mineral resources
Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

BASIC ASSESSMENT REPORT

And

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

SUBMITTED FOR ENVIRONMENTAL AUTHORIZATIONS IN TERMS OF 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: **CONCOR INFRASTRUCTURE**

TEL NO: 011 590-5473

FAX NO: 011 495-7801

POSTAL ADDRESS: P O Box 585, Bedfordview, 2008

PHYSICAL ADDRESS: Block A, 2 Arbroath road, Bedfordview

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 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 an monitored.

PART A

SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

3. Contact Person and correspondence address

a) Details of

(i) Details of the EAP

Name of the Practitioner: Dr Josephine Bothma from Chameleon Environmental

Tel No.: 012 809-1704 or 082 571 6920

Fax No.: 086 6855 080

E-mail address: ce.j@mwebbiz.co.za

(ii) Expertise of the EAP.

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

PhD in Environmental Management. Please find proof of qualifications of EAP in Appendix A.

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

The EAP that prepared this report is Dr J Bothma from Chameleon Environmental. The Environmental Assessment Practitioner (EAP) has the appropriate skills and experience to undertake the required studies for the proposed project. Dr Bothma has:

- Experience in environmental studies for borrow pits and quarries.
- The EAP is registered as an Environmental Assessment Practitioner with EAPSA with registration number 0082/06.
- Proven ability to timeously produce thorough, readable and informative documents.
- Adequate recording and reporting systems to ensure the preservation of all data gathered.
- A good working knowledge of all relevant and applicable policies, legislation, guidelines, norms and standards.
- The EAP does not have any links to engineering firms, construction companies, or financial institutions, and would be able sign the required declarations of independence to be submitted to the relevant environmental authorities.

Dr Bothma has a PhD in Environmental Management with extensive experience in the environmental field. Dr Bothma is a founder member of Chameleon Environmental since August 2006, a specialist environmental consulting company based in Pretoria, South Africa but operates nationwide. The company provides a broad range of environmental consulting services to the public and private sectors.

She has:

» Twenty-eight (29) years' experience in the environmental field
» Seventeen (19) years' experience in Project Management
» Project management of large environmental assessment and environmental management projects.

b) Location of the overall Activity.

Farm Name:	Portion 1 of Farm Ek Kraal Nr 199 RD
Application area (Ha)	4.42 ha
Magisterial distract:	Sutherland Rd
Distance and direction from nearest town	Approximately 40 Km north of Matjiesfontein
21 digit Surveyor general code for each farm portion	Not indicated on Deed

c) Locality map

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

Please see locality map of the quarry in Appendix B.

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

Please refer to Appendix C of the proposed quarry and infrastructure to be placed on site.

(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 544, GNR 545 or GNR 546)**
A new quarry will be opened. Gravel material will be mined from the quarry. Access to the quarry will be from an existing gravel access road. Opencast mining will take place as it is a quarry to be mined. Quarry excavations will, therefore be present. The following mining components will also be found on site: - Temporary toilets, - Generator and fuel storage, - Stockpiles: Subsoil, overburden, spoil, topsoil, - Crusher, - Screening plant, - Stockpiles, - Weigh bridge; - Temporary offices. The mined gravel material will be loaded and hauled to the wind farm close to the quarry site. Blasting will be undertaken in the quarry. Crushing will be conducted in the quarry.	4.42 ha	x	Activities 21, 22 and 27, GNR. 983

(ii) Description of the activities to be undertaken

(Describe Methodology 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)

Concor Infrastructure intends to open a new gravel quarry approximately 40 km north of Matjiesfontein within the boundaries of the Karoo Hoogland Local Municipality and the Namakwa District Municipality. The quarry is located on Portion 1 of Farm Ek Kraal Nr 199 RD. The land belongs to Mr Douglas Joseph Calldo.

The actual area to be mined will be 1.5 ha in extent but the entire fenced area including the stockpiles will be approximately 4.42 ha in extent.

An amount of approximately 80 000m³ will be mined from the quarry for the Wind Farms Development. This quantity might increase as additional work in the area is secured. The depth of the quarry should not exceed 20m in depth.

Opencast mining will take place as it is a quarry to be mined.

The following mining components will be found on site:
- Temporary toilets,
- Generator and fuel storage,
- Stockpiles: Subsoil, overburden, spoil, topsoil,
- Crusher,
- Screening plant,
- Gravel stockpiles,
- Weigh bridge,
- Temporary offices.

The gravel material mined will be stockpiled within the quarry and hauled to the wind farm close to the quarry.

Blasting will be undertaken in the quarry.

The following process will be undertaken during the mining operation:

a. Vegetation Stripping

All vegetative material would be retained to ensure proper vegetation establishment during the rehabilitation phase. The vegetation material from the area to be mined would be stripped by a bulldozer and stockpiled for use during the rehabilitation phase.

b. Topsoil Stripping

All topsoil from the area to be mined would be stripped and stockpiled by a bulldozer for redistribution over the site during the rehabilitation phase. Overburden and coarse material shall be placed concurrently in the excavations or stored adjacent to the excavation, if practicable, to be used as backfill material once the gravel has been excavated. All topsoil, subsoil and vegetative material to be stockpiled for use during the rehabilitation phase.

c. Opencast Mining

The required gravel material will be excavated by an excavator and taken to the wind farm in the area by trucks. Excavations shall take place only within the approved demarcated mining area.

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, guidelines, spatial tools, municipal development planning frameworks and instructions that are applicable to this activity and are to be considered in the assessment process	**REFERENCE WHERE APPLIED**	**HOW DOES THIS DEVELOPMENT COMPLIY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT** (E.g. In terms of the National Water Act a Water Use Licence has/ has not been applied for)
NEMA, EIA Regulations 2014, as amended GN R. 983	Activities 21, 22 and 27, GNR. 983	Application for mining permit at DMR. Closure objectives included in BAR. Ecological study undertaken for the project.
National Environmental Management Act, 1998 (Act No. 107 of 1998) The National Environmental Management Act, 1998 (Act No. 107 of 1998): [NEMA] was enacted in November 1998. NEMA provides for cooperative governance by establishing principles for decision-making on matters affected the environment, institutions that will promote co-operative governance and procedures for coordinating environmental functions, public participation and sustainable development.	General objectives of Integrated Environmental Management as set out in section 23 of NEMA taken into account	Objectives of NEMA taken into account in BAR
Regulation 15 of the Conservation Act of Agricultural Resources Act, 1983 (Act 43 of 1983)	Ecological study Alien vegetation identification on site	Ecological study undertaken for the project

f) Need and desirability of the proposed activities.

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

The gravel material will be used as aggregate in the turbine bases on the wind farm close to the quarry as well as for the access road to the windfarm. The wind farm will generate much needed electricity for the area. Wind is a free fuel and users of wind energy have a smaller carbon footprint.

The proposed development is paramount to the success of the wind farm completion. Geological tests in the surrounding area show insufficient quality of gravel material for this purpose and the cumulative impact of importing high volumes of suitable aggregate for the wind turbine bases and access road will exceed the quarry's impact, therefore the need for the quarry is extremely high.

It was also found that no commercial sources are available in close proximity to the site that is suitable as aggregate for the access road and in the wind turbine bases for the wind farm. The use of only commercial sources of gravel/aggregates for a project of this magnitude would also be inordinately expensive, and would render the project unviable. It was therefore, decided that investigations would be conducted to obtain aggregate material to be used for the wind farm construction in close proximity to the quarry.

Should the mining of the aggregate material not be allowed, the necessary material for the wind farm concrete of the turbine bases will not be available and the wind farm construction will not be able to be completed.

The opening of the quarry could encourage business, industry and investment and assist in alleviating the high unemployment in the region as a whole.

a. Need and desirability of the activity in the context of the preferred location

The following factors have an impact on the availability of suitable quarry areas:

i. Highly specific rock material is required for the wind turbine bases and access road, which is found only in the vicinity of the proposed quarry site.
ii. Distance from the wind farm is an important factor and every km that a quarry is further away from the project adds between R3.5 and R5.0 million in haul cost to the project. If the haul cost becomes excessive the project will not be economically viable to implement;
iii. Geological maps were consulted as part of a desktop study to determine suitable geological areas where road building material can be obtained;
iv. Extensive site visits were undertaken by a geologist and specialist to identify this as a suitable material area;
v. The land owner was engaged to obtain permission to test the area;
vi. Discussions were undertaken with the landowner regarding land acquisition.

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

The following are reasons for the preferred site alternative:

- The study area is situated within the general NPAES focus area of the Western Karoo only, and not within any other priority areas. Priority areas include formal and informal protected areas (nature reserves); important bird areas (IBAs); RAMSAR sites; National fresh water ecosystem priority areas (NFEPA) and National protected areas expansion strategy (NPAES) areas.
- According to the Northern Cape Critical Biodiversity Areas (2016) (NCCBA, 2016) and the Namakwa District Biodiversity Sector Plan (2008) (NDBSP), the study area is not situated within any critical biodiversity areas (CBAs) or within any ecological support areas (ESAs).
- The study area is not situated within a threatened ecosystem or veldtype.
- No protected trees occur on site.

- No Red Data or Orange Data species (endangered, threatened or vulnerable) were observed during field investigations.
- There are no protected trees in the study area.
- No fatal flaws were identified at the site.
- No watercourses will be affected.
- No application for water use license necessary for this quarry as no watercourse will be affected.
- The quarry has the required aggregate material to be used for the construction of the wind turbine basis for the wind farm.
- The quarry is in close proximity to the wind farm.
- Discussions were held with the relevant landowner and he does not have any objection to the proposed opening of the quarry on his farm.

No other site alternative was investigated as geological tests in the surrounding area shows insufficient quality of gravel material for construction purposes.

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.

a. Geological tests in the surrounding area shows insufficient quality of gravel material for the access road to the wind farm and wind turbine base construction purposes. The tests showed sufficient gravel material on Portion 1 of the farm Ek Kraal No. 199-RD for the construction of the project.
b. Opencast mining will take place as it is a quarry to be mined. Quarry excavations will, therefore be present.
c. There were no environmental restrictions pertaining to the layout of the quarry.
d. The technology used at the activity will be a bulldozer for stripping the topsoil. An excavator will be used for the opencast mining activities. The excavated gravel material will be taken to the construction site with trucks.
e. Open cast mining will be undertaken for the excavation of the gravel material at the quarry during the operational phase. The gravel material will be excavated by an excavator and taken to the construction site at the wind farm for the construction of the concrete wind turbine bases.
f. Should the mining of the gravel not be allowed, the necessary material for the construction of the access road to the wind farm and wind turbine bases at the wind farm will not be available and the wind farm will not be able to be opened.

ii) Details of Public Participation Process Followed

Describe the process undertaken to consult interested and affected parties including public meetings and 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.

Please refer to the Report on the Results of Consultation in Appendix D.

A public participation process was undertaken in accordance with the EIA Regulations, 2014, as amended.

The public participation and communication process aims to identify issues in order to maximise the social and environmental benefits, and to minimise the social and environmental costs of the proposed project. Interested and affected parties (I&APs) were consulted and afforded the opportunity to participate. The I&APs were informed and involved in the project from the outset in order to promote participation and transparency.

The aim of this public participation process is to achieve the following broad goals:

- identification of all key I&APs and stakeholders;
- the active involvement of all I&APs with respect to decision making;
- an exchange of information relevant to the proposed project through Background Information Documents (BID), consultations and newspaper advertisements.
- the development of an understanding with regards to the broader project objectives and goals and knowledge of the project; and
- the identification of issues and concerns with regards to all potential alternatives associated with the proposed development.

The following approach was followed in undertaking the public participation process:

a. Identification of and Consultation with I&APs

The first step in the public participation process was to identify the key I&APs. A list of the registered I&APs is attached as Appendix D.

b. Advertising

In accordance with the EIA Regulations, 2014, as amended an advertisement was placed requesting I&APs to register their interest in the project. An advertisement was placed in the **The Burger of 2 March 2018**. A copy of the advertisement is included in Appendix D.

c. Site Notice

Site notifications in English in A2 format requesting comments or objections were placed on site on 20 February 2018. Photographs of the site notice are included in Appendix I.

d. Notification Letter and Background Information Document

Notification letters about the project and a Background Information Document were sent out to the particular Ward Councillor and Government Departments that would be relevant to this project. The affected landowner, Mr DJ Calldo signed a landowner notification form. He has no objection to the proposed development. Please see letters in Appendix D.

e. Comments and Response Report

A comments and response report was drafted that included all the issues raised by the Interested and/or Affected Parties as well as the responses to the issues raised. The Comments and Response report is included in Appendix D.

f. Local Authority Involvement

A letter was forwarded to the Karoo Hoogland Local Municipality. The letter is included in Appendix D.

g. Review of Draft Basic Assessment Report

The Draft Basic Assessment Report was made available to the public for review and comment, within an allocated 30-day period. A copy of the report was available to I&APs at the following venue:

a. Laingsburg Library
Address: Van Riebeeck str 2, Laingsburg, 6900, Tel: 023 551-1019

iii) Summary of issues raised by I&APs

(Complete the 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 Responses were incorporated.**
AFFECTED PARTIES					
Landowner/s	**X**				
Mr DJ Calldo		Meeting on 20 February 2018	The following issues were raised: 1. The quarry needs to be fenced during and after the mining operation; 2. There is a temporary Met Mast constructed to the west of the proposed quarry site. The mast measures the wind speed in the area; 3. There is small game on the farm and red jackal. 4. There are no graves close to the mining area.	1. The quarry will be fenced with a 1.8 m fence and the necessary warning signs will be erected. 2. Noted. 3. Noted. It is foreseen that the game will avoid the area during mining but will return to the area once mining has ceased. 4. Noted.	Fencing included under final closure objectives.

Lawful occupier/s of the land	x				
The landowner, Mr and Mrs D J Calldo is the lawful occupier of the land.		Meeting on 20 February 2018	Please see above	Please see above	Please see above.
Landowners or lawful occupiers on adjacent properties					
There are no adjacent properties that will be affected due to the size of the farms		No comments received	No issues raised	No response necessary	None
Municipal councillor	X				
Councillor J Davids Ward 4		No comments received	No issues raised	No response necessary	None
Municipality	X				
Mr JJ Fortuin Acting Municipal Manager Karoo Hoogland Municipality		No comments received	No issues raised	No response necessary	None
Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA)	X				
Mr A Abrahams Department of Water and Sanitation Chief Director: Northern Cape		No comments received	No issues raised	No response necessary	None
Mr W Mothibi Department of Agriculture, Land Reform and Rural Development		No comments received	No issues raised	No response necessary	None

Communities					
There are no communities associated with this project		No response	No issues raised	No response necessary	None
Dept. Land Affairs	X				
Ms Mangalane Du Toit Department of Rural Development and Land Reform Chief Director: Land Restitution Support (Northern Cape Province)		No comments received	No issues raised	No response necessary	None
Traditional Leaders					
There are no traditional leaders affected by the proposed project		No response	No issues raised	No response necessary	None
Dept. Environmental Affairs	X				
Mrs Onwabile Ndzumo Northern Cape Department of Environment & Nature Conservation		No comments received	No issues raised	No response necessary	None
Other Competent Authorities affected					
Department of Mineral Resources	X	No comments received	No issues raised	No response necessary	None
OTHER AFFECTED PARTIES					
None					
INTERESTED PARTIES					
None					

iv) The Environmental attributes associated with the alternatives (The environmental attributes 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)

(i) Topography

The topography of the region is highlands with slopes and broad ridges of low mountains and escarpments, with occasional valleys and ravines. The landscape is dominated by tall to very short reronsterbos shrubland and large suites of dominantly non-succulent Karoo shrubs. The study site is situated on top of a plateau with an average height above sea level of 1 181m, with an approximate maximum and minimum of 1 185m and 1 175m asl, respectively. The general downward slope of the study area is from northwest to southeast (Flori, 2018).

(ii) Climate

The study area is situated 40km north of Matjiesfontein and has a similar climate. Matjiesfontein is within the low rainfall region of South Africa and only receives on average about 98mm of rain per year. The area is within a winter rainfall region and therefore has a Mediterranean type climate. The area receives the lowest rainfall (1mm) in January and the highest rainfall (17mm) in June (www.saexplorer.co.za). The region of the study area is arid to semi-arid. The region is the coldest during July, at an average night temperature of 1,90 C. During the summer months the average midday temperatures range from 14,80 C to 28,40 C. The study area is situated within the Cold Interior Climatic Zone of South Africa (Flori, 2018).

(iii) Land cover

The quarry area is on a farm within natural / vacant land and is used as general grazing land for sheep and wildlife.

(iv) Vegetation

South Africa is divided up into nine major Biomes. The study area and the surrounding region fall within the Fynbos Biome. Although well-defined geographically, the Fynbos Biome actually comprises of three distinctive, naturally fragmented vegetation types, namely, fynbos, renosterveld and strandveld. The three types occur in winter- and summer-rainfall areas, and are dominated by small- leaved, evergreen shrubs, whose regeneration is intimately related to fire (Mucina & Rutherford, 2006).

Due to the complexity and lack of botanical data, the Fynbos Biome is not divided up into Bioregions in the same way, or sense, as that of Savanna or Grassland Biomes. For simplicity of explanation, the Fynbos Biome currently is divided into three ‘Bioregions’ of Fynbos, Renosterveld and Strandveld, with numerous sub-vegetation units and veldtypes. The study site is situated within the ‘bioregion’ of the Renosterveld (Karoo Renosterveld) and the veldtype unit of Central Mountain Shale Renosterveld. The veldtype is a very poorly known renosterveld type despite its interesting biogeographical borderline position. The veldtype straddles the Fynbos, Succulent Karoo and

marginally the Nama- Karoo Biomes. It does not appear to have any endemic species (Mucina & Rutherford, 2006).

(v) Vegetation of the study area

Central mountain shale renosterveld is characterised by a mix of open karroid scrubland and renosterveld shrubland. The terrain is typically slopes and broad ridges of low mountains and escarpments, with tall to short shrubland dominated by renosterbos and large suites of mainly non-succulent karoo shrubs and with a rich geophytic flora in the undergrowth or in more open, wetter or rocky habitats (Flori, 2018).

(vi) Air Quality

The region is considered rural and the air quality very good.

(vii) Noise

The current noise levels are low due to the rural nature of the area.

(viii) Visual

The quarry is not visually accessible from any public road. There is a gravel road from the R354 to the quarry that is utilised by the landowners.

(ix) Sensitive Landscapes

There are no sensitive landscapes associated with the quarry.

(x) Sites of Archaeological and Cultural Interests

There are no graves or any heritage area at the proposed mining area.

(xi) Socio-Economic Aspects

The mining area would have a positive impact on the regional socio-economic structure through its support of the development industry, profit generation contributing to tax revenue, job creation and the skills development of its employees.

The landowner will be compensated by Concor Infrastructure for the quarry.

(xii) Cumulative Impacts

The cumulative impacts associated with the establishment of the proposed mining area could be the following:

- Additional traffic on the local road during mining of the area;
- Limited influx of people in the area during mining of the area;
- Additional water and electricity supply to the area - limited, if any.

(b) Description of the current land uses.

The general region in which the study area is situated is open Karoo and renosterveld with farming activities such a sheep, grazing and low urbanisation. The quarry area is on a farm within natural / vacant land and is used as general grazing land for sheep and small wildlife.

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

The quarry area is on a farm within natural / vacant land and is used as general grazing land for sheep and small wildlife. There is an existing gravel road to the quarry site. The site was not mined before. There is a Met mast to the west of the quarry that measures the wind speed in the area that will not be affected. The site is not fenced.

(d) Environmental and current land use map.

(Show all environmental and current land use features)

Please see map included in Appendix E.

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

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

The ***potential*** impacts associated with the mining area have been identified as the following:

CONSTRUCTION PHASE:

1. Vegetation stripping

Potential Impacts:
a. Dust Pollution
b. Soil Erosion
c. Noise Impact
d. Water pollution
e. Visual impact
f. Terrestrial ecology
g. Impact on uncovered heritage aspects
h. Contamination of site due to hydrocarbon spillage
i. Emissions from heavy vehicles

2. Stripping and stockpiling of topsoil

Potential Impacts:
a. Clearing of vegetation
b. Visual intrusion as a result of establishment of the quarry
c. Dust nuisance caused by machinery stripping topsoil

d. Noise nuisance caused by machinery stripping topsoil
e. Infestation of weeds and alien vegetation on topsoil heaps
f. Loss of topsoil due to incorrect storm water management
g. Contamination of site due to hydrocarbons
h. Impact on uncovered heritage aspects
i. Emissions from heavy vehicles

OPERATIONAL PHASE

1. Blasting

Potential Impacts:
a. Health and safety risk posed by blasting activities
b. Dust nuisance caused by blasting activities
c. Noise nuisance caused by blasting activities

2. Excavations

Potential Impacts:
a. Visual intrusion associated with the excavation activities
b. Dust nuisance caused by excavation activities
c. Noise nuisance generated by excavation equipment
d. Contamination of surface or groundwater due to effluent runoff from excavation
e. Unsafe working conditions for employees
f. Potential damage to uncovered cultural and heritage aspects
g. Contamination of site due to hydrocarbons
h. Emissions from heavy vehicles
i. Water pollution

3. Crushing

Potential Impacts:

a. Dust nuisance due to the crushing activities
b. Noise nuisance due to the crushing activities
c. Contamination of site due to hydrocarbons

4. Stockpiling and Transporting of gravel material

Potential Impacts:
a. Visual intrusion associated with the stockpiled material and heavy vehicles transporting the gravel material
b. Loss of material due to ineffective storm water handling
c. Dust nuisance from stockpiled material and heavy vehicles transporting material
d. Degradation of access roads
e. Noise nuisance caused by heavy vehicles
f. Contamination of site due to hydrocarbons
g. Emissions from heavy vehicles
h. Water pollution

DECOMMISSIONING PHASE and CLOSURE

1. Removing crusher, screening plant and sloping and landscaping during rehabilitation

Potential Impacts
a. Soil erosion
b. Health and safety risk posed by unsloped areas
c. Dust nuisance caused during sloping and landscaping activities
d. Noise nuisance caused during sloping and landscaping activities
e. Contamination of site due to hydrocarbons
f. Emissions from heavy vehicles

2. Replacing the topsoil and revegetating the disturbed area

Potential Impacts:
a. Loss of reinstated topsoil due to absence of vegetation
b. Infestation of the area with weed and invader plants

ALL phases: Proper functioning of sanitation systems

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 were determined in order to decide the extent to which the initial site layout needs revision).

Potential environmental impacts on the environment will be determined in terms of the following in order to determine the significance of each impact:

Nature:

A brief description of the environmental aspect being impacted upon by a particular action or activity is presented. Also:

- Probability (how likely is it that the impact will occur?)
- Magnitude (how severe will the impact be?)
- Duration (how long will the impact last?)
- Scale of the impact (what size of the area will be affected?)

Thereafter, mitigation measures will be proposed in order to reduce or eliminate negative impacts and enhance positive impacts. The impact of the proposed activity on the environment will be considered for the pre- construction, construction and operational phases. The necessary mitigation measures will be consolidated in the form of an Environmental Management Programme (EMPr).

Assessment of significance – method:

The significance of every environmental impact identified will be determined using the following approach:

In assessing the potential significance of an impact two aspects will be considered:

i) Occurrence
ii) Severity

Occurrence will be sub-divided into:

- Probability of occurrence
- Duration of occurrence

Severity will be sub-divided into:

- Magnitude (severity) of impact
- Scale/extent of impact

In order to assess each of these factors for each impact, ranking scales were employed as follows:

Probability:	Duration:
5 - Definite/don't know	5 - Permanent
4 - Highly probable	4 - Long-term*
3 - Medium probability	3 - Medium-term (5-15 years)
2 - Low probability	2 - Short-term (0-5 years)
1 – Improbable	1 - Immediate
0 – None	0 - None

Scale:	Magnitude:
5 – International	10 - Very high/don't know
4 – National	8 - High
3 – Regional	6 - Moderate
2 – Local	4 - Low
1 - Site only	2 - Minor
0 – None	0 - None

*impact ceases after operational life of the activity

Once the above factors had been ranked for each impact, the overall risk (environmental significance) of each impact will be assessed using the following formula: SP = (magnitude (M) + duration (D) + scale(S)) x probability (P). The maximum value is 100 significance points (SP). Environmental impacts will be rated as either of High, Moderate or Low significance on the following basis:

SP greater or the same as 60 indicates high environmental significance;
SP 31 greater or the same as 59 indicates moderate environmental significance;
SP ≤ 30 indicates low environmental significance.

Please see actual assessment in Appendix F.

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 the advantages and disadvantages of the initial site layout compared to alternative layout options to accommodate concerns raised by affected parties)

There are no environmental attributes that will have an effect on the layout of the quarry.

The following are reasons for the preferred site alternative on Portion 1 of the farm Ek Kraal No. 199-RD:

- The study area is situated within the general NPAES focus area of the Western Karoo only, and not within any other priority areas. Priority areas include formal and informal protected areas (nature reserves); important bird areas (IBAs); RAMSAR sites; National fresh water ecosystem priority areas (NFEPA) and National protected areas expansion strategy (NPAES) areas.
- According to the Northern Cape Critical Biodiversity Areas (2016) (NCCBA, 2016) and the Namakwa District Biodiversity Sector Plan (2008) (NDBSP), the study area is not situated within any critical biodiversity areas (CBAs) or within any ecological support areas (ESAs).
- The study area is not situated within a threatened ecosystem or veldtype.
- No protected trees occur on site.
- No Red Data or Orange Data species (endangered, threatened or vulnerable) were observed during field investigations.
- There are no protected trees in the study area.
- No fatal flaws were identified at the site.
- No watercourses will be affected.
- No application for water use license necessary for this quarry as no watercourse will be affected.
- The quarry has the required aggregate material to be used for the construction of the wind turbine basis for the wind farm.
- The quarry is in close proximity to the wind farm.
- Discussions were held with the relevant landowner and he does not have any objection to the proposed opening of the quarry on his farm.

Advantages pertaining to the mining of the quarry:

The gravel will be used to construct the wind turbine basis at the wind farm close to the quarry. The wind farm will generate much needed electricity for the area. Wind is a free fuel and users of wind energy have a smaller carbon footprint.

The opening of the quarry could encourage business, industry and investment and assist in alleviating the high unemployment in the region as a whole.

The possible negative impacts associated with the opening of the quarry are the possible short term impacts associated with the construction phase i.e.

a. Dust Pollution
b. Soil Erosion
c. Noise Impact
d. Visual impact
e. Terrestrial ecology
f. Impact on uncovered heritage aspects
g. Contamination of site due to hydrocarbon spillage
h. Emissions from heavy vehicles
i. Possible water pollution

With the implementation of the EMPr, the significance of the impacts associated with the opening of the quarry is foreseen to be low.

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).

The following measures will be implemented by Concor Infrastructure to prevent or remedy any possible pollution or degradation of the environment:

a. Possible dust and air pollution

- Dust will be suppressed through a watering management programme, especially during windy conditions.
- Dust generated will be carefully monitored by the OHS&E and should be suppressed by means of watering regularly.
- Access roads will be watered regularly, especially in the dry winter months and in periods of high wind.
- Vegetation will not be unnecessary stripped.
- Domestic fires will be prohibited on site.
- Heavy vehicle will be serviced regularly to ensure emission control.
- All heavy vehicles, excavators and generators used for the mining will be in good working condition and will be serviced regularly.
- Should a vehicle have a break down, it will be serviced immediately.

b. Soil Erosion

- Topsoil, if any, will be removed over the whole mining area and stored in a perimeter berm. The height of the topsoil berm will not exceed 3m.
- The topsoil berm will be inspected for erosion daily.
- Minimal amounts of topsoil shall be lost due to erosion, either by wind or water. This can be facilitated through the grassing of topsoil stockpiles, where needed.
- Condition of soil in walk or drive areas should be checked daily for erosion.
- Access road condition will be checked daily.
- If erosion is noted at walk and drive areas, access road or topsoil berms, the erosion channel will be fixed by placing cut vegetation, sandbags or rocks within the erosion channel and the cause of the erosion will be mitigated through the creation of runoff channels.

c. Possible Noise Pollution

- The working hours shall be limited to between 07:00 hrs and 18:00 hrs on weekdays, and 07:00 hrs and 17:00 hrs on Saturdays, or as per contract documentation.
- Vehicles must be driven at a moderate speed (50 kph) on private roads.
- Noise generated from the trucks that transport the material and the excavator that is used to mine the material shall only be carried out during normal working hours.
- Extended working hours will be in accordance with contract documentation.

- Concor Infrastructure shall be obligated to maintain vehicles used at the mining area in a good condition;
- Concor Infrastructure will be obliged to ensure that all personnel on site apply occupational health and safety requirements with respect to hearing protection.

d. Possible Visual impact

- Concurrent rehabilitation of the mining area will take place.
- All unused material would be levelled to ensure that the mining area blends back into the existing landscape fabric.
- No stockpiled material is to be retained on site.
- The mining area will be shaped to ensure no stockpiled heaps.
- All stockpiled topsoil and vegetative material will be spread over the bottom of the mining area to ensure proper seed bed for the re-establishment of vegetative growth. Placing a berm of topsoil along the perimeter of the mining site to obscure the visual impact of the excavation.
- Re-vegetation of the mining area after mining operation has ceased.
- The access gravel road will be rehabilitated and the area will be fenced following the mining of the area.

e. Aquatic and Terrestrial Ecology

Construction & Operation Phase

- No temporary accommodation or temporary storage facilities may be setup within 100m of the any watercourse, including drainage lines and farm dams.
- No temporary facilities (including portable toilets) to be positioned within a 100m of the edge of any watercourses.
- Only existing roads to be used by vehicles during construction / set up phase as far as possible.
- Access roads to be maintained at all times.
- All construction material, equipment and any foreign objects brought into the area by contractors to be removed immediately after completion of the construction / set up phase.
- Proper rubbish/waste bins to be provided. These to be emptied weekly and the waste to be removed to an official waste disposal site.
- During the operation phase the gravel access roads need to be continually maintained. Storm water run-off and erosion of gravel access roads are important considerations, including damaged caused by heavy vehicles.
- A site-specific rehabilitation plan for the closure of the quarry has to be compiled and implemented.

Maintenance phase

- A weed control programme must be implemented to monitor and destroy any weeds / alien plants brought into the area through project-related activities.
- All litter / rubbish in the area to be continually clean-up and removed from the area to proper landfill sites.

f. Possible Impact on Uncovered Cultural or Archaeological site

- If an artefact or grave on-site is uncovered, work in the immediate vicinity shall be stopped immediately and it should immediately be reported to a heritage consultant so that an investigation and evaluation of the finds can be made. The Contractor shall take reasonable precautions to prevent any person from removing or damaging any such article.

- The South African Heritage Resources Agency (SAHRA) shall be contacted such that an archaeological/heritage resources consultant can be appointed to record the site and excavate if necessary. Work may only resume once clearance is given in writing by the archaeologist/heritage resources consultant.

g. Possible contamination of site due to hydrocarbons spillage

- All heavy vehicles, excavators and generators used for the mining will be in good working condition.
- A drip tray will be available to place underneath haul vehicles while the vehicles are parked at night.
- Should a vehicle have a break down, it will be serviced immediately. If soil contamination with diesel and oils occurred, the spill will be cleared up promptly. If the spill is small, it will be cleaned with a spill kit. If a major spill occurs where a spill kit is insufficient for clean-up, a specialised company will be used to clean the spill.
- Proper functioning of heavy vehicles will be ensured.

h. Possible establishment and spread of alien vegetation

- Every 3 months casual labour will be employed to circumnavigate the site to hand pull out known alien vegetation that may have established in the disturbed area. Special attention will be given to the perimeter topsoil berm.
- Casual labour will be provided with photographs of the alien vegetation that could establish.

i. Sanitation Facilities

- Chemical toilet facilities shall preferably be used on site. The toilets shall be services every second week by a service provider.

j. Safety of sloped areas

- The walls of the mining area will be sloped to a slope of at least 1:3 in order to prevent dangerous vertical walls.
- The quarry will be free draining.

k. Unsafe working conditions for employees

- Appropriate safety clothing will be worn at all times i.e. head gear, shoes, ear plugs.

With the implementation of the mitigation measures, the risk pertaining to the implementation of this project is considered to be low.

ix) Motivation where no alternative site were considered.

No alternative site was considered for this project for the following reasons:

The following factors have an impact on the availability of suitable quarry areas:

iii. Highly specific rock material is required for the wind turbine bases and access road, which is found only in the vicinity of the proposed quarry site.

iv. Distance from the wind farm is an important factor and every km that a quarry is further away from the project adds between R3.5 and R5.0 million in haul cost to the project. If the haul cost becomes excessive the project will not be economically viable to implement;
iii. Geological maps were consulted as part of a desktop study to determine suitable geological areas where road building material can be obtained;
iv. Extensive site visits were undertaken by a geologist and specialist to identify this as a suitable material area;
v. The land owner was engaged to obtain permission to test the area;
vi. Discussions were undertaken with the landowner regarding land acquisition.

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

The following are reasons for the preferred development location:

- The study area is situated within the general NPAES focus area of the Western Karoo only, and not within any other priority areas. Priority areas include formal and informal protected areas (nature reserves); important bird areas (IBAs); RAMSAR sites; National fresh water ecosystem priority areas (NFEPA) and National protected areas expansion strategy (NPAES) areas.
- According to the Northern Cape Critical Biodiversity Areas (2016) (NCCBA, 2016) and the Namakwa District Biodiversity Sector Plan (2008) (NDBSP), the study area is not situated within any critical biodiversity areas (CBAs) or within any ecological support areas (ESAs).
- The study area is not situated within a threatened ecosystem or veldtype.
- No protected trees occur on site.
- No Red Data or Orange Data species (endangered, threatened or vulnerable) were observed during field investigations.
- There are no protected trees in the study area.
- No fatal flaws were identified at the site.
- No watercourses will be affected.
- No application for water use license necessary for this quarry as no watercourse will be affected.
- The quarry has the required aggregate material to be used for the construction of the wind turbine basis for the wind farm.
- The quarry is in close proximity to the wind farm.
- Discussions were held with the relevant landowner and he does not have any objection to the proposed opening of the quarry on his farm.

i) 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.)

The process of identifying possible impacts included:

- Discussions with Interested and/or Affected Parties including the landowner;

- Discussions with consulting engineers to the project;
- Specialist aquatic and ecological studies undertaken;
- Previous experience with regard to ECO work on projects.

The possible risks associated with the opening of the quarry are the following:

a. Dust Pollution
b. Soil Erosion
c. Noise Impact
d. Visual impact
e. Terrestrial ecology
f. Impact on uncovered heritage aspects
g. Contamination of site due to hydrocarbon spillage
h. Emissions from heavy vehicles
i. Possible water pollution

The assessment of the significance of each is included in Table F. With the mitigation measures suggested and included in the EMPr, the risk is seen as low.

The EIA identified the potential positive and negative environmental (biophysical and social) impacts associated with the establishment of the mining areas. Mitigatory measures describe possible action for the mitigation of the identified potentially negative environmental impacts, and address current and future problems relating to the proposed project. The philosophy of identifying mitigation measures for negative impacts is based on the reduction of the impact during the planning and design phase and the management of the impacts during the construction and operational phases.

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, beams, roads, pipelines, power lines, conveyors, etc…etc… etc.)	**POTENTIAL IMPACT** (Including the Potential impact for cumulative impacts) (e.g. dust, noise, drainage surface disturbance, fly rock, surface water 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 through management and monitoring through rehabilitation.	**SIGNIFICANCE** if mitigated
Vegetation Stripping	- Dust - Soil erosion - Noise - Visual - Terrestrial ecology - Uncovering graves - Hydrocarbon spillage - Emission from heavy vehicles	- Workers - Travelling public - Fauna and flora	Construction phase	Medium	- Control through dust suppression - Control measures to prevent soil erosion - Control through noise control measures - Control measures to lower visual intrusion - Control measures to lower impacts on terrestrial ecology - Control measures for	Low

					uncovering of graves or artefacts - Control measures for hydrocarbon spillage - Control measures to lower emissions from heavy vehicles	
Stripping and stockpiling of topsoil, subsoil, overburden and spoil	- Dust - Soil erosion - Noise - Visual - Terrestrial ecology - Uncovering graves - Hydrocarbon spillage - Emission from heavy vehicles - Alien vegetation infestation	- Workers - Travelling public - Fauna and flora	Construction phase	Medium	- Control through dust suppression - Control measures to prevent soil erosion - Control through noise control measures - Control measures to lower visual intrusion - Control measures to lower impacts on terrestrial ecology - Control measures for uncovering of graves or artefacts - Control measures for hydrocarbon spillage - Control measures to lower emissions from heavy vehicles Removal of alien vegetation	Low
Excavations	- Dust - Soil erosion - Noise - Visual - Uncovering graves - Hydrocarbon	- Workers - Travelling public - Fauna and flora	Operational Phase	Medium	- Control through dust suppression - Control measures to prevent soil erosion - Control through noise control measures	Low

	spillage - Emission from heavy vehicles - Alien vegetation infestation				- Control measures to lower visual intrusion - Control measures to lower impacts on terrestrial ecology - Control measures for uncovering of graves or artefacts - Control measures for hydrocarbon spillage - Control measures to lower emissions from heavy vehicles Removal of alien vegetation	
Blasting	a. Health and safety risk posed by blasting activities b. Dust nuisance caused by blasting activities c. Noise nuisance caused by blasting activities	- Workers - Travelling public - Fauna and flora	Operational Phase	High	• Blasting shall only be carried out during normal working hours. • Should noise generating activities have to occur at night (e.g. drilling of blast holes), landowners in the vicinity of the drilling should be warned about the noise well in advance and the activities should be kept to a minimum. Compliance with the appropriate legislation with respect to noise will be mandatory. • All surrounding structures shall be checked for stability and	Medium

					current condition. Appropriate measures should be taken to minimise the risk to nearby structures and to ensure that nobody is present inside any potentially unsafe structures during blasting. • Farmers' shall be informed in time to ensure enough time to make appropriate arrangements. In particular, owners of domestic animals must be given sufficient warning so as to make proper arrangements to ensure the safety of their animals. • The blasting specification shall be adhered to pertaining to fly-rock etc. - Control through dust suppression - Control measures to prevent soil erosion - Control through noise control measures - Control measures to lower visual intrusion - Control measures to lower impacts on	

					terrestrial ecology - Control measures for uncovering of graves or artefacts - Control measures for hydrocarbon spillage - Control measures to lower emissions from heavy vehicles Removal of alien vegetation	
Crushing	- Dust nuisance due to the crushing activities - Noise nuisance due to the crushing activities - Contamination of site due to hydrocarbons	- Workers - Travelling public - Fauna and flora	Operational Phase	Medium	Control through dust suppression - Control through noise control measures - Control measures for hydrocarbon spillage -	Low
Stockpiling and transporting of gravel material	- Dust - Soil erosion - Noise - Visual - Uncovering graves - Hydrocarbon spillage - Emission from heavy vehicles - Alien vegetation infestation	- Workers - Travelling public - Fauna and flora	Operational Phase	Medium	- Control through dust suppression - Control measures to prevent soil erosion - Control through noise control measures - Control measures to lower visual intrusion - Control measures to lower impacts on terrestrial ecology - Control measures for uncovering of graves or artefacts - Control measures for	Low

					hydrocarbon spillage - Control measures to lower emissions from heavy vehicles Removal of alien vegetation	
Sloping and Landscaping	- Dust - Soil erosion - Noise - Visual - Uncovering graves - Hydrocarbon spillage - Emission from heavy vehicles - Alien vegetation infestation	- Workers - Travelling public - Fauna and flora	Decommissioning and closure phase	Medium	- Control through dust suppression - Control measures to prevent soil erosion - Control through noise control measures - Control measures to lower visual intrusion - Control measures to lower impacts on terrestrial ecology - Control measures for uncovering of graves or artefacts - Control measures for hydrocarbon spillage - Control measures to lower emissions from heavy vehicles Removal of alien vegetation	Low

The supporting impact assessment conducted by the EAP must be attached as an appendix marked as **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.
Biodiversity Assessment, Ecological Assessment and Wetland Assessment for the proposed Ek Kraal quarry by Flori Scientific Services, January 2018	• No temporary accommodation or temporary storage facilities may be setup within 100m of the any watercourse, including drainage lines and farm dams. • No temporary facilities (including portable toilets) to be positioned within a 100m of the edge of any watercourses. • Only existing roads to be used by vehicles during construction / set up phase as far as possible. • Access roads to be maintained at all times. • All construction material, equipment and any foreign objects brought into the area by contractors to be removed immediately after completion of the construction / set up phase. • Proper rubbish/waste bins to be provided. These to be emptied weekly and the waste to be removed to an official waste disposal site. • During the operation phase the gravel	X (all were included)	EMPr

	access roads need to be continually maintained. Storm water run-off and erosion of gravel access roads are important considerations, including damaged caused by heavy vehicles. • A site-specific rehabilitation plan for the closure of the quarry has to be compiled and implemented.		

Attach copies of Specialist Reports as appendices

Copy of report attached as Appendix K.

l) Environmental impact statement

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

The primary findings for the opening of the gravel quarry would probably result in:

- No negative environmental impacts of high significance with mitigation;
- Potential positive impacts due to increased economic activity, employment and training and capacity building.

The essence of the Basic Assessment process is aimed at ensuring informed decision-making and environmental accountability, and to assist in achieving environmentally sound and sustainable development. No long-term environmental impact should arise with this alternative.

In conclusion, it is believed the information contained in this report and the documentation attached hereto is sufficient to make a decision in respect of the activity applied for. This report covers the full suite of potential environmental issues related to the proposed development, and that sufficient information regarding the identification, assessment and potential mitigation of impacts has been presented to facilitate informed decision making by the appropriate authorities.

Based on the specialist studies undertaken within this BAR, both benefits and negative impacts are anticipated as a result of the proposed project. The findings of this BAR have highlighted these impacts and prioritised them in terms of high, medium or low significance. It is therefore recommended that this project be authorised by the authorities with the condition that the mitigation measures as stipulated in the EMPr should be adhered to. The authorities need to use this document to aid the decision- making process with respect to the future outcome of this application.

(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 area that should be avoided, including buffers. Attach as **Appendix**

Please see final site map included in Appendix C.

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

The possible negative impacts related to the opening of the quarry are associated with the construction phase of the gravel material:

a. Dust Pollution
b. Soil Erosion
c. Noise Impact
d. Visual impact
e. Impact on terrestrial ecology

f. Impact on uncovered heritage aspects
g. Contamination of site due to hydrocarbon spillage
h. Emissions from heavy vehicles
i. Water pollution

These negative impacts have a low significance and can be mitigated during the construction period.

The positive impacts associated with the opening of the quarry are the following:

The gravel aggregate will be used to construct the concrete turbine bases for the wind farm close to the quarry. The wind farm will generate electricity for the area that will be feed into the national grid. Wind is a free fuel and users of wind energy have a smaller carbon footprint.

The opening of the quarry could encourage business, industry and investment and assist in alleviating the high unemployment in the region as a whole.

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.

The following impact management measures will be implemented by Concor Infrastructure to prevent or remedy any possible pollution or degradation of the environment:

a. Possible dust and air pollution

- Dust will be suppressed through a watering management programme, especially during windy conditions.
- Dust generated will be carefully monitored by the OHS&E and should be suppressed by means of water regularly.
- Access roads will be watered regularly, especially in the dry winter months and in periods of high wind.
- Vegetation will not be unnecessary stripped.
- Domestic fires will be prohibited on site.
- Heavy vehicle will be serviced regularly to ensure emission control.

b. Soil Erosion

- Topsoil, if any, will be removed over the whole mining area and stored in a perimeter berm. The height of the topsoil berm will not exceed 3m.
- The topsoil berm will be inspected for erosion daily.
- Minimal amounts of topsoil shall be lost due to erosion, either by wind or water. This can be facilitated through the grassing of topsoil stockpiles, where needed.
- Condition of soil in walk or drive areas should be checked daily for erosion.
- Access road condition will be checked daily.
- If erosion is noted at walk and drive areas, access road or topsoil berms, the erosion channel will be fixed by placing cut vegetation, sandbags or rocks within the erosion channel and the cause of the erosion will be mitigated through the creation of runoff channels.

c. Possible Noise Pollution

- The working hours shall be limited to between 07:00 hrs and 18:00 hrs on weekdays, and 07:00 hrs and 17:00 hrs on Saturdays, or as per contract documentation.
- Vehicles must be driven at a moderate speed (50 kph) on private roads.
- Noise generated from the trucks that transport the material and the excavator that is used to mine the material shall only be carried out during normal working hours.

- Extended working hours will be in accordance with contract documentation.
- Concor Infrastructure shall be obligated to maintain vehicles used at the mining area in a good condition;
- Concor Infrastructure will be obliged to ensure that all personnel on site apply occupational health and safety requirements with respect to hearing protection.

d. Possible Visual impact

- Concurrent rehabilitation of the mining area will take place.
- All unused material would be levelled to ensure that the mining area blends back into the existing landscape fabric.
- No stockpiled material is to be retained on site.
- The mining area will be shaped to ensure no stockpiled heaps and that the area blends in with the existing landscape.
- All stockpiled topsoil and vegetative material will be spread over the bottom of the mining area to ensure proper seed bed for the re-establishment of vegetative growth. Placing a berm of topsoil along the perimeter of the mining site to obscure the visual impact of the excavation.
- Re-vegetation of the mining area after mining operation has ceased.
- The access gravel road to the quarry will be rehabilitated and the quarry will be fenced following the mining of the area.

e. Aquatic and Terrestrial Ecology

Construction & Operation Phase

- No temporary accommodation or temporary storage facilities may be setup within 100m of the any watercourse, including drainage lines and farm dams.
- No temporary facilities (including portable toilets) to be positioned within a 100m of the edge of any watercourses.
- Only existing roads to be used by vehicles during construction / set up phase as far as possible.
- Access roads to be maintained at all times.
- All construction material, equipment and any foreign objects brought into the area by contractors to be removed immediately after completion of the construction / set up phase.
- Proper rubbish/waste bins to be provided. These to be emptied weekly and the waste to be removed to an official waste disposal site.
- During the operation phase the gravel access roads need to be continually maintained. Storm water run-off and erosion of gravel access roads are important considerations, including damaged caused by heavy vehicles.
- A site-specific rehabilitation plan for the closure of the quarry has to be compiled and implemented.

Maintenance phase

- A weed control programme must be implemented to monitor and destroy any weeds / alien plants brought into the area through project-related activities.
- All litter / rubbish in the area to be continually clean-up and removed from the area to proper landfill sites.

f. Possible Impact on Uncovered Cultural or Archaeological site

- If an artefact or grave on-site is uncovered, work in the immediate vicinity shall be stopped immediately and it should immediately be reported to a heritage consultant so that an investigation and evaluation of the finds can be made. The Contractor shall take reasonable precautions to prevent any person from removing or damaging any such article.

- The South African Heritage Resources Agency (SAHRA) shall be contacted such that an archaeological/heritage resources consultant can be appointed to record the site and excavate if necessary. Work may only resume once clearance is given in writing by the archaeologist/heritage resources consultant.

g. Possible contamination of site due to hydrocarbons spillage

- All heavy vehicles, excavators and generators used for the mining will be in good working condition.
- A drip tray will be available to place underneath haul vehicles while the vehicles are parked at night.
- Should a vehicle have a break down, it will be serviced immediately. If soil contamination with diesel and oils occurred, the spill will be cleared up promptly. If the spill is small, it will be cleaned with a spill kit. If a major spill occurs where a spill kit is insufficient for clean-up, a specialised company will be used to clean the spill.
- Proper functioning of heavy vehicles will be ensured.

h. Possible establishment and spread of alien vegetation

- Every 3 months casual labour will be employed to circumnavigate the site to hand pull out known alien vegetation that may have established in the disturbed area. Special attention will be given to the perimeter topsoil berm.
- Casual labour will be provided with photographs of the alien vegetation that could establish.

i. Sanitation Facilities

- Chemical toilet facilities shall preferably be used on site. The toilets shall be serviced every second week by a service provider.

j. Safety of sloped areas

- The walls of the mining area will be sloped to a slope of at least 1:3 in order to prevent dangerous vertical walls.
- The quarry will be free draining.

k. Emissions from heavy vehicles, excavator and generators

- All heavy vehicles, excavators and generators used for the mining will be in good working condition and will be serviced regularly.
- Should a vehicle have a break down, it will be serviced immediately.

l. Unsafe working conditions for employees

- Appropriate safety clothing will be worn at all times i.e. head gear, shoes, ear plugs.

n) Aspects for inclusion as conditions of Authorisation.

Any aspects which must be made condition of the Environmental Authorisation

a. A Site Environmental Control Officer must be appointed for implementation of the EMPr;
b. All mining activities must take place in accordance with the approved EMPr;
c. Rehabilitation of mining area must be done concurrently with mining activities (whenever and wherever possible)
d. Dump structures must not be left on the surface after the mining has ceased. This include topsoil stockpiles and gravel stockpiles.

e. Should any archaeological artefact be exposed during mining activities, mining must be stopped. Under no circumstances shall any artefact be destroyed. The area must be fenced off and the South African Heritage Agency must be contacted as soon as possible.

o) Description of any assumption, uncertainties and gaps in knowledge.

(Which relate to the assessment and mitigation measures proposed)

a. The following assumptions have been made for the purposes of this report:

- All information received from sources contributing to this project is correct;
- That Concor Infrastructure will consider the recommendations derived from this study, and
- The Department of Mineral Resources would be the decision making authority with regard to this application.

b. Limitations

None.

c. Knowledge Gaps

None

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

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

The activity should be authorised by the Department of Mineral Resources as the significance of the environmental impacts identified is low while there are positive impacts that will benefit the community as a whole.

ii) Conditions that must be included in the authorisation

a. A Site Environmental Control Officer (SECO) must be appointed for implementation of the EMPr;
b. All mining activities must take place in accordance with the approved EMPr;
c. Rehabilitation of mining area must be done concurrently with mining activities (whenever and wherever possible)
d. Dump structures must not be left on the surface after the mining has ceased. This include topsoil stockpiles and gravel stockpiles.
e. Should any archaeological artefact be exposed during mining activities, mining must be stopped. Under no circumstances shall any artefact be destroyed. The area must be fenced off and the South African Heritage Agency must be contacted as soon as possible.

q) Period for which the Environmental Authorisation is required.

5 years

r) Undertaking

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

By implementing the environmental management principles outlined in this report, Concor Infrastructure will ensure that the construction, operation and decommissioning of the quarry will not result in a material degradation of the local biophysical and social environments.

Concor Infrastructure undertakes to implement concurrent rehabilitation of the quarry. Areas that are due for rehabilitation during the operational phase (where practical and possible) will be rehabilitated immediately following the mining of an area.

Funds are available within the guarantee submitted by Concor Infrastructure for the project for the rehabilitation of the quarry.

s) Financial Provision

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

i) Explain how the aforesaid amount was derived.

The rehabilitation cost for the quarry was determined by means of the SARS quantum scales.
The quantum for the quarry is calculated at R64357.00 for the rehabilitation of the quarry.
Please refer to Appendix H for the quantum for the quarry.

ii) Confirm that this amount can be provided for from operating expenditure.

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

Concor Infrastructure confirms that this amount is available and can be provided for the rehabilitation of the mining area in terms of the guarantee submitted.

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, 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).**

A potential socio-economic impact is that the landowner will not be able to use the land for grazing purposes for the duration of the quarry activity. However, the landowner of the proposed mining area will be compensated by Concor Infrastructure for the area to be used for the excavation of the gravel material.

No other person will be affected by the mining of the area as it is not situated in close proximity to any community.

(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).

There are no heritage or archaeological impacts associated with the quarry.

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).**

None

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

1) Draft environmental management programme.

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

It is confirmed that the details of the EAP as included in Part A section 3(ii).

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).

It is confirmed that a description of the aspects is included in Part 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 see composite map included in Appendix C.

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)

After the utilisation of the quarry, it will be rehabilitated and closed. Rehabilitation of the quarry would entail infilling with natural spoils as far as possible. Proper fencing around the quarry and clearly visible signage indicating a dangerous area will be put into place.

1. Shaping of Quarry

- The walls of the mining area will be sloped to a slope of at least 1:3 in order to prevent dangerous vertical walls.
- The quarry will be free draining.

2. Closure Measures

The following will be undertaken:

a. Removal of mobile equipment and all scrap material;
b. All unused material would be levelled to ensure that the quarry blends back into the existing landscape fabric. No stockpiled material is to be retained on site. Waste will not be permitted to be deposited in the excavations. Rocks and coarse material removed from the excavation must be dumped into the excavation simultaneously with the tailings.

c. Removal of crushing- and screening plant as well as the concrete footings and the primary ramp retaining wall;
d. Removal of all containers used as offices, workshops and stores. Where office/camp sites have been rendered devoid of vegetation/grass or where soils have been compacted owing to traffic, the surface shall be scarified or ripped. Areas containing French drains, if any, shall be compacted and covered with a final layer of topsoil to a height of 10cm above the surrounding ground surface;
e. Clean-up of any fuel or lubricant spillage;
f. Ensuring that all stormwater control mechanisms are in place.
g. Ensuring alien vegetation is removed during and at the end of each contract;
h. Ensuring that the access road is maintained and properly rehabilitated;
i. Waste or bitumen will not be permitted to be deposited in the excavations. Rocks and coarse material removed from the excavation must be dumped into the excavation simultaneously with the tailings.
j. Vegetative growth on the slopes is usually not possible at a quarry.
k. Any permanent structures and facilities including brick-built personnel amenities , soak-aways, workshop aprons and workshop floors, gas stores and any electrical supply from the grid need to be removed and the area rehabilitated.
l. Photographs of the camp and office sites, before and during the mining operation and after rehabilitation, shall be taken at selected fixed points and kept on record.
m. The area will be fenced.
o. The area will be reverted back to the landowner.

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

It is anticipated that borehole water will be used for the operation of the quarry. The water will be transported from the licensed borehole from the land owner or alternatively from the wind farm. It is not anticipated that large volumes of water will be used as water for dust suppression on the access road will be minimal, (10 000L – 20 000L/day). Should it be required that mist sprayers might be used on the crushers for dust suppression, approximately 5000L of water will be required per day. Potable drinking water will be sourced in town. Chemical toilets will be used which uses very little water.

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

No water course will be affected by the quarry and no water use license is applicable to this quarry area.

iv) Impacts to be mitigated in their respective phases

Measures to rehabilitate 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, beams, 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 m²)	**MITIGATION MEASURES** (describe how each of the recommendations in herein will remedy the cause of pollution or degradation and migration of pollutants)	**COMPLIANCE WITH STANDERDS** (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 mining, bulk sampling or alluvial diamond prospecting as the case may be.
Vegetation stripping	Construction,	4.42 ha	- Control through dust suppression - Control measures to prevent soil erosion - Control through noise control measures - Control measures to lower visual intrusion - Control measures to lower impacts on terrestrial ecology - Control measures for uncovering of graves or	SANS noise control legislation Dust standards Safety standards Approved EMPr	The measures in the Environmental Management Programme must be implemented during the construction and operational phases for the quarry.

			artefacts - Control measures for hydrocarbon spillage - Control measures to lower emissions from heavy vehicles		
Stripping and stockpiling of topsoil, subsoil, vegetative material and spoil	Construction	4.42 ha	- Control through dust suppression - Control measures to prevent soil erosion - Control through noise control measures - Control measures to lower visual intrusion - Control measures to lower impacts on terrestrial ecology - Control measures for uncovering of graves or artefacts - Control measures for hydrocarbon spillage - Control measures to lower emissions from heavy vehicles	SANS noise control legislation Dust standards Safety standards Approved EMPr	The measures in the Environmental Management Programme must be implemented during the construction and operational phases for the quarry.
Blasting	Operational	4.42 ha	- Control through dust suppression - Control through noise control measures - Control measures to lower impacts on terrestrial ecology - Control measures for hydrocarbon spillage	Approved EMPr	The measures in the Environmental Management Programme must be implemented during the construction and operational phases for the quarry.

			- Control measures to lower emissions from heavy vehicles		
Excavations	Operational	4.42 ha	- Control through dust suppression - Control measures to prevent soil erosion - Control through noise control measures - Control measures to lower visual intrusion - Control measures to lower impacts on terrestrial ecology - Control measures for uncovering of graves or artefacts - Control measures for hydrocarbon spillage - Control measures to lower emissions from heavy vehicles	SANS noise control legislation Dust standards Safety standards Approved EMPr	The measures in the Environmental Management Programme must be implemented during the construction and operational phases for the quarry.
Crushing	Operational	4.42 ha	Control through dust suppression - Control through noise control measures - Control measures to lower impacts on terrestrial ecology - Control measures for hydrocarbon spillage	SANS noise control legislation Dust standards Safety standards Approved EMPr	The measures in the Environmental Management Programme must be implemented during the construction and operational phases for the quarry.
Stockpiling and transporting of gravel material	Operational	4.42 ha	- Control through dust suppression	SANS noise control legislation	The measures in the Environmental Management

			- Control measures to prevent soil erosion - Control through noise control measures - Control measures to lower visual intrusion - Control measures to lower impacts on terrestrial ecology - Control measures for uncovering of graves or artefacts - Control measures for hydrocarbon spillage - Control measures to lower emissions from heavy vehicles	Dust standards Safety standards Approved EMPr	Programme must be implemented during the construction and operational phases for the quarry.
Sloping and Landscaping	Decommissioning and closure phases	4.42 ha	- Control through dust suppression - Control measures to prevent soil erosion - Control through noise control measures - Control measures to lower visual intrusion - Control measures to lower impacts on terrestrial ecology - Control measures for uncovering of graves or artefacts - Control measures for hydrocarbon spillage - Control measures to lower	SANS noise control legislation Dust standards Safety standards Approved EMPr	Upon cessation of mining activities. Progressive rehabilitation to be implemented

			emissions from heavy vehicles		

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, beams, roads, pipelines, power lines, conveyors, etc…etc… etc.)**	**POTENTIAL IMPACT** **e.g. dust, noise, drainage surface disturbance, fly rock, surface water 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.**
Vegetation stripping	- Dust - Soil Erosion - Noise - Visual - Terrestrial Ecology - Uncovering graves or artefacts - Hydrocarbon spillage - Emissions from heavy vehicles	- Workers - Travelling public - Fauna and flora	Construction	Control through dust suppression - Control measures to prevent soil erosion - Control through noise control measures - Control measures to lower visual intrusion - Control measures to lower impacts on terrestrial ecology - Control measures for uncovering graves or artefacts - Control measures for hydrocarbon spillage	- No dust nuisance or complaints from landowners or public - No soil erosion and complaints from landowners - Noise levels shall be kept to a minimum. The working hours shall be limited to between 07:00 hrs and 18:00 hrs on weekdays, and 07:00 hrs and 17:00 hrs on

				- Control measures to lower emissions from heavy vehicles - Control measures for removal of alien vegetation	Saturdays, or as per contract documentation. - Earth berms should be placed to the side of the road to obscure the mining activities from the travelling public, if possible. - Impact to the terrestrial ecology low. Mitigation measures as per specialist study - No artefact or grave destroyed - Spillage contained - Low emissions - No alien vegetation at quarry
Stripping and stockpiling of topsoil	- Dust - Soil Erosion - Noise - Visual - Terrestrial Ecology - Uncovering graves or artefacts - Hydrocarbon spillage - Emissions from heavy vehicles	- Workers - Travelling public - Fauna and flora	Construction	Control through dust suppression - Control measures to prevent soil erosion - Control through noise control measures - Control measures to lower visual intrusion - Control measures to lower impacts on terrestrial ecology - Control measures for uncovering graves or artefacts - Control measures for hydrocarbon spillage - Control measures to lower emissions from heavy vehicles - Control measures for removal of	- No dust nuisance or complaints from landowners or public - No soil erosion and complaints from landowners - Noise levels shall be kept to a minimum. The working hours shall be limited to between 07:00 hrs and 18:00 hrs on weekdays, and 07:00 hrs and 17:00 hrs on Saturdays, or as per contract documentation. - Earth berms should be

				alien vegetation	placed to the side of the road to obscure the mining activities from the travelling public, if possible. - Impact to the terrestrial ecology low. Mitigation measures as per specialist study - No artefact or grave destroyed - Spillage contained - Low emissions - No alien vegetation at quarry
Excavations	- Dust - Soil Erosion - Noise - Visual - Terrestrial Ecology - Uncovering graves or artefacts - Hydrocarbon spillage - Emissions from heavy vehicles	- Workers - Travelling public - Fauna and flora	Operational	Control through dust suppression - Control measures to prevent soil erosion - Control through noise control measures - Control measures to lower visual intrusion - Control measures to lower impacts on terrestrial ecology - Control measures for uncovering graves or artefacts - Control measures for hydrocarbon spillage - Control measures to lower emissions from heavy vehicles - Control measures for removal of alien vegetation	- No dust nuisance or complaints from landowners or public - No soil erosion and complaints from landowners - Noise levels shall be kept to a minimum. The working hours shall be limited to between 07:00 hrs and 18:00 hrs on weekdays, and 07:00 hrs and 17:00 hrs on Saturdays, or as per contract documentation. - Earth berms should be placed to the side of the road to obscure the mining activities from

					the travelling public, if possible. - Impact to the terrestrial ecology low. Mitigation measures as per specialist study - No artefact or grave destroyed - Spillage contained - Low emissions - No alien vegetation at quarry
Blasting	- Dust - Soil Erosion - Noise	- Workers - Travelling public - Fauna and flora	Operational	- Control through dust suppression - Control measures to prevent soil erosion - Control through noise control measures	- No dust nuisance or complaints from landowners or public - No soil erosion and complaints from landowners - Noise levels shall be kept to a minimum. The working hours shall be limited to between 07:00 hrs and 18:00 hrs on weekdays, and 07:00 hrs and 17:00 hrs on Saturdays, or as per contract documentation.
Stockpiling and transporting of gravel material	- Dust - Soil Erosion - Noise - Visual - Terrestrial Ecology - Uncovering	- Workers - Travelling public - Fauna and flora	Operational	- Control through dust suppression - Control measures to prevent soil erosion - Control through noise control measures - Control measures to lower visual intrusion	- No dust nuisance or complaints from landowners or public - No soil erosion and complaints from landowners - Noise levels shall be

	graves or artefacts - Hydrocarbon spillage - Emissions from heavy vehicles			- Control measures to lower impacts on terrestrial ecology - Control measures for uncovering graves or artefacts - Control measures for hydrocarbon spillage - Control measures to lower emissions from heavy vehicles - Control measures for removal of alien vegetation	kept to a minimum. The working hours shall be limited to between 07:00 hrs and 18:00 hrs on weekdays, and 07:00 hrs and 17:00 hrs on Saturdays, or as per contract documentation. - Earth berms should be placed to the side of the road to obscure the mining activities from the travelling public, if possible. - Impact to the terrestrial ecology low. Mitigation measures as per specialist study - No artefact or grave destroyed - Spillage contained - Low emissions - No alien vegetation at quarry
Crushing	- Dust - Noise - Visual - Hydrocarbon spillage - Emissions from heavy vehicles	- Workers - Travelling public	Operational	- Control through dust suppression - Control through noise control measures - Control measures to lower visual intrusion - Control measures for hydrocarbon spillage - Control measures to lower emissions from heavy vehicles	- No dust nuisance or complaints - Noise levels shall be kept to a minimum. The working hours shall be limited to between 07:00 hrs and 18:00 hrs on weekdays, and 07:00 hrs and 17:00 hrs on Saturdays, or as per

					contract documentation. - Spillage contained - Low emissions
Sloping and Landscaping	- Dust - Soil Erosion - Noise - Visual - Terrestrial Ecology - Uncovering graves or artefacts - Hydrocarbon spillage - Emissions from heavy vehicles	- Workers - Travelling public - Fauna and flora	Closure and Decommissioning phase	- Control through dust suppression - Control measures to prevent soil erosion - Control through noise control measures - Control measures to lower visual intrusion - Control measures to lower impacts on terrestrial ecology - Control measures for uncovering graves or artefacts - Control measures for hydrocarbon spillage - Control measures to lower emissions from heavy vehicles - Control measures for removal of alien vegetation	- No dust nuisance or complaints - No soil erosion - Noise levels shall be kept to a minimum. The working hours shall be limited to between 07:00 hrs and 18:00 hrs on weekdays, and 07:00 hrs and 17:00 hrs on Saturdays, or as per contract documentation. - Earth berms should be placed to the side of the road to obscure the mining activities from the travelling public, if possible. - Impact to the terrestrial ecology low. Mitigation measures as per specialist study - No artefact or grave destroyed - Spillage contained - Low emissions - No alien vegetation at quarry

f) Impact Management Actions

(A description of impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated in paragraph (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, beams, roads, pipelines, power lines, conveyors, etc…etc… etc.)**	**POTENTIAL IMPACT** **(e.g. dust, noise, drainage surface disturbance, fly rock, surface water 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 WITHSTANDARDS** (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)
Vegetation stripping	- Dust - Soil Erosion - Noise - Visual - Terrestrial Ecology - Uncovering graves or artefacts - Hydrocarbon spillage	- Control through dust suppression - Control measures to prevent soil erosion - Control through noise control measures - Control measures to lower visual intrusion	The measures in the Environmental Management Programme must be implemented during the construction and operational phases for the quarry.	SANS noise control legislation Dust standards Safety standards Approved EMPR

	- Emissions from heavy vehicles	- Control measures to lower impacts on terrestrial ecology - Control measures for uncovering graves or artefacts - Control measures for hydrocarbon spillage - Control measures to lower emissions from heavy vehicles - Control measures for removal of alien vegetation		
Stripping and stockpiling of topsoil	- Dust - Soil Erosion - Noise - Visual - Terrestrial Ecology - Uncovering graves or artefacts - Hydrocarbon spillage - Emissions from heavy vehicles	- Control through dust suppression - Control measures to prevent soil erosion - Control through noise control measures - Control measures to lower visual intrusion - Control measures to lower impacts on terrestrial ecology - Control measures for uncovering graves or artefacts - Control measures for hydrocarbon spillage - Control measures to lower emissions from heavy vehicles - Control measures for removal of alien vegetation	The measures in the Environmental Management Programme must be implemented during the construction and operational phases for the quarry.	SANS noise control legislation Dust standards Safety standards Approved EMPR
Blasting	- Dust - Soil Erosion - Noise	- Control through dust suppression - Control measures to prevent soil erosion	The measures in the Environmental Management Programme must be implemented during the	SANS noise control legislation Dust standards

		- Control through noise control measures	operational phases for the quarry.	Safety standards Approved EMPR
Crushing	- Dust - Noise - Hydrocarbon spillage	- Control through dust suppression - Control through noise control measures - Control measures for hydrocarbon spillage - Control measures to lower	The measures in the Environmental Management Programme must be implemented during the construction and operational phases for the quarry.	SANS noise control legislation Dust standards Safety standards Approved EMPR
Excavations	- Dust - Soil Erosion - Noise - Visual - Terrestrial Ecology - Uncovering graves or artefacts - Hydrocarbon spillage - Emissions from heavy vehicles	- Control through dust suppression - Control measures to prevent soil erosion - Control through noise control measures - Control measures to lower visual intrusion - Control measures to lower impacts on terrestrial ecology - Control measures for uncovering graves or artefacts - Control measures for hydrocarbon spillage - Control measures to lower emissions from heavy vehicles - Control measures for removal of alien vegetation	The measures in the Environmental Management Programme must be implemented during the construction and operational phases for the quarry.	Tree permit SANS noise control legislation Dust standards Safety standards Approved EMPR
Stockpiling and transporting of gravel material	- Dust - Soil Erosion - Noise - Visual - Terrestrial Ecology	- Control through dust suppression - Control measures to prevent soil erosion - Control through noise	The measures in the Environmental Management Programme must be implemented during the construction and operational	SANS noise control legislation Dust standards Safety standards

	- Uncovering graves or artefacts - Hydrocarbon spillage - Emissions from heavy vehicles	control measures - Control measures to lower visual intrusion - Control measures to lower impacts on terrestrial ecology - Control measures for uncovering graves or artefacts - Control measures for hydrocarbon spillage - Control measures to lower emissions from heavy vehicles - Control measures for removal of alien vegetation	phases for the quarry.	Approved EMPR
Sloping and Landscaping	- Dust - Soil Erosion - Noise - Visual - Terrestrial Ecology - Uncovering graves or artefacts - Hydrocarbon spillage - Emissions from heavy vehicles	- Control through dust suppression - Control measures to prevent soil erosion - Control through noise control measures - Control measures to lower visual intrusion - Control measures to lower impacts on terrestrial ecology - Control measures for uncovering graves or artefacts - Control measures for hydrocarbon spillage - Control measures to lower emissions from heavy vehicles - Control measures for removal of alien vegetation	The measures in the Environmental Management Programme must be implemented during the decommissioning and closure phases for the quarry.	SANS noise control legislation Dust standards Safety standards Approved EMPR

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.

After the utilisation of the quarry, it will be rehabilitated and closed. Rehabilitation of the quarry would entail infilling with natural spoils as far as possible. Cutting terraces into the steep walls could prevent vertical surfaces. The quarry cannot be free draining as the existing excavations are up to 20m deep and cut into solid rock. Proper fencing around the quarry and clearly visible signage indicating a dangerous area will be put into place.

1. Shaping of Quarry

- The walls of the mining area will be sloped to a slope of at least 1:3 in order to prevent dangerous vertical walls.
- The quarry will be free draining.

2. Closure Measures

The following will be undertaken:

a. Removal of mobile equipment and all scrap material;
b. All unused material would be levelled to ensure that the quarry blends back into the existing landscape fabric. No stockpiled material is to be retained on site. Waste will not be permitted to be deposited in the excavations. Rocks and coarse material removed from the excavation must be dumped into the excavation simultaneously with the tailings.
c. Removal of crushing- and screening plant as well as the concrete footings and the primary ramp retaining wall;
d. Removal of all containers used as offices, workshops and stores. Where office/camp sites have been rendered devoid of vegetation/grass or where soils have been compacted owing to traffic, the surface shall be scarified or ripped. Areas containing French drains, if any, shall be compacted and covered with a final layer of topsoil to a height of 10cm above the surrounding ground surface;
e. Clean-up of any fuel or lubricant spillage;
f. Ensuring that all stormwater control mechanisms are in place.
g. Ensuring alien vegetation is removed during and at the end of each contract;
h. Ensuring that the access road is maintained and properly rehabilitated;
i. Waste or bitumen will not be permitted to be deposited in the excavations. Rocks and coarse material removed from the excavation must be dumped into the excavation simultaneously with the tailings.
j. Vegetative growth on the slopes is usually not possible at a quarry.
k. Any permanent structures and facilities including brick-built personnel amenities, soak-aways, workshop aprons and workshop floors, gas stores and any electrical supply from the grid need to be removed and the area rehabilitated.
l. Photographs of the camp and office sites, before and during the mining operation and after rehabilitation, shall be taken at selected fixed points and kept on record.
m. The area will be fenced.

o. The area will be reverted back to the landowner.

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

It is confirmed that the environmental objectives pertaining to the closure have been consulted with the landowner. Please see landowner consultation form signed by the landowner, Mr D Calldo.

(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 Appendix G for the rehabilitation plan and the closure report for the quarry.

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

The rehabilitation of the quarry was discussed with the landowner and is therefore compatible with closure objectives of the quarry.

The rehabilitation plan is also compatible with the specialist report compiled by Flori submitted as part of this study.

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

The rehabilitation cost for the quarry was determined by means of the SARS quantum scales.

The quantum for the quarry is calculated at R64357.00 for the rehabilitation of the quarry.

Please refer to Appendix H for the quantum calculated.

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

Concor Infrastructure confirms that this amount is available and can be provided for the rehabilitation of the quarry in terms of the guarantee provided.

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 REQUIRMENTS FOR MONITORING	ROLES AND RESPONIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
CONSTRUCTION PHASE 1. Vegetation stripping by heavy vehicles 2. Stripping and stockpiling of topsoil by heavy vehicles **OPERATIONAL PHASE** 1. Excavations by heavy vehicles 2. Stockpiling and transporting of gravel material by heavy vehicles	**CONSTRUCTION PHASE** Potential Impacts: a. Dust Pollution b. Soil Erosion c. Noise Impact d. Visual impact e. Terrestrial ecology f. Impact on uncovered heritage aspects g. Contamination of site due to hydrocarbon spillage h. Emissions from heavy vehicles 2. Stripping and stockpiling of topsoil Potential Impacts:	See Appendix J	See Appendix J	See Appendix J

DECOMMISSIONING PHASE 1. Sloping and Landscaping during rehabilitation 2. Replacing the topsoil and revegetating the disturbed area	a. Clearing of vegetation b. Visual intrusion as a result of establishment of the quarry. c. Dust nuisance caused by machinery stripping topsoil d. Noise nuisance caused by machinery stripping topsoil e. Infestation of weeds and alien vegetation on topsoil heaps f. Loss of topsoil due to incorrect storm water management g. Contamination of site due to hydrocarbons h. Impact on uncovered heritage aspects i. Emissions from heavy vehicles **OPERATIONAL PHASE** Potential Impacts: a. Visual intrusion associated with the excavation activities b. Dust nuisance caused by excavation activities c. Noise nuisance generated by excavation equipment d. Contamination of surface or groundwater due to effluent runoff from			

	excavation e. Unsafe working conditions for employees f. Potential damage to uncovered cultural and heritage aspects g. Contamination of site due to hydrocarbons h. Emissions from heavy vehicles 2. Stockpiling and Transporting of gravel material Potential Impacts: a. Visual intrusion associated with the stockpiled material and heavy vehicles transporting the gravel material b. Loss of material due to ineffective storm water handling c. Dust nuisance from stockpiled material and heavy vehicles transporting material d. Degradation of access roads e. Noise nuisance caused by heavy vehicles f. Contamination of site due to hydrocarbons			

	g. Emissions from heavy vehicles **DECOMMISSIONING PHASE** Potential Impacts a. Soil erosion b. Health and safety risk posed by unsloped areas c. Dust nuisance caused during sloping and landscaping activities d. Noise nuisance caused during sloping and landscaping activities e. Contamination of site due to hydrocarbons f. Emissions from heavy vehicles 2. Replacing the topsoil and revegetating the disturbed area. Potential Impacts: a. Loss of reinstated topsoil due to absence of vegetation b. Infestation of the area with weed and invader plants ALL phases: Proper functioning of sanitation			

	systems			

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

A performance assessment/environmental audit report shall be submitted to the Department yearly. A final audit report will be submitted to the Department following the final rehabilitation of the quarry.

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.

Concor Infrastructure shall ensure that its employees are adequately trained with regard to the implementation of the EMPr, as well as regarding environmental legal requirements and obligations.

a. Induction Training:

All employees and visitors on site will have an **Induction** training on environmental awareness. Where possible, the presentation needs to be conducted in the language of the employees.

The environmental training should, as a minimum, include the following:

- Information on Environmental Risks

Employees will be adequately trained with regard to the following potential environmental risks:

- The risk of non-conformance with all environmental policies, procedures, plans and systems.
- The risk of not strictly implementing the approved EMPR.
- The potential consequences of departure from specified operating procedures.
- The significant environmental impacts, actual or potential, as a result of their work activities.

- General awareness training and training on dealing with emergency situations:

Employees will be given general awareness training and training on dealing with emergency situations by means of the following:

- Understanding, and importance of, and the reasons why, the environment must be protected.
- Basic awareness and understanding of the key environmental features of the work site and environments.
- The mitigation measures required to be implemented when carrying out their work activities.
- The environmental benefits of improved personal performance.
- Their roles and responsibilities in achieving conformance with the environmental policy and procedures, including emergency preparedness and response requirements.
- What to do in the case of a hydrocarbon spill.
- Who to contact in the case of an emergency.

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

Employees will be adequately trained with regard to dealing with environmental risks by means of the following:

- Details regarding archaeological and/or historical sites that may be unearthed during construction, and the procedures to be followed should these be encountered.
- The procedures which should be followed should a grave be encountered or unearthed during the construction phase.
- Details of and encouragement to minimise the production of waste and re-use, recover and recycle waste where possible.
- Ways to minimise the environmental impacts.
- How to identify erosion and how to fix it.
- The importance of not littering.
- Prevention and handling of fire
- The need to use water sparingly.
- The importance of dust management.
- How to identify alien vegetation and the best practice for removing it.
- Requirements of the EMPr.

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

By implementing the environmental management principles outlined in this report, Concor Infrastructure will ensure that the construction, operation and decommissioning of the quarry will not result in a material degradation of the local biophysical and social environments.

Concor Infrastructure undertakes to implement concurrent rehabilitation of the quarry. Areas that are due for rehabilitation during the operational phase (where practical and possible) will be rehabilitated immediately following the mining of an area.

Funds are available within the financial guarantee that was submitted by Concor Infrastructure.

The financial provision will be reviewed annually.

2) UNDERTAKING

The EAP herewith confirms

a) The correctness of the information provided in the reports [x]

b) The inclusion of comments and inputs from stakeholders and I&Aps [x]

c) The inclusion of inputs and recommendations from the specialist report where relevant [x]; 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. [x]

Signature of the environmental assessment practitioner:

Chameleon Environmental

Name of company:

Date:

-END-