mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

BASIC ASSESSMENT REPORT

And

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

SUBMITTED FOR ENVIRONMENTAL AUTHORIZATIONS IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 AND THE NATIONAL ENVIRONMENTAL MANAGEMENT WASTE ACT, 2008 IN RESPECT OF LISTED ACTIVITIES THAT HAVE BEEN TRIGGERED BY APPLICATIONS IN TERMS OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (MPRDA) (AS AMENDED).

NAME OF APPLICANT: Kareeberg Municipality

TEL NO: (053) 382 3012

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POSTAL ADDRESS: Private Bag X226
Carnarvon
8925

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FILE REFERENCE NUMBER SAMRAD:

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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 BASIC ASSESSMENT PROCESS

The objective of the basic assessment process is to, through a consultative process–

(a) determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;

(b) identify the alternatives considered, including the activity, location, and technology alternatives;

(c) describe the need and desirability of the proposed alternatives,

(d) through the undertaking of an impact and risk assessment process inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage , and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on the these aspects to determine:

(i) the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and

(ii) the degree to which these impacts—

(aa) can be reversed;

(bb) may cause irreplaceable loss of resources; and

(cc) can be managed, avoided or mitigated;

(e) through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to—

(i) identify and motivate a preferred site, activity and technology alternative;

(ii) identify suitable measures to manage, avoid or mitigate identified impacts; and

(iii) identify residual risks that need to be managed and monitored.

PART A
SCOPE OF ASSSSMENT AND BASIC ASSESSMENT REPORT

3. CONTACT PERSON AND CORRESPONDENCE ADDRESS

A) Details of

i) Details of the EAP

Name of The Practitioner:	Guillaume Nel Environmental Consultants
Tel No:	(021) 870 1874
Fax No:	(021) 870 1873
E-mail address:	gn@gnec.co.za

ii) Expertise of the EAP.

(1) The qualifications of the EAP (with evidence).

MSc En Man (PUK), B(Hons) EN Man (US), B Geography (US), Certificate-Environmental Law (PUK), Certificate – EIA (PUK), Certificate– EMS 14000 (PUK), Certificate– Air Quality Management (PUK), Certificate– Environmental Auditing (SABS). Guillaume Nel has fifteen years relevant experience as an Environmental Assessment Practitioner.

(2) Summary of the EAP's past experience. (In carrying out the Environmental Impact Assessment Procedure

Environmental Impact Assessments:

Undertaken and Project Managed numerous Environmental Impact Assessments - such as:

1) EIA for the new Shaw's Mountain Pass (MR269) between Hermanus and Caledon;
2) EIA for a 430 ha residential Eco Estate in the Hottentots Holland Mountains;
3) EIA's for Numerous (>100) other large Scale Residential developments in the Western Cape;
4) EIA for the Karoo Array telescope (KAT) in the Northern Cape (SKA);
5) EIA for the Kudu Integration Powerline (Oranjemond to Vredendal) (ESKOM) (PP);
6) EIA's for Numerous (>30) Industrial Developments (Western Cape and Gauteng);
7) EIA for a new prison in Paarl (Department Public Works);
8) EIA's for several new provincial roads/ passes in Overberg, Boland and Karoo (Dept Public Works);
9) EIA processes for new road sections for SANRAL;

10) Molasses distillery in Kisumu, Kenya;
11) EIA for the Sishen Mine Expansion Project (Kumba Recourses);
12) EIA's for Lonmin Platinum (Pandora and Wonderkop Platinum Mines);
13) Numerous Basic Assessment Applications (>100) for roads, residential, commercial and
14) industrial developments in the Western Cape, Northern Cape, Karroo and Eastern Cape;
15) Environmental Management Plans (>150) for Residential, Industrial, Commercial and Mining Developments in low and high sensitivity areas.

Environmental Management Programme Report (Including Mining EIA's):

The following noted-worthy projects have been successfully undertaken.

1) Development of an EMPR/EIA for the Sishen Expansion Project - Kumba Resources;
2) Development of various EMPR's for Lonmin Platinum Mines at Wonderkop and Pandora;
3) Co-Developer of an EMPR for the Anglo Platinum, Rooderand project;
4) Compilation of an EMPR for the Witwatersrand Gold Mining Realisation Trust; and
5) Compilation of more than 90 EMPr's (EMProgrammes) for clay quarries, norite quarries and numerous borrow pits in the Overberg, Boland, Ceres Karoo and Gauteng.

Quantum Closure Costing System:

1) Co-developer of a quantum closure costing system for the Xstrata Coal group in Mpumalanga;
2) Developer of a quantum closure costing system for Impala Platinum;
3) Closure costing system for a Protech, Norite Quarry in Roslyn;
4) Closure costing system for the Ceramic Industries limited clay quarries;
5) Closure costing system for Impala Platinum.

Legal and other compliance audits and ECO Audits:

Undertaken a variety environmental compliance audits, which include:

1) Spectre International's molasses distillery in Kenya (EMP and Legal compliance Audit);
2) Numerous Pit rehabilitation/closure compliance Audits;
3) Numerous Construction activities – EMP compliance Audits (>100);
4) EMP compliance audit for African Brick clay quarry;
5) Environmental Law and EMP compliance audits for numerous clay quarries and industries;
6) Environmental Law (Legal) compliance audits for the local municipalities as well as legal and private entities;

7) ECO Audits for numerous Residential Developments, Industrial Developments, Pipelines and other infrastructure.

Environmental Risk Assessments:

Undertaken numerous Environmental Risk Assessments for mines, waste sites, infrastructure developments and industries.

Training:

ECO Training for numerous entities.

Assisting with the training workshops (X8) of the EIA regulations of April 2006 (Municipalities, Consultants and I&APs).

B) Location of the overall Activity.

i) Borrow Pit 1: MR771/8.6/R/80

Farm Name:	Vredelus (7)
Application area (Ha)	Approximately 2.5 Ha
Magisterial district:	Van Wyksvlei
Distance and direction from nearest town	Approximately 17.5 km North East of Van Wyksvlei
21 digit Surveyor General Code for each farm portion	C01700020000000700000

C) Locality Map

(show nearest town, scale not smaller than 1:250000).

PLEASE REFER TO ADDENDUM A

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.

Kareeberg Municipality proposes to mine sand from borrow pit MR771/8.6/R/80 to use as bedding material for the previously authorised water pipeline to be constructed between Carnarvon and Van Wyksvlei (See Figure 1 in Addendum A).

Table 1 Borrow pit proposed to be mined

Borrow-pit Name	Farm Name	Hereinafter referred to as:
MR771/8.6/R/80	Farm Vredelus (No. 7)	Km 8.6 Borrow Pit

More general detail for the pit is given in the three sections below.

Please note that the co-ordinates of the borrow pit is:

1. 30°15'41.54''S 21°56'44.90''E
2. 30°15'41.25''S 21°56'45.85''E
3. 30°15'41.99''S 21°56'47.53''E
4. 30°15'42.08''S 21°56'47.93''E
5. 30°15'43.98''S 21°56'50.57''E
6. 30°15'45.00''S 21°56'50.29''E
7. 30°15'45.77''S 21°56'50.76''E
8. 30°15'47.17''S 21°56'47.16''E
9. 30°15'45.69''S 21°56'44.05''E

No roads will be constructed to obtain the material from the pit. Access to the pit will be obtained from road MR771. The Km 8.6 pit is situated next to the road (MR771). Due to the fact that an access road is present to the proposed mining area, no access road will have to be constructed. Furthermore, no new road will be required for hauling purposes. The proposed site will be rehabilitated in relation to the surrounding topography after mining activities have been completed.

In terms of the Environmental Impact Assessment Regulations – National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA), which replaced the regulations under the Environment Conservation Act, 1989 (Act No. 73 of 1989) and has been effective as of 8 December 2014 and amended on the 7th of April 2017, the following activities constitutes the listed activities which fall within the scheduled activities listed in Government Notice (GN) No. R. 983, (GN) No. R. 984 and (GN) No. R. 985:

GN Reg No.983, Activity 21

Any activity including the operation of that activity which requires a mining permit in terms of section 27 of the Mineral and Petroleum Resource Development Act, 2002 (Act No. 28 of 2002), including -

- *(a) associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource; or*
- *(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.

Furthermore, in order to meet the requirements stipulated in the Minerals & Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA) and associated Regulations (GN R 7949) it is imperative that an Environmental Management Programme (EMPr) be compiled to comprehensively address the environmental impacts and propose suitable mitigation measures, pertaining to the proposed Km 8.6 borrow pit on MR771.
The purpose of the proposed borrow-pit is to provide bedding material for the previously authorised water pipeline to be constructed between Carnarvon and Van Wyksvlei.

Currently, the area is characterised by sand piles (dunes). Therefore, it is proposed that the mining of the material be done in order for the pile to be levelled with the ground. Therefore, no material subsurface will be removed.

The total area of the borrow pit will amount to roughly 2.5 Hectares. The borrow-pit will be a strategic borrow-pit, operating when the need for bedding material exists. The mineral used for a specific contract, will be extracted to obtain optimal usage of the reserve base. The area disturbed for a specific contract will, after completion of the contract, be rehabilitated, not to be disturbed by mining activities again.

Please refer to **Figure 1 in Addendum A** below for a visual representation of the proposed borrow pit.

(i) Listed and specified activities

NAME OF ACTIVITY **(E.g. For prospecting -** drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route **etc…etc…etc** **E.g. for mining**,- 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.)	Aerial extent of the Activity Ha or m²	**LISTED ACTIVITY** Mark with an X where applicable or affected.	**APPLICABLE LISTING NOTICE** (*GNR 327, GNR 325 or GNR 324)*
Mining of minerals (MR771/8.6/R/80)	±2.5 Ha	GN Reg No.983, Activity 21	GN Reg No.983, Activity 21

ii) Description of the activities to be undertaken

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

Borrow Pit MR771/8.6/R/80

The km 8.6 borrow pit will be utilised for the mining of sand to be used as bedding material for the previously authorised water pipeline to be constructed between Carnarvon and Van Wyksvlei. The Environmental Impact Assessment process for the water pipeline was conducted and authorised in July 2016.

No roads will be constructed to obtain the material from the pit. Access to the pit will be obtained from road MR771. The Km 8.6 pit is situated next to the road (MR771). Due to the fact that an access road is present to the proposed mining area, no access road will have to be constructed. Furthermore, no new road will be required for hauling purposes. The proposed site will be rehabilitated in relation to the surrounding topography after mining activities have been completed.

Currently, the area is characterised by sand piles. Therefore, it is proposed that the mining of the material be done in order for the pile to be levelled with the ground. Therefore, no material below ground level will be removed.

Closure and Rehabilitation of mined Borrow Pit

Sustainable development applied to mining works necessarily includes rehabilitation with the aim of either restoring the land to its original use, or eliminating or reducing adverse environmental impacts to a long-term acceptable condition. The process is driven primarily by legislation which ensures that the mine owner must comply with the intention of achieving those end conditions, which are defined in broad terms by guidelines.

The Mineral and Petroleum Resources Development Act (Act No. 28, 2002) and the regulations (Act No. 28 Regulations, 2004) set out the process whereby a mine requires a closure certificate, the application for which must be accompanied by an environmental risk report and agreed to by the Chief Inspector and the Lower Orange Catchment Management Agency. The Minister is given certain rights with regard to the financial provision. The closure objectives which form part of the required environmental management plan must inter alia identify key objectives, define future land use objectives and provide proposed closure costs. It is the latter which transforms laudable aims

into reality and with the increasing stringency of regulations and of acceptable standards, the necessity for reliable closure cost estimates has become paramount.

Generally mines conduct an ad hoc survey of the mine property to ascertain what will be required for closure and at what cost. The information obtained is not easily managed particularly if stricter environmental criteria are to be applied as unit costs increase.

The following basic principles of rehabilitation will be followed:

- Prepare a rehabilitation plan prior to the commencement of mining.
- Agree on the long-term post - mining land use objective for the area with the relevant government departments, local government councils and private landowners. The land use must be compatible with the climate, soil, topography of the final landform and the degree of the management available after rehabilitation.
- Progressively rehabilitate the site, where possible, so that the rate of rehabilitation is similar to the rate of mining.
- Prevent the introduction of noxious weeds and pests.
- Minimise the area cleared for mining and associated facilities to that absolutely necessary for the safe operation of the mine.
- Reshape the land disturbed by mining so that it is stable, adequately drained and suitable for the desired long-term land use.
- Minimise the long-term visual impact by creating landforms which are compatible with the surrounding landscape.
- Reinstate natural drainage patterns disrupted by mining wherever possible.
- Minimise the potential for erosion by wind and water both during and following mining.
- Consider spreading the cleared vegetation on disturbed areas.
- Deep rip compacted surfaces to encourage infiltration, and allow plant root growth.
- Ensure that the surface one or two metres of soil is capable of supporting plant growth.
- Revegetate the area with plant species consistent with the post mining land use.
- Monitor and manage rehabilitation areas until the vegetation is self-sustaining.

Establishment Phase

Activities in the establishment phase will entail the following:

- The demarcation of mining phases with danger tape to ensure that the stipulated mining plan is implemented correctly;
- Fencing of the proposed borrow-pit area to be mined to prevent mining in an unapproved and/or sensitive area;
- Placement of containers for office and workshop;
- Place and secure the mobile chemical toilets;
- Construct a hard, impermeable surface (bund walls) for the refuelling of trucks from the diesel cart;
- Where possible, existing rubble will be crushed and used as material for the resurfacing of roads;
- Excavation of sand material.

E) Policy and Legislative Context

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans,	**REFERENCE WHERE APPLIED**	**HOW DOES THIS DEVELOPMENT COMPLIY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.**

guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process		(E.g. In terms of the National Water Act a Water Use License has/ has not been applied for)
Department of Mineral Resources – The Mineral and Petroleum Resources Development Act (Act No. 28 of 2002) and the Regulations (Act No. 28 Regulations, 2004)	Not Available	Apply for Authorisation (this application).
Department of Environment and Nature Conservation (National Environmental Management Act, 1998 (Act 107 of 1998)	Not Available	This department was consulted during the public participation period; however failed to provide comment.
Lower Orange Catchment Management Agency – The National Water Act (Act No. 36 of 1998)	Not Available	This department was consulted during the public participation period; however failed to provide comment.
Northern Cape Department of Agriculture, Land Reform and Rural Development – Conservation of Agricultural Resources Act (Act No. 43 of 1983)	Not Available	This department was consulted during the public participation period; however failed to provide comment.
Kareeberg Municipality: Town and Regional Planning; Environmental	Not Available	This department was consulted during the public participation period; however failed to provide comment.

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).

During July 2016, the Department of Environment and Nature Conservation (DENC) provided Kareeberg Municipality with an Environmental Authorisation for the construction of a bulk water supply pipeline from Carnarvon to Van Wyksvlei. The pipeline construction is necessitated in order to address the water shortages experienced in Van Wyksvlei. The proposed activities however requires bedding material during the construction of the water pipeline.

The proposed borrow pit will therefore:

1) Provide bedding material to be used during the construction of the water pipeline from Carnarvon to Van Wyksvlei.
2) Assist in providing much needed water to the citizens of Van Wyksvlei in order to address the current water shortages.
3) Stimulate the local economy through providing job opportunities.
4) Assist with shorter haulage distance in providing the bedding material.

The proposed mining of borrow pit MR771/8.6/R/80 will positively contribute to the social, health, and economic environment of the area.

G) Motivation for the overall preferred site, activities and technology alternative.

Borrow pit MR771/8.6/R/80 has been identified as the preferred site for the following reasons:

1) The material at borrow pit MR771/8.6/R/80 is suitable for bedding material to be used during the construction of the bulk water pipeline.
2) MR771/8.6/R/80 is located close to MR771 which means that all access roads are readily accessible and no natural areas will be impacted on in order to create an access road.
3) There are no significant natural vegetation present at the location of borrow pit MR771/8.6/R/80 and hence the impact on vegetation will be minimal. In addition, not a lot of vegetation is present in the area proposed to be mined.
4) No critical biodiversity areas or threatened ecosystems will be negatively impacted upon.
5) No freshwater sources will be impacted upon by the proposed sand mining at borrow pit MR771/8.6/R/80. A pan is located to the north of MR771, however the proposed operations will not be conducted in close proximity to the pan.
6) The gradient of the site is ideal for the peeling of the contours, which will limit the impact on the surrounding environment.
7) The close proximity of the borrow pit to the proposed construction area limits the hauling distance.
8) The proposed site has adequate space to set up a site camp with all the legal requirements.
9) Noise and dust impacts are not deemed to be significant, seeing that the proposed borrow pit is not in close proximity to any residential areas.
10) No faunal species will be negatively impacted upon.

H) Full description of the process followed to reach the proposed preferred alternatives within the 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.

1. Location Alternatives:

1. **MR771/8.6/R/80:** The proposed borrow pit, located on Farm 7, 80 metres from the road reserve, was tested in order to determine the soil quality. It was identified that the pit contains material favourable to mine and use as bedding material in the construction of a bulk water pipeline located from Carnarvon to Van Wyksvlei. The close proximity of the proposed borrow pit and the proposed pipeline route is favoured, as the haulage distance will be minimised. Furthermore, it is not expected that the proposed mining activities will have an impact on the surrounding natural environment. The surrounding area will be regarded as a no-go area and hence access to the surrounding areas will be prohibited. The proposed borrow pit will be appropriately rehabilitated after mining operations. Visibility of the proposed pit is very low. This pit is therefore preferred alternative number one and is being applied for.
2. **MR771/2/L/50:** The borrow pit does not have suitable material for bedding material. Furthermore, the borrow pit will be more visible for people utilising MR771.
3. **MR771/2.5/L/30:** The borrow pit is located within an area that freshwater drains to. Therefore, it is not ideal that a borrow pit be developed at this location; as the borrow pit will be subject to continued flooding.
4. **MR771/0.9/R/20:** The borrow pit is located within an area with natural vegetation. It is therefore not ideal that this borrow pit be developed.

2. Activity Alternatives

No activity alternatives were investigated as the purpose of GNEC's appointment by Kareeberg Municipality was the identification and authorisation of a borrow pit in the Van Wyksvlei region to use the sand as bedding material for the previously authorised bulk water pipeline to be constructed from Carnarvon to Van Wyksvlei.

3. Design Alternatives

Each test hole identified as a feasible alternative was designed in such a way as to optimally mine material needed whilst keeping in mind the possible environmental impacts associated

with this activity. Therefore procedures are proposed for the rehabilitation of the decommissioned pit.

4. Technology Alternatives

Technology proposed for the mining of sand will comply with standard practice and therefore no feasible alternatives exist.

5. Operational Alternatives

Procedures used during the implementation phase of the proposed mining activity will comply with standard practice and therefore no feasible alternatives exist.

6. No-Go Alternative

The purpose of the proposed borrow pit mining is to provide sand as bedding material for the previously authorised bulk water pipeline to be constructed from Carnarvon to Van Wyksvlei. The construction of the pipeline will provide much needed water to the town of Van Wyksvlei which is currently experiencing low water levels.

The no-go alternative is not feasible as it may result in the residents of Van Wyksvlei not having a water source. It is however a basic human right to have access to a water source and the residents of Van Wyksvlei should also have this right.

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.

During the first Public Participation Process:

1. An advertisement announcing the commenting period and method was placed in the Noordwester newspaper on the 22nd of June 2018;
2. Two site notices were erected, one English and one Afrikaans at MR771/8.6/R/80, indicating the commenting period and method for commenting;
3. Notification letters containing detail of the public participation process was sent via registered post to commenting authorities (governmental and non-governmental);
4. Background information documents were hand delivered to residents within a 100m radius of the property boundaries of the borrow pit, as well as to the residents on the affected farm;
5. Hard and soft copies of the Basic Assessment Report were delivered to the Kareeberg Municipality; and Van Wyksvlei Public Library. Furthermore hard and soft copies were couriered to the Department of Mineral Resources and the Department of Environment and Nature Conservation.
6. A Comments and Responses Report have been compiled. However, after numerous attempts to consult the local State Departments, the Departments failed to provide comment on the application. Please refer to Addendum F.10 for the proof of consultation.

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 List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted.		Date Comments Received	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.
AFFECTED PARTIES			**Please refer to Addendum F.10 for the Comments and Responses Report.**		
Landowner/s					
Lawful occupier/s of the land					
Landowners or lawful occupiers on adjacent properties					
Municipal councillor					
Municipality					

Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA e					
Communities					
Dept. Land Affairs					
Traditional Leaders					
Dept. Environmental Affairs					
Other Competent Authorities affected					
OTHER AFFECTED PARTIES					
INTERESTED PARTIES					

iv) The Environmental attributes associated with the 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).

1. **MR771/8.6/R/80:** The proposed borrow pit, located on Farm 7, 80 metres from the road reserve, is preferred from an environmental point of view. There are no freshwater sources located in close proximity to the proposed borrow pit. A pan is located to the North of MR 771, however the proposed mining operations will not have an impact on this pan. Furthermore, it is not expected that the proposed mining operations will have an impact on the natural vegetation as there are a number of alien vegetation located at the proposed MR771/8.6/R/80 location. Visibility of the proposed pit is also very low. This pit is therefore preferred alternative one and is applied for.
2. **MR771/2/L/50:** The borrow pit does not have suitable material for bedding material. Furthermore, the borrow pit will be more visible for people utilising MR771.
3. **MR771/2.5/L/30:** The borrow pit is located within an area that freshwater drains to. Therefore, it is not ideal that a borrow pit be developed at this location; as the borrow pit will be subject to continued flooding.
4. **MR771/0.9/R/20:** The borrow pit is located within an area with natural vegetation. It is therefore not ideal that this borrow pit be developed. This proposed location will also be more visible for people travelling on nearby roads.

(b) Description of the current land uses.

1. **MR771/8.6/R/80 (Preferred – applied for in this application):** Vacant land which has been subject to grazing. A small sand pile is located at the application area (material proposed to be mined).
2. **MR771/2/L/50:** Vacant land which has been subject to grazing. No material located on the property.
3. **MR771/2.5/L/30:** Vacant land which has been subject to grazing. Water drains towards this point and hence the point is generally wet.
4. **MR771/0.9/R/20:** Vacant land with natural vegetation present. The area was probably also subject to some degree of grazing.

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

1. MR771/8.6/R/80 (Preferred – applied for in this application): The proposed pit is located on a piece of land that was previously subject to grazing. In addition, there are no infrastructure located on the site proposed for the borrow pit (in close proximity).

2. MR771/2/L/50: Vacant land with no infrastructure in close proximity.

3. MR771/2.5/L/30: Vacant land with no infrastructure present.

4. MR771/0.9/R/20: Vacant land with no infrastructure present.

(d) Environmental and current land use map.

(Show all environmental, and current land use features)

Please refer to Addendum A for an Aerial Image of the proposed site.

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).

i. Potential Impacts identified for MR771/8.6/R/80

Potential impacts on geographical and physical aspects:	
Nature of impact:	**Impact on the existing grazing field.**
Extent and duration of impact:	**Short term and site related: proposed mining activities.** **Long term and site related: the site will be rehabilitated in such a manner so as to allow for agricultural practices (grazing) to resume. The site will be used again for pre-mining purposes.**
Probability of occurrence:	**Definite**
Degree to which the impact can be reversed:	**High, the area can easily be rehabilitated for agricultural purposes again.**
Degree to which the impact may cause irreplaceable loss of resources:	**This site has been identified as a site with adequate material. The site has been identified as a site which can easily be rehabilitated in such a manner so as to allow for rain water to easily drain from the site.**
Cumulative impact prior to mitigation:	**Low**
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	**Low**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**During rehabilitation the disturbed site will be ripped and levelled and shaped in such a way that rain and drainage water can naturally drain from the borrow pit area.**
Cumulative impact post mitigation:	**Low**
Significance rating of impact after mitigation	**Low**

(Low, Medium, Medium-High, High, or Very-High)	
Potential impact on biological aspects:	
Nature of impact:	**Impact on biological aspects on the proposed site.**
Extent and duration of impact:	**Short term and site related**
Probability of occurrence:	**Definite**
Degree to which the impact can be reversed:	**The area can easily be rehabilitated back to agricultural land (grazing).**
Degree to which the impact may cause irreplaceable loss of resources:	**Low**
Cumulative impact prior to mitigation:	**Low**
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	**Low**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Seeing that the proposed site was subject to agricultural activities (grazing) it is not expected that the proposed borrow pit will have any significant impacts on the biological aspects of the site.** **Should any faunal species be found on the existing agricultural field, they will be re-located to the nearest natural area.**
Cumulative impact post mitigation:	**Low**
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	**Low**
Potential impacts on socio-economic aspects:	
Nature of impact:	**The town of Van Wyksvlei is experiencing a water shortage at the moment. Therefore, the previously authorised water pipeline to be constructed from Carnarvon to Van Wyksvlei is of paramount importance to the viability of the citizens of Van Wyksvlei.** **The proposed upgrades will therefore:** • **Provide bedding material to be used during the construction of the water pipeline from Carnarvon to Van Wyksvlei.** • **Assist in providing much needed water to the citizens of Van Wyksvlei in order to address the current water shortages.**

	• **Stimulate the local economy through providing job opportunities.** • **Assist with shorter haulage distance in transporting the bedding material.**
Extent and duration of impact:	**Job opportunities: Short Term – Construction** **Provision of water source: Long term - Operational**
Probability of occurrence:	**Definite**
Degree to which the impact can be reversed:	**N/A, do not want to reverse positive impacts.**
Degree to which the impact may cause irreplaceable loss of resources:	**N/A**
Cumulative impact prior to mitigation:	**High Positive**
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	**High Positive**
Degree to which the impact can be mitigated:	**N/A, do not want to mitigate positive impacts.**
Proposed mitigation:	**N/A, do not want to mitigate positive impacts.**
Cumulative impact post mitigation:	**High Positive**
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	**High Positive**
Potential impacts on cultural-historical aspects:	
Nature of impact:	**No archaeological or historical material is expected to occur on the site since the site has been previously disturbed by grazing activities.** **It is not foreseen that the site is of any heritage significance or that the proposed activities will have any significant impact on any heritage resources in the area.**
Extent and duration of impact:	**No Impacts**
Probability of occurrence:	**Not likely**
Degree to which the impact can be reversed:	**N/A**
Degree to which the impact may cause irreplaceable loss of resources:	**Highly Unlikely**
Cumulative impact prior to mitigation:	**Low**

Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	**Low**
Degree to which the impact can be mitigated:	**Medium**
Proposed mitigation:	**Should any artefacts be uncovered during the mining phase, a Specialist must be contacted in order to assess its significance.**
Cumulative impact post mitigation:	**Low**
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	**Low**
Potential noise impacts:	
Nature of impact:	**During Mining activities.** **The proposed site is not close to residential developments, thus the noise impacts will not be significant.**
Extent and duration of impact:	**Short term – Mining activities**
Probability of occurrence:	**Definite**
Degree to which the impact can be reversed:	**Low to medium**
Degree to which the impact may cause irreplaceable loss of resources:	**Low**
Cumulative impact prior to mitigation:	**Low To Medium**
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	**Low To Medium**
Degree to which the impact can be mitigated:	**Medium**
Proposed mitigation:	**All construction vehicles must be in a good working order to reduce possible noise pollution.** **Work hours during the construction phase shall be strictly enforced unless permission is given (07H00 – 18H00). Permission shall not be granted without consultation with the local property owners by the EO. No work to be done on Sundays.**
Cumulative impact post mitigation:	**Low**
Significance rating of impact after mitigation	**Low**

(Low, Medium, Medium-High, High, or Very-High)	
Potential visual impacts:	
Nature of impact:	**Mining activities will have an insignificant visual impact since the construction will only be temporary and is not in close proximity of any residential developments. No visual impacts during the operational phase are expected seeing that this is an existing agricultural site that will be rehabilitated in such a way that rain and drainage water can naturally drain from the site, as per the current topography of the site.**
Extent and duration of impact:	**Construction - short term**
Probability of occurrence:	**Definite**
Degree to which the impact can be reversed:	**The area can easily be rehabilitated back to agricultural land.**
Degree to which the impact may cause irreplaceable loss of resources:	**Low, existing agricultural field.**
Cumulative impact prior to mitigation:	**Low**
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	**Low**
Degree to which the impact can be mitigated:	**Medium to High**
Proposed mitigation:	**Shade cloth must be utilised to conceal and minimise the visual impact of contractor camps, lay down and storage areas.** **Rubble and litter must be removed every week or more often as the need arises and be disposed of at a registered landfill site as designated by the Kareeberg Local Municipality, Solid Waste Removal Department.** **During rehabilitation the land will be ripped and shaped in such a way that rain and drainage water can naturally drain from the site.**
Cumulative impact post mitigation:	**Low**
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	**Low**

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).

Previous experience has shown that it is often not feasible or practical to try and rank, scale and weight possible impacts numerically. The rating and ranking of impacts is often a controversial aspect because of the inherent difficulties involved in attaching values to such impacts.

However, it was decided that the focus of this assessment would be on addressing key issues and focussing on objectives rather than on the rating or ranking of impacts during typical project phases. The methodology employed in this report is an iterative process, which allows for the evaluation of the efficiency of the process itself. The assessment of activities or actions was conducted in the following order:

- Qualitative and quantitative analysis of the activities relating to the proposed development;
- Assessment of the potential impacts arising from the activities, without mitigation (WOM); and
- Assessment of the potential impacts with mitigation (WM).

It should be noted that all identified mitigation methodologies and techniques relating to all impacts identified below have been discussed in other sections of the report.

The methodology for the evaluation of all impacts is discussed in detail below. Borrow pit can be divided into two different phases:

The Operational Phase

The operational phase focuses on all impacts on the environment, which could be expected to occur as a result of construction and operational activities relating to the borrow pit development during its operations over the life thereof.

The Decommissioning and Closure Phase

To a large extent all mitigatory measures identified in the EMP will serve to negate any potential impacts that may arise during the decommissioning/closure of the borrow pit. Despite the efficient implementation of all mitigation measures as proposed in the Environmental Management Plan, it is likely that a few impacts will remain.

The activities have been included in the tables of the Impact assessment section of this report. The assessment endeavours to identify activities, which require precise environmental management interventions to mitigate the impacts arising from them. The criteria against which the activities were assessed are presented in the following text, under the heading Assessment Criteria.

ASSESSMENT CRITERIA

Although the assessment of the impacts has been conducted according to the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), it was compared with environmental criteria as required by the integrated environmental management procedure as well as criteria outlined in the EIA Regulations, published by the Department of Environmental Affairs and Tourism (April 1998) in terms of the Environment Conservation Act, 1989 (Act No. 73 of 1989).
This was deemed prudent given that the environmental context and a commitment, undertaken by the proponent, to all stakeholders to ensure that the proposed development takes full cognisance of all potential impacts and is in fact undertaken in as environmentally sensitive manner as practically possible.

Resulting aspects

In order to establish a coherent framework within which all impacts could be objectively assessed it is necessary to establish a rating system, which is consistent throughout all criteria. For such purposes each aspect was assigned a value (refer to the table below), ranging from 1-5, depending on its definition.

- Extent

The physical and spatial size of the impact. This is classified as:

Footprint (1)
The impacted area extends only as far as the activity, e.g. a footprint.

Site (2)
The impact could affect the whole, or a measurable portion of the site.

Regional (3)
The impact could affect the area including the neighbouring farms, the transport routes and the adjoining towns.

National (4)
The impact could have a national affect.

International (5)
The impact could have an affect outside the boundaries of South Africa

- Duration

The lifetime of the impact, this is measured in the context of the lifetime of the proposed base.

Short term (1)
The impact will either disappear with mitigation or will be mitigated through natural processes in a time span shorter than any of the phases.

Short to medium term (2)
The impact will last up to the end of the phases, where after it will be entirely negated.

Medium term (3)

The impact will continue or last for the entire operational life of the development, but will be mitigated by direct human action or by natural processes thereafter.

Long term (4)

The impact will continue beyond the phase in question, and will therefore require active mitigation in order to ensure that it is mitigated to within acceptable limits

Permanent (5)

The only class of impacts that will be non-transitory. Mitigation either by man or natural processes will not occur in such a way or in such a time span that the impact can be considered transient.

- Intensity

This will be a relative evaluation within the context of all the activities and the other impacts within the framework of the project. Is the impact destructive, or benign? Does it destroy the affected environment, alter it's functioning, or slightly alter it. These are rated as:

Low (1)

The impact alters the affected environment in such a way that the natural processes or functions are not affected.

Medium (3)

The affected environment is altered, but function and process continues, albeit in a modified way.

High (5)

Function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases.

This will be a relative evaluation within the context of all the activities and the other impacts within the framework of the project.

- Weighting factor

This describes the weight the activity would have if it took place. The classes are rated as follows:

High (5)

The potential occurrence of the activity is expected to have a high weighting factor.

Medium to High (4)

The potential occurrence of the activity is expected to have a medium to high weighting factor.

Medium (3)

The potential occurrence of the activity is expected to have a medium weighting factor.

Low to Medium (2)

The potential occurrence of the activity is expected to have a low to medium weighting factor.

Low (1)

The potential occurrence of the activity is expected to have a low weighting factor.

- Frequency of incident or impact

This describes the likely frequency the incident or impact could occur. The impact may occur for any length of time during the life cycle of the activity, and not at any given time. The classes are rated as follows:

Almost never (1)

The potential occurrence of the impact is expected to be highly improbable.

Improbable (2)

The impact may occur on an ad hoc basis but through the implementation of the correct mitigation measures such occurrences can be almost negated. .

Probable (3)

The impacts are likely to occur on an ad hoc basis but with the implementation of the necessary mitigation measures can always be kept well within acceptable levels.

Highly Probable (4)

The impact is considered to have a direct, predicable relationship with its aspect. The management of the impact will require specific mitigation and management plans..

Definite (5)

The impact will take place regardless of any prevention plans, and only mitigation actions or contingency plans to contain the effect can be relied on.

- Determination of significance – With Mitigation

Significance is determined through a synthesis of impact characteristics. Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. In this case the prediction refers to the foreseeable significance of the impact after the successful implementation of the suggested mitigation measures.

Significance with mitigation

Significance with mitigation is rated on the following scale:

Low

The impact will be mitigated to the point where it is of limited importance.

Low to medium

The impact is of importance, however, through the implementation of the correct mitigation measures such potential impacts can be reduced to acceptable levels.

Medium

Notwithstanding the successful implementation of the mitigation measures, to reduce the negative impacts to acceptable levels, the negative impact will remain of significance. However, taken within the overall context of the project, the persistent impact does not constitute a fatal flaw.

Medium to high

The impact is of great importance. Through implementing the correct mitigation measures the negative impacts will be reduced to acceptable levels

High

The impact is of great importance. Mitigation of the impact is not possible on a cost-effective basis. The impact continues to be of great importance, and, taken within the overall context of the project, is considered to be a fatal flaw in the project proposal. This could render the entire development option or entire project proposal unacceptable.

METHODOLOGY

Each aspect within an impact description is assigned a series of quantitative criteria. Such criteria are likely to differ during the different stages of the mining life cycle. Subsequently in order to establish a defined base upon which it becomes feasible to undertake a value based decision process it is necessary to sum all the criteria.

Ranking Weighting and Scaling

For each impact assessed a scaled weighting factor, or also referred to as the severity which is the sum of the frequency of activity and impact occurring, (refer to the table above) is attached to each respective impact. The purpose of including such a weighting is to ensure that each member of the working group is given the opportunity to introduce their value bias for each individual aspect.

The process of assigning such weights serves to highlight those aspects that are considered the most critical to the various stakeholders as well as providing a means whereby the impact assessor can successfully deal with the complexities that exist between the different impacts and associated aspect criteria.

Simply, such a weighting factor is indicative of the importance of impact in terms of the potential effect that the aspect could have on the surrounding environment. Therefore the aspect, which is considered to have a greater importance, will be given a higher weighting than that which is of lower importance.

Identifying the Potential Impacts Without Mitigation Measures (WOM)

Following the assigning of the necessary weights to the respective aspects through the sum of all criteria pertaining to any particular impact multiplied by its assigned weighting will result in a value of each impact before the implementation of the necessary mitigation measures.

Equation 1

Significance Rating = Consequence x Severity/Weighting factor

where

Consequence = Extent + Duration + Intensity

Severity/Weighting factor = Frequency of activity + Frequency of impact.

Identifying the Potential Impacts Mitigation Measures (WM)

In order to gain a better understanding of the significance of an impact, ‘mitigation efficiency’ (ME) factors can be applied.

The most effective means of deriving a quantitative value of mitigated impacts is to assign each 'without mitigation measures' (WOM) value is assigning a 'mitigation efficiency' (ME) rating (refer to the table above). The allocation of such a rating is indicative of the efficiency and effectiveness, as identified through professional experience and empirical evidence that the proposed mitigation measures will result in managing the impact.

As a result of the 'with mitigation' (WM) value being derived from the multiplication of the WOM value with its respective ME rating it stands to reason that the lower assigned value the greater the proposed mitigation measures effectiveness and subsequently the lower the WM impact will be.

Equation 2
WM = WOM * ME

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10
Determine the consequence of the impact by summation (1+2+3)				Determine the severity of the Impact by summation (5+6)			Product of consequence and severity determines significance Without Mitigation (4x7)	Sufficiency of the proposed mitigation	Product of Column 8 and Column 9 determines significance With Mitigation (8x9)
Extent of impact	Duration of impact	Intensity of impact	Sum	Probability		Sum	Significance rating (WOM)	Mitigation efficiency (ME)	Mitigated aspects (WM)
				Frequency of impact	Weighting Factor				
Footprint = 1	Short = 1	Low = 1	Sum of Column 1-3	Almost never = 0.1	Low = 0.1	Sum of Column 5-6	Low = 0-2.9	High = 0.2	Low = 0-2.9
Site = 2	Short to Medium = 2	Low to Medium = 2	Sum of Column 1-3	Improbable = 0.2	Low to Medium = 0.2	Sum of Column 5-6	Low to Medium = 3-5.9	Medium to High = 0.4	Low to Medium = 3-5.9
Regional =3	Medium = 3	Medium = 3	Sum of Column 1-3	Probable = 3	Medium = 0.3	Sum of Column 5-6	Medium = 6-8.9	Medium = 0.6	Medium = 6-8.9
National = 4	Medium to Long = 4	Medium to High = 4	Sum of Column 1-3	Highly Probable = 0.4	Medium to High = 0.4	Sum of Column 5-6	Medium to High = 9-11.9	Low to Medium = 0.8	Medium to High = 9-11.9
International =5	Long = 5	High = 5	Sum of Column 1-3	Definite = 0.5	High = 0.5	Sum of Column 5-6	High = 12-15	Low = 1	High = 12-15

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)

MR771/8.6/R/80 has been identified as the preferred site for the following reasons:

1) The material has been tested and MR771/8.6/R/80 proved to have suitable bedding material for the proposed water pipeline to be constructed between Carnarvon and Van Wyksvlei.
2) MR771/8.6/R/80 is located close to MR771 which means that all access roads are readily accessible and no natural areas will be impacted on in order to create an access road.
3) There are no significant natural vegetation present at the location of borrow pit MR771/8.6/R/80 and hence the impact on vegetation will be minimal. In addition, not a lot of vegetation is present in the area proposed to be mined.
4) No critical biodiversity areas or threatened ecosystems will be negatively impacted upon.
5) No freshwater sources will be impacted upon by the proposed sand mining at borrow pit MR771/8.6/R/80. A pan is located to the north of MR771, however the proposed operations will not be conducted in close proximity to the pan.
6) The gradient of the site is ideal for the peeling of the contours, which will limit the impact on the surrounding environment.
7) The close proximity of the borrow pit to the proposed construction area limits the hauling distance.
8) The proposed site has adequate space to set up a site camp with all the legal requirements.
9) Noise and dust impacts are not deemed to be significant, seeing that the proposed borrow pit is not in close proximity to any residential areas.
10) No faunal species will be negatively impacted upon.

Potential Hazards:

Hazards can be eliminated if compliance to the Environmental Management plan is strictly adhered to. (Please refer to the Environmental Management Plan).

The hazards that must be anticipated are:

1) Noise; which is not significant seeing that the proposed site is not in close proximity to any residential areas.
2) Dust Generation; which is not significant seeing that the proposed site is not in close proximity to any residential areas. Dust will also be controlled with ample mitigation measures as set out in the Environmental Management Plan.
3) Haulage trucks using MR771. The necessary safety and road signs as well as trained personnel will be available on site.
4) Hydrocarbon spillages. All the necessary precaution measures will be taken as clearly set out in the Environmental Management Plan.

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).

Mitigation measures according to possible environmental impacts include:

1. Potential Impact on Geographical and Physical Aspects:

A previously disturbed area (by grazing activities) will be used for the proposed mining activities. The area where MR771/8.6/R/80 is proposed is a previously grazed agricultural area, and is therefore already disturbed. During rehabilitation, the land will be ripped, levelled and shaped in such a way that rain and drainage water drain from the site.

2. Potential Impact on Biological Aspects:

Seeing that the proposed site is a previously grazed agricultural area with little indigenous vegetation, it is not expected that the proposed borrow pit will have any significant impacts on the biological aspects of the sites. Should any faunal species be found on site, they will be re-located to the nearest natural area. The construction footprint area will be clearly demarcated and the surrounding areas will be clearly seen as no go areas. Miners and other workers on site will be educated on the correct faunal handling procedures during the ECO induction, before mining activities commences. These mitigation measures have been written into the EMP, which will be kept on site during the lifetime of the borrow pit.

3. Potential Impact on Socio Economic Aspects

The town of Van Wyksvlei is currently experiencing a water shortage at the moment. Therefore, the previously authorised water pipeline to be constructed from Carnarvon to Van Wyksvlei is of paramount importance to the viability of the citizens of Van Wyksvlei.

The proposed upgrades will therefore:

- Provide bedding material to be used during the construction of the water pipeline from Carnarvon to Van Wyksvlei.
- Assist in providing much needed water to the citizens of Van Wyksvlei in order to address the current water shortages.
- Stimulate the local economy through providing job opportunities.
- Assist with shorter haulage distance in transporting the bedding material.

4. Potential Impact on Cultural-Historical Aspects

No archaeological or historical material is expected to occur on the site since the site has been previously disturbed during grazing activities. Agricultural activities on this site is an ongoing event. It is not foreseen that the site is of any heritage significance or that the proposed activities will have any significant impact on any heritage resources in the area. No structures are present on site. Should any artefacts be uncovered during the mining phase, a Specialist must be contacted in order to assess its significance.

5 Potential Visual Impact

i. Mining activities will have an insignificant visual impact since the construction will only be temporary and is not in close proximity to residential areas. No visual impacts during the operational phase are expected seeing that the site is a previously grazed agricultural area that will be rehabilitated back to its original state.

ii. Shade cloth must be utilised to conceal and minimise the visual impact of contractor camps, lay down and storage areas. Rubble and litter must be removed every week or more often as the need arises and be disposed of at a registered landfill site as designated by the Kareeberg Local Municipality, Solid Waste Removal Department. During rehabilitation the land will be ripped, levelled and shaped in such a way that it blends in with the natural contour and drainage lines of the site and the surrounding area. The site will be rehabilitated back to grazing land.

6. Potential Noise Impacts

i. The proposed site is not in close proximity to residential developments, thus the noise impacts will not be significant. Noise impacts will only be temporary. All construction vehicles must be in a good working order to reduce possible noise pollution.

ii. Work hours during the construction phase shall be strictly enforced unless permission is given (07H00 – 18H00).

iii. Permission shall not be granted without consultation with the farmers by the EO.

iv. No work to be done on Sundays.

7. Potential Pollution Impacts

Mitigation measures are clearly stipulated within the Environmental Management Plan. No negative impacts are expected if the contractor on site strictly adheres to these mitigation measures. All hydrocarbons will be stored within containers on site. No hydrocarbons will be allowed to stand on site. All hydrocarbons will have lids that can be properly sealed. All machinery and vehicles will be supplied with drip trays. Mixing of cement needs to be done on mortar boards or plastic sheeting to prevent cement run-off from infiltrating and contaminating the soil. Should spills occur the Environmental Control Officer needs to be notified. The contaminated materials needs to be removed and disposed at the nearest licensed landfill site. Refuse bins with suitably closed lids will be made available on site.

ix) Motivation where no alternative sites were considered.

N/A

x) Statement motivating the alternative development location within the overall site.

(Provide a statement motivating the final site layout that is proposed)

Borrow pit MR771/8.6/R/80 has been selected out of numerous possible alternatives for the following reasons:

MR771/8.6/R/80

1) The material have been tested and MR771/8.6/R/80 proved to have suitable bedding material for the proposed water pipeline to be constructed between Carnarvon and Van Wyksvlei.
2) MR771/8.6/R/80 is located close to MR771 which means that all access roads are readily accessible and no natural areas will be impacted on in order to create an access road.
3) There are no significant natural vegetation present at the location of borrow pit MR771/8.6/R/80 and hence the impact on vegetation will be minimal. In addition, not a lot of vegetation is present in the area proposed to be mined.
4) No critical biodiversity areas or threatened ecosystems will be negatively impacted upon.
5) No freshwater sources will be impacted upon by the proposed sand mining at borrow pit MR771/8.6/R/80. A pan is located to the north of MR771, however the proposed operations will not be conducted in close proximity to the pan.
6) The gradient of the site is ideal for the peeling of the contours, which will limit the impact on the surrounding environment.
7) The close proximity of the borrow pit to the proposed construction area limits the hauling distance.
8) The proposed site has adequate space to set up a site camp with all the legal requirements.
9) Noise and dust impacts are not deemed to be significant, seeing that the proposed borrow pit is not in close proximity to any residential areas.
10) No faunal species will be negatively impacted upon.

l) 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.)

All alternatives were subject to a site assessment by representatives of GNEC during the month of May 2018. The site was investigated for possible botanical, freshwater, visual and heritage issues as well as cross-referenced with the test results from the soil analysis conducted by iX Engineers. Further investigation of the sites included desktop analysis of available vegetation, freshwater and climate data gathered during previous environmental assessments. The identified possible environmental issues were then analysed in a quantitative manner, by assigning weights to the intensity, duration and extent of each possible impact. These possible impacts included:

1. Botanical Impacts;
2. Freshwater Impacts;
3. Air Quality Impacts;
4. Noise Impacts;
5. Heritage Impacts;
6. Visual Impacts;
7. Socio-Economic Impacts;

8. Soil Quality Impacts.

The result was the elimination of other possible sites and therefore identifying MR771/8.6/R/80 as the preferred borrow pit to be applied for, for authorisation.

Mitigation measures according to possible environmental impacts include:

1. Potential Impact on Geographical and Physical Aspects:

A previously disturbed area (grazing) will be used. The area where MR771/8.6/R/80 is proposed is a previous grazing area, and has therefore been subject to trampling. During rehabilitation, the land will be ripped, levelled and shaped in such a way that rain and drainage water drain from the site.

2. Potential Impact on Biological Aspects:

Seeing that the proposed site is a previously grazed area with no significant indigenous vegetation, it is not expected that the proposed borrow pit will have any significant impacts on the biological aspects of the sites. Should any faunal species be found on site, they will be re-located to the nearest natural area. The construction footprint area will be clearly demarcated and the surrounding areas will be clearly seen as no go areas. Miners and other workers on site will be educated on the correct faunal handling procedures during the ECO induction, before mining activities commences. These mitigation measures have been written into the EMP, which will be kept on site during the lifetime of the borrow pit.

3. Potential Impact on Socio Economic Aspects

The town of Van Wyksvlei is currently experiencing a water shortage at the moment. Therefore, the previously authorised water pipeline to be constructed from Carnarvon to Van Wyksvlei is of paramount importance to the viability of the citizens of Van Wyksvlei.

The proposed upgrades will therefore:

- Provide bedding material to be used during the construction of the water pipeline from Carnarvon to Van Wyksvlei.
- Assist in providing much needed water to the citizens of Van Wyksvlei in order to address the current water shortages.
- Stimulate the local economy through providing job opportunities.
- Assist with shorter haulage distance in transporting the bedding material.

4. Potential Impact on Cultural-Historical Aspects

No archaeological or historical material is expected to occur on the site since the site has been previously disturbed during agricultural activities. Agricultural activities on this site is an ongoing event. It is not foreseen that the site is of any heritage significance or that the proposed activities will have any significant impact on any heritage resources in the area. No structures are present on site. Should any artefacts be uncovered during the mining phase, a Specialist must be contacted in order to assess its significance.

5 Potential Visual Impact

i. Mining activities will have an insignificant visual impact since the construction will only be temporary and is not in close proximity to residential areas. No visual impacts during the

operational phase are expected seeing that the site is a previously grazed area that will be rehabilitated back to its original state.

ii. Shade cloth must be utilised to conceal and minimise the visual impact of contractor camps, lay down and storage areas. Rubble and litter must be removed every week or more often as the need arises and be disposed of at a registered landfill site as designated by the Kareeberg Local Municipality, Solid Waste Removal Department. During rehabilitation the land will be ripped, levelled and shaped in such a way that it blends in with the natural contour and drainage lines of the site and the surrounding area. The site will be rehabilitated after mining activities are completed.

5. Potential Noise Impacts

i. The proposed site is not in close proximity to residential developments, thus the noise impacts will not be significant. Noise impacts will only be temporary. All construction vehicles must be in a good working order to reduce possible noise pollution.

ii. Work hours during the construction phase shall be strictly enforced unless permission is given (07H00 – 18H00).

iii. Permission shall not be granted without consultation with the local farmers by the EO.

iv. No work to be done on Sundays.

6. Potential Pollution Impacts

Mitigation measures are clearly stipulated within the Environmental Management Plan. No negative impacts are expected if the contractor on site strictly adheres to these mitigation measures. All hydrocarbons will be stored within containers on site. No hydrocarbons will be allowed to stand on site. All hydrocarbons will have lids that can be properly sealed. All machinery and vehicles will be supplied with drip trays. Mixing of cement needs to be done on mortar boards or plastic sheeting to prevent cement run-off from infiltrating and contaminating the soil. Should spills occur the Environmental Control Officer needs to be notified. The contaminated materials needs to be removed and disposed at the nearest licensed landfill site. Refuse bins with suitably closed lids will be made available on site.

J) 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).

NAME OF ACTIVITY **(E.g. For prospecting -** drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route **etc…etc…etc** **E.g. For mining**,- 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.)	**POTENTIAL IMPACT** (Including the potential impacts for cumulative impacts) (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc….etc…)	**ASPECTS AFFECTED**	**PHASE** In which impact is anticipated (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)	**SIGNIFICANCE** if not mitigated	**MITIGATION TYPE** (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..	**SIGNIFICANCE** if mitigated
Please refer to Addendum G.						

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

K) 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.
Due to the biophysical state of the site, it was not deemed for any specialist studies to be undertaken.			

Attach copies of Specialist Reports as appendices

L) Environmental Impact Statement

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

Borrow pit MR771/8.6/R/80 applied for, will provide adequate bedding material for the previously authorised water pipeline to be constructed between Carnarvon and Van Wyksvlei. The proposed construction of the water pipeline will:

- Provide bedding material to be used during the construction of the water pipeline from Carnarvon to Van Wyksvlei.
- Assist in providing much needed water to the citizens of Van Wyksvlei in order to address the current water shortages.
- Stimulate the local economy through providing job opportunities.
- Assist with shorter haulage distance in transporting the bedding material.

MR771/8.6/R/80 has been identified as the preferred site for the following reasons:

1) The material have been tested and MR771/8.6/R/80 proved to have suitable bedding material for the proposed water pipeline to be constructed between Carnarvon and Van Wyksvlei.
2) MR771/8.6/R/80 is located close to MR771 which means that all access roads are readily accessible and no natural areas will be impacted on in order to create an access road.
3) There are no significant natural vegetation present at the location of borrow pit MR771/8.6/R/80 and hence the impact on vegetation will be minimal. In addition, not a lot of vegetation is present in the area proposed to be mined.
4) No critical biodiversity areas or threatened ecosystems will be negatively impacted upon.
5) No freshwater sources will be impacted upon by the proposed sand mining at borrow pit MR771/8.6/R/80. A pan is located to the north of MR771, however the proposed operations will not be conducted in close proximity to the pan.
6) The gradient of the site is ideal for the peeling of the contours, which will limit the impact on the surrounding environment.
7) The close proximity of the borrow pit to the proposed construction area limits the hauling distance.
8) The proposed site has adequate space to set up a site camp with all the legal requirements.
9) Noise and dust impacts are not deemed to be significant, seeing that the proposed borrow pit is not in close proximity to any residential areas.
10) No faunal species will be negatively impacted upon.

Noise and dust impacts are not deemed to be significant, seeing that the proposed Borrow pit is not in close proximity to any residential areas. Mitigation measures prior, during and after construction, as well as guidelines for the rehabilitation process has been incorporated in the Environmental Management Plan. The construction footprint of the Borrow Pit area will be clearly cordoned off. This will be done in accordance with the ECO before any construction activities may commence.

It is not expected that any artefacts of historical or archaeological significance will be found on site since the site has been previously disturbed due to previous grazing activities.

No impacts are expected on any fauna species either. A search and rescue needs to be done for any possible fauna species and re-locate them to the nearest natural area before construction activities may commence. Seeing that the site is an existing active agricultural field, it is not expected that the proposed borrow pit will have any impact on fauna species.

There may be some noise impacts during the construction phase but this will only be temporary. The noise impacts are not regarded as significant, seeing that the proposed borrow pit is not located in close proximity to any residential areas.

Mining activities will have an insignificant visual impact since the construction will only be temporary and is not in close proximity to residential areas. No visual impacts during the operational phase are expected due to the site being previous agricultural land that will be rehabilitated back to its original state as mentioned in this report.

During the construction phase the traffic will be managed with the necessary sign boards and red flag personnel, if required.

There will be no traffic impacts during the operational phase.

Application is therefore made for the authorisation of borrow pit MR771/8.6/R/80.

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.

Please refer to Addendum D for the site map (borrow pit development plan).

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

1. MR771/8.6/R/80 (Preferred – applied for in this application)

The proposed borrow pit, located on Farm 7, 80 metres from the road reserve, has been subject to grazing in the past. No freshwater sources will be impacted upon by the proposed mining activities.

Visibility of the proposed pit is also very low. This pit is therefore preferred alternative number 1 and is applied for.

Positive impacts of the preferred alternative include:

- Provide bedding material to be used during the construction of the water pipeline from Carnarvon to Van Wyksvlei.

- Assist in providing much needed water to the citizens of Van Wyksvlei in order to address the current water shortages.
- Stimulate the local economy through providing job opportunities.
- Assist with shorter haulage distance in transporting the bedding material.

Negative Impacts of the preferred alternative include:

- There may be some noise impacts during the construction phase but this will only be temporary. The noise impacts are not regarded as significant, seeing that the proposed borrow pit is not in close proximity to any residential areas.

- Mining activities will have an insignificant visual impact since the construction will only be temporary and is not in close proximity to residential areas. No visual impacts are expected during the operational phase seeing that the site is a previous grazing area that will be rehabilitated back to its original state as mentioned in this report.

2. **MR771/2/L/50:** The borrow pit does not have suitable bedding material. Furthermore, the borrow pit will be more visible for people utilising MR771.
3. **MR771/2.5/L/30:** The borrow pit is located within an area that freshwater drains to. Therefore, it is not ideal that a borrow pit be developed at this location; as the borrow pit will be subject to continued flooding.
4. **MR771/0.9/R/20:** The borrow pit is located within an area with natural vegetation. It is therefore not ideal that this borrow pit be developed at this location.

M) 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.

1) Soils
   - Impact management objective: Soil degradation through mining activities to be managed to ensure that effective rehabilitation measures are in place.
2) Vegetation
   - Impact Management Objective: To ensure that the required removal of flora is limited to the footprint area and mitigated against as far as possible.
3) Animal life
   - Impact Management Objective: To ensure that the required removal of fauna is limited to the footprint area and mitigated against as far as possible.
4) Surface water
   - Impact Management Objective: To ensure that mining activities do not negatively impact on the aquatic systems.
5) Visual Impacts
   - Impact Management Objective: To ensure that the visual impact caused by the proposed activity is limited and mitigated against as far as expediently as possible.

N) Aspects for inclusion as conditions of Authorisation.

Any aspects which must be made conditions of the Environmental Authorisation

GNEC, in our professional capacity as experienced and qualified environmental consultants believe that the proposed project be issued a positive environmental authorization, however this authorization must be accompanied with the following requirements:

- Appointment of an Environmental Control Officer (ECO) to oversee compliance with the Environmental Management Plan.
- ECO site audits to ensure compliance and to advise on any mitigation measures necessary to negate any environmental degradation.
- The ECO must compile monthly ECO Audit reports on the state of the environment and areas of compliance and non-compliance with the EMP. These reports must be made available to the Department of Mineral Resources, the Department of Environment and Nature Conservation, and the Kareeberg Municipality. Fines should be included in the EMP to ensure full compliance with the EMP.
- The ECO needs to be consulted in the pre-construction phase to ensure that the site has been adequately cordoned off.
- Before construction commences the contractors need to receive an induction training in accordance with the approved environmental management plan.

O) Description of any assumptions, uncertainties and gaps in knowledge.

(Which relate to the assessment and mitigation measures proposed)

No gaps in knowledge could be identified. The amount of employees to be appointed during the mining phase is currently uncertain. Miners and general labourers will be appointed as required.

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.

It is GNEC's professional opinion that the proposed borrow pit, MR771/8.6/R/80 should be authorised for the following reasons:

1) There will be no significant botanical impact on the proposed site.
2) There will be no significant faunal impact on the proposed site.
3) There will be no significant freshwater impact on the proposed site.
4) The proposed operations will not result in significant visual impacts.
5) The site does not hold any significant heritage value.
6) The site is in close proximity to MR771 and therefore no access road to borrow pit MR771/8.6/R/80 needs to be constructed.
7) The proposed pit is located in close proximity to the proposed construction area of the water pipeline and therefore haulage distances will be minimised.
8) The borrow pit's soil test results are of good quality for bedding material.

i) Conditions that must be included in the authorisation

- Appointment of an Environmental Control Officer (ECO) to oversee compliance with the Environmental Management Plan.
- ECO site audits to ensure compliance and to advise on any mitigation measures necessary to negate any environmental degradation.
- The ECO must compile monthly ECO Audit reports on the state of the environment and areas of compliance and non-compliance with the EMP. These reports must be made available to the Department of Environment and Nature Conservation, the Department of Mineral Resources and the Kareeberg Municipality. Fines should be included in the EMP to ensure full compliance to the EMP.
- The ECO needs to be consulted in the pre-construction phase to ensure that the site has been adequately cordoned off.
- Before construction commences the contractors need to receive an induction training in accordance with the approved environmental management plan.

Q) Period for which the Environmental Authorisation is required.

Indefinitely

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.

Yes

S) Financial Provision

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

MR771/8.6/R/80

	Units	**Rate**	**Activity**	**Cost**	**Establishment Cost**
Dozer	10 hrs	R990/ hr	Shaping, whalebacking and sloping	R9 900	R7 920
Grader	15 hrs	R660/ hr	Shaping and scarifying	R9 900	R13 200
Digger	25 hrs	R550/ hr	Loading	R13 750	R9 000
Truck	30 hrs	R440/ hr	Earth Moving	R13 200	R2 200
Labour	240 hrs	R27/ hr	Labour	R 6 480	
Seed Mixture	20 kg	R265/kg	Purchasing of seed	R 5 300	
				R58 530	R32 320
				R 90 850	
Plus 10% Contingencies				R 9 085.00	
Sub Total				R 99 935.00	
Plus 10% Supervision Cost				R 9 993.50	
Total				R 109 928.50	

i) Explain how the aforesaid amount was derived.

Please refer to the above mentioned table for a detailed breakdown of associated costs.

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).

GNEC has been appointed by Kareeberg Municipality to facilitate the authorisation process for the borrow pit. GNEC is assured that this municipality has the financial capacity to provide for the needed expenditures.

T) Specific 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 an Appendix.

Impacts on the landowner is not deemed to be significant. The proposed area was previously used for grazing purposes. The borrow pit area will be rehabilitated back to functional grazing land once activities are completed. The landowner will also be compensated for the use of his property.

(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).

No archaeological or historical material is expected to occur on the site since the site has been previously disturbed through grazing activities. It is not foreseen that the site is of any heritage significance or that the proposed activities will have any significant impact on any heritage resources in the area. There is no existing structures on the proposed site. Should any artefacts be uncovered during the mining phase, a Specialist must be contacted in order to assess its significance.

U) 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)**.

Three alternative sites have been considered which are not feasible as discussed. If permission for the proposed Borrow pit with bedding material is not granted, the construction of the water pipeline will not be able to commence; hence the citizens of Van Wyksvlei will continue to experience water shortages. Due to the positive impacts as described in this report, GNEC is of the opinion that the Borrow Pit should go ahead. It is evident that Kareeberg Municipality is not considering the No-Go Alternative. It is GNEC's objective opinion that the No-Go Alternative should therefore not be supported in this case.

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).

Please refer to Section 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).

Please refer to Section A.

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)

Please refer to Addendum D.

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)

Please refer to the rehabilitation section as part of the Environmental Management Plan.

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

The only water required will be for dust control. Minimal water will be used. Water will not be extracted from natural watercourses. There is therefore no need to apply for a water use licence.

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

No, the proposed activity does not require a Water Use License Application.

iv) Impacts to be mitigated in their respective phases

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

ACTIVITIES **(E.g. For prospecting -** drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route **etc…etc…etc** **E.g. For mining**,- 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.)	**PHASE** (of operation in which activity will take place. State; Planning and design, Pre-Construction' Construction, Operational, Rehabilitation, Closure, Post closure).	**SIZE AND SCALE of disturbance** (volumes, tonnages and hectares or m^2)	**MITIGATION MEASURES** (describe how each of the recommendations in herein will remedy the cause of pollution or degradation and migration of pollutants)	**COMPLIANCE WITH STANDARDS** (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)	**TIME PERIOD FOR IMPLEMENTATION** 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.
Please refer to the Environmental Management Plan attached.					

e) Impact Management Outcomes

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

ACTIVITY (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.)**.	**POTENTIAL IMPACT** **(e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc.…etc…)**	**ASPECTS AFFECTED**	**PHASE** In which impact is anticipated **(e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)**	**MITIGATION TYPE** **(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** • **Remedy through rehabilitation..**	**STANDARD TO BE ACHIEVED** **(Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.**
Please refer to the Environmental Management Plan attached.					

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).

ACTIVITY 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.)**.	**POTENTIAL IMPACT** **(e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc….etc…)**	**MITIGATION TYPE** **(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** **Remedy through rehabilitation..**	**TIME PERIOD FOR IMPLEMENTATION** 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.	**COMPLIANCE WITH STANDARDS** (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)
Please refer to the Environmental Management Plan attached.				

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 the Regulation.

During rehabilitation the disturbed site will be ripped and levelled and shaped in such a way that rain and drainage water can naturally drain from the site. The pit will be revegetated and rehabilitated after mining activities have been completed.

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

Yes, this has been consulted with the land owner and his needs has been taken into account. Please note that a declaration signed by the landowner will be included in the Final BAR.

(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.

Please refer to Addendum H.

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

The rehabilitation plan has been compiled with the closure plan as a base model, thereby including all objectives in the closure plan.

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

Please refer to Section vii) S of this report for details regarding the Financial Provision.

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

GNEC has been appointed by Kareeberg Municipality to facilitate the authorisation process for the borrow pit. GNEC is assured that this municipality has the financial capacity to provide for the needed expenditures.

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
Please refer to the Environmental Management Plan				

l) Indicate the frequency of the submission of the performance assessment/ environmental audit report.

ECO audit reports will be compiled and submitted to the DMR once a month.

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.

Before construction activities may commence the appointed Environmental Control Officer will conduct induction training with all contractors, engineers and their employees. The induction training will be based on the Environmental Management Plan clearly stipulating all the possible impacts during the pre-construction, construction and operational phase and the mitigation measure thereof.

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

An Environmental Management Plan has been compiled. The Environmental Management Plan clearly stipulate all the potential risks during the pre-construction, construction and post construction phases, and the mitigation measures thereof. The contractors on site legally needs to comply with the approved Environmental Management Plan. The process will take place in an environmental friendly way as long as the contractors comply with the approved Environmental Management Plan. An Environmental Control Officer will be appointed to monitor compliance to these mitigation measures as set out in the Environmental Management Plan.

n) Specific information required by the Competent Authority

(Among others, confirm that the financial provision will be reviewed annually).

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) that the information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected. parties are correctly reflected herein.

Signature of the environmental assessment practitioner:

Guillaume Nel Environmental Consultants

Name of company:

06-08-2018

Date:

-END-