with the implementation of the MWP. This has been done as the operational activities have ramped-up since the first quarter of 2011. In this regard, the professional services of a contracted mine surveyor are used for the measurements.

9.2. Annual forecasted financial provision calculation (Refer to the concomitant section of the EIA and EMP guideline)
The Rooipoort Mine is in operation. Accordingly, the financial provision calculation and commitment made by Rooipoort Developments is in place and is reported to the DMR on the required annual basis.

9.3. Confirmation of the amount that will be provided should the right be granted**.**
The Mining Right granted to DBCM has been transferred to Rooipoort Developments in 2013 and RD has assumed full responsibility for the finacial provision required.

9.4. The method of providing financial provision contemplated in Regulation 53.
As above

10. Environmental Awareness Plan (Section 39 (3) (c))
(Include all the items referred to in the concomitant section of the guideline posted on the official website of the Department)
The Systems Procedure captures the desired environmental awareness initiatives.

Refer to "Rooipoort Nature Reserve Alluvial Mining Project - SYSTEMS PROCEDURE - Induction Document for all New workers, temporary or contract workers coming onto the Mining Site"

11. Attachment of specialist reports, technical and supporting information.
(Provide a List)
Reference to original EMPR document of June 2008; and annextures thereto:

1. Cultural Resources Management Impact Assessment : Rooipoort Mine - prepared by Karen van Ryneveld; McGregor Museum Archaeology Department; CRM Unit.

2. Noise Impact Assessment for the proposed alluvial diamond mining at Rooipoort Nature Reserve - prepared by Simpson Ryder & Associates cc (Environmental and Occupational Health Consultants.

3. Social Impact Assessment - Proposed Mining at Rooipoort Nature Reserve - prepared by Fonda Lewis; Institute of Natural Resources (Dec 2007).

4. Visual Impact Assessment - Proposed Mining at Rooipoort Nature Reserve - prepared by Jonathan Marshall : Environmental Planning and Design (Nov 2007)

Copies of these specialist reports are presented as appendices to this document.

12. SECTION 39 (4) (a) (iii), Capacity to manage and rehabilitate the environment
(Include all the items referred to in the concomitant section of the guideline posted on the official website of the Department)
Rooipoort Developments has adequately demonstrated both the ability and willingness to implement, manage, measure and rehabilitate the environment.

The concurrent rehabilitation of the present mining sites is proof of this capacity.

The establishment and current functioning of the Rooipoort Mine Working Committee provides for technical and specialist oversight of the operations of the mine. The committee represents both the landowners and the operational interests in ensuring that appropriate levels of guidance and self-checking takes place on a constant basis.

13. UNDERTAKING

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

14. IDENTIFICATIONOF THE REPORT

Herewith I, the person whose name and identity number is stated below, confirm that I am the person authorised to act as representative of the applicant in terms of the resolution submitted with the application, and confirm that the above report comprises EIA and EMP compiled in accordance with the guideline on the Departments official website and the directive in terms of sections 29 and 39 (5) in that regard.	
Full Names and Surname	**Henk Johan van Zuydam**
Identity Number	**7709015096083**

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