

ENVIRONMENTAL IMPACT ASSESSMENT PROCESS  
FINAL BASIC ASSESSMENT REPORT

PROPOSED GAROB WIND FARM TO KRONOS  
SUBSTATION 132kV POWER LINE, NEAR COPPERTON  
IN THE NORTHERN CAPE PROVINCE

DEA REF: 14/12/16/3/3/1/769

Final BAR submitted to DEA  
May 2013

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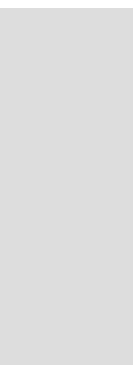
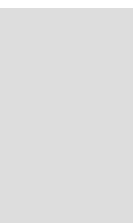
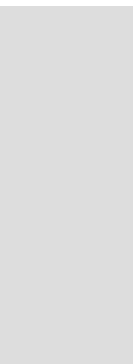
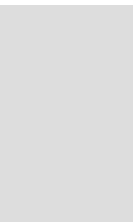
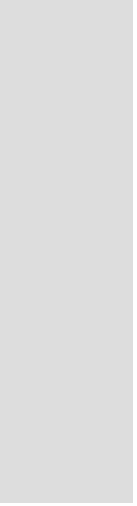


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## environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA

(For official use only)

File Reference Number:

Application Number:

Date Received:


Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2010, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

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### Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2010 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. This report format is current as of **1 September 2012**. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority
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14. Two (2) colour hard copies and one (1) electronic copy of the report must be submitted to the competent authority.
15. Shape files (.shp) for maps must be included on the electronic copy of the report submitted to the competent authority.

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## PROJECT DETAILS

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DEA Reference No. : 14/12/16/3/3/1/769

Title : Environmental Assessment Process  
Final Basic Assessment Report: Proposed Garob to  
Kronos Power Line, connecting the Garob Wind  
Energy Facility to the Kronos Substation near  
Copperton in the Northern Cape Province

Authors : Savannah Environmental  
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Client : Garob Wind Farm (Pty) Limited

Report Status : Final BAR submitted to DEA

When used as a reference this report should be cited as: Savannah Environmental (2013) Final Basic Assessment Report: Proposed Garob Wind Farm to Kronos Substation 132kV power line, near Copperton in the Northern Cape Province

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## **APPENDICES**

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- » *Appendix E3: Comments Received & the Comments and Responses Reports (Also included is the Comments & Responses Report from Garob Wind Farm Facility: DEA ref: 14/12/16/3/3/2/279, as the proposed power line was covered in the public participation process)*
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## **SUMMARY AND OVERVIEW OF THE PROPOSED PROJECT**

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Garob Wind Farm (Pty) Ltd (Garob Wind Farm) proposes to develop a wind farm facility (Garob Wind Energy Facility DEA ref: 14/12/16/3/3/2/279) within the Siyathemba Local Municipality, Northern Cape (see Figure 1). The Final EIA Report for the Garob Wind Farm application is currently under review by the Department of Environmental Affairs (DEA). However, in discussions with Eskom, it has been determined that a 132kV line would be required to link the Garob Wind Energy Facility to the existing Eskom Kronos Substation. This Final Basic Assessment Report therefore assesses the impacts related to the proposed establishment of the 132kV power line from the Garob Wind Energy Facility to the existing Eskom Kronos Substation (DEA ref: 14/12/16/3/3/1/769).

The proposed power line corridor is located approximately 10 km east of the town of Copperton, and approximately 35 km south west of the town of Prieska in the Northern Cape Province. The project will include the following:

- » A 132 kV overhead power line connecting the proposed on-site substation at the Garob Wind Energy Facility to the existing Eskom Kronos Substation.
- » Access roads along the servitude for construction and operational purposes.

A broader corridor of approximately 300m wide is being considered for the proposed power line and associated infrastructure (refer to Figure 1). This corridor passes over the following farm portions: portion 5 of the farm Nelspoortje 103, the remaining extent of the farm Humansrus 147, the remaining extent of the farm Hoekplaas 146; and portion 4 of the farm Klipgats Pan 117.

The nature and extent of this power line and associated access roads, as well as the significance of the potential environmental impacts associated with the construction, operation and decommissioning phases are assessed in more detail in this Final Basic Assessment (BAR) Report.

### **1.1. The Proposed Development and Assessment of Impacts**

The proposed 132kV power line corridor from the proposed Garob Wind Energy Facility to the existing Eskom Kronos Substation, originates on portion 5 of Nelspoortje (location of the Garob wind energy facility on-site substation). Thereafter the proposed power line route runs south west towards the R357 provincial road. Here the corridor runs on the northern side but parallel to the R357 to the Kronos Substation. The proposed power line will connect to the existing Eskom Kronos Substation. A corridor route for the power line was received from Garob Wind Farm (Pty) Ltd (Garob Wind Farm), and a 300m wide corridor was included in the terms of reference of the ecological, avifaunal, heritage and visual assessments undertaken. (Refer to Appendices D1-D4 for the specialist reports).



The proposed 132kV power line will have a 36 m wide servitude. Access roads will be located within this servitude as far as possible.

A broader corridor of approximately 300m wide is being considered for the proposed power line and associated infrastructure. This corridor passes over the following farm portions: portion 5 of the farm Nelspoortje 103, the remaining extent of the farm Humansrus 147, the remaining extent of the farm Hoekplaas 146; and portion 4 of the farm Klippgats Pan 117.

No feasible alternative corridors have been identified or assessed for the proposed power line as the power line corridor (site) has been strategically placed in order to avoid other proposed renewable energy facilities in the area. Additionally, the power line corridor outside the footprint of the proposed Garob Wind Energy Facility follows the R357 for most of its length so as to minimise potential environmental impacts and facilitate site access from the R357 during construction and operation. The proposed power line corridor has the benefit of being the most direct and therefore the most economically feasible option.

The activities associated with the construction of the power line will include site clearance and construction of access roads to facilitate access the site where required (where existing access roads or new roads associated with the wind farm do not already exist).

Power lines are constructed in the following simplified sequence:

- Step 1:** Determination of technically feasible alternatives
- Step 2:** EIA input into route selection
- Step 3:** Negotiation of final route with affected landowners
- Step 4:** Survey of the route
- Step 5:** Determination of the conductor type
- Step 6:** Selection of best-suited conductor, towers, insulators, foundations
- Step 7:** Final design of line and placement of towers
- Step 8:** Issuing of tenders, and award of contract to construction companies
- Step 9:** Vegetation clearance and construction of access roads (where required)
- Step 10:** Tower pegging
- Step 11:** Construction of foundations
- Step 12:** Assembly and erection of towers
- Step 13:** Stringing of conductors
- Step 14:** Rehabilitation of disturbed area and protection of erosion sensitive areas
- Step 15:** Testing and commissioning

Construction of the proposed power line will take approximately 12 – 24 months to complete.

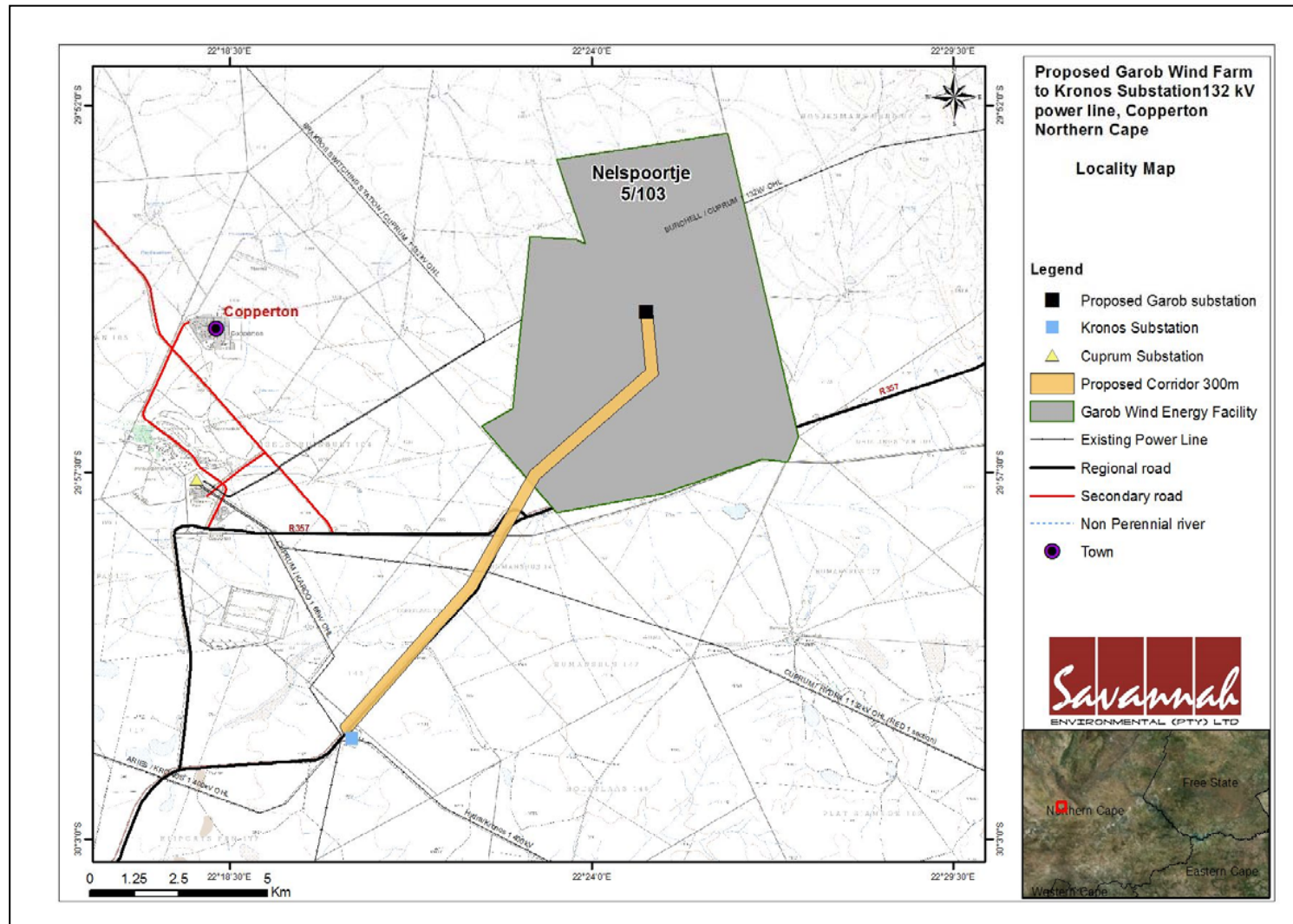


Figure 1: Locality map of the proposed power line corridor from the Garob Wind Energy Facility to Kronos Substation.

## 1.2 Requirements for a Basic Assessment Process

In terms of the Environmental Impact Assessment (EIA) Regulations published in terms of Section 24(5) of the National Environmental Management Act (NEMA, Act No. 107 of 1998), Garob Wind Farm (the Applicant) requires environmental authorisation for the construction and operation of the proposed 132kV power line. In terms of sections 24 and 24D of the National Environmental Management Act (No 107 of 1998), as read with the EIA Regulations of GN R544 – R546 a Basic Assessment process is triggered by the following activities.

**Table 1.1:** Listed activities relevant to the proposed Garob to Kronos Power Line

Number and date of the relevant notice:	Activity No (s) (in terms of the relevant notice) :	Describe each listed activity as per project description:
GN 544, 18 June 2010	10	The construction of facilities or infrastructure for the transmission and distribution of electricity- (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts  <b><i>The application is for the construction of a 132kV Power Line (located outside of an urban area)</i></b>
GN 544, 18 June 2010	11	The construction of: (iii) bridges (xi) infrastructure or structures covering 50 square metres or more: Where such construction occurs within a watercourse or within 32 metres of a watercourse, excluding where such construction will occur behind the development setback line.  <b>The power line will be required to span a watercourse or associated infrastructure may be located 32m from a watercourse.</b>
GN 544, 18 June 2010	18	The infilling or deposition of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from: (i) a watercourse  <b>There are drainage lines on the development site which could be affected by the proposed development, including access roads for the power line.</b>
GN R 546, 18 June 2010	14	The clearance of an area of 5 hectares or more of vegetation where 75% or more of the vegetative cover

Number and date of the relevant notice:	Activity No (s) (in terms of the relevant notice) :	Describe each listed activity as per project description:
		<p>constitutes indigenous vegetation, except where such removal of vegetation is required for</p> <p>(3) The undertaking of a linear activity falling below the threshold in Notice 544 of 2010.</p> <p><b>There would be a need to clear vegetation for the proposed development.</b></p>

### 1.3 Details of Environmental Assessment Practitioner and Expertise to conduct the Basic Assessment

Savannah Environmental has been appointed as the independent environmental consultant, to undertake the Environmental Basic Assessment to identify and assess the potential environmental impacts associated with the proposed facility. Neither Savannah Environmental nor any of its specialist sub-consultants on this project are subsidiaries of or are affiliated to Garob Wind Farm (Pty) Ltd. In addition, Savannah Environmental does not have any interest in secondary developments that may arise out of the authorisation of the proposed project.

Savannah Environmental is a specialist environmental consulting company providing holistic environmental management services, including environmental impact assessment and planning to ensure compliance and evaluate the risk of development and the development and implementation of environmental management tools. Savannah Environmental benefits from the pooled resources, diverse skills and experience in the environmental field held by its team that has been actively involved in undertaking environmental studies for a wide variety of projects throughout South Africa and neighbouring countries. Strong competencies have been developed in project management of environmental processes, as well as strategic environmental assessment and compliance advice, and the assessment of environmental impacts, the identification of environmental management solutions and mitigation/risk minimising measures.

The Savannah Environmental team has considerable experience in environmental impact assessments and environmental management, and have been actively involved in undertaking environmental studies, for a wide variety of projects throughout South Africa, including those associated with electricity generation.

The EAPs from Savannah Environmental who are responsible for this project are:

- » *Umeshree Naicker* – The principle author of this report, holds an Honours Bachelor of Science degree in Environmental Science and has 5 years' experience in

environmental management. Her interests lie in waste management and environmental management. She has worked on various renewable energy projects.

- » *Karen Jodas* is a registered Professional Natural Scientist and holds a Master of Science degree. She has 16 years of experience consulting in the environmental field. Her key focus is on strategic environmental assessment and advice; management and co-ordination of environmental projects, which includes integration of environmental studies and environmental processes into larger engineering-based projects and ensuring compliance to legislation and guidelines; compliance reporting; the identification of environmental management solutions and mitigation/risk minimising measures; and strategy and guideline development. She is currently responsible for the project management of EIAs for several renewable energy projects across the country.
  
- » *Steven Ingle* - Steven Ingle is a senior environmental consultant and holds a degree in Environmental Management with over 7 years of experience in the environmental field. His competencies lie in environmental impact assessments for large scale infrastructure, property and mining projects, environmental due diligence and risk assessment, environmental compliance monitoring, waste management licensing and strategic environmental assessment.

Savannah Environmental has gained extensive knowledge and experience on potential environmental impacts associated with electricity generation projects through their involvement in related EIA processes. Savannah Environmental has completed the EIA process and received environmental authorisations for numerous renewable projects. Savannah Environmental is currently the Environmental Assessment Practitioners for the Garob Wind Energy Facility (DEA ref: 14/12/16/3/3/2/279).

Curricula vitae for the Savannah Environmental project team consultants are included in **Appendix H**.

#### **1.4 Summary of the Conclusions of the Basic Assessment**

A summary of the potential impacts as assessed through this BAR is provided below:

**Ecology:** Majority of impacts on ecology are of **low significance** and relate to the following:

- » Impacts on vegetation and listed or protected plant species
- » Direct and Indirect Faunal impacts
- » Habitat degradation and loss of landscape integrity

**Heritage:** The impacts on heritage resources by the proposed development are not considered to be highly significant. The recorded sites that will potentially be impacted on are all of **low significance**.

**Visual:** The placement of the power line and its associated infrastructure will have a **visual impact** on the natural scenic resources and rural character of this region. Potential visual impacts are considered to be of **low significance**. **These impacts include:**

- » Potential visual impact on users of arterial and secondary roads in close proximity to the proposed power line - of low significance.
- » Potential visual impact on residents of homesteads in close proximity to the proposed power line - expected to be of low significance.
- » Potential visual impact on sensitive visual receptors within the region - expected to be negligible.
- » Potential visual impact of construction on sensitive visual receptors in close proximity to the proposed power line - likely to be of low significance.
- » Potential visual impact of the proposed power line on the visual quality of the landscape and sense of place of the region - expected to be of low significance.

**Avifauna:** The proposed power line could have an impact of **medium significance** on selected avifauna species resident to the surrounding area. These impacts include:

- » Electrocutation of birds whilst perched or roosting on pylons or towers.
- » Collision of birds with overhead cables.
- » Destruction of natural bird habitat on and near the site.
- » Disturbance of birds on site and in the surrounding area.

A cumulative impact, in relation to an activity, refers to the impact of an activity that in itself may not be significant, but may become significant when added to the existing and potential impacts eventuating from similar or diverse undertaking in the area<sup>1</sup>. The Northern Cape is earmarked as a potential solar energy hub for South Africa. The other proposed renewable energy in the Copperton area (other than the proposed Garob Wind Energy Facility) include the following: Nelspoortje Wind Energy Facility (developer - Plan 8), Klipgats pan Solar Energy facility (developer - Mulilo) and Plat Sjambok Solar and Wind Energy Facility (developer - Mainstream).

The cumulative impacts associated with the establishment and operation of the 132kV power line proposed to connect the Garob Wind Energy Facility to the Kronos Substation is predominantly of **low to medium** significance:

- » **Ecology:** A sensitivity analysis confirmed that the majority of the power line corridor is located in an area of low sensitivity. The operation of the infrastructure would contribute to cumulative disturbance and habitat loss for fauna, but the contribution

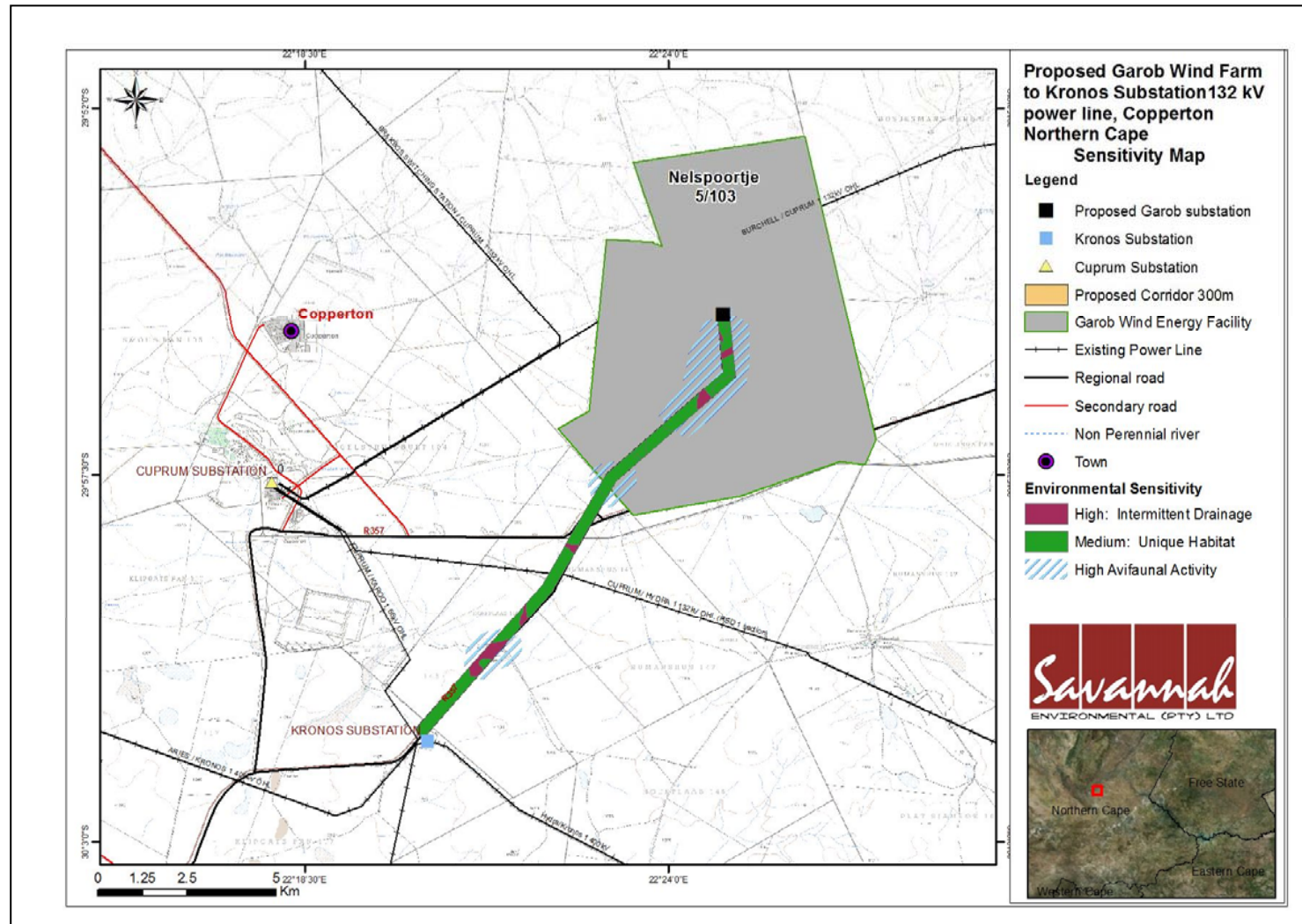
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<sup>1</sup> Definition as provided by DEA in the EIA Regulations.

would be very small and is not considered significant. The potential cumulative impact is rated as having a predominately **low significance**.

- » **Heritage:** Most of the Stone Age archaeology in the study area consists of low densities of scattered (and mixed) Middle Stone Age and Late Stone Age artefacts. The potential cumulative impact is rated as being **low or insignificant**
- » **Visual:** The construction of an additional power line, together with the existing power lines to the Kronos and Cuprum substations, the wind turbines of the Garob Wind Energy Facility, other renewable projects in the area, and the mining activity near Copperton, is likely to increase the potential cumulative visual impact of industrial type infrastructure within the region but considered to be of **low significance**.
- » **Avifauna:** The cumulative impacts of the construction of new electrical and energy infrastructure in the Copperton area could be **significant** if all of the proposed projects are eventually realized. Grid connection power lines will provide a significant amount of new perching substrate in this wider area, where natural perches are largely absent. This means that the cumulative electrocution and the cumulative collision risk could be quite substantial.

Based on the nature and extent of the proposed project, it is concluded that the potential impacts associated with the proposed power line and associated access roads within the identified corridor can be mitigated to an acceptable level from an environmental perspective.



**Figure 2:** Sensitivity map of the proposed power line corridor from the Garob Wind Energy Facility to Kronos Substation



## **DRAFT BASIC ASSESSMENT REPORT FOR REVIEW**

The Draft Basic Assessment Report was prepared by Savannah Environmental in order to assess the potential environmental impacts associated with proposed power line and associated access roads between the Garob Wind Energy Facility and the existing Eskom Kronos Substation. This process is being undertaken in support of an application for an environmental authorisation in terms of the requirements of the National Environmental Management Act (NEMA, Act No 107 of 1998). The draft Basic Assessment report was available for public review at the following locations:

- » [www.savannahsa.com](http://www.savannahsa.com)
- » Alpha Library (Alpha Street, Prieska)
- » Prieska Library
- » Alkantpan Lodge (Ietznietz Herberg & Gastehuis - 30 Azurite Street - Copperton)

The 30-day period for review for the Draft BAR was during **27 March 2013 – 30 April 2013**.

## SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section?

YES

If YES, please complete the form entitled "Details of specialist and declaration of interest" for the specialist appointed and attach in Appendix I.

### 1. PROJECT DESCRIPTION

#### a) Describe the project associated with the listed activities applied for

The proposed power line is located within the Siyathemba Local Municipality (within the Pixley ka Seme District Municipality), approximately 10 km east of the town of Copperton, and ~35 km south west of the town of Prieska in the Northern Cape Province.

The proposed 132kV power line corridor from the proposed Garob Wind Energy Facility to the existing Eskom Kronos Substation, originates on portion 5 of Nelspoortje (location of the Garob wind energy facility on-site substation). Thereafter the proposed power line route runs south west towards the R357 provincial road. Here the corridor runs on the northern side but parallel to the R357 to the Kronos Substation. The proposed power line will connect to the existing Eskom Kronos Substation. Due to its intrinsic relationship to the proposed Garob Wind Energy Facility, the power line can best be described as essential infrastructure in support of this project.

In order to construct the proposed facility and its associated infrastructure, a series of activities will need to be undertaken during the design, pre-construction construction, operation and decommissioning phases. These are briefly discussed below.

#### **1.2 Construction of a Power Line:**

Power lines are constructed in the following simplified sequence:

- Step 1:** Survey of the route
- Step 2:** Selection of best-suited conductor, towers, insulators, foundations
- Step 3:** Final design of line and placement of towers
- Step 4:** Issuing of tenders, and award of contract to construction companies
- Step 5:** Vegetation clearance and construction of access roads (where required)
- Step 6:** Tower pegging
- Step 7:** Construction of foundations
- Step 8:** Assembly and erection of towers on site

- Step 9:** Stringing of conductors
- Step 10:** Rehabilitation of disturbed area and protection of erosion sensitive areas
- Step 11:** Testing and commissioning
- Step 12:** Continued maintenance

Construction of the proposed power line will take approximately 12-24 months to complete.

### **1.3 Operation Phase**

The proposed power line will require routine maintenance work throughout the operation period. The site will be accessed using existing roads in the area and the access roads established during the construction phase. A servitude of 36m will be required along the length of the power line during operation.

### **1.4 Decommissioning Phase**

The power line is expected to have a lifespan of more than 40 years (with maintenance) and the infrastructure would only be decommissioned once it has reached the end of its economic life, or if no longer required. If economically feasible/desirable the decommissioning activities would comprise the disassembly of the individual components and removal from site. This phase would include the following decommissioning activities.

#### ***a) Site Preparation***

Site preparation activities will include confirming the integrity of the access to the site to accommodate the required equipment and the mobilisation of decommissioning equipment.

#### ***b) Disassemble Components***

The components would be disassembled, and reused and recycled (where possible), or disposed of in accordance with regulatory requirements.

#### ***c) Rehabilitation***

Disturbed area (where infrastructure has been removed) will be rehabilitated, if required, depending on the future land-use of the facility.

**b) Provide a detailed description of the listed activities associated with the project as applied for**

Listed activity as described in GN R.544, 545 and 546	Description of project activity
<p><u>GN 544, 18 June 2010, activity 10 (i):</u>  <i>The construction of facilities or infrastructure for the transmission and distribution of electricity -</i>  <i>(i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts</i></p>	<p>The project will entail construction of a 132kV Power line (outside an urban area). The proposed power line is approximately 14 km in length with a 300 meter wide corridor.</p>
<p><i>GN 544, 18 June 2010, activity 11</i>  <i>The construction of:</i>  <i>(iii) bridges</i>  <i>(xi) infrastructure or structures covering 50 square metres or more</i>  <i>Where such construction occurs within a watercourse or within 32 metres of a watercourse, excluding where such construction will occur behind the development setback line.</i></p>	<p>The power line may require the spanning of a watercourse or the construction of infrastructure within 32m of a watercourse.</p> <p>There are no major drainage lines within the power line corridor. However, between the substation and the first deviation in the line, the route traverses a large drainage basin through which water occasionally moves, there is however no clearly defined drainage channel. Towards the Kronos substation the route traverses a depression with an open drainage course at the bottom.</p>
<p><i>GN 544, 18 June 2010, activity 18</i>  <i>The infilling or deposition of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from:</i>  <i>(i) a watercourse</i></p>	<p>There are no major drainage lines within the power line corridor. However, between the substation and the first deviation in the line, the route traverses a large drainage basin through which water occasionally moves, there is however no clearly defined drainage channel. Towards the Kronos substation the route traverses a depression with an open drainage course at the bottom.</p>
<p><i>GN 546, 18 June 2010, activity 14</i>  <i>The clearance of an area of 5 hectares or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation, except where such removal of vegetation is required for:</i>  <i>(3) The undertaking of a linear activity falling below the threshold in Notice 544 of 2010.</i></p>	<p>There would be a need to clear vegetation for the proposed development.</p>

## 2. FEASIBLE AND REASONABLE ALTERNATIVES

“*alternatives*”, in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives 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.

Describe alternatives that are considered in this application as required by Regulation 22(2) (h) of GN R.543. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity (NOT PROJECT) could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.

The determination of whether site or activity (including different processes, etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the, competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

The identification of alternatives should be in line with the Integrated Environmental Assessment Guideline Series 11, published by the DEA in 2004. Should the alternatives include different locations and lay-outs, the co-ordinates of the different alternatives must be provided. The co-ordinates should be in degrees, minutes and seconds. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

### a) **Site alternatives**

Purpose

Alternatives for the project were also assessed in the Garob Wind Energy Facility Final Environmental Impact Assessment Report (DEA ref: 14/12/16/3/3/2/279) The Final EIA Report for the Garob Wind Farm application is currently under review by the Department of Environmental Affairs (DEA). Within the Garob Wind Farm application, different power line options were assessed and discussed. The proposed alternatives were as follows:

- » **Option 1:** Loop in and out of the existing Burchell/Cuprum 132 kV line

- » **Option 2:** would be to connect directly to the existing Eskom Cuprum substation via a 132 kV power line. Two alternatives were considered for this option:
  - » **Alternative 1** - to connect directly to the existing Eskom Cuprum substation via the northern corridor parallel to the Burchell/Cuprum 132kV line. Two sub alternatives are being considered within this corridor; a) sub alternative A is the shortest route with a section crossing the wind farm site in a westerly direction; b) sub alternative B is the longer route (approximately 2.5 km longer than sub-alternative A).
  - » **Alternative 2** - to connect directly to the existing Eskom Cuprum substation via a southern corridor which follows a route to avoid traversing the adjacent property (Farm 103/7) which forms part of another proposed renewable energy project.

The final assessment of these alternatives within the Garob EIA report suggested that the preferred alternative is Option 1. However, in discussions with Eskom, it has been advised that a 132kV line would be required to link the Garob Wind Energy Facility to the existing Eskom Kronos Substation. This alternative is now considered through this BAR.

The proposed Garob to Kronos power line passes through a section of the footprint of the proposed Garob Wind Energy Facility and this portion of the route has been sited in accordance with the technical considerations associated with the wind energy facility and Eskom’s Kronos substation facility. In addition, the power line has been sited to avoid other proposed renewable energy facilities adjacent to the Garob Wind Energy Facility, and to follow other linear infrastructure (i.e. the R357).

No additional feasible alternatives, other than those assessed through the Garob Wind Energy Facility EIA have been identified for the proposed power line.

The power line corridor has been selected based on the following preferences:

- » The power line corridor has been strategically placed in order to avoid other proposed renewable energy facilities in the area.
- » Outside the footprint of the proposed Garob Wind Energy Facility the power line corridor follows the R357 for most of its length so as to reduce environmental impacts.
- » Site access (i.e. the site is easily accessible from R357).
- » It has the benefit of being the most direct and therefore the most economically feasible option.
- » Alternative power line routes have been assessed in the Garob Wind Farm application. These assessed options are not considered technically feasible considering the current state of the eskom grid/network in this area.

Alternative 1 (preferred alternative)		
Description	Lat	Long

	(DDMMSS)	(DDMMSS)
<b>Alternative 2</b>		
Description	Lat (DDMMSS)	Long (DDMMSS)
<b>Alternative 3</b>		
Description	Lat (DDMMSS)	Long (DDMMSS)

**Alternative:**

**Latitude (S):**

**Longitude (E):**

**Alternative S1 (preferred):**

- Starting point of the activity
- Middle/Additional point of the activity
- End point of the activity

29° 55' 09.14"	22° 24' 50.40"
29° 58' 12.80"	22° 22' 44.40"
30° 01' 28.23"	22°20' 21.29"

**Alternative S2 (preferred):**

- Starting point of the activity
- Middle/Additional point of the activity
- End point of the activity


**Alternative S3 (preferred):**

- Starting point of the activity
- Middle/Additional point of the activity
- End point of the activity


For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.

Power line coordinates have been attached in **Appendix J1**.

In the case of an area being under application, please provide the co-ordinates of the corners of the site as indicated on the lay-out map provided in Appendix A.

**b) Layout alternatives**

There are no alternatives proposed for the power line corridor since:

- » A corridor of 300m wide around the proposed power line servitude has been assessed and any deviations deemed necessary for environmental and/or technical reasons

from the centre point of the power line, for 150m in either direction, are therefore possible.

- » The power line route has been strategically placed in order to avoid other proposed renewable energy facilities in the area.
- » Outside the footprint of the proposed Garob Wind Energy Facility the power line route follows the R357 for most of its length so as to reduce environmental impacts and reduce edge effects.
- » Site access - the site is easily accessible from the R357, therefore reducing the need to construct new access roads.
- » It has the benefit of being the most direct and therefore the most economically feasible option.

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)

**c) Technology alternatives**

No feasible alternative technologies exist to connect the wind energy facility to the electricity grid.

Alternative 1 (preferred alternative)		
Alternative 2		
Alternative 3		

**d) Other alternatives (e.g. scheduling, demand, input, scale and design alternatives)**

The choice of structure to be used for the power lines will be determined in consultation with Eskom and does not significantly affect the environmental impact of the proposed development in any way. In all likelihood use will be made of monopole structures for



the proposed power line. The line must be constructed according to the authorised standards for such a power line approved by Eskom.

The design of a power line is relatively standard, since it is required to conform to Eskom’s technical standards as it forms part of the national electricity supply network and must fit in with the existing network systems, technology and infrastructure. Therefore, no feasible and reasonable alternatives were identified for assessment.

Alternative 1 (preferred alternative)
.
Alternative 2
Alternative 3

**e) No-go alternative**

This is the option of not constructing the Garob to Kronos power line. This option is assessed as the “no go alternative” in this Basic Assessment Report (Appendix F).

Paragraphs 3 – 13 below should be completed for each alternative.

**3. PHYSICAL SIZE OF THE ACTIVITY**

**a) Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):**

**Alternative**

Alternative A1<sup>2</sup> (preferred activity alternative):

Alternative A2 (if any)

Alternative A3 (if any)

**Size of the activity:**

This is a linear activity

m<sup>2</sup>

m<sup>2</sup>

or, for linear activities:

**Alternative:**

**Alternative A1** (preferred activity alternative): power line

**Alternative A2** (preferred activity alternative):

**Length of the activity:**

14km

m

<sup>2</sup> “Alternative A..” refer to activity, process, technology or other alternatives.

Alternative A3 (preferred activity alternative) ):

m
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**b) Indicate the size of the alternative sites or servitudes (within which the above footprints will occur)**

A corridor of 300m wide has been assessed through the BAR process.

Alternative:

Alternative A1 (preferred activity alternative)

Size of servitude:

Servitude of 36m will be required along the 14km length of the power line.
--

Alternative A1 (preferred activity alternative)

m <sup>2</sup>
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Alternative A3 (if any)

m <sup>2</sup>
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**4. SITE ACCESS**

Does ready access to the site exist?

YES ✓	
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If NO, what is the distance over which a new access road will be built

m
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Describe the type of access road planned:

The power line also follows the R357 for most of its length for the southern section of the line. Where new access roads are required, these will be short distances of gravel road of approximately 6 meters in width during construction. During operation and maintenance "jeep" tracks would be required
--

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

**5. LOCALITY MAP**

An A3 locality map must be attached to the back of this document, as Appendix A. The scale of the locality map must be relevant to the size of the development (at least 1:50 000. For linear activities of more than 25 km, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map.). The map must indicate the following:

- an accurate indication of the project site position as well as the positions of the alternative sites, if any;
- indication of all the alternatives identified;

- closest town(s);
- road access from all major roads in the area;
- road names or numbers of all major roads as well as the roads that provide access to the site(s);
- all roads within a 1km radius of the site or alternative sites; and
- a north arrow;
- a legend; and
- locality GPS co-ordinates (Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection).

A locality map has been included as part of this report as **Appendix A**.

## 6. LAYOUT/ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as Appendix A to this document.

The site or route plans must indicate the following:

- the property boundaries and numbers of all the properties within 50 metres of the site;
- the current land use as well as the land use zoning of the site;
- the current land use as well as the land use zoning each of the properties adjoining the site or sites;
- the exact position of each listed activity applied for (including alternatives);
- servitude(s) indicating the purpose of the servitude;
- a legend; and
- a north arrow.

A corridor plan has been included as part of this report as **Appendix A**.

## 7. SENSITIVITY MAP

The layout/route plan as indicated above must be overlain with a sensitivity map that indicates all the sensitive areas associated with the site, including, but not limited to:

- watercourses;
- the 1:100 year flood line (where available or where it is required by DWA);
- ridges;
- cultural and historical features;

- areas with indigenous vegetation (even if it is degraded or infested with alien species); and
- critical biodiversity areas.

The sensitivity map must also cover areas within 100m of the site and must be attached in Appendix A.

A sensitivity map has been included as part of this report in **Appendix A**.

## 8. SITE PHOTOGRAPHS

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under Appendix B to this report. It must be supplemented with additional photographs of relevant features on the site, if applicable.

Site photographs have been included as part of this report as **Appendix B**.

## 9. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of at least 1:200 as Appendix C for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.

A facility illustration has been included as part of this report as **Appendix C**.

## 10. ACTIVITY MOTIVATION

Motivate and explain the need and desirability of the activity (including demand for the activity):

<b>1. Is the activity permitted in terms of the property's existing land use rights?</b>	<input type="checkbox"/>	No ✓	Please explain
Environmental authorisation is required to construct this 132 kV overhead power line. The activity is a linear infrastructure that will cross various properties. A servitude will be required to be registered across these properties.			
<b>2. Will the activity be in line with the following?</b>			
<b>(a) Provincial Spatial Development Framework (PSDF)</b>	<input checked="" type="checkbox"/>	YES ✓	Please explain
The Northern Cape Province Spatial Development Framework (NCPSDF) makes reference to the need to ensure the availability of inexpensive energy. The section notes that in order to promote economic growth in the Northern Cape the availability of electricity to key industrial users at critical localities at rates that enhance the			

<p>competitiveness of their industries must be ensured. At the same time, the development of new sources of energy through the promotion of the adoption of energy applications that display a synergy with the province's natural resource endowments must be encouraged. In this regard the NCPSDF notes "the development of energy sources such as solar energy, the natural gas fields, bio-fuels, etc., could be some of the means by which new economic opportunity and activity is generated in the Northern Cape". The NCPSDF also highlights the importance of close co-operation between the public and private sectors in order for the economic development potential of the Northern Cape to be realised. The proposed project will facilitate the connection of the Garob Wind Energy facility to the electricity grid, which will contribute towards this objective.</p>			
<p><b>(b) Urban edge / Edge of Built environment for the area</b></p>	<input type="checkbox"/>	<p>NO ✓</p>	<p>Please explain</p>
<p>The proposed power line is located approximately 10 km east of the town of Copperton, and ~35 km south west of the town of Prieska in the Northern Cape Province. The power line corridor is located outside an urban area.</p>			
<p><b>(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).</b></p>	<input type="checkbox"/>	<p>YES ✓</p>	<p>Please explain</p>
<p>The main IDP and SDP objective of the Pixley ka Seme District Municipality is to provide access to electricity to all households in the district by 2014. To achieve this, the district aims at fast-tracking the delivery of free basic electricity and co-ordinate the maintenance and upgrading of existing electricity infrastructure. The project will not compromise any IDP it will assist it in reaching its objectives as it will assist in supporting the local electricity supply through strengthening of power to the Kronos Substation.</p> <p>It is expected that construction would start by 2014. The success of the project will create upliftment of the community through the required Economic Development initiatives as stated in the RfP (Request for proposal) of the REIPPP (Renewable Energy Independent Power Producer Programme) which currently are:</p> <ul style="list-style-type: none"> <li>» Local community ownership in the Wind Project (2.5% threshold value)</li> <li>» Sustainable Economic Development initiatives (1% of project revenue, threshold value)</li> </ul> <p>These initiatives are for the proposed Garob Wind Energy Facility. The benefits are in relation to the wind farm however, the power line will have an indirect benefit to the community as the proposed power line will connect from the onsite substation at the Garob Wind Farm to the Kronos Substation.</p>			
<p><b>(d) Approved Structure Plan of the Municipality</b></p>	<input type="checkbox"/>	<p>YES ✓</p>	<p>Please explain</p>
<p>The municipality aims at ensuring that all citizens have access to basic services such as electricity. The project will assist it in reaching this as it will assist in supporting the local electricity supply through strengthening of power to the Kronos Substation.</p>			

It is expected that construction would start by 2014. The success of the project will create upliftment of the community through the required Economic Development initiatives as stated in the RfP (Request for proposal) of the REIPPP (Renewable Energy Independent Power Producer Programme) which currently are:

- » Local community ownership in the Wind Project (2.5% threshold value)
- » Sustainable Economic Development initiatives (1% of project revenue, threshold value)

These initiatives are for the proposed Garob Wind Energy Facility. The benefits are in relation to the wind farm however, the power line will have an indirect benefit to the community as the proposed power line will connect from the onsite substation at the Garob Wind Farm to the Kronos Substation.

**(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)**

NO ✓

Please explain

There is no EMF for the study area. However, an Integrated Environmental Management Programme was compiled by the Pixley ka Seme District Municipality to ensure that land use decision making must be taken with adequate environmental resource information in order to ensure sustainable and appropriate environmental management to the benefit of its residents. One of the set goals for the Plan is ensuring that all environmental issues are appropriately addressed. This is achieved through this Basic Assessment process being undertaken in terms of the requirements of NEMA.

The power line will be supporting the renewable energy project and will indirectly contribute to clean energy generation as a sustainable resource and holds significant benefits for the local region and the country as a whole. Renewable resources generally operate from an unlimited resource base and, as such, can increasingly contribute towards a long-term sustainable energy future. The project aims at achieving the set goals for the Plan through addressing all possible environmental issues associated with the development and addressing measures to mitigate environmental issues.

It is expected that construction would start by 2014. The success of the project will create upliftment of the community through the required Economic Development initiatives as stated in the RfP (Request for proposal) of the REIPPP (Renewable Energy Independent Power Producer Programme) which currently are:

- » Local community ownership in the Wind Project (2.5% threshold value)
- » Sustainable Economic Development initiatives (1% of project revenue, threshold value)

These initiatives are for the proposed Garob Wind Energy Facility. The benefits are in relation to the wind farm however, the power line will have an indirect benefit to the community as the proposed power line will connect from the onsite substation at the

Garob Wind Farm to the Kronos Substation.			
<b>(f) Any other Plans (e.g. Guide Plan)</b>		NO ✓	Please explain
<b>3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?</b>	YES ✓		Please explain
<p>The main IDP and SDF objective of the Pixley ka Seme District Municipality is to provide access to electricity to all households in the district by 2014. The main purpose of the power line is to connect the proposed Garob Wind Energy Facility to the electricity grid at the Kronos Substation. The project will therefore assist through upliftment of the community through the required Economic Development initiatives as stated in the RfP (Request for proposal) of the REIPPP (Renewable Energy Independent Power Producer Programme) which currently are:</p> <ul style="list-style-type: none"> <li>» Local community ownership in the Wind Project (2.5% threshold value)</li> <li>» Sustainable Economic Development initiatives (1% of project revenue, threshold value) increase electricity supply through strengthening of power to the Kronos Substation.</li> </ul>			
<b>4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)</b>	YES ✓		Please explain
<p>The main purpose of the power line is to connect the proposed Garob Wind Energy Facility to the electricity grid. The project will assist in supporting the local electricity supply through strengthening of power to the Kronos Substation. This will benefit the local community.</p> <p>It is expected that construction would start by 2014. The success of the project will create upliftment of the community through the required Economic Development initiatives as stated in the RfP (Request for proposal) of the REIPPP (Renewable Energy Independent Power Producer Programme) which currently are:</p> <ul style="list-style-type: none"> <li>» Local community ownership in the Wind Project (2.5% threshold value)</li> <li>» Sustainable Economic Development initiatives (1% of project revenue, threshold value)</li> </ul> <p>These initiatives are for the proposed Garob Wind Energy Facility. The benefits are in relation to the wind farm however, the power line will have an indirect benefit to the community as the proposed power line will connect from the onsite substation at the Garob Wind Farm to the Kronos Substation.</p>			
<b>5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant</b>	YES ✓		Please explain

<p><b>Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</b></p>			
<p>All the services needed for the project have been adequately provided for and should any need for other services arise the relevant authority will be communicated with.</p>			
<p><b>6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</b></p>		<p>NO ✓</p>	<p>Please explain</p>
<p>The proposed project is to be developed by a private developer (i.e. Garob Wind Farm) and not the municipality. It therefore does not fall within the infrastructure planning of the municipality. The project will not have any implications for the municipality.</p>			
<p><b>7. Is this project part of a national programme to address an issue of national concern or importance?</b></p>	<p>YES ✓</p>		<p>Please explain</p>
<p>The current electricity imbalances in South Africa highlight the significant role that renewable energy can play in terms of power supplementation. Given that renewables can generally be deployed in a decentralised manner close to consumers, they offer the opportunity for improving grid strength and supply quality, while reducing expensive transmission and distribution losses. At present, South Africa is some way off from exploiting the diverse gains from renewable energy and from achieving a considerable market share in the industry. In order to meet the long-term goal of a sustainable renewable energy industry, a target of 17.8 GW of renewables by 2030 has been set by the Department of Energy (DoE) within the Integrated Resource Plan (IRP) 2010 and incorporated in the IPP Procurement Programme. This energy will be produced from various renewable energy technologies including solar energy facilities (i.e. such as PV or CPV technology). The proposed project will facilitate the connection of the Garob Wind Energy Facility to the electricity grid.</p>			
<p><b>8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)</b></p>	<p>YES ✓</p>		<p>Please explain</p>
<p>In terms of Eskom's requirements, the wind energy facility is required to connect the Garob Wind Energy Facility to the existing Eskom Kronos Substation. The proposed power line corridor is considered to be the most appropriate routing of this infrastructure, taking technical and environmental (social and biophysical) issues into consideration.</p>			
<p><b>9. Is the development the best practicable environmental option for this land/site?</b></p>	<p>YES ✓</p>		<p>Please explain</p>
<p>The power line will be connecting the Garob Wind Energy Facility (renewable energy project) to the national electricity grid. The site for the proposed Garob Wind Energy Facility was determined through the consideration of technical, economic and environmental criteria and is considered to be the best practicable environmental option for the wind farm. In terms of Eskom's requirements, the wind energy facility is</p>			



<p>required to connect to the existing Eskom Kronos Substation. The proposed power line corridor is considered to be the most appropriate routing of this infrastructure, taking technical and environmental (social and biophysical) issues into consideration. The specialist studies undertaken as part of this Basic Assessment conclude that the development of the 132kV power line within the corridor investigated will have low environmental impacts.</p>			
<p><b>10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?</b></p>	<p>YES ✓</p>	<p><input type="checkbox"/></p>	<p>Please explain</p>
<p>The specialist studies undertaken as part of this Basic Assessment conclude that the development of the 132kV power line within the corridor investigated will have low environmental impacts. The proposed project will facilitate the connection of the Garob Wind Energy Facility to the national grid thereby facilitating the transmission of renewable energy and the upliftment of the local community through social economic development initiatives. This will have a positive impact at a local, regional and national level.</p>			
<p><b>11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?</b></p>	<p>YES ✓</p>	<p><input type="checkbox"/></p>	<p>Please explain</p>
<p>The proposed power line is supporting infrastructure to the Garob Wind Energy Facility. There are similar developments being proposed in the area which have received environmental authorisations; however none have been developed yet in the area that require a power line of any significant length. Other transmission infrastructure has been developed in the area and includes substations and transmission lines. It is considered that the precedent for the development of renewable energy projects and transmission infrastructure in this area and within this Municipality has already been set, and local support has been shown by landowners and the Municipality. Any other similar activities in the area would depend on the feasibility of developing additional renewable energy facilities (thus requiring power lines). The other proposed renewable energy in the Copperton area (other than the proposed Garob Wind Energy Facility) includes the following: Nelspoortje Wind Energy Facility (developer - Plan 8), Klipgats pan Solar Energy facility (developer - Mulilo) and Plat Sjambok Solar and Wind Energy Facility (developer - Mainstream).</p>			
<p><b>12. Will any person's rights be negatively affected by the proposed activity/ies?</b></p>	<p><input type="checkbox"/></p>	<p>NO ✓</p>	<p>Please explain</p>
<p>Private landowners will be affected by the proposed project. These landowners have been consulted by the developer and the EAP and are aware of the proposed project.</p>			
<p><b>13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?</b></p>	<p><input type="checkbox"/></p>	<p>NO ✓</p>	<p>Please explain</p>
<p>The site is located approximately 10 km east of the town of Copperton, and ~35 km south west of the town of Prieska in the Northern Cape Province. The power line is proposed to be located outside of an urban area.</p>			
<p><b>14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?</b></p>	<p>YES ✓</p>	<p><input type="checkbox"/></p>	<p>Please explain</p>
<p>As the 17 strategic Integrated Projects promotes balanced economic development, Unlock economic opportunities, promote mineral extraction and beneficiation, address socio-economic needs, promote job creation and help integrate human settlements and</p>			

economic development. The development of the 132kV power line will assist in promoting balanced economic development, economic opportunity, assist in achieving socio-economic needs, promote jobs through job creation and assist with economic development. The proposed 132kV power line from a construction perspective will give people living in the area opportunities to gain employments which would address the socio economic needs of individuals. The power line in operation will provide an increase of electricity supply in the Northern cape which will enable rural areas without electricity with power

It is expected that construction would start by 2014. The success of the project will create upliftment of the community through the required Economic Development initiatives as stated in the RfP (Request for proposal) of the REIPPP (Renewable Energy Independent Power Producer Programme) which currently are:

- » Local community ownership in the Wind Project (2.5% threshold value)
- » Sustainable Economic Development initiatives (1% of project revenue, threshold value)

These initiatives are for the proposed Garob Wind Energy Facility. The benefits are in relation to the wind farm however, the power line will have an indirect benefit to the community as the proposed power line will connect from the onsite substation at the Garob Wind Farm to the Kronos Substation.

<b>15. What will the benefits be to society in general and to the local communities?</b>	Please explain
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The main purpose of the power line is to connect the proposed Garob Wind Energy Facility to the electricity grid. The project will assist in supporting the local electricity supply through strengthening of power to the Kronos Substation. This will benefit the local community as well as at a national level.

It is expected that construction would start by 2014. The success of the project will create upliftment of the community through the required Economic Development initiatives as stated in the RfP (Request for proposal) of the REIPPP (Renewable Energy Independent Power Producer Programme) which currently are:

- » Local community ownership in the Wind Project (2.5% threshold value)
- » Sustainable Economic Development initiatives (1% of project revenue, threshold value)

These initiatives are for the proposed Garob Wind Energy Facility. The benefits are in relation to the wind farm however, the power line will have an indirect benefit to the community as the proposed power line will connect from the onsite substation at the Garob Wind Farm to the Kronos Substation.

<b>16. Any other need and desirability considerations related to the proposed activity?</b>	Please explain
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<b>17. How does the project fit into the National Development Plan for 2030?</b>	Please explain
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By 2030 South Africa aims to reduce carbon emissions, promote economic development and increase the GDP. To achieve this, the Province has aimed to

improve Infrastructure and Basic Services; Socio-economic Development; Institutional Transformation; Good Governance and Public Participation; Financial viability and Management. This power line will assist in reducing the carbon footprint, as it will be transporting energy gathered from a renewable energy project (Wind) and it will be facilitating the infrastructure growth in the area, through employment and increasing infrastructure.

**18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.**

According to Section 23 of NEMA, appropriate environmental management tools must be utilised to ensure the integrated environmental management of activities. The potential impacts of the proposed project and the alternatives have been investigated to avoid impacts and minimise the possible harm on the environment. Furthermore, socio-economic conditions and cultural heritage were also taken into consideration.

**19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.**

Section 2 of NEMA states that environmental management must place people and their needs at the forefront, and serve their physical, psychological, developmental, cultural and social interests equitably. These principles of NEMA include the following:

- » Development must be sustainable;
- » Pollution must be avoided or minimised and remedied;
- » Waste must be avoided or minimised, reused or recycled;
- » Negative impacts must be minimised; and
- » Responsibility for the environmental health and safety consequences of a policy, project, product or service exists throughout its life cycle.

The principles of NEMA have been considered in this assessment through compliance with the requirements of the relevant legislation in undertaking the assessment of potential impacts, as well as through the implementation of the principle of sustainable development where appropriate mitigation measures have been recommended for impacts which cannot be avoided. In addition, the successful implementation and appropriate management of this proposed project will aid in achieving the principle of minimisation of pollution and environmental degradation.

This process has been undertaken in a transparent manner and all effort has been made to involve interested and affected parties, stakeholders and relevant Organs of State such that an informed decision regarding the project can be made by the Regulating Authority.

## 11. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations, if applicable. Refer to **Table 1.4** below.

**Table 1.4** : Relevant legislative and permitting requirements applicable to the proposed power line

<i>Legislation</i>	<i>Applicable Requirements</i>	<i>Relevant Authority</i>	<i>Compliance requirements</i>
<b>National Legislation</b>			
National Environmental Management Act (Act No. 107 of 1998)	<p>The Basic Assessment Regulations have been promulgated in terms of Chapter 5 of the Act. Listed activities which may not commence without an environmental authorisation are identified within these Regulations.</p> <p>In terms of S24(1) of NEMA, the potential impact on the environment associated with these listed activities must be assessed and reported on to the competent authority charged by NEMA with granting of the relevant environmental authorisation.</p> <p>In terms of GN R543, R544 and R546 of 18 June 2010, a Basic Assessment Process is required to be undertaken for the proposed project.</p>	<ul style="list-style-type: none"> <li>» National Department of Environmental Affairs</li> <li>» Northern Cape Department of Environment and Nature Conservation (DENC)</li> </ul>	<ul style="list-style-type: none"> <li>» The listed activities triggered by the proposed substation have been identified and assessed in the Basic Assessment Process being undertaken. This Basic Assessment Report will be submitted to the competent and commenting authority in support of the application for authorisation.</li> <li>» The Final BA Report is submitted to the DEA for review and decision making.</li> <li>» The NC DENC will act as the commenting authority.</li> </ul>
National Environmental Management Act (Act No. 107 of 1998)	<ul style="list-style-type: none"> <li>» A project proponent is required to consider a project holistically and to consider the cumulative effect of</li> </ul>	<ul style="list-style-type: none"> <li>» National Department of Environmental Affairs</li> </ul>	<ul style="list-style-type: none"> <li>» While no permitting or licensing requirements arise directly, the holistic consideration of the potential</li> </ul>

<b>Legislation</b>	<b>Applicable Requirements</b>	<b>Relevant Authority</b>	<b>Compliance requirements</b>
	<p>potential impacts.</p> <ul style="list-style-type: none"> <li>» In terms of the Duty of Care provision in S28(1) the project proponent must ensure that reasonable measures are taken throughout the life cycle of this project to ensure that any pollution or degradation of the environment associated with a project is avoided, stopped or minimised.</li> </ul>		<p>impacts of the proposed project has found application in the environmental process.</p> <ul style="list-style-type: none"> <li>» The implementation of mitigation measures are included as part of the Draft EMP and will continue to apply throughout the life cycle of the project.</li> </ul>
National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	<ul style="list-style-type: none"> <li>» In terms of the Biodiversity Act, the developer has a responsibility for:                             <ul style="list-style-type: none"> <li>* The conservation of endangered ecosystems and restriction of activities according to the categorisation of the area (not just by listed activity as specified in the EIA regulations).</li> <li>* The application of appropriate environmental management tools to ensure integrated environmental management of activities.</li> <li>* Limit further loss of biodiversity and conserve endangered ecosystems.</li> </ul> </li> <li>» In terms of S57, a person may not carry out a restricted activity</li> </ul>	<ul style="list-style-type: none"> <li>» National Department of Environmental Affairs</li> </ul>	<ul style="list-style-type: none"> <li>» As the applicant will not carry on any restricted activity in terms of S57, no permit is required to be obtained in this regard.</li> <li>» A permit would be required for the protected/listed plant species found on site to be disturbed or destroyed because of the proposed development.</li> </ul>

<b>Legislation</b>	<b>Applicable Requirements</b>	<b>Relevant Authority</b>	<b>Compliance requirements</b>
	<p>involving a specimen of a listed threatened or protected species without a permit issued in terms of Chapter 4. In this regard the Minister of Environmental Affairs has published a list of critically endangered, endangered, vulnerable, and protected species in GNR 151 in Government Gazette 29657 of 23 February 2007 and the regulations associated therewith in GNR 152 in GG29657 of 23 February 2007, which came into effect on 1 June 2007.</p> <p>» In terms of S75, (1) the control and eradication of a listed invasive species must be carried out by means of methods that are appropriate for the species concerned and the environment in which it occurs. (2) Any action taken to control and eradicate a listed invasive species must be executed with caution and in a manner that may cause the least possible harm to biodiversity and damage to the environment. (3) The methods employed to control and eradicate a listed invasive species must also be directed at the offspring, propagating material and re-growth of such</p>		

<b>Legislation</b>	<b>Applicable Requirements</b>	<b>Relevant Authority</b>	<b>Compliance requirements</b>
	<p>invasive species in order to prevent such species from producing offspring, forming seed, regenerating, or re-establishing itself in any manner.</p> <ul style="list-style-type: none"> <li>» In terms of GNR 152 of 23 February 2007: regulations relating to listed threatened and protected species, the relevant specialists must be employed during the EIA Phase to incorporate the legal provisions as well as the regulations associated with listed threatened and protected species (GNR 152) into specialist reports in order to identify permitting requirements.</li> <li>» In terms of GNR 1477 of 2009: Draft National List of Threatened Ecosystems published under S52(1)(a) of the Act provides for the listing of threatened or protected ecosystems based on national criteria. The list of threatened terrestrial ecosystems supersedes the information regarding terrestrial ecosystem status in the National Spatial Biodiversity Assessment (2004).</li> <li>» GNR1187 Amendment of Critically Endangered, Endangered, Vulnerable</li> </ul>		

<b>Legislation</b>	<b>Applicable Requirements</b>	<b>Relevant Authority</b>	<b>Compliance requirements</b>
	and Protected Species List published under S56 (1) of the Act.		
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)	<ul style="list-style-type: none"> <li>» The Minister may by notice in the Gazette publish a list of waste management activities that have, or are likely to have, a detrimental effect on the environment.</li> <li>» In terms of the regulations published in terms of this Act (GN 718), a Basic Assessment or Environmental Impact Assessment is required to be undertaken for identified listed activities.</li> <li>» Any person who stores waste must at least take steps, unless otherwise provided by this Act, to ensure that                             <ul style="list-style-type: none"> <li>(a) The containers in which any waste is stored, are intact and not corroded or in any other way rendered unfit for the safe storage of waste;</li> <li>(b) Adequate measures are taken to prevent accidental spillage or leaking;</li> <li>(c) The waste cannot be blown away;</li> <li>(d) Nuisances such as odour, visual impacts and breeding of vectors do not arise; and</li> <li>(e) Pollution of the environment and harm to health are prevented.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>» National Department of Water and Environmental Affairs</li> <li>» Provincial Department of Environmental Affairs</li> </ul>	<ul style="list-style-type: none"> <li>» As no waste disposal site is to be associated with the proposed project, no permit is required in this regard.</li> <li>» Waste handling, storage and disposal during construction and operation is required to be undertaken in accordance with the requirements of this Act, as detailed in the EMP.</li> <li>» The volumes of waste to be generated and stored on the site during construction and operation of the power line will not require a waste license (provided these remain below the prescribed thresholds).</li> </ul>



<b>Legislation</b>	<b>Applicable Requirements</b>	<b>Relevant Authority</b>	<b>Compliance requirements</b>
National Environmental Management: Air Quality Act (Act No. 39 of 2004)	<ul style="list-style-type: none"> <li>» S18, S19 and S20 of the Act allow certain areas to be declared and managed as "priority areas"</li> <li>» Declaration of controlled emitters (Part 3 of Act) and controlled fuels (Part 4 of Act) with relevant emission standards</li> <li>» The Act provides that an air quality officer may require any person to submit an atmospheric impact report if there is reasonable suspicion that the person has failed to comply with the Act.</li> </ul>	<ul style="list-style-type: none"> <li>» National Department of Environmental Affairs</li> <li>» Provincial Department of Environmental Affairs</li> </ul>	<ul style="list-style-type: none"> <li>» While no permitting or licensing requirements arise from this legislation, this Act will find application during the construction phase of the project.</li> </ul>
National Water Act (Act No. 36 of 1998)	<ul style="list-style-type: none"> <li>» Under S21 of the act, water uses must be licensed unless such water use falls into one of the categories listed in S22 of the Act or falls under the general authorisation.</li> <li>» In terms of S19, the project proponent must ensure that reasonable measures are taken throughout the life cycle of this project to prevent and remedy the effects of pollution to water resources from occurring, continuing, or recurring.</li> </ul>	<ul style="list-style-type: none"> <li>» National Department of Water Affairs</li> <li>» Department of Water Affairs</li> </ul>	<ul style="list-style-type: none"> <li>» A general permitting or licensing is a requirements from this legislation for river and wetland crossings. However, if the wetlands and rivers can be avoided or spanned by the proposed power line no licence will be needed.</li> </ul>
Environment Conservation Act (Act No. 73 of 1989)	<ul style="list-style-type: none"> <li>» National Noise Control Regulations (GN R154 dated 10 January 1992)</li> </ul>	<ul style="list-style-type: none"> <li>» National Department of Environmental Affairs</li> <li>» Local Authorities</li> </ul>	<ul style="list-style-type: none"> <li>» There is no requirement for a noise permit in terms of the legislation.</li> <li>» Any noisy activities carried out during the construction phase that could</li> </ul>

<b>Legislation</b>	<b>Applicable Requirements</b>	<b>Relevant Authority</b>	<b>Compliance requirements</b>
			<p>present an intrusion impact to the local community should be limited to 6:00am to 6:00pm Monday – Saturday (excluding public holidays).</p> <p>» Should these specific activities need to be undertaken outside of these times, the surrounding communities will need to be notified and appropriate approval will be obtained from the DEA and the Local Municipality.</p>
Minerals and Petroleum Resources Development Act (Act No. 28 of 2002)	<p>» A mining permit or mining right may be required where a mineral in question is to be mined (i.e. materials from a borrow pit) in accordance with the provisions of the Act.</p> <p>» Requirements for Environmental Management Programmes and Environmental Management Plans are set out in S39 of the Act.</p>	» Department of Minerals and Energy	» As no borrow pits are expected to be required, no mining permit or mining right is required to be obtained.
National Heritage Resources Act (Act No. 25 of 1999)	<p>» S38 states that Heritage Impact Assessments (HIAs) are required for certain kinds of development including</p> <p>» The construction of a road, power line, pipeline, canal or other similar linear development or barrier exceeding 300 m in length;</p>	» South African Heritage Resources Agency	» A permit may be required should heritage sites be unearthed on site during the construction phase. The HIA conducted that the findings were of low significance.

<b>Legislation</b>	<b>Applicable Requirements</b>	<b>Relevant Authority</b>	<b>Compliance requirements</b>
	<ul style="list-style-type: none"> <li>» Any development or other activity which will change the character of a site exceeding 5 000 m<sup>2</sup> in extent</li> <li>» The relevant Heritage Authority must be notified of developments such as linear developments (i.e. roads and power lines), bridges exceeding 50 m, or any development or other activity which will change the character of a site exceeding 5 000 m<sup>2</sup>; or the re-zoning of a site exceeding 10 000 m<sup>2</sup> in extent. This notification must be provided in the early stages of initiating that development, and details regarding the location, nature and extent of the proposed development must be provided.</li> <li>» Stand alone HIAs are not required where an EIA is carried out as long as the EIA contains an adequate HIA component that fulfils the provisions of S38. In such cases only those components not addressed by the EIA should be covered by the heritage component.</li> </ul>		
National Forests Act (Act No. 84 of 1998)	<ul style="list-style-type: none"> <li>» In terms of S5(1) no person may cut, disturb, damage or destroy any protected tree or possess, collect,</li> </ul>	<ul style="list-style-type: none"> <li>» National Department of Forestry</li> </ul>	<ul style="list-style-type: none"> <li>» None are likely to occur on site.</li> </ul>

<b>Legislation</b>	<b>Applicable Requirements</b>	<b>Relevant Authority</b>	<b>Compliance requirements</b>
	<p>remove, transport, export, purchase, sell donate or in any other manner acquire or dispose of any protected tree or any forest product derived from a protected tree, except under a license granted by the Minister to an (applicant and subject to such period and conditions as may be stipulated”.</p> <p>» GN 1042 provides a list of protected tree species.</p>		
National Veld and Forest Fire Act (Act 101 of 1998)	<p>» Provides requirements for veldfire prevention through firebreaks and required measures for fire-fighting. Chapter 4 places a duty on landowners to prepare and maintain firebreaks, and Chapter 5 places a duty on all landowners to acquire equipment and have available personnel to fight fires.</p> <p>» In terms of S21 the applicant would be obliged to burn firebreaks to ensure that should a veldfire occur on the property, that it does not spread to adjoining land.</p> <p>» In terms of S12 the firebreak would need to be wide and long enough to have a reasonable chance of preventing the fire from spreading, not causing erosion, and is</p>	» National Department of Forestry	» While no permitting or licensing requirements arise from this legislation, this act will find application during the operational phase of the project in terms of fire prevention and management.

<b>Legislation</b>	<b>Applicable Requirements</b>	<b>Relevant Authority</b>	<b>Compliance requirements</b>
	<p>reasonably free of inflammable material.</p> <p>» In terms of s17, the applicant must have such equipment, protective clothing, and trained personnel for extinguishing fires.</p>		
Hazardous Substances Act (Act No. 15 of 1973)	<p>» This Act regulates the control of substances that may cause injury, or ill health, or death due to their toxic, corrosive, irritant, strongly sensitising, or inflammable nature or the generation of pressure thereby in certain instances and for the control of certain electronic products. To provide for the rating of such substances or products in relation to the degree of danger; to provide for the prohibition and control of the importation, manufacture, sale, use, operation, modification, disposal or dumping of such substances and products.</p> <p>» Group I and II: Any substance or mixture of a substance that might by reason of its toxic, corrosive etc., nature or because it generates pressure through decomposition, heat or other means, cause extreme risk of injury etc., can be declared to be Group I or Group II hazardous</p>	» Department of Health	» It is necessary to identify and list all the Group I, II, III, and IV hazardous substances that may be on the site and in what operational context they are used, stored or handled.

<b>Legislation</b>	<b>Applicable Requirements</b>	<b>Relevant Authority</b>	<b>Compliance requirements</b>
	substance; » Group IV: any electronic product; » Group V: any radioactive material. » The use, conveyance, or storage of any hazardous substance (such as distillate fuel) is prohibited without an appropriate license being in force.		
<b>Provincial Legislation</b>			
Northern Cape Nature Conservation Act, Act No. 9 of 2009	This Act provides for the sustainable utilisation of wild animals, aquatic biota and plants; provides for the implementation of the Convention on International Trade in Endangered Species of Wild Fauna and Flora; provides for offences and penalties for contravention of the Act; provides for the appointment of nature conservators to implement the provisions of the Act; and provides for the issuing of permits and other authorisations. Amongst other regulations, the following may apply to the current project: » Boundary fences may not be altered in such a way as to prevent wild animals from freely moving onto or off of a property; » Aquatic habitats may not be destroyed or damaged; » The owner of land upon which an invasive species is found (plant or	» Provincial Department of Environmental Affairs	» Permitting or licensing requirements may arise from this legislation for the proposed activities to be undertaken for the proposed project.

<b>Legislation</b>	<b>Applicable Requirements</b>	<b>Relevant Authority</b>	<b>Compliance requirements</b>
	<p>animal) must take the necessary steps to eradicate or destroy such species.</p> <p>» The Act provides lists of protected species for the Province.</p>		

## 12.WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

### a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?

YES ✓	
Minimal volumes. Exact volumes unknown at this stage	

If YES, what estimated quantity will be produced per month?

How will the construction solid waste be disposed of (describe)?

It is anticipated that construction waste will be comprised mainly of spoil material from clearing activities as well as metal and cabling off-cuts. Immediately non-biodegradable waste will be trucked to the nearest registered waste disposal facility for appropriate disposal or recycling.

Where will the construction solid waste be disposed of (describe)?

In order to comply with legal requirements should there be excess solid construction waste after recycling options have been exhausted, the waste will be transported to a licenced waste disposal facility for appropriate disposal.

Will the activity produce solid waste during its operational phase?

	NO ✓

If YES, what estimated quantity will be produced per month?

How will the solid waste be disposed of (describe)?

If the solid waste will be disposed of into a municipal waste stream, indicate which registered landfill site will be used.

Where will the solid waste be disposed of if it does not feed into a municipal waste stream (describe)?



*If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.*

Can any part of the solid waste be classified as hazardous in terms of the NEM:WA?

YES	NO
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If YES, inform the competent authority and request a change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

Is the activity that is being applied for a solid waste handling or treatment facility?

YES	NO
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If YES, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

**b) Liquid effluent**

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?

	NO ✓
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If YES, what estimated quantity will be produced per month?

m <sup>3</sup>
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Will the activity produce any effluent that will be treated and/or disposed of on site?

	NO ✓
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*If YES, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.*

Will the activity produce effluent that will be treated and/or disposed of at another facility?

	NO ✓
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If YES, provide the particulars of the facility:

<b>Facility name:</b>			
<b>Contact person:</b>			
<b>Postal address:</b>			
<b>Postal code:</b>			
<b>Telephone:</b>	<b>Cell:</b>		
<b>E-mail:</b>	<b>Fax:</b>		

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

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**c) Emissions into the atmosphere**

Will the activity release emissions into the atmosphere other than exhaust emissions and dust associated with construction phase activities?

	NO ✓
--	------

If YES, is it controlled by any legislation of any sphere of government?

--	--

If YES, the applicant must consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If NO, describe the emissions in terms of type and concentration:

During the construction phase, it is expected that there will be short term dust generation and emissions from vehicles and machinery. However the dust and emissions will have a medium- to short-term duration and have limited impact in terms of extent and severity. The extent of the impact will be restricted to the power line servitude. Appropriate dust suppression measures will be implemented to reduce the impacts. It is recommended that construction vehicles will be serviced and kept in good mechanical condition to minimise possible exhaust emissions.

**d) Waste permit**

Will any aspect of the activity produce waste that will require a waste permit in terms of the NEM:WA?

	NO ✓
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If YES, please submit evidence that an application for a waste permit has been submitted to the competent authority

**e) Generation of noise**

Will the activity generate noise?

YES ✓	
NO ✓	

If YES, is it controlled by any legislation of any sphere of government?

If YES, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If NO, describe the noise in terms of type and level:

Short term noise impacts are anticipated during the construction phase of the project. It is however anticipated that the noise will be localised. All construction equipment must be maintained and kept in good working order to minimise associated noise impacts. Should construction work be required to be undertaken outside of these times, surrounding sensitive receptors should be timeously informed. The applicant must adhere to the relevant noise control legislation as well as SANS 10103 (The measurement and rating of environmental noise with respect to land use, health, annoyance and to speech communication').

### 13 WATER USE

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es):

Municipal	Water board	Groundwater	River, stream, dam or lake	Other	<b>The activity will use water</b> ✓
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If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:

Does the activity require a water use authorisation (general authorisation or water use license) from the Department of Water Affairs?

	NO ✓

If YES, please provide proof that the application has been submitted to the Department of Water Affairs.

### 14. ENERGY EFFICIENCY

Describe the design measures, if any, that have been taken to ensure that the activity is energy efficient:

N/A
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Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

N/A
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## SECTION B: SITE/AREA/PROPERTY DESCRIPTION

### Important notes:

- For linear activities (pipelines, etc.) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section B and indicate the area, which is covered by each copy No. on the Site Plan.

Section B Copy No. (e.g. A):

- Paragraphs 1 - 6 below must be completed for each alternative.

- Has a specialist been consulted to assist with the completion of this section?

YES	<input type="checkbox"/>
✓	<input checked="" type="checkbox"/>

If YES, please complete the form entitled "Details of specialist and declaration of interest" for each specialist thus appointed and attach it in Appendix I. All specialist reports must be contained in Appendix D.

**Property description/  
physical address:**

<b>Province</b>	Northern Cape Province
<b>District Municipality</b>	Pixley ka Seme
<b>Local Municipality</b>	Siyathemba Local Municipality
<b>Ward Number(s)</b>	Ward 4
<b>Farm name and number</b>	Nelspoortje Farm 103 Farm Hoekplaas Farm Humansrus Klipgats pan 117
<b>Portion number</b>	See below in SG Code
<b>SG Code</b>	<ul style="list-style-type: none"> <li>Farm Nelspoortje 103 portion 5 - S G Code C06000000000010300005.</li> <li>Farm Hoekplaas Reminder of portion 146- SG Code: C06000000000014600000,</li> <li>Farm Humansrus reminder of Portion 147 - SG Code C06000000000014700000,</li> <li>Farm Klipgats Pan 117 portion 4- SG Code C06000000000011700004 and, Farm Klipgats pan 117 portion 7 - SG Code C06000000000011700007.</li> </ul>

Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application including the same information as indicated above.

**Current land-use zoning as per local municipality IDP/records:**

Livestock farming (Agriculture)

In instances where there is more than one current land-use zoning, please attach a list of current land use zonings that also indicate which portions each use pertains to, to this application.

Is a change of land-use or a consent use application required?

	NO ✓
--	------

**1. GRADIENT OF THE SITE**

Indicate the general gradient of the site.

**Alternative S1:**

<b>Flat</b>	1:50 –	1:20 –	1:15 –	1:10 –	1:7,5 –	Steeper than 1:5
✓	1:20	1:15	1:10	1:7,5	1:5	

**Alternative S2 (if any):**

Flat	1:50 –	1:20 –	1:15 –	1:10 –	1:7,5 –	Steeper than 1:5
	1:20	1:15	1:10	1:7,5	1:5	

**Alternative S3 (if any):**

Flat	1:50 –	1:20 –	1:15 –	1:10 –	1:7,5 –	Steeper than 1:5
	1:20	1:15	1:10	1:7,5	1:5	

**2. LOCATION IN LANDSCAPE**

Indicate the landform(s) that best describes the site:

2.1 Ridgeline			2.4 Closed valley		2.7 Undulating plain / low hills
2.2 Plateau			2.5 Open valley		2.8 Dune
2.3 Side slope of hill/mountain			<b>2.6 Plain</b>	✓	2.9 Seafront

### 3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site(s) located on any of the following?

	Alternative S1:		Alternative S2 (if any):		Alternative S3 (if any):	
Shallow water table (less than 1.5m deep)	<input type="checkbox"/>	NO ✓	YES	NO	YES	NO
Dolomite, sinkhole or doline areas	<input type="checkbox"/>	NO ✓	YES	NO	YES	NO
Seasonally wet soils (often close to water bodies)	<input type="checkbox"/>	NO ✓	YES	NO	YES	NO
Unstable rocky slopes or steep slopes with loose soil	<input type="checkbox"/>	NO ✓	YES	NO	YES	NO
Dispersive soils (soils that dissolve in water)	<input type="checkbox"/>	NO ✓	YES	NO	YES	NO
Soils with high clay content (clay fraction more than 40%)	<input type="checkbox"/>	NO ✓	YES	NO	YES	NO
Any other unstable soil or geological feature	<input type="checkbox"/>	NO ✓	YES	NO	YES	NO
An area sensitive to erosion	<input type="checkbox"/>	NO ✓	YES	NO	YES	NO

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted.

### 4. GROUNDCOVER

Indicate the types of groundcover present on the site. The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Natural veld - good condition <sup>E</sup> ✓	Natural veld with scattered aliens <sup>E</sup>	Natural veld with heavy alien infestation <sup>E</sup>	Veld dominated by alien species <sup>E</sup>	Gardens
Sport field	Cultivated land	Paved surface	Building or other structure	Bare soil

If any of the boxes marked with an "E" is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn't have the necessary expertise.

## 5. SURFACE WATER

Indicate the surface water present on and or adjacent to the site and alternative sites?

Perennial River		NO ✓	
Non-Perennial River	YES ✓		
Permanent Wetland		NO ✓	
Seasonal Wetland		NO ✓	
Artificial Wetland		NO ✓	
Estuarine / Lagoonal wetland		NO ✓	

If any of the boxes marked YES or UNSURE is ticked, please provide a description of the relevant watercourse.

Between the proposed substation on the Garob Wind Farm and the first bend the line, the route traverses a large drainage basin through which water occasionally moves, there is however no clearly defined drainage channel. Additionally, towards the Kronos substation the route traverses a depression with an open drainage course at the bottom. These areas are adjacent to the roads and may be attributed to storm water runoff.

## 6. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that currently occur within a 500m radius of the site and give description of how this influences the application or may be impacted upon by the application:

<b>Natural area</b> ✓	Dam or reservoir	Polo fields
Low density residential	Hospital/medical centre	Filling station <sup>H</sup>
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential <sup>A</sup>	Church	<b>Agriculture</b> ✓
Retail commercial & warehousing	Old age home	River, stream or wetland
Light industrial	Sewage treatment plant <sup>A</sup>	Nature conservation area
Medium industrial <sup>AN</sup>	Train station or shunting	Mountain, koppie or ridge

	yard N	
Heavy industrial <sup>AN</sup>	Railway line N	Museum
Power station	Major road (4 lanes or more) N	Historical building
Office/consulting room	Airport <sup>N</sup>	Protected Area
Military or police base/station/compound	Harbour	Graveyard
Spoil heap or slimes dam <sup>A</sup>	Sport facilities	Archaeological site
Quarry, sand or borrow pit	Golf course	Other: <b>R357</b>

If any of the boxes marked with an "N" are ticked, how will this impact / be impacted upon by the proposed activity?

N/A

If any of the boxes marked with an "AN" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

N/A

If any of the boxes marked with an "H" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

N/A

Does the proposed site (including any alternative sites) fall within any of the following:

Critical Biodiversity Area (as per provincial conservation plan)		NO ✓
Core area of a protected area?		NO ✓
Buffer area of a protected area?		NO ✓
Planned expansion area of an existing protected area?		NO ✓
Existing offset area associated with a previous Environmental Authorisation?		NO ✓
Buffer area of the SKA?	YES ✓	

If the answer to any of these questions was YES, a map indicating the affected area must be included in Appendix A.

## 7. CULTURAL/HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as  YES  NO ✓



defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including Archaeological or paleontological sites, on or close (within 20m) to the site? If YES, explain:	
The impacts on heritage resources by the proposed development are not considered to be highly significant. The recorded sites that will potentially be impacted on are all of low significance	

If uncertain, conduct a specialist investigation by a recognised specialist in the field (archaeology or palaeontology) to establish whether there is such a feature(s) present on or close to the site. Briefly explain the findings of the specialist:

Find spot 12, 13, 14, 18 and background scatter 086, 089,090 are located within the power line corridor and will potentially be impacted on. These sites are all of low significance and are sufficiently recorded. No further mitigation will be necessary as the impact of the pylon positions are considered to be extremely low and comparative material will remain on the unaffected areas of the site. If any possible finds such as tool scatters, bone or fossil remains are exposed or noticed during construction, the operations must be stopped and a qualified archaeologist must be contacted to assess the find.

Will any building or structure older than 60 years be affected in any way?	<input type="checkbox"/> NO ✓
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	<input type="checkbox"/> NO ✓

If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.

## 8. SOCIO-ECONOMIC CHARACTER

### a) Local Municipality

Please provide details on the socio-economic character of the local municipality in which the proposed site(s) are situated.

### ***Level of unemployment:***

According to the Census 2001 data the unemployment rate in the Pixley ka Seme District Municipality (PKSDM) was 21% and the rate for the Siyathemba Local Municipality (SLM) was 14%. The unemployment rates in each of the 8 Local Municipalities in the PKSDM. In terms of employment the agricultural sector was the most important economic sector in the PKSDM accounting for ~ 39 % of the total working population. The commercial services sector accounted for ~ 23 % of the employment opportunities. These two sectors combined therefore accounted for ~ 62 % of all the employment opportunities in the area.

Although the PKSDM only had an official unemployment rate of ~ 21%, household income levels in the region are low. In this regard ~ 64% of households had an income of R1 000 or less per month compared to the Northern Cape average of 54% of households below this level. The figure for the SLM is ~ 64%. The PKSDM also has the highest percentage of households (48%) in the Northern Cape Province that earn less than R800 per month, which is regarded as the poverty breadline in South Africa.

### ***Economic profile of local municipality:***

The main settlements in the SLM are the towns of Prieska, Marydale, Niekerkshoop, Draghoender and Copperton. The town of Prieska, which is the administrative seat of the SLM, is located on the southern bank of the Gariep, approximately 35 km north east of the proposed Garob Wind Energy Facility site and power line corridor. Prieska is by far the largest town in the SLM, and functions as the leader town in the SLM. The town promotes itself as "the gem of the Northern Cape", based on its setting at the foot of the Doringberg, within the Gariep valley, and surrounded by large scale irrigation agriculture operations along the Gariep.

While relatively isolated (>100 km from the nearest medium-sized town), Prieska has good access to the main railway line to Namibia, good tarred road connections to Upington (249 km along the N10), Kimberley (238 km along the R386/ N8) and De Aar (~180 km along the N10), two landing strips for light aircraft, and a number of inexpensive industrial stands some with rail siding facilities. The Prieska area is known for its high quality semiprecious stones, specifically tiger's eye. Marydale and Niekerkshoop are second tier towns. Both are small towns. Marydale benefits from its location along the N10 (Upington-De Aar), municipal service centres, schools and other public facilities.

As in the PKSDM, key activities in the SLM are related to primary sector activities, mainly agriculture and mining. Little local beneficiation takes place. Tourism and game farming (mainly for hunting) are significant emerging land uses.

**Level of education:**

Based on Census 2001 data, ~ 25 % of the PKSMD population had no education, while 35% only had primary level of qualifications. Of the total population only 5.0 % had gained a matric qualification and 2.6% had a degree. The figures are essential the same for the SLM, namely 26% and 35% respectively. The education levels in the region are low and can be attributed to the rural nature of the area together with the substantial number of previously disadvantaged population groups who did not have equal access to education in the past era.

According to the Municipal Profiles of 2002, the primary school population represented 46.3 % of the total population of the district. There are 49 primary schools and 18 secondary schools and combined schools in the district. While the actual number of schools is generally satisfactory there is an acute shortage of schools in the remote areas of the district. As a result children often have to walk long distances to reach schools.

**b) Socio-economic value of the activity**

What is the expected capital value of the activity on completion?	R28 million for the power line alone.
What is the expected yearly income that will be generated by or as a result of the activity?	This is confidential information.
Will the activity contribute to service infrastructure?	Eskom dependant
Is the activity a public amenity?	no
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	Unsure at this stage
What is the expected value of the employment opportunities during the development and construction phase?	Unsure at this stage
What percentage of this will accrue to previously disadvantaged individuals?	Unsure at this stage
How many permanent new employment opportunities will be created during the operational phase of the activity?	Unsure at this stage
What is the expected current value of the employment opportunities during the first 10 years?	Unsure
What percentage of this will accrue to previously disadvantaged individuals?	Unsure at this stage

## 9 BIODIVERSITY

Please note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed activity/ies. To assist with the identification of the biodiversity occurring on site and the ecosystem status consult <http://bgis.sanbi.org> or [BGIShelp@sanbi.org](mailto:BGIShelp@sanbi.org). Information is also available on compact disc (cd) from the Biodiversity-GIS Unit, Ph (021) 799 8698. This information may be updated from time to time and it is the applicant/ EAP's responsibility to ensure that the latest version is used. A map of the relevant biodiversity information (including an indication of the habitat conditions as per (b) below) and must be provided as an overlay map to the property/site plan as Appendix D to this report.

- a) **Indicate the applicable biodiversity planning categories of all areas on site and indicate the reason(s) provided in the biodiversity plan for the selection of the specific area as part of the specific category)**

Systematic Biodiversity Planning Category				If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan
Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	Other Natural Area (ONA) ✓	No Natural Area Remaining (NNR)	

- b) **Indicate and describe the habitat condition on site**

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
Natural	94%	The majority of the site is natural vegetation in a relatively good condition. Livestock grazing has had some impact on the vegetation cover and composition. There is some bush thickening by species such as <i>Acacia mellifera</i> and <i>Rhigozum trichotomum</i> which has reduced the grazing capacity in some parts of the site.
	<5%	There are some areas invaded by the woody alien

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
Near Natural (includes areas with low to moderate level of alien invasive plants)		invader <i>Prosopis glandulosa</i> , especially the lowlands and around watering points.
Degraded (includes areas heavily invaded by alien plants)	0%	N/A
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	<1%	There is little transformation in the area and the only transformed areas at the site are from roads, power line servitudes and the water pipeline to Copperton. There is a very small amount of intensive agriculture around the Nelspoortje homestead.

**c) Complete the table to indicate:**

- (i) the type of vegetation, including its ecosystem status, present on the site; and
- (ii) whether an aquatic ecosystem is present on site.

Terrestrial Ecosystems		Aquatic Ecosystems					
Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	Critical	Wetland (including rivers, depressions, channelled and unchannelled wetlands, flats, seeps pans, and artificial wetlands)					
	Endangered						
	Vulnerable						
	Least Threatened						
	✓	NO ✓				NO ✓	NO ✓

**d) Please provide a description of the vegetation type and/or aquatic ecosystem present on site, including any important biodiversity features/information identified on site (e.g. threatened species and special habitats)**

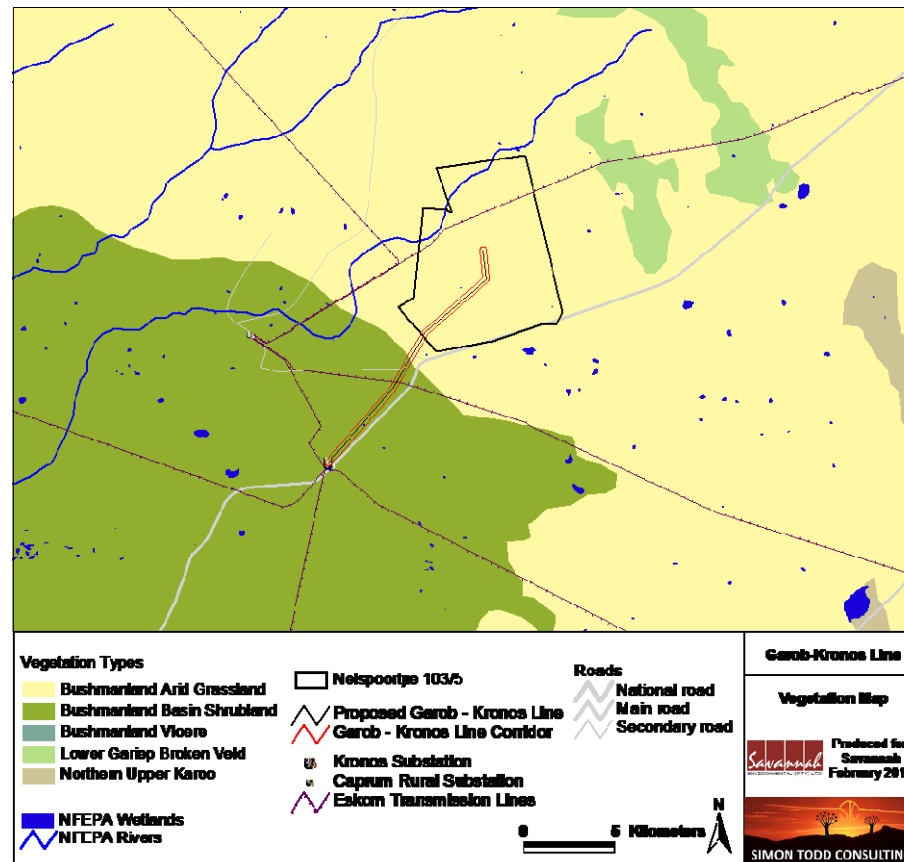
The proposed power line traverses two vegetation types, i.e. Bushmanland Arid Grassland and Bushmanland Basin Shrubland (Figure 3 below). These are both extensive vegetation types that have not been impacted to a large degree by transformation.

Bushmanland Arid Grassland is associated largely with red-yellow apedal (without structure), freely drained soils, with a high base status and mostly less than 300 mm deep. Due the arid nature of the unit which receives between 70mm and 200 mm annual rainfall, it has not been significantly impacted by intensive agriculture and more than 99% of the original extent of the vegetation type is still intact and its' conservation status is classified as Least Threatened. Mucina & Rutherford (2006) list 6 endemic species for the vegetation type which is relatively few given the extensive nature of the vegetation type.

The area is characterized by slightly irregular plains dominated by dwarf woody shrubs, with succulent shrubs or perennial grasses in places. The geology consists largely of mudstones and shales of the Ecca group and Dwyka tillites with occasional dolerite intrusions. Soils are largely shallow to non-existent, with calcrete present in most areas.

Only two listed plant species are known from the area, i.e. *Hoodia gordonii* which is listed as DDD (data deficient, insufficient information) and *Salsola apiciflora* which is listed DDT (Data Deficient – Taxonomically Problematic). Neither of these species were observed in the corridor

A few notable edaphic specialists (plants that grow in a particular soil) (were observed at the site such as *Titanopsis calcarea* which is restricted to areas of exposed calcrete gravel and was not observed within the development footprint; *Lithops hallii* which was observed on several of the quartzitic hills within the corridor and may occur in the vicinity of the power line. Both these species are currently listed as Least Concern, but as they are edaphic specialists they should be avoided where possible. A number of other species protected under provincial legislation were also observed within the corridor including *Pachypodium succulentum*, *Mestoklema tuberosum*, *Tritonia laxifolia*, *Aloe claviflora* and *Avonia ustulata*, all of which are associated with the rocky hills. None of these species are however very rare and most of them are suitable candidates for search and rescue and so any affected individuals within the development footprint could be translocated to safety.



**Figure 3.** Broad-Scale Overview Of The Vegetation In And Around The Proposed Garob - Kronos Power Line. The Vegetation Map Is An Extract Of The National Vegetation Map As Produced By Mucina & Rutherford (2006), And Also Includes Rivers, Pans And Wetlands Delineated By The National Freshwater Ecosystem Priority Areas Assessment (Nel *Et Al.* 2011).

## SECTION C: PUBLIC PARTICIPATION

### 1. ADVERTISEMENT AND NOTICE

<b>Publication name</b>	Volksblad (28 March 2013 ) & Gemsbok (27 March 2013)	
<b>Date published</b>	Volksblad (28 March 2013 ) & Gemsbok (27 March 2013)	
<b>Site notice position</b>	<b>Latitude</b>	<b>Longitude</b>
	29 °57' 27.25" S	22° 25'04.49" E
<b>Date placed</b>	5 December 2012	

Include proof of the placement of the relevant advertisements and notices.

### 2. DETERMINATION OF APPROPRIATE MEASURES

Provide details of the measures taken to include all potential I&APs as required by Regulation 54(2)(e) and 54(7) of GN R.543.

The public consultation process has included the publishing of notices regarding the proposed project as well as the distribution of notification letters to identified I&APs. Affected and neighbouring landowners will be consulted through one-on-one consultation sessions and via telephone.

The public participation conducted for the Wind Energy Farm (DEA) also included the public participation for the proposed power line corridor. This included;

- A public meeting held on 06 December 2012 at the Nelspoortje Karoo Guest Farm
- Focus Group meetings held on 06 December 2012 at the Siyathemba Local Municipality, Victoria Street, Prieska
- A Department of Water Affairs site meeting held on 05 December 2012 at the Garob Wind Farm
- Site Notices were placed ( refer to photographs in Appendix E1)
- An advertisement was placed to notify the interested and affected parties of the availability of the Draft BAR (refer to Appendix E1)
- Stakeholder letters were sent interested and affected parties, organs of State and Landowners, informing them of the project and availability of the Draft BAR (refer to Appendix E2)
- Proof of distribution of the Draft Bar (refer to Appendix E2)
- A reminder email was sent to inform stakeholders, organs or state that the comment period was going to expire soon (refer to Appendix E2).



Key stakeholders (other than organs of state) identified in terms of Regulation 54(2) (b) of GN R.543:

<b>Title, Name and Surname</b>	<b>Affiliation/ key stakeholder status</b>	<b>Contact details (tel number or e-mail address)</b>
Pieter Fourie	Nelspoortje (Landowner)	
HG Human	Humansrus (Landowner)	
Maria Johanna Human	Hoekplaas (Landowner)	
Jemima Josina Bernard	Klipgats Pan (Landowner)	

Include proof that the key stakeholder received written notification of the proposed activities as Appendix E2. This proof may include any of the following:

- e-mail delivery reports;
- registered mail receipts;
- courier waybills;
- signed acknowledgements of receipt; and/or
- or any other proof as agreed upon by the competent authority.

### **3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES**

A public meeting was held at the Nelspoortje Karoo Guest Farm on Wednesday, 06 December 2012 at 16:00. The meeting presented the findings of the draft EIA report for the Garob Wind Energy Facility as well as the details of the proposed Garob to Kronos power line. No comments have been received to date on the proposed project. Refer to Appendix E 6 for the minutes of the meeting and the attendance register.

Any comments received during the review period of the draft Basic Assessment Report as well as responses provided will be captured and recorded within the Comments and Response Report to be attached as Appendix E 3 in the final Basic Assessment Report.

<b>Summary of main issues raised by I&amp;APs</b>	<b>Summary of response from EAP</b>
<p>Department of Agriculture, Forestry and Fisheries (DAFF)</p> <p>Page 69 refers to loss of vegetation during the construction phase and the proposed mitigation. Although not mitigation per se, the DAFF suggests that a bullet point be included stating that no protected flora may be damaged or disturbed without the</p>	<p>A bullet was added to the report (on page).</p>

<p>necessary permit and/or license as was indicated on pages 86 and 87 of the report.</p>	
<p>South African National Roads Agency Limited (SANRAL) - Western Region</p> <p>It appears as if the N10 National Road will not be affected by this application</p>	<p>Comments noted</p>
<p>SKA South Africa</p> <ul style="list-style-type: none"> <li>» In order to reduce any potential risk on the SKA, we advise that the lowest (in terms of height) transmission line support structure possible is used. Previous assessments conducted with ESKOM indicate that structure heights of between 12m and 18m are available. The SKA would prefer use of the 12m structure;</li> <li>» Any transmitters that are to be established, or have been established, at the site for the purposes of voice and data communication will be required to comply with the relevant AGA regulations concerning the restriction of use of the radio frequency spectrum that applies in the area concerned;</li> <li>» The South African SKA Project Office would like to be kept informed of progress with this project, and reserves the right to further risk assessments at a later stage.</li> </ul>	<p>Comments have been noted.</p>

<p>South African Heritage Resources Agency (SAHRA)</p> <p>Considering the information provided in the Heritage Impact Assessment Report, SAHRA has no objection to the proposed development on heritage grounds and no further heritage studies are required. If any new evidence of archaeological sites or artefacts, palaeontological fossils, graves or other heritage resources is identified during development, construction or mining, work must cease and SAHRA must be contacted immediately.</p>	<p>Comments noted.</p>
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All comments received and responses received were captured and recorded within the comments and Response Report attached in Appendix E 3.

#### **4. COMMENTS AND RESPONSE REPORT**

The practitioner must record all comments received from I&APs and respond to each comment before the Final BAR is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to the Final BAR as Appendix E3.

The Comments and Responses Report is attached in Appendix E 3.

## 5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

Authority/Organ of State	Title	Contact person (Name and Surname)	Tel No	Fax No	e-mail	Postal address
BirdLife South Africa		Hanneline Smit				
BirdLife South Africa		Carolyn Ah Shene-Verdoorn				
Department of Agriculture, Forestry & Fisheries		Jacoline Mans				
Department of Agriculture, Forestry & Fisheries		Mashudu Marubani				
Department of Agriculture, Forestry & Fisheries		Thoko Buthelezi				
Department of Energy		The Director: Northern Cape				
Department of Energy		DDG: Programmes and Projects				
Department of Mineral Resources		Ntsundeni Ravhugoni				
Department of Rural Development and Land Reform		Debbie Khan				
Department of Science and Technology		Nombuyiselo Mokoena				
Department of Water Affairs		Mashudu Ranwedzi				
Department of Water Affairs		A Abrahams				
Department of Water Affairs		Tocky Ngobeni				
Eskom		John Geeringh				
Northern Cape Department of Agriculture,		Ali Diteme				

Authority/Organ of State	Title	Contact person (Name and Surname)	Tel No	Fax No	e-mail	Postal address
Land Reform & Rural Development						
Northern Cape Department of Agriculture, Land Reform and Rural Development		Sipho Mbaqa				
Northern Cape Department of Environment and Nature Conservation		Thulani Mthombeni				
Northern Cape Department of Environment and Nature Conservation		Denver van Heerden				
Northern Cape Department of Environment and Nature Conservation		J Mutyorauta				
Northern Cape Department of Environment and Nature Conservation		Christene Pienaar				
Northern Cape Department of Roads and Public Works		Mr. HP Greef				
Northern Cape Department of Roads and Public Works		Kholikile Nogwili				
Northern Cape Department of Roads and Public Works		Kenneth Markman				
Northern Cape Provincial Heritage Resources Agency		Andrew Timothy				
Pixely Ka Seme District Municipality		Sandisile Madayo				
Pixely Ka Seme District Municipality		Maccollan Jack				
Pixely Ka Seme District Municipality		Simphiwe Naude				
Save the Eagles International: South Africa		Maaike Kallenborn				

Authority/Organ of State	Title	Contact person (Name and Surname)	Tel No	Fax No	e-mail	Postal address
Siyathemba Local Municipality		Johann Badenhorst				
Siyathemba Local Municipality		Ragel Horn				
Siyathemba Local Municipality		Jakob Basson				
Siyathemba Local Municipality		Heinrich Nieuwenhuizen				
Siyathemba Local Municipality		Elizabeth Martin				
South African Civil Aviation Authority		Lizell Stroh				
South African Heritage Resources Agency (SAHRA)		Mariagrazia Galimberti				
South African Heritage Resources Agency (SAHRA)		Kathryn Smuts				
South African Heritage Resources Agency (SAHRA)		Colette Scheermeyer				
South African National Roads Agency Limited		Colene Runkel				
South African National Roads Agency Limited		JC van der Walt				
Square Kilometre Array (SKA): South Africa		Adrian Tiplady				
Transnet		Krishna Reddy				
Wildlife and Environment Society of South Africa (WESSA)		Suzanne Erasmus				

The Authorities and Organs of State received written notification of the proposed activities.

In the case of renewable energy projects, Eskom and the SKA Project Office must be included in the list of Organs of State.

## 6. CONSULTATION WITH OTHER STAKEHOLDERS

A focus group meeting was held with the Siyathemba Local Municipality on Wednesday, 06 December 2012 at 10:00 Siyathemba Local Municipality, Victoria Street, Prieska. The meeting presented the findings of the draft EIA report for the Garob Wind Energy Facility as well as details of the proposed Garob to Kronos power line. No comments have been received to date on the proposed project. Refer to Appendix E6 for the minutes of the meeting and the attendance register.

In addition, a meeting with the Department of Water Affairs was held on the Garob Wind Energy Facility on 05 December 2012. Minutes of this meeting are attached in Appendix E 6.

A notification letter was sent to interested and affected parties, organs of state and landowners informing them of the project and the availability of the Draft BAR. In addition, a reminder email was also sent to notify the interested and affected parties, organs of state and landowners that the comment period was ending soon. Proof of the distribution of the Draft BAR has been included in Appendix E2.

Note that, for any activities (linear or other) where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that sub-regulation to the extent and in the manner as may be agreed to by the competent authority.

Proof of any such agreement must be provided, where applicable. Application for any deviation from the regulations relating to the public participation process must be submitted prior to the commencement of the public participation process.

**See Appendix E5 for I&AP database**

A list of registered I&APs included as appendix E5.

Copies of any correspondence and minutes of any meetings held must be included in Appendix E6.

## **SECTION D: IMPACT ASSESSMENT**

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2010, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

### **1. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE**

The assessment of impacts considers all components of the proposed project, i.e.:

- » Construction of the 132kV power line; and
- » Associated infrastructures such as access roads, a temporary lay down area, etc.

The extent of the infrastructure required is as follows:

- » 132kV power line (36m wide servitude and up to 14 km in length);
- » Temporary Lay-down area;
- » Access road (up to 4-8m wide).

The sections which follow provide a summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed. This impact assessment is applied to all the identified alternatives to the activities identified in Section A (2) of this report.

Provide a summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential



impacts listed. This impact assessment must be applied to all the identified alternatives to the activities identified in Section A (2) of this report.

Activity	Impact summary	Significance	Proposed mitigation
<b>Alternative 1 (Option 1)</b>			
<b>PLANNING AND DESIGN PHASE</b>			
Use of vehicles during field survey	<b>Direct impacts:</b>		
	Roads and vegetation damage	Medium	Make use of existing access roads only
	<b>Indirect impacts:</b>		
	N/A	N/A	N/A
	<b>Cumulative impacts:</b>		
N/A	N/A	N/A	
<b>CONSTRUCTION PHASE</b>			
Site clearing for construction/placement of: » Access roads; » Foundations; » Underground cabling; » Steel framework i.e. towers or poles.	<b>Direct impacts:</b>		
	Loss of vegetation and erosion	Medium	» Vegetation clearing to be kept to a minimum. No unnecessary vegetation to be cleared. » The final development area should be surveyed By an appropriately qualified ecologist for species suitable for search and rescue, which should be translocated prior to the commencement of construction. » No collection of plants or plant parts to be allowed by construction personnel. The ECO should provide environmental induction to all construction staff to ensure that they are aware of this and other environmental sensitivities at the site. » No fuelwood collection should be allowed on-site » <u>No plant under either the NFA and TOPS will be disturbed or damaged unless a permit in terms of the above mentioned acts has been received.</u>

Activity	Impact summary	Significance	Proposed mitigation
	Fauna will be impacted by the development as a result of construction activities and human presence at the site.	Medium	<ul style="list-style-type: none"> <li>» Any fauna directly threatened by the construction activities should be removed to a safe location by the ECO or other suitably qualified person.</li> <li>» The collection, hunting or harvesting of any plants or animals at the site should be strictly forbidden. Personnel should not be allowed to wander off the construction site.</li> <li>» If the site must be lit at night for security purposes, this should be done with low-UV type lights (such as most LEDs), which do not attract insects.</li> <li>» All hazardous materials should be stored in the appropriate manner to prevent contamination of the site. Any accidental chemical, fuel or oil spills that occur at the site should be cleaned up in the appropriate manner as related to the nature of the spill.</li> <li>» No unauthorized persons should be allowed onto the site.</li> <li>» All construction vehicles should adhere to a low speed limit to avoid collisions with susceptible species such as snakes and tortoises.</li> </ul>
	Disturbance and the construction activities are likely to result in habitat degradation, impact on biodiversity as well as deter fauna from moving through the area	Low	<ul style="list-style-type: none"> <li>» Hardened surfaces should be kept to a minimum</li> <li>» Roads should be as narrow as possible and as short as possible. A natural surface such as gravel would be preferable to a tarred or concrete road, except in very steep areas where it would be difficult to prevent erosion of natural surfaces.</li> <li>» Should a service road beneath the power line be required, this should be restricted to a track and a</li> </ul>

Activity	Impact summary	Significance	Proposed mitigation
			formal cleared road should not be necessary, especially through the rocky hills and drainage lines. <ul style="list-style-type: none"> <li>» Vegetation should be allowed to remain alongside or encroach on the roads as much as possible.</li> <li>» Temporary lay-down areas should be in previously transformed areas or areas that will be used by the development.</li> <li>» Regular monitoring for erosion during construction to ensure that no erosion problems have developing as result of the construction disturbance.</li> <li>» All erosion problems observed to be associated with the project should be rectified as soon as possible, using the appropriate erosion control structures and revegetation techniques</li> </ul>
	Disturbance of surfaces and/or sub-surfaces may destroy, damage, alter, or remove from its original position archaeological and paleontological material or objects.  Find spot 12, 13, 14, 18 and background scatter 086, 089,090 are located within the power line corridor and will potentially be impacted.	Medium	<ul style="list-style-type: none"> <li>» Observed sites are all of low significance and are sufficiently recorded and no further mitigation will be necessary as the impact of the pylon positions are considered to be extremely low and comparative material will remain on the unaffected areas of the site.</li> </ul>
	Creation of employment and business opportunities	Low	<ul style="list-style-type: none"> <li>» Maximise the use of local labour for low – semi skilled jobs far as possible.</li> </ul>
	Construction on sensitive visual receptors in close proximity to the proposed power line.	Low	<ul style="list-style-type: none"> <li>» Ensure that vegetation is not unnecessarily removed during the construction period.</li> <li>» Reduce the construction period through careful logistical planning and productive implementation of resources.</li> </ul>

Activity	Impact summary	Significance	Proposed mitigation
			<ul style="list-style-type: none"> <li>» Plan the placement of lay-down areas and temporary construction equipment camps in order to minimise vegetation clearing (i.e. in already disturbed areas) wherever possible.</li> <li>» Restrict the activities and movement of construction workers and vehicles to the immediate construction site and existing access roads.</li> </ul>
<b>Indirect impacts:</b>			
	Irreplaceable loss of archaeological heritage resources.	Low	» N/A
	Once the construction phase is complete, locals employed on the site may not be able to find future employment.	Low	» The developer should implement a training and skills development programme for locals during the first 5 years of the operational phase. The aim of the programme should be to maximise the number of South African's and locals employed during the operational phase of the project.
<b>Cumulative impacts:</b>			
	Possible erosion of areas lower than the access road	Low-Medium	» Cumulative impacts of developments on population viability of species can be reduced significantly if new developments are kept as close as possible to existing developed areas or, where such is not possible, different sections of a development be kept as close together as possible.
	Irreplaceable loss of archaeological heritage resources.	Low	» N/A
	The development together with other project in close proximity serves to increase the potential for job creation.	Low	» N/A

Activity	Impact summary	Significance	Proposed mitigation
» Stripping, levelling and compaction of soil; (power line and access roads) » Drilling/excavations; » Usage of construction equipment and vehicles	<b>Direct impacts:</b>		
	Soil erosion on construction sites due to decreased vegetation cover and increased water run-off	Low	» If it is not possible to retain a good plant cover during construction, technologies should be employed to keep the soil covered by other means, i.e. straw, mulch, erosion control mats, etc., until a healthy plant cover is again established. » Compile and implement an appropriate stormwater management plan.
	Dust production and dust pollution of grazing plants	Low	» Apply dust control measures, e.g. water spraying or use of commercial dust suppressant.
	Contamination and degradation of the soil due to spillages of oil, petrol, diesel and other contaminants used by vehicles and equipment on the site or stored on the site	Low	» Vehicles and equipment must be serviced regularly and maintained in a good operating condition. » Storage of contaminants must be limited to low quantities and done under strict industry standards. » There must be strict control over the safe usage of vehicles and equipment to minimise vehicle accidents and damage to vehicles by rocks and boulders which may cause spillages.
	Disturbance of surfaces and/or sub-surfaces may destroy, damage, alter, or remove from its original position archaeological and paleontological material or objects.	Low	» If concentrations of archaeological heritage material and human remains are uncovered during construction, all work must cease immediately and be reported to the McGregor Museum and/or the South African Heritage Resources Agency (SAHRA) so that systematic and professional investigation/ excavation can be undertaken.
	<b>Indirect impacts:</b>		
Destruction of natural bird habitat on and near site	Medium	» Provide protection for sensitive habitats » Conduct avifaunal walk through to identify these areas	

Activity	Impact summary	Significance	Proposed mitigation
	<b>Cumulative impacts:</b>		
	N/A	Negligible	» N/A
» Storage and usage of hazardous chemicals; » Storage of hazardous waste	<b>Direct impacts:</b>		
	Inappropriate storage of hazardous materials and/or waste may lead to leaching and ground water pollution	Low	» Hazardous material should be properly stored.
	Contamination and degradation of the soil due to spillages of oil, petrol, diesel and other contaminants used by vehicles and equipment on the site or stored on the site	Low	» Vehicles and equipment must be serviced regularly and maintained in a good operating condition. » Storage of contaminants must be limited to low quantities and done under strict industry standards. » There must be strict control over the safe usage of vehicles and equipment to minimise vehicle accidents and damage to vehicles by rocks and boulders which may cause spillages.
	<b>Indirect impacts:</b>		
	<b>Cumulative impacts:</b>		
	Little with the necessary mitigation in place	Negligible	N/A
<b>OPERATION PHASE</b>			
» Maintenance of substationpower line ; » Use of vehicle during maintenance.	<b>Direct impacts:</b>		
	Maintenance or repair activities could impact intact vegetation and individuals of listed or protected plant species.	Low	» Site access should be controlled and only authorised staff and contractors should be allowed on-site. » Notice boards stating that fauna and flora may not be collected, harvested etc should be placed at the entrances to the site. » Any maintenance activities should avoid listed plant species and strive to keep the disturbance footprint as limited as possible. » No herbicides should be used and if vegetation

Activity	Impact summary	Significance	Proposed mitigation
			clearing needs to take place, this should be done by hand. » Although it is not likely to be required, if any taller vegetation needs to be cleared beneath the power line to comply with the Eskom requirements, this should be done by hand and protected species should be avoided where possible. Alternatively, it may be possible to reduce the height of some species by cutting the trees back and allowing them to resprout without destroying them. As the growth rate of important species is very slow, this would not need to be occur very often. Appropriate permits must be obtained before any protected species is pruned or destroyed.
	Electrocution of birds whilst perched or roosting on pylons or towers	Medium	» Use bird friendly pole structures » Conduct avifaunal walk through to identify any high risk areas
	Collision of birds with overhead cables	Medium	» Install anti bird collision line marking devices on high risk sections of power line » Conduct avifaunal walk through to identify these high risk areas
	Damage to roads	Low	» All staff must make use of existing roads
	Potential visual impact on the intrinsic value and sense of place	Low	» Maintain the general appearance of the power line servitude as a whole.
	Visual impact on residents of homesteads and settlements in close proximity to the proposed power line	Low	» Maintain the general appearance of the servitude as a whole.
<b>Indirect impacts</b>			
	The presence of the power line, and associated	Low	» The collection, hunting or harvesting of any plants or

Activity	Impact summary	Significance	Proposed mitigation
	infrastructure will impact fauna as a result of some permanent habitat loss as well as from increased levels of human activity likely to be associated with the operation and maintenance of the infrastructure.		animals at the site should be strictly forbidden. » No unauthorised persons should be allowed onto the site. » All maintenance vehicles should adhere to a low speed limit to avoid collisions with susceptible species such as snakes and tortoises.
	The presence of the infrastructure and the alterations to the habitat will disrupt the connectivity of the landscape for some fauna which may avoid passing through the area and the residual disturbance from the construction phase will leave the site vulnerable to alien plant invasion and erosion.	Medium	» Hardened surfaces should be kept to a minimum » Any new roads required should be as narrow as possible and as short as possible. A natural surface such as gravel would be preferable to a tarred or concrete road. » Vegetation should be allowed to remain alongside or encroach on the roads as much as possible. » Regular monitoring for erosion post-construction to ensure that no erosion problems have developed as result of the past disturbance. » All erosion problems observed should be rectified as soon as possible, using the appropriate erosion control structures and revegetation techniques. » Regular monitoring for alien plant invasion, which is likely to occur in previously disturbed areas or in areas receiving runoff from the hardened surfaces of the infrastructure. » Appropriate measures should be implemented to remove alien vegetation within the development footprint.
	Disturbance of birds on site and in surrounding area	Medium	» Provide protection for sensitive habitats and any breeding sensitive species close to site » Conduct an avifaunal walk through be done as part of



Activity	Impact summary	Significance	Proposed mitigation
			the site specific environmental management plan for this project
	<b>Cumulative impacts:</b>		
	All of the above impacts will also occur at a cumulative level, although collision of birds with the power line will be of most concern.	Medium	» The project specific impact mitigation is mentioned above
<b>DECOMMISSIONING AND CLOSURE PHASE</b>			
» Disassemble power line component according to regulatory requirements » Impacts associated with erosion and alien vegetation invasion. » Disturbed areas will be rehabilitated	<b>Direct impacts:</b>		
	The major social impacts associated with the decommissioning phase are linked to the loss of jobs, in addition, the social impacts associated with final decommissioned are likely to be limited due to the relatively small number of permanent employees affected.  Impacts associated with erosion and alien vegetation invasion.	Low	» The potential impacts associated with the decommissioning phase can also be effectively managed with the implementation of a retrenchment and downscaling programme. With mitigation, the impacts are assessed to be Low (negative).  » Avoid establishment of soil seed bank that would take decades to remove. Remove all alien plants in the project area.
	<b>Indirect impacts:</b>		
	Impacts associated with erosion and alien vegetation invasion.	Low	Establish an on-going monitoring programme to detect and quantify any aliens that may become established
	<b>Cumulative impacts:</b>		
N/A	N/A	N/A	N/A

A complete impact assessment in terms of Regulation 22(2)(i) of GN R.543 has been included as Appendix F.

## 2. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

### Alternative A (preferred alternative)

In order to connect the Garob Wind Energy Facility to the Kronos Substation and thereby connecting to the national electricity grid, Garob Wind Energy Facility (Pty) Ltd is proposing the construction of the following essential infrastructure:

- » The proposed construction of a 132 kV Power Line from the Garob Wind Energy Facility to the Kronos Substation.
- » Access roads along the servitude for construction and operational purposes.

In summary, the following conclusions were drawn from each of the specialist studies undertaken (refer to Appendix D):

- » The majority of impacts on the ecology are of **low** significance. The development site is not highly sensitive and apart from a short section where the power line corridor traverses the rocky hills and some similarly short sections across ephemeral drainage channels there are no highly sensitive plant communities or faunal habitats that are likely to be significantly impacted by the development.

Along the power line some plant species of conservation concern are likely to be encountered, particularly within the section along the rocky hills. This section is however short and the number of affected individuals is likely to be very low. Minor adjustment of the pylon positions would most likely be sufficient to avoid damage to such species. As the rocky hills are considered sensitive both from a fauna and flora perspective, it is recommended that a formal road is not constructed through this area unless the power line cannot be constructed without it.

The major impact resulting from the development is likely to occur during the construction phase, but this would be transient and in the long-term the operational phase of the power line are not likely to generate significant terrestrial ecological impacts.

- » The proposed facility could have a significant impact of **medium** significance on

selected **avifauna** species resident to the surrounding area. The priority species are likely to include Ludwig's Bustard and Sclaters Lark, although the likelihood of either occurring in any abundance on site is low. Other large terrestrial species that are likely to occur in the area include Secretary bird (Near-threatened), and non-threatened species such as Northern Black Korhaan and Karoo Korhaan. Various large raptors such as Verreaux's Eagle could also occur in the area. Greater Kestrel and Southern Pale Chanting Goshawk are medium size raptors that are frequently recorded in the area. These priority species may be disturbed by the construction of the power line, by collision with, or electrocution on the new power line infrastructure. These effects may be reduced to **acceptable and sustainable levels** by adherence to a proposed mitigation scheme which includes the use of bird-friendly towers and the installation of bird diverters on the power line. The areas of higher sensitivity have been identified and indicated on the sensitivity map (Appendix A). These are drainage lines and likely flight paths. These areas will be confirmed and finalised during the avifaunal walk through as recommended.

- » The impacts to heritage resources by the proposed development are not considered to be significant. The recorded sites that will potentially be impacted on are all of **low significance**.
- » The placement of the facility and its associated infrastructure will have a **visual impact** on the natural scenic resources and rural character of this region. Potential visual impacts are **low** in terms of the potential visual impact on users of arterial and secondary roads, residents of homesteads, and sensitive visual receptors in close proximity of the proposed facility. The impact on sensitive visual receptors in the vicinity of the development will be negligible due to the limited number of residents in the study area. The potential visual impact of the proposed power line on the visual quality of the landscape and sense of place of the region is expected to be of **low to negligible** due to the relatively low occurrence of receptors within the region (both residents of homesteads and users of roads) and the existing visual disturbance of the Copperton Mine, the power line infrastructure already present within the region and the future construction of the Garob Wind Energy Facility and other renewable energy facilities.

A cumulative impact, in relation to an activity, refers to the impact of an activity that in itself may not be significant, but may become significant when added to the existing and potential impacts eventuating from similar or diverse undertaking in the area<sup>3</sup>. The Northern Cape is earmarked as a potential solar energy hub for South Africa. The other proposed renewable energy in the Copperton area (other than the proposed

<sup>3</sup> Definition as provided by DEA in the EIA Regulations.

Garob Wind Energy Facility) include the following: Nelspoortje Wind Energy Facility (developer - Plan 8), Klipgats pan Solar Energy facility (developer - Mulilo) and Plat Sjambok Solar and Wind Energy Facility (developer - Mainstream).

The cumulative impacts associated with the establishment and operation of the 132kV power line proposed to connect the Garob Wind Energy Facility to the Kronos Substation is predominantly of **low to medium** significance:

- » Ecology: The potential impact is rated as having a **predominately low** significance. A sensitivity analysis confirmed that the majority of the power line corridor is located in an area of low sensitivity. However, a few small patches of drainage (however these are ephemeral drainage channels) are present in small areas within the corridor. The potential for cumulative impacts is quite low on account of the small development footprint of power line and substation in relation to the overwhelmingly intact nature of the surrounding landscape. The development would contribute a small amount to the cumulative loss of landscape connectivity, but this is not likely to be highly significant when considered at the landscape scale. The operation of the infrastructure would contribute to cumulative disturbance and habitat loss for fauna, but the contribution would be very small and is not considered significant.

The proposed project is considered to be acceptable from an ecological perspective provided that the appropriate mitigation is implemented (as recommended in the ecology specialist report).

- » Heritage: The potential impact is rated as being of low significance as most of the Stone Age archaeology in the study area consists of low densities of scattered (and mixed) Middle Stone Age and Late Stone Age artefacts. These occurrences are referred to as background scatter and are of low significance
- » Visual: The construction of an additional power line, together with the existing power lines to the Kronos and Cuprum substations, the wind turbines of the Garob Wind Energy Facility and the mining activity near Copperton, is likely to increase the potential cumulative visual impact of industrial type infrastructure within the region. However, due to the relatively low occurrence of receptors within the region (both residents of homesteads and users of roads) and the existing visual disturbance of the Copperton Mine, the power line infrastructure would be of **low significance**.
- » Avifauna: The proposed line will possibly affect populations of regionally or nationally threatened (and impact susceptible) birds (mainly large terrestrial species and raptors) likely to occur within or close to the proposed alignment, and the line may have a detrimental impact on these birds, particularly in terms

of collision and electrocution mortality risk, unless commitment is made to mitigating these effects. The cumulative impacts of the construction of new electrical and energy infrastructure in this Copperton area could be quite significant. Grid connection power lines, will remove a significant amount of new perching substrate in this wider area, where natural perches are largely absent. This means that the cumulative electrocution and the cumulative collision risk could be substantial.

Therefore if no mitigation is followed the impacts on birds as a result of the 132kv power line will have a medium significance but if precautionary measures are taken it will be low to moderate. Careful and responsible implementation of the required mitigation measures should reduce impacts to sustainable levels.

There are no environmental or social impacts of high significance that would prevent the establishment of the proposed power line between the Garob Wind Energy Facility wind energy facility and the Kronos Substation. Although areas of sensitivity were identified, no environmental fatal flaws are associated with the proposed project.

Areas of ecological sensitivity that were identified in the power line corridor are regarding vegetation and avifauna sensitivities which are shown in the environmental sensitivity map (refer to Appendix A). Through the implementation of the EMP (Appendix G) it is expected that impacts on these sensitive areas can be mitigated to acceptable levels.

It is the conclusion of the Environmental Assessment Practitioner that the establishment of the power line and associated access roads is considered acceptable from an environmental perspective provided that the recommended mitigation measures are implemented. Based on the nature and extent of the proposed project, the potential impacts associated with the new power line can be mitigated to an acceptable level.

**Alternative B: N/A**

**Alternative C: N/A**

**No-go alternative (compulsory)**

The 'do-nothing' alternative is the option of not constructing the proposed power line. This alternative would result in no environmental impacts on the site or surrounding area. However, this option would result in the situation where the Garob Wind Energy facility cannot be connected to the electricity grid at the connection point stipulated by Eskom. Failure to add the proposed electricity to the national grid would most likely

result in additional consumption of fossil fuels to achieve the same level of electrical generation at other locations in the country. This is because the electricity demand in South Africa is increasing and is placing increasing pressure on the country's existing power generation capacity. There is therefore a need for additional electricity generation options to be developed throughout the country.

The decision to expand South Africa's electricity generation capacity, and the mix of generation technologies is based on national policy and informed by on-going strategic planning undertaken by the national Department of Energy (DoE) and the National Energy Regulator of South Africa (NERSA). The support for renewable energy policy is guided by a rationale that South Africa has a very attractive range of renewable resources, particularly solar and wind and that renewable applications are in fact the least-cost energy service in many cases and more so when social and environmental costs are taken into account.

The generation of electricity from renewable energy in South Africa offers a number of socio-economic and environmental benefits. These benefits are explored in further detail in the South Africa Renewable Energy Feed-in Tariff (REFIT) Regulatory Guideline published by NERSA (March 2009), and include:

- » Increased energy security: The current electricity crisis in South Africa highlights the significant role that renewable energy can play in terms of supplementing the power available. In addition, given that renewables can often be deployed in a decentralised manner close to consumers, they offer the opportunity for improving grid strength and supply quality, while reducing expensive transmission and distribution losses.
- » Resource saving: Conventional coal fired plants are major consumers of water during their requisite cooling processes. It is estimated that the achievement of the targets in the Renewable Energy White Paper will result in water savings of approximately 16.5 million kilolitres, where compared with wet cooled conventional power stations. This translates into revenue saving of R26.6 million. As an already water stressed nation, it is critical that South Africa engages in a variety of water conservation measures, particularly as the detrimental effects of climate change on water availability are experienced in the future.
- » Exploitation of our significant renewable energy resource: At present, valuable national resources (including biomass by-products, solar insolation and wind) remain largely unexploited. The use of these energy flows will strengthen energy security through the development of a diverse energy portfolio.
- » Pollution reduction: The release of by-products of fossil fuel burning for electricity generation has a particularly hazardous impact on human health, and contribute to ecosystem degradation.
- » Climate friendly development: The uptake of renewable energy offers the

opportunity to address energy needs in an environmentally responsible manner, contributing to the mitigation of climate change through the reduction of greenhouse gas emissions. South Africa as a nation is estimated to be responsible for 1% of global GHG emissions and is currently ranked 9th worldwide in terms of per capita CO<sub>2</sub> emissions.

- » Support for international agreements and enhanced status within the international community: The effective deployment of renewable energy provides a tangible means for South Africa to demonstrate its commitment to its international agreements under the Kyoto Protocol, and for cementing its status as a leading player within the international community.
- » Employment creation: The sale, development, installation, maintenance and management of renewable energy facilities has significant potential for job creation in South Africa.
- » Acceptability to society: Renewable energy offers a number of tangible benefits to society including reduced pollution concerns, improved human and ecosystem health and climate friendly development.
- » Support to a new industry sector: The development of renewable energy offers an opportunity to establish a new industry within the South African economy.
- » Protecting the natural foundations of life for future generations: Actions to reduce our disproportionate carbon footprint can play an important part in ensuring our role in preventing dangerous anthropogenic climate change; thereby securing the natural foundations of life for generations to come.

At present, South Africa is some way off from exploiting the diverse gains from renewable energy and from achieving a considerable market share in the renewable energy industry. South Africa's electricity supply remains heavily dominated by coal based power generation, with the country's significant renewable energy potential largely untapped to date.

The support for renewable energy policy is guided by the need to address climate change as well as a rationale that South Africa has a very attractive range of renewable resources, particularly solar and wind and that renewable applications are in fact the least-cost energy service in many cases - and more so when social and environmental costs are taken into account. The development of renewable energy as part of South Africa's electricity generation mix is supported by National Policy through the Integrated Resource Plan (IRP) 2010.

The 'do nothing' alternative will not assist the South African government in addressing climate change, in reaching the set targets for renewable energy as detailed in the IRP, nor will it assist in supplying the increasing electricity demand within the country. In addition the Northern Cape power supply will be deprived of an opportunity to benefit from the additional generated power being evacuated directly into the Provinces' grid. This is considered to be a lost opportunity on a national scale. **The 'do nothing**

**alternative is, therefore, not a preferred alternative.**



## SECTION E. RECOMMENDATION OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?

YES ✓

If "NO", indicate the aspects that should be assessed further as part of a Scoping and EIA process before a decision can be made (list the aspects that require further assessment).

If "YES", please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application.

The construction of the proposed power line should be implemented according to the EMPr (Appendix G) to adequately mitigate and manage potential impacts associated with construction activities. The construction activities and relevant rehabilitation of disturbed areas should be monitored against the approved EMPr, the Environmental Authorisation and all other relevant environmental legislation. Relevant conditions to be adhered to include:

### **Design, Construction, and Decommissioning Phases:**

- » All relevant practical and reasonable mitigation measures detailed within this report must be implemented.
- » The draft Environmental Management Programme (EMPr) as contained within **Appendix G** of this report should form part of the contract with the Contractors appointed to construct and maintain the proposed substation, and will be used to ensure compliance with environmental specifications and management measures. The implementation of this EMP for all life cycle phases of the proposed project is considered to be key in achieving the appropriate environmental management standards as detailed for this project.
- » An independent Environmental Control Officer (ECO) should be appointed to monitor compliance with the specifications of the EMP for the duration of the construction period. Once a power line route has been negotiated and surveyed within the identified corridor, walk-through surveys should be undertaken by a suitably qualified ecologist, heritage specialist and ornithologist.
- » During construction, unnecessary disturbance to habitats should be strictly controlled and the footprint of the impact should be kept to a minimum.
- » Removal of vegetation and trampling in the area must be kept to a minimum.
- » The final development area should be surveyed for species suitable for search and rescue, which should be translocated prior to the commencement of construction.
- » Species of Special Concern should be identified and rescued.

- » Species of special concern should be rescued however if a species cannot be rescued it must be avoided.
- » Permits will be required to remove species of special concern.
- » Perennial grasses which occur naturally in the area should be used to stabilise the site after it has been cleared. A mix of fast growing annual and perennial grass species could be used.
- » Disturbed areas should be rehabilitated as soon as possible once construction is complete in an area.
- » An on-going monitoring programme should be established to detect and quantify any alien species.
- » Identification of areas of high erosion risk (drainage lines, existing problem areas) should be undertaken. Only special works to be undertaken in these areas to be authorised by ECO and Engineer's representative (ER).
- » Existing tracks/roads should be used as far as possible, and construction activities should be limited to the authorised site.
- » Any new access roads required to be carefully planned and constructed to minimise the impacted area and prevent unnecessary degradation of soil.
- » Erosion control measures- run-off control and attenuation on slopes (sand bags, logs), silt fences, storm water channels and catch-pits, shade nets, soil binding, geofabrics, hydroseeding or mulching over cleared areas must be implemented.
- » An appropriate stormwater management plan must be developed and implemented.
- » If concentrations of archaeological heritage material and human remains are uncovered, all work must cease immediately and be reported to SAHRA so that systematic and professional investigation/ excavation can be undertaken. his survey would of course be limited to a surface inspection only. In the event of fossils being uncovered during the construction phase, the ECO should photograph and record the position of fossiliferous material.
- » If protected plant species are encountered, a search and rescue must be conducted to relocate the protected species (A number of other species protected under provincial legislation were also observed at the site including *Pachypodium succulentum*, *Mestoklema tuberosum*, *Tritonia laxifolia*, *Aloe claviflora* and *Avonia ustulata*, all of which are associated with the rocky hills).
- » Ensure that vegetation is not unnecessarily cleared or removed during the construction period.
- » Reduce the construction period through careful logistical planning and productive implementation of resources.
- » Plan the placement of lay-down areas and any potential temporary construction camps in order to minimise vegetation clearing (i.e. in already disturbed areas) wherever possible.
- » Restrict the activities and movement of construction workers and vehicles to the immediate construction site and existing access roads.
- » Ensure that rubble, litter, and disused construction materials are appropriately stored (if not removed daily) and then disposed regularly at licensed waste

facilities.

- » Reduce and control construction dust through the use of approved dust suppression techniques as and when required (i.e. whenever dust becomes apparent).
- » Rehabilitate all disturbed areas, construction areas, roads, slopes etc. immediately after the completion of construction works. If necessary, an ecologist should be consulted to assist or give input into rehabilitation specifications.
- » An application for all other permits (e.g. those with respect to protected tree species or protected plant species) must be obtained from the relevant authority prior to the commencement of construction activities.
- » All declared alien plant species must be identified and managed in accordance with the Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983), the implementation of a monitoring programme in this regard is recommended.
- » As the rocky hills are considered sensitive both from a fauna and flora perspective, it is recommended that a formal road is not constructed through this area unless the power line cannot be built without it.
- » Before development can continue the regions need to be checked for the presence of bird nesting sites, particularly those of ground nesting species.
- » Abbreviating maintenance times, scheduling activities in relation to avian breeding and/or movement schedules and lowering levels of associated noise.
- » Eskom has guidelines and standards for the construction of bird friendly pole and pylon structures. These should be adhered to. Only a bird friendly pole structure should be used. It is recommended that a monopole structure be used with the standard Eskom Bird Perch installed on all pole tops in order to provide safe perching substrate for bird well clear of the dangerous hardware below.
- » Limit construction, maintenance, and inspection activities to dry periods.
- » Develop emergency response plans and procedures to deal with any events of contamination, pollution, or spillages.
- » If large areas are cleared for the storage of equipment, these should be rehabilitated using arid site rehabilitation techniques such as planting cover crops reseeded with local grasses and shrubs.
- » Local community members should be provided an opportunity to be included in a list of possible local suppliers and service providers.
- » Social benefits in terms of training, skills development and the use of local labour should thus be aspired to. These skills can be transferable to other employment sectors and would result in further sustainable benefits.
- » The Siyathemba Local Municipality and community representatives and neighbouring property owners should be kept informed of the progress, decisions taken with regards to the development and construction schedules.
- » Attention should be given to the extension and improvement of the existing HIV/Aids awareness programmes.

**Operation Phase:**

The mitigation and management measures previously listed in this Basic Assessment Report should be implemented in order to minimise potential environmental impacts. The following mitigation measures should also be implemented.

- » Identified drainage areas should be avoided as far as possible by vehicles and heavy machinery. In addition care should be taken to minimise any unnecessary impact on the vegetation outside of the servitude footprint.
- » This power line should be monitored regularly once operational in order to detect any bird collisions that may occur. This line must be patrolled as part of the post construction bird monitoring programme for the Garob Wind Energy Facility once it is operational. This is likely to take place at least 4 times per year, and will be done by qualified independent staff.
- » The landowner will retain responsibility for the maintenance of the land and land use within the servitude (e.g. cropping activities, veld management, etc.).
- » Maintenance of erosion control measures (i.e. berms).
- » Implementation of an appropriate storm water management plan.
- » On-going maintenance of the facility to minimise the potential for visual impacts.
- » On-going monitoring of the site to detect and restrict the spread of alien plant species.
- » Install and maintain bird diverters on the power line.
- » Development and implementation of a storm water management plan.
- » On-going maintenance of the facility to minimise the potential for visual impacts.
- » On-going monitoring of the site to detect and restrict the spread of alien plant species.
- » Training, skills development and the use of local labour.
- » Retain / re-establish and maintain natural vegetation in all areas outside of the development footprint/servitude. This measure will help to soften the appearance of the power line within its context.

Is an EMPr attached?

YES ✓

The EMPr must be attached as Appendix G.

The details of the EAP who compiled the BAR and the expertise of the EAP to perform the Basic Assessment process must be included as Appendix H.

If any specialist reports were used during the compilation of this BAR, please attach the declaration of interest for each specialist in Appendix I.

Any other information relevant to this application and not previously included must be attached in Appendix J.

KAREN JODAS

\_\_\_\_\_  
NAME OF EAP

\_\_\_\_\_  
SIGNATURE OF EAP

\_\_\_\_\_  
DATE

## **SECTION F: APPENDICES**

The following appendixes must be attached:

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

Appendix E: Public Participation

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Specialist's declaration of interest

Appendix J: Additional Information