

ENVIRONMENTAL IMPACT ASSESSMENT PROCESS
DRAFT BASIC ASSESSMENT REPORT
PROPOSED KHOBAB 132kV SUBSTATION AND 132kV POWER
LINE, FOR THE KHOBAB WIND ENERGY FACILITY
NORTHERN CAPE PROVINCE

DEA REFERENCE NUMBERS:
14/12/16/3/3/1/814 (SUBSTATION)
14/12/16/3/3/1/815 (POWER LINE)

DRAFT BASIC ASSESSMENT REPORT
FOR PUBLIC COMMENT
22 FEBRUARY 2013 - 25 MARCH 2013

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environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

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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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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.

PROJECT DETAILS

Title	:	Draft Basic Assessment Report: Proposed Khobab 132kV Substation and 132kV Power Line for the Khobab Wind Energy Facility, Northern Cape Province
DEA Reference No's	:	14/12/16/3/3/1/814 (Khobab 132kV Substation) 14/12/16/3/3/1/815 (132kV Khobab Power Line)
Applicant/Client	:	South Africa Mainstream Renewable Power Khobab (Pty) Ltd
Authors	:	Savannah Environmental Ravisha Ajodhapersadh Karen Jodas
Report Status	:	Draft Basic Assessment Report for Public Review
Review period	:	22 February 2013 - 25 March 2013

When used as a reference this report should be cited as: Savannah Environmental (2013) Draft Basic Assessment Report: Proposed Khobab 132kV Substation and 132kV Power Line for the Khobab Wind Energy Facility, Northern Cape Province

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PURPOSE OF THE DRAFT BASIC ASSESSMENT REPORT

Mainstream Renewable Power Loeriesfontein (Pty) Ltd (herein referred to as "Mainstream") obtained an environmental authorisation in August 2012 for a proposed **Wind Energy Facility near Loeriesfontein (DEA reference: 12/12/20/2321/3)** on the Farms Sous 226 and Aan De Karree Doorn Pan 213 which is located approximately 60km north of Loeriesfontein in the Northern Cape Province¹. The original Environmental Authorisation issued by DEA was for a 280MW Wind Energy Facility. Due to the requirements from the Department of Energy, Independent Power Producers (IPPs) can only bid wind projects with a size/capacity of up to 140MW. The original Environmental Authorisation is in process of being amended to split the wind energy facility into two separate and stand-alone projects and to change the names of the applicant to Special Purpose Vehicles (SPVs). The original Environmental Authorisation issued to Mainstream was under the applicant name - South Africa Mainstream Renewable Power Loeriesfontein (Pty) Ltd. The Environmental Authorisation is in process of being amended to be split into two 140MW projects that will be under the following SPV names and project names:

- » South Africa Mainstream Renewable Power Loeriesfontein 2 (Pty) Ltd (Project name: Loeriesfontein 2 Wind Energy Facility),
- » South Africa Mainstream Renewable Power Khobab (Pty) Ltd (project name: Khobab Wind Energy Facility).

In order for the 140MW Khobab Wind Energy facility to be a stand-alone project and connect into the Eskom grid, a new substation and power line is required. The SPV/applicant for the Khobab substation and power line is South Africa Mainstream Renewable Power Khobab (Pty) Ltd. This Draft Basic Assessment Report has been prepared by Savannah Environmental in order to assess the potential environmental impacts associated with the construction and operation of the following grid connection infrastructure required for the Khobab wind energy facility:

- » Construction of the proposed Khobab Substation;
- » Construction of a 132kV Power line; and
- » Associated infrastructure such as access roads, a temporary lay down area, a temporary construction compound and operation and maintenance (O&M) building.

The consideration of the above-mentioned infrastructure required for the Khobab wind energy facility in one Basic Assessment report has been agreed with the Department of Environmental Affairs since all activities relate to the grid connection of the authorised Khobab Wind Energy Facility. This Basic Environmental Assessment process is being undertaken in support of two applications for Environmental Authorisation in terms of the

¹ The original 280MW Wind Energy Facility near Loeriesfontein was subject to an EIA undertaken by Sivest between 2011 - 2012 and the project was authorised by DEA in August 2012

National Environmental Management Act (NEMA; Act 107 of 1998) under the following DEA reference numbers:

- » 14/12/16/3/3/1/814 (Khobab 132kV Substation)
- » 14/12/16/3/3/1/815 (132kV Power Line)

The draft basic assessment report is available for public review from **22 February 2013 to 25 March 2013** at the Loeriesfontein Public Library. The report is available for download on www.savannahsa.com. Copies of the report may also be requested from Savannah Environmental. To obtain further information, register on the project database, or submit written comment please contact:

Please submit your comments to:
Shawn Johnston of Sustainable Futures ZA P.O. 749, Rondebosch, Cape Town, 7701 Tel: 083 325 9965 Fax: 086 510 2537 Email: swjohnston@mweb.co.za
The due date for comments on the draft Basic Assessment Report is 25 March 2013

A Public meeting will be held as follows:

Date: 07 March 2013

Time : 17:30 – 18:30

Venue: Loeriesfontein Community Hall

SUMMARY AND OVERVIEW OF THE PROPOSED PROJECT

In order for the authorised 140MW Khobab Wind Energy facility to be a stand-alone project and connect into the Eskom grid, a new substation and power is required. The SPV/ applicant for the Khobab substation and power line is South Africa Mainstream Renewable Power Khobab (Pty) Ltd. This basic assessment report assessed the environmental impacts associated with the proposed substation, power line and associated infrastructure (including a temporary lay down area, a temporary construction compound, access road and operation and maintenance (O&M) building) for the Khobab Wind Energy Facility.

This Basic Environmental Assessment process is being undertaken in support of two applications for Environmental Authorisation in terms of the National Environmental Management Act (NEMA; Act 107 of 1998) under the following DEA reference numbers:

- » 14/12/16/3/3/1/814 (Khobab 132kV Substation)
- » 14/12/16/3/3/1/815 (132kV Power Line)

LOCATION OF THE KHOBAB SUBSTATION AND ASSOCIATED INFRASTRUCTURE

Two alternative locations for the Khobab Substation and associated infrastructure (including a temporary lay down area, a temporary construction compound, access roads and operation and maintenance (O&M) building) are being assessed for the Khobab Substation in this report. Both location alternatives are proposed on the Remainder of Farm Sous 226, as follows:

- » Option 1 - The preferred substation location: located in the north-eastern corner of the Remainder of Farm Sous 226, just off the Granaatboskolk gravel road which passes through the site.
- » Option 2 - The alternative substation location: located in the central part of the Remainder of Farm Sous 226.

Both substation locations fall within the authorised Khobab Wind Energy Facility site. These locations are shown in Figure 1.1

The extent of the infrastructure required is as follows:

- » 132 kV Substation building and high voltage yard (1 hectare);
- » Operations and Maintenance building (20m x 20m building footprint);
- » Operations and Maintenance yard (1 hectare);
- » Temporary Lay-down area (1 hectare);
- » Temporary Construction compound (5000m² / 0.5 hectares);

- » Access road (up to 10m wide).

The total development footprint for the substation and associated infrastructure is therefore up to 5 hectares in extent, plus the 10m wide access road (linear activity).

KHOBAB POWER LINE TO HELIOS SUBSTATION

A 132kV overhead power line is being assessed for the Khobab- Helios 132kV power line route. The route extending from the Substation option 1 is Power Line Option 1 and the route extending from the Substation option 2 is Power Line Option 2. The length of each power line options are therefore as follows:

- » Power line Option 1 (linked to the technically preferred Substation Option 1) is approximately 9 km in length.
- » Power line Option 2 (linked to the alternative Substation Option 2) is approximately 11km in length.

Both power line options crosses/ spans the Remainder of Farm Sous 226, and Portion 3 of Farm Sous 226 (the railway line), until the point of connection to the existing Helios Substation (located on Portion 1 of Farm Sous 226), and are shown in Figure 1.1.

In order to accommodate for the transportation of equipment to the site, a new road (maximum of 10 meters wide) is required to link the proposed substation to an existing road. The access road to the substation will run parallel to the proposed power line. The power line will also have an access road which runs parallel to the power line servitude.

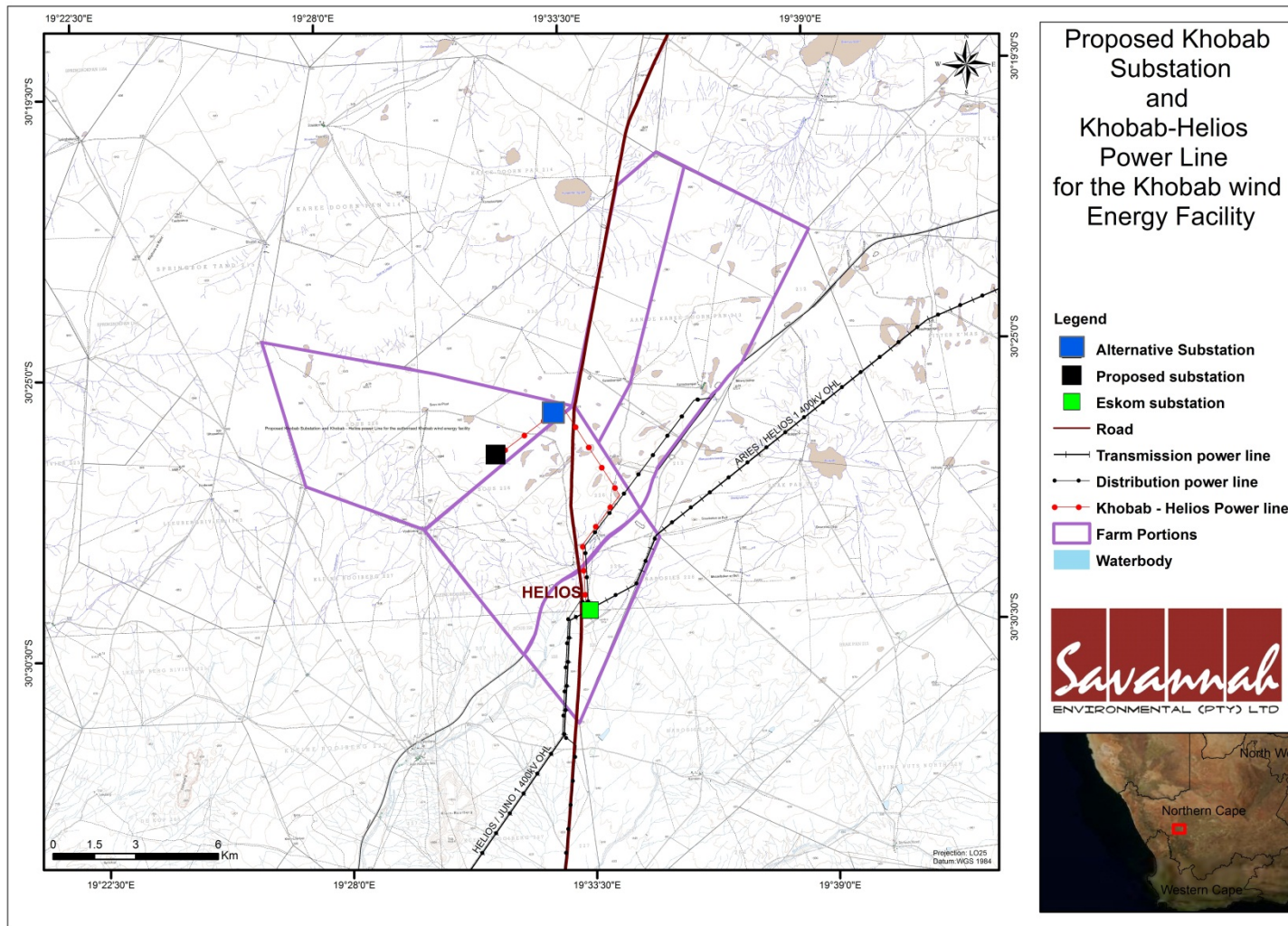


Figure 1.1: Site layout plan for the proposed Khobab 132kV Substation and 132kV Khobab-Helios Power Line linking the Khobab Wind Energy Facility to Helios Substation.

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), Mainstream require authorisation for the construction and operation of the proposed substation, power line and associated infrastructure. 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 R543, GR544 and R546 a Basic Assessment process is triggered by the proposed grid connection infrastructure required for the Khobab Wind Energy Facility.

The nature and extent of all components of the proposed substation, power line and associated infrastructure are explored in more detail in this Basic Assessment Report. This report has been compiled in accordance with the requirements of the EIA Regulations of June 2010 and includes details of the activity description; the site, area and property description; the public participation process; the impact assessment; and the recommendations of the Environmental Assessment Practitioner.

1.1. 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 Khobab substation, power line and associated infrastructure. Neither Savannah Environmental nor any of its specialist sub-consultants on this project are subsidiaries of or are affiliated to Mainstream. Furthermore, Savannah Environmental does not have any interests 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 assessments 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.

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. Savannah Environmental has completed various assessments for renewable energy and power line projects on behalf of Eskom and IPPs.

Karen Jodas, the principle Environmental Assessment practitioner (EAP) for this project, is a registered Professional Natural Scientist and holds a Master of Science degree. She has over 16 years 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 and power line projects across the country.

Ravisha Ajodhapersadh – holds an Honours Bachelor of Science degree in Environmental Management and has 5 years experience in environmental management and EIAs. She is currently involved in conducting EIA's for renewable energy and other projects across the country.

CVs of the EIA Team are included in Appendix H.

SECTION A: ACTIVITY INFORMATION

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

NO

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

Mainstream Renewable Power Loeriesfontein (Pty) Ltd (herein referred to as "Mainstream") obtained an environmental authorisation in August 2012 for a proposed **Wind Energy Facility near Loeriesfontein (DEA reference: 12/12/20/2321/3)** on the Farms Sous 226 and Aan De Karree Doorn Pan 213 which is located approximately 60km north of Loeriesfontein in the Northern Cape Province². The original Environmental Authorisation issued by DEA was for a 280MW Wind Energy Facility. Due to the requirements from the Department of Energy, Independent Power Producers (IPPs) can only bid wind projects with a size/capacity of up to 140MW. The original Environmental Authorisation is in process of being amended to split the wind energy facility into two separate and stand-alone projects and to change the names of the applicant to Special Purpose Vehicles (SPVs). The original Environmental Authorisation issued to Mainstream was under the applicant name - South Africa Mainstream Renewable Power Loeriesfontein (Pty) Ltd. The Environmental Authorisation is in process of being amended to be split into two 140MW projects will be under the following SPV names and project names:

- » South Africa Mainstream Renewable Power Loeriesfontein 2 (Pty) Ltd – Loeriesfontein 2 Wind Energy Facility
- » South Africa Mainstream Renewable Power Khobab (Pty) Ltd – Khobab Wind Energy Facility.

In order for the 140MW Khobab Wind Energy facility to be a stand-alone project and connect into the Eskom grid, a new substation and power is required. The SPV/ applicant for the Khobab substation and power line is South Africa Mainstream Renewable Power Khobab (Pty) Ltd. This Draft Basic Assessment Report has been prepared by Savannah Environmental in order to assess the potential environmental impacts associated with the construction and operation of the following grid connection infrastructure required for the 140MW Khobab wind energy facility:

- » Construction of the proposed Khobab Substation;

² The original 280MW Wind Energy Facility near Loeriesfontein was subject to an EIA undertaken by Sivest between 2011 - 2012 and the project was authorised by DEA in August 2012

- » Construction of a 132kV Power line; and
- » Associated infrastructure such as access roads, a temporary lay down area, a temporary construction compound and operation and maintenance (O&M) building.

The consideration of the above-mentioned infrastructure required for the Khobab wind energy facility in one Basic Assessment report has been agreed with the Department of Environmental Affairs since all activities relate to the grid connection of the authorised Khobab Wind Energy Facility. This Basic Environmental Assessment process is being undertaken in support of two applications for Environmental Authorisation in terms of the National Environmental Management Act (NEMA; Act 107 of 1998) under the following DEA reference numbers:

- » 14/12/16/3/3/1/814 (Khobab 132kV Substation)
- » 14/12/16/3/3/1/815 (132kV Power Line)

LOCATION OF THE KHOBAB SUBSTATION AND ASSOCIATED INFRASTRUCTURE

Two alternative locations for the Khobab Substation and associated infrastructure (including a temporary lay down area, a temporary construction compound, access roads and operation and maintenance (O&M) building) are being assessed for the Khobab Substation in this report. Both location alternatives are proposed on the Remainder of Farm Sous 226, as follows:

- » Option 1 - The preferred substation location: located in the north-eastern corner of the Remainder of Farm Sous 226, just off the Granaatboskolk gravel road which passes through the site.
- » Option 2 - The alternative substation location: located in the central part of the Remainder of Farm Sous 226.

Both substation locations fall within the authorised Khobab Wind Energy Facility site. These locations are shown in Figure 1.1

The extent of the infrastructure required is as follows:

- » 132 kV Substation building and high voltage yard (1 hectare);
- » Operations and Maintenance building (20m x 20m building footprint);
- » Operations and Maintenance yard (1 hectare);
- » Temporary Lay-down area (1 hectare);
- » Temporary Construction compound (5000m² / 0.5 hectares);
- » Access road (up to 10m wide).

The total development footprint for the substation and associated infrastructure is therefore up to 5 hectares in extent, plus the 10m wide access road (linear activity).

KHOBAB POWER LINE TO HELIOS SUBSTATION

A 132kV overhead power line is being assessed for the Khobab- Helios 132kV power line route. The route extending from the Substation option 1 is Power Line Option 1 and the route extending from the Substation option 2 is Power Line Option 2. The length of each power line options are therefore as follows:

- » Power line Option 1 (linked to the technically preferred Substation Option 1) is approximately 9 km in length.
- » Power line Option 2 (linked to the alternative Substation Option 2) is approximately 11km in length.

Both power line options crosses/ spans the Remainder of Farm Sous 226 and Portion 3 of Farm Sous 266 (the railway line), until the point of connection to the existing Helios Substation (located on Portion 1 of Farm Sous 226), and are shown in Figure 1.1.

In order to accommodate for the transportation of equipment to the site, a new road (maximum of 10 meters wide) is required to link the proposed substation to an existing road. The access road to the substation will run parallel to the proposed power line. The power line will also have an access road which runs parallel to the power line servitude.

A picture of a typical substation is shown in Figure 1.2.



Figure 1.2: Illustration of a 132kV Substation

» ***Construction Activities And Components Associated With The Proposed Substation***

Substations are constructed in the following simplified sequence:

- Step 1: Survey the area
- Step 2: Final design of the substation and placement of the infrastructure
- Step 3: Issuing of tenders, and award of contract to construction companies
- 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: Construction of foundations
- Step 7: Assembly and erection of infrastructure on site
- Step 8: Connect conductors
- Step 9: Rehabilitation of disturbed area and protection of erosion sensitive areas
- Step 10: Testing and commissioning
- Step 11: Continued maintenance

The construction of substation and the power lines will require the establishment of a construction equipment camp/s at an appropriate location within the site and/or along the route, as well as lay down area and access road to the substation. The expected lifespan of the proposed substation is 35 – 50 years. During the life-span of the substation, on-going maintenance is performed. Inspections are undertaken.

» ***Khobab-Helios Power Line To Helios Substation***

A 132kV overhead power line connection is being assessed for the Khobab-Helios 132kV power line route. The route extending from substation option 1 is Power Line Option 1, and the route extending from substation option 2 is Power Line Option 2. The length of each power line options are therefore as follows:

- » Power line Option 1 (linked to the preferred Substation Option 1: approximately 9 km in length.
- » Power line Option 2 (linked to the alternative Substation Option 2: approximately 11km in length.

In order to accommodate for the transportation of equipment to the site, a new road (maximum of 10 meters wide) is required to link the proposed substation to an existing road. The access road to the substation will run parallel to the proposed power line. The power line will also have an access road which runs parallel to the power line servitude.

» ***Construction Activities And Components Associated With The Proposed 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 power line is required to be undertaken in accordance with the specifications of the Environmental Management Programme (EMP), as well as in compliance with Eskom's technical requirements.

The expected lifespan of the proposed power lines is between 35 and 40 years, depending on the maintenance undertaken on the power lines structures. During the operational life of the power lines, on-going maintenance is performed. Power line inspections are undertaken on an average of 1 – 2 times per year, depending on the area. During this maintenance period, the line is accessed via the access routes established during the construction phase.

In terms of sections 24 and 24D of NEMA, as read with the Environmental Impact Assessment Regulations of GNR544 and GNR546, a Basic Assessment process is required for the proposed Khobab substation, power line and associated infrastructure detailed above. The listed activities are described in Section B below.

b) Listed Activities

Provide a detailed description of the listed activities associated with the project as applied for.

Table 1.1: Listed activities relevant to the proposed Khobab Substation and associated infrastructure (DEA reference number 14/12/16/3/3/1/814)

Indicate the number and date of the relevant notice:	Activity No (s) (in terms of the relevant notice) :	Describe each listed activity as per project description ³ :
GN 544, 18 June 2010	10	<p>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</p> <p><i>Construction of a 132kV substation (outside an urban area) which includes the construction of the operation and maintenance buildings, temporary laydown areas, temporary construction compound and an access road of up to 10 meters wide.</i></p>
GN 544, 18 June 2010	11	<p>The construction of: (xi) infrastructure or structures covering 50 square metres or more</p> <p>Where such construction occurs within a watercourse or within 32 metres of a watercourse, measures from the edge of a watercourse, excluding where such construction will occur behind the development setback line.</p> <p><i>The alternative Substation (Option 2) is located within 32m of a watercourse.</i></p>
GN 544, 18 JUNE 2010	13	<p>The construction of facilities or infrastructure for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 but not exceeding 500 cubic metres;</p> <p><i>During construction and operation fuels/oils would be stored on site.</i></p>

³ Please note that this description should not be a verbatim repetition of the listed activity as contained in the relevant Government Notice, but should be a brief description of activities to be undertaken as per the project description

GN 544, 18 JUNE 2010	22	<p>The construction of a road, outside urban areas,</p> <p>ii) where no reserve exists where the road is wider than 8 meters</p> <p><i>A new road linking an existing road to the proposed substation will need to be a maximum of 10 meters wide to accommodate for the transportation of equipment to the site</i></p>
GN 544, 18 JUNE 2010	23	<p>The transformation of undeveloped, vacant or derelict land to-</p> <p>(ii)residential, retail, commercial, recreational, industrial or institutional use, outside an urban area and where the total area to be transformed is bigger than 1 hectare but less than 20 hectares.</p> <p><i>The substation site (which includes operation and maintenance buildings, temporary laydown areas, temporary compound areas and an access road) is considered industrial use, and the development area will be a footprint of up to 5 hectares, i.e. greater than 1 ha and less than 20ha in extent.</i></p>
546, 18 June 2010	14	<p>The clearing of 5 hectares or more of vegetation where 75% or more of the vegetation cover constitutes indigenous vegetation cover constitutes indigenous vegetation,</p> <p>(a) Northern Cape</p> <p>i) All areas outside urban areas</p> <p><i>The substation site (which includes operation and maintenance buildings, temporary laydown areas, temporary compound areas and an access road)</i></p>

Table 1.2: Listed activities relevant to the proposed Khobab Power Line (DEA reference number14/12/16/3/3/1/815)

Indicate the number and date of the relevant notice:	Activity No (s) (in terms of the relevant notice) :	Describe each listed activity as per project description ⁴ :
GN 544, 18 June 2010	10	<p>The construction of facilities or infrastructure for the transmission and distribution of electricity-</p> <p>(i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275</p>

⁴ Please note that this description should not be a verbatim repetition of the listed activity as contained in the relevant Government Notice, but should be a brief description of activities to be undertaken as per the project description

Indicate the number and date of the relevant notice:	Activity No (s) (in terms of the relevant notice) :	Describe each listed activity as per project description ⁴ :
		kilovolts Construction of a 132 kV power line.
GN 544, 18 June 2010	11	The construction of: (xi) infrastructure or structures covering 50 square metres or more Where such construction occurs within a watercourse or within 32 metres of a watercourse, measures from the edge of a watercourse, excluding where such construction will occur behind the development setback line. The Power line does traverse two drainage lines (watercourses) and therefore requires the construction of infrastructure within 32m of a watercourse.
GN 544, 18 JUNE 2010	22	The construction of a road, outside urban areas, ii) where no reserve exists where the road is wider than 8 meters A new road along the power line servitude is required and will be a maximum of 10 meters wide.

1. 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

The proposed Khobab Substation is located within the footprint area of the approved Khobab Wind Energy Facility and has been sited in accordance with the technical considerations associated with this facility. Two feasible alternative sites have been identified for the proposed Khobab Substation.

Option 1 - Preferred Substation Location		
Description	Lat (DDMMSS)	Long (DDMMSS)
The preferred substation location is located in the north-eastern corner of the Remainder of Farm Sous 226, just off the unmade gravel road which passes through the site.	30°25'58.90"S	19°33'13.39"E
Option 2 - Alternative Substation Location		
The alternative substation location is located in the central part of the Remainder of Farm Sous 226.	30°26'46.82"S	19°31'51.71"E
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)

In the case of linear activities:

Both power line options crosses/ spans the Remainder of Farm Sous 226 and Portion 3 of Farm Sous 266 (the railway line), until the point of connection to the existing Helios

Substation (located on Portion 1 of Farm Sous 226), The power lines have been sited in accordance with the technical considerations associated with the power line. Two power line alternatives (each linked to the substation alternatives) are proposed:

Alternative: Latitude (S): Longitude (E):

Alternative S1 linked to Substation Option 1 (preferred):

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

Alternative S2 linked to Substation Option 2:

- 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.

Refer to Appendix A2 for GPS co-ordinates for every 250m of the power line.

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

No layout alternatives have been assessed within this Basic Assessment as the placement of the substation infrastructure, power line towers and any associated infrastructure will be required to be in line with technical requirements, Eskom's technical requirements, as well as with specific landowner requirements. This will be negotiated within the broader servitude being considered for the power line. This broader corridor of 500m for the 132kV power line also allow for the possible avoidance of environmentally sensitive areas identified through this Basic Assessment process.

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 substation and power lines will be determined in consultation with Eskom and does not significantly affect the environmental impact of the proposed development in any way. A monopole structure is recommended for the proposed power line structures as these have a smaller footprint and lower visual impact. Lattice type towers will be required at turning points. The line must be constructed according to the authorised standards for a power line approved by Eskom.

Alternative 1 (preferred alternative)
Alternative 2
Alternative 3

e) No-go alternative

This is the option of not constructing the Khobab substation or the Khobab- Helios power line. This option is assessed as the “no go alternative” in this Basic Assessment Report.

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

2. PHYSICAL SIZE OF THE ACTIVITY

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

Khobab 132 kV Substation and Associated Infrastructure (laydown area etc.)

Alternative	Size of the activity:
Alternative A1 ⁵ (preferred activity alternative by the developer):	50 000m ²
Alternative A2 (alternative activity alternative by the developer)	50 000m ²
Alternative A3 (if any)	m ²

or, for linear activities: **Khobab- Helios 132kV power line**

Alternative:

Alternative A1

Alternative A2

Alternative A3

Length of the activity:

Option 1: 9 km
Option 2: 11 km

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

Alternative:

Alternative A1 (preferred alternative)

Alternative A2

Alternative A3

Size of servitude:

~36m
~36m

3. SITE ACCESS

Does ready access to the site exist?

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

	NO
m	

Describe the type of access road planned:

In order to accommodate for the transportation of equipment to the site, a new road (maximum of 10 meters wide) is required to link the proposed substation to an existing road. The access road to the substation will run parallel to the proposed power line.

⁵ "Alternative A.." refer to activity, process, technology or other alternatives.

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.

Refer to Appendix A for location of the access road to the substation site

4. 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 A1**.

5. 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 layout plan has been included as part of this report as **Appendix A1**.

6. 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.

An Environmental sensitivity map has been included as part of this report in **Appendix A4**.

7. 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**.

8. 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**.

9. ACTIVITY MOTIVATION

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

1. Is the activity permitted in terms of the property's existing land use rights?	<input type="checkbox"/>	NO	Please explain
Mainstream has applied to the Hantam Local Municipality for the rezoning of the Khobab Wind Energy Facility project area as environmental authorisation for the Khobab Wind Energy facility has been granted. This rezoning will include the position of all infrastructure, including the substation. A servitude for the power line has been negotiated. The servitude will be registered against the title deed of affected properties.			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	<input checked="" type="checkbox"/>	YES	Please explain
The Northern Cape Province Spatial Development Framework (NC PSDF) makes reference to the need to ensure the availability of inexpensive energy. It 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 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. 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. Therefore the substation and power line for the proposed Khobab wind energy facility will ultimately be in line with the Northern Cape PSDF.			
(b) Urban edge / Edge of Built environment for the area	<input type="checkbox"/>	NO	Please explain
The substation and power line location is located in a remote area, approximately 60km north of the town of Loeriesfontein. The site does not fall within the urban edge.			
(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?).	<input checked="" type="checkbox"/>	YES	Please explain
The site near Loeriesfontein falls within the Hantam Local Municipality, which is within the greater Namakwa District Municipality. Electricity, amongst other municipal services, is highlighted as a priority issue warranting attention, in particular the provision of access to electricity to affected communities and the improvement of the electricity infrastructure (mini-substations, cables). These objectives are anticipated to be achieved through the following strategies (Hantam Local Municipality IDP - 2009-2010):			
<ul style="list-style-type: none"> » Upgrade the electricity networks » Building of 150 houses which will therefore require the provision of electricity » Electricity installations at SAPS offices » Upgrading of bulk electricity provision » Developing a Master and Maintenance plan for electricity 			

<p>In 2008, the Namakwa District Municipality planned to conduct viability studies on the possibility of creating green energy in the Namakwa District for exporting purposes. Studies were to be done on wind, solar and ocean energy. It is therefore evident that the proposed development is aligned with the goals of the municipal IDPs in the study area. The project will not compromise IDP objectives but will rather assist directly or indirectly in reaching these as the IDP of the Hantam Local Municipality. This project will assist in supporting the local electricity supply through strengthening of power to the Helios Substation.</p>			
<p>(d) Approved Structure Plan of the Municipality</p>		<p>YES</p>	<p>Please explain</p>
<p>The municipality is aware of the Wind Energy Facility. The proposed substation and power line feeding into the existing Helios Substation support this approved project and do not compromise the structure of the municipal plan.</p>			
<p>(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?)</p>		<p>YES</p>	<p>Please explain</p>
<p>There is no EMF for the study area. The site lies within the planning domain of the Namakwa Biodiversity Sector Plan. This biodiversity assessment identifies Critical Biodiversity Areas (CBAs) which represent biodiversity priority areas which should be maintained in a natural to near natural state. The CBA maps indicate the most efficient selection and classification of land portions requiring safeguarding in order to maintain ecosystem functioning and meet national biodiversity objectives. The site does not fall within the CBA and the nearest CBAs are more than 10km away, suggesting that the area is not likely to be highly significant in terms of known biodiversity pattern or for the maintenance of broad-scale ecological processes. The Biodiversity Conservation Plan aims to protect indigenous natural vegetation. Therefore, provided the project avoids natural vegetation as far as possible, the proposed Khobab substation and power line will not compromise the integrity of the existing environmental management priorities for the area.</p>			
<p>(f) Any other Plans (e.g. Guide Plan)</p>		<p>NO</p>	<p>Please explain</p>
<p>None applicable.</p>			
<p>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)?</p>		<p>YES</p>	<p>NO Please explain</p>
<p>Not applicable - The Namakwa District Municipality is in the process of initiating a project for the District's Spatial Development Framework, as well as Spatial Development Plans and Land use management schemes for all six B-municipalities in its jurisdiction. This will ensure that all development planning and control measures regarding property are in place in all the municipalities.</p>			
<p>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.</p>		<p>YES</p>	<p>Please explain</p>

<p>development is a national priority, but within a specific local context it could be inappropriate.)</p>			
<p>The main purpose of the Khobab substation and power line is to connect the proposed Khobab Wind Energy Facility into the Eskom electricity grid. Therefore, the proposed project will enable a wind energy facility to connect to the electricity grid, which will have a positive economic impact at a local and regional scale. South Africa is in need of other forms of energy, beside electricity from coal, therefore there is a need for the wind energy facility, which is supported by the proposed power line and substation to connect into the Eskom electricity grid. Locally, the local community and area is need in of development and electricity infrastructure, which the power line and substation will contribute to.</p>			
<p>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 Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</p>	<p>YES</p>	<p>NO</p>	<p>Please explain</p>
<p>Not relevant – the project does not require any services directly from the municipality</p>			
<p>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.)</p>		<p>NO</p>	<p>Please explain</p>
<p>Not relevant – the project does not require or is not reliant on any infrastructure directly from the municipality</p>			
<p>7. Is this project part of a national programme to address an issue of national concern or importance?</p>	<p>YES</p>		<p>Please explain</p>
<p>Within a policy framework, the development of renewable energy in South Africa is supported by the White Paper on Renewable Energy (November 2003). In order to meet the long-term goal of a sustainable renewable energy industry, a goal of 17,8GW of renewables by 2030 has been set by the Department of Energy (DoE) within the Integrated Resource Plan (IRP) 2010. The energy will be produced mainly from wind, solar, biomass, and small-scale hydro (with wind and solar comprising the bulk of the power generation capacity). This amounts to ~42% of all new power generation being derived from renewable energy forms by 2030. This is however dependent on the assumed learning rates and associated cost reductions for renewable options.</p> <p>In order to integrate the power generated at this facility into the electricity grid, the facility is required to be connected to the existing Helios Substation, as described in this report.</p>			
<p>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.)</p>	<p>YES</p>		<p>Please explain</p>
<p>The Khobab Wind Energy Facility is an authorised facility. The location and acceptability of this</p>			

<p>facility is therefore already determined. In terms of Eskom's requirements, the wind energy facility is required to connect to the Helios Substation. The proposed substation site options and power line options will enable this facility to connect to the electricity grid at the required connection point. The location of the proposed project is therefore the only option.</p>			
<p>9. Is the development the best practicable environmental option for this land/site?</p>	<p>YES</p>	<input type="checkbox"/>	<p>Please explain</p>
<p>The Khobab Wind Energy Facility is an authorised facility. The location and acceptability of this facility is therefore already determined. In terms of Eskom's requirements, the wind energy facility is required to connect to the Helios Substation. The proposed substation site (options) and power line (options) corridors are considered to be the most appropriate for 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 substation and power lines will have medium - low environmental impacts. Should the infrastructure not be constructed as proposed, the wind energy facility would not be connected to the electricity grid. The implementation of the proposed project is therefore the best practicable environmental option.</p>			
<p>10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?</p>	<p>YES</p>	<input type="checkbox"/>	<p>Please explain</p>
<p>The specialist studies undertaken as part of this Basic Assessment conclude that the development of the substation and power lines will have low -medium environmental impacts. The proposed project will facilitate the connection of the Wind Energy Facility to the national electricity grid thereby facilitating the transmission of renewable energy. This will have a positive impact at a local, regional and national level.</p>			
<p>11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?</p>	<input type="checkbox"/>	<p>NO</p>	<p>Please explain</p>
<p>The proposed substation and power lines are associated with the approved Wind Energy Facility. The site has electricity transmission infrastructure (Helios substation and power line). Therefore, the proposed substation and power lines will not differ from the infrastructure already present on the site.</p>			
<p>12. Will any person's rights be negatively affected by the proposed activity/ies?</p>	<p>YES</p>	<input type="checkbox"/>	<p>Please explain</p>
<p>Private landowners will be affected by the proposed project. These landowners have been consulted by the developer and the environmental team and are aware of the proposed project. Landowners will be compensated for use of their land by the developer. Option/lease agreements have been signed with the relevant land owners</p>			
<p>13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?</p>	<input type="checkbox"/>	<p>NO</p>	<p>Please explain</p>
<p>The site is located outside of the urban edge, in a remote and rural area.</p>			
<p>14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?</p>	<p>YES</p>	<input checked="" type="checkbox"/>	<p>Please explain</p>
<p>As the 17 Strategic Integrated Projects promote balanced economic development, unlock economic opportunities, promote mineral extraction and beneficiation, address socio-economic</p>			

<p>needs, promote job creation and help integrate human settlements and economic development. The proposed development 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 construction of the proposed substation and power line will give people living in the area opportunities to gain employment which would address the socio economic needs of individuals.</p>	
<p>15. What will the benefits be to society in general and to the local communities?</p>	<p>Please explain</p>
<p>The main purpose of the substation and power line is to connect the authorised Wind Energy Facility to the National electricity grid. As the wind energy facility will need to be built and operated this will create employment opportunities for members of local communities. The increased economic benefit to the local community will improve the sustainability of the area and reduce the unemployment rate.</p>	
<p>16. Any other need and desirability considerations related to the proposed activity?</p>	<p>Please explain</p>
<p>None.</p>	
<p>17. How does the project fit into the National Development Plan for 2030?</p>	<p>Please explain</p>
<p>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 project is facilitating the connection of a renewable project, which is supported by the NDP.</p>	
<p>18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.</p>	
<p>The general objectives of Integrated Environmental Management have been taken into account in the development of the project by means of identifying, predicting and evaluating the actual and potential impacts on the environment, socio-economic conditions and cultural heritage component.</p> <p>The risks, consequences, alternatives as well as options for mitigation of activities have also been considered with a view to minimise negative impacts, maximise benefits and promote compliance with the principles of environmental management.</p>	
<p>19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.</p>	
<p>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.</p> <p>This process has been undertaken in a transparent manner and all effort have been made to involve interested and affected parties, stakeholders and relevant Organs of State such that an</p>	

informed decision regarding the project can be made by the Regulating Authority.

The principles of environmental management as set out in section of NEMA states that:

- » Environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably;
- » Development must be sustainable socially (people), environmentally (planet) and economically (prosperity); and
- » Sustainable development requires the consideration of all the relevant factors.

These principles have been taken into account for this Basic Assessment report by means of identifying, predicting and evaluating the actual and potential impacts on the environment, socio-economic conditions and cultural heritage component. The risks, consequences, alternatives as well as options for mitigation of activities have also been considered with a view to minimise negative impacts, maximise benefits, and promote compliance with the principles of environmental management.

10. 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 1.3** below.

Table 1.3: Applicable Legislation, Policies and/or Guidelines

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
National Legislation			
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, R545 and R546 of 18 June 2010, a Basic Assessment Process is required to be undertaken for the proposed project.</p>	<p>Department of Environmental Affairs – competent authority</p> <p>Department of Environmental and Nature Conservation (DENC)- commenting authority</p>	<p>The listed activities triggered by the proposed substation and power line y 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.</p>
National Environmental Management Act (Act No 107 of 1998)	<p>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 this project is avoided,</p>	<p>Department of Environmental Affairs</p>	<p>While no permitting or licensing requirements arise directly by virtue of the proposed project, this section has found</p>

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	<p>stopped or minimised.</p> <p>In terms of NEMA, it has become the legal duty of a project proponent to consider a project holistically, and to consider the cumulative effect of a variety of impacts.</p>		<p>application during the Basic Assessment Process through the consideration of potential impacts (cumulative, direct, and indirect). It will continue to apply throughout the life cycle of the project.</p>
<p>Environment Conservation Act (Act No 73 of 1989)</p>	<p>National Noise Control Regulations (GN R154 dated 10 January 1992)</p>	<p>Department of Environmental Affairs</p> <p>Department of Environmental and Nature Conservation (DENC)</p> <p>Local Authorities</p>	<p>Noise impacts are expected to be associated with the construction phase of the project and are not likely to present a significant intrusion to the local community. Therefore is no requirement for a noise permit in terms of the legislation.</p> <p>On-site activities should be limited to 6:00am - 6:00pm, Monday – Saturday (excluding public holidays).</p> <p>Should activities need to be undertaken outside of these times, the surrounding communities</p>

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
			will need to be notified and appropriate approval will be obtained from DEA and the Local Municipality.
National Water Act (Act No 36 of 1998)	<p>Water uses under S21 of the Act 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 (and then registration of the water use is required).</p> <p>Consumptive water uses may include the taking of water from a water resource - Sections 21a and b.</p> <p>Non-consumptive water uses may include impeding or diverting of flow in a water course - Section 21c; and altering of bed, banks or characteristics of a watercourse - Section 21i.</p>	<p>Department of Water Affairs</p> <p>Provincial Department of Water Affairs</p>	<p>A water use license (WUL) is required to be obtained if wetlands or drainage lines are impacted on, or if infrastructure lies within 500m of such features. Pans occur on the project site, but outside of the development footprint.</p> <p>Should water be abstracted from ground water/ a borehole on site for use within the facility, a water use license may be required.</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 (e.g. 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> <p>S53 Department of Mineral Resources: Approval from</p>	Department of Mineral Resources	<p>As no borrow pits are expected to be required for the construction of the facility, no mining permit or right is required to be obtained.</p> <p>Section 53 application have been submitted the</p>

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	<p>the Department of Mineral Resources (DMR) may be required to use land surface contrary to the objects of the Act in terms of section 53 of the Mineral and Petroleum Resources Development Act, (Act No 28 of 2002): In terms of the Act approval from the Minister of Mineral Resources is required to ensure that proposed activities do not sterilise a mineral resources that might occur on site.</p>		<p>Northern Cape DMR office.</p>
<p>National Environmental Management: Air Quality Act (Act No 39 of 2004)</p>	<p>Measures in respect of dust control (S32) – no regulations promulgated yet.</p> <p>Measures to control noise (S34) - no regulations promulgated yet.</p>	<p>Department of Environmental Affairs</p>	<p>No permitting or licensing requirements arise from this legislation.</p> <p>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.</p>
<p>National Heritage Resources Act (Act No 25 of 1999)</p>	<ul style="list-style-type: none"> » Stipulates assessment criteria and categories of heritage resources according to their significance (S7). » Provides for the protection of all archaeological and paleontological sites, and meteorites (S35). » Provides for the conservation and care of cemeteries and graves by SAHRA where this is not the responsibility of any other authority (S36). » Lists activities which require developers any person 	<p>South African Heritage Resources Agency and Ngwao Bošwa ya Kapa Bokone (the Northern Cape Heritage Authority)</p>	<p>An HIA has been undertaken as part of the Basic Assessment Process to identify heritage sites (refer to Appendix D). The site does not contain surface heritage resources, however should any heritage resources be</p>

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	<p>who intends to undertake to notify the responsible heritage resources authority and furnish it with details regarding the location, nature, and extent of the proposed development (S38).</p> <ul style="list-style-type: none"> » Requires the compilation of a Conservation Management Plan as well as a permit from SAHRA for the presentation of archaeological sites as part of tourism attraction (S44). 		<p>exposed; the relevant permit for removal/ destruction must be obtained from SAHRA/ the Northern Cape Heritage Authority.</p>
<p>National Environmental Management: Biodiversity Act (Act No 10 of 2004)</p>	<ul style="list-style-type: none"> » Provides for the MEC/Minister to identify any process or activity in such a listed ecosystem as a threatening process (S53) » A list of threatened and protected species has been published in terms of S 56(1) - Government Gazette 29657. » Three government notices have been published, i.e. GN R 150 (Commencement of Threatened and Protected Species Regulations, 2007), GN R 151 (Lists of critically endangered, vulnerable and protected species) and GN R 152 (Threatened or Protected Species Regulations). » Provides for listing threatened or protected ecosystems, in one of four categories: critically endangered (CR), endangered (EN), and vulnerable (VU) or protected. The first national list of threatened terrestrial ecosystems has been gazetted, together with supporting information on the listing process including the purpose and rationale for listing ecosystems, the criteria used to identify listed ecosystems, the implications of listing 	<p>Department of Environmental Affairs</p>	<p>As the applicant will not carry out any restricted activity, as is defined in S1 of the Act, no permit is required to be obtained in this regard.</p> <p>Specialist flora and fauna studies have been undertaken as part of the Basic Assessment Process. As such the potentially occurrence of critically endangered, endangered, vulnerable, and protected species and the potential for them to be affected has been considered.</p>

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	<p>ecosystems, and summary statistics and national maps of listed ecosystems (National Environmental Management: Biodiversity Act: National list of ecosystems that are threatened and in need of protection, (G 34809, GN 1002), 9 December 2011).</p> <ul style="list-style-type: none"> » This Act also regulates alien and invader species. » Under this Act, a permit would be required for any activity which is of a nature that may negatively impact on the survival of a listed protected species. 		
<p>Conservation of Agricultural Resources Act (Act No 43 of 1983)</p>	<ul style="list-style-type: none"> » Prohibition of the spreading of weeds (S5) » Classification of categories of weeds & invader plants (Regulation 15 of GN R1048) & restrictions in terms of where these species may occur. » Requirement & methods to implement control measures for alien and invasive plant species (Regulation 15E of GN R1048). 	<p>Department of Agriculture</p>	<p>This Act will find application throughout the life cycle of the project. In this regard, soil erosion prevention and soil conservation strategies must be developed and implemented. In addition, a weed control and management plan must be implemented.</p> <p>No permit is required for these activities.</p>
<p>National Forests Act (Act No. 84 of 1998)</p>	<p>According to this act, the Minister has declared a tree, group of trees, woodland or a species of trees as protected. The prohibitions provide that 'no person may cut, damage, disturb, destroy or remove any protected tree, or collect, remove, transport, export, purchase,</p>	<p>National Department of Forestry</p>	<p>They are no known protected trees on the site therefore no permit is required.</p>

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	sell, donate or in any other manner acquire or dispose of any protected tree, except under a licence granted by the Minister'.		
National Veld and Forest Fire Act (Act 101 of 1998)	<p>In terms of S12 the applicant must ensure that the firebreak is wide and long enough to have a reasonable chance of preventing the fire from spreading, not causing erosion, and is 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>	Department of Agriculture, Forestry and Fisheries (DAFF)	While no permitting or licensing requirements arise from this legislation, this act will find application during the construction and operational phase of the project.
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 as Group I or Group II</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. If applicable, a license is required to be obtained from the Department of Health.

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	substance Group IV: any electronic product; and 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.		
Northern Cape Planning and Development Act (Act 7 of 1998)	Provides for the overall framework and administrative structures for planning throughout the Northern Cape.	Local Municipality	The applicant must submit a land development application in the prescribed manner and form as provided for in the Act. A land development applicant who wishes to establish a land development area must comply with procedures set out in the Act.
Subdivision of Agricultural Land Act (Act No 70 of 1970)	Details land subdivision requirements and procedures. Applies for subdivision of all agricultural land in the province	Department of Agriculture	No subdivision is proposed. Permission will be required to register a long terms lease agreement against the title of the property.
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)	The Minister may by notice in the <i>Gazette</i> publish a list of waste management activities that have, or are likely to have, a detrimental effect on the environment. The Minister may amend the list by – » Adding other waste management activities to the	National Department of Water and Environmental Affairs DENC	As no waste disposal site is to be associated with the proposed project, no permit is required in this regard. Waste handling, storage

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	<p>list.</p> <ul style="list-style-type: none"> » Removing waste management activities from the list. » Making other changes to the particulars on the list. <p>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.</p> <p>Any person who stores waste must at least take steps, unless otherwise provided by this Act, to ensure that:</p> <ul style="list-style-type: none"> » 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. » Adequate measures are taken to prevent accidental spillage or leaking. » The waste cannot be blown away. » Nuisances such as odour, visual impacts and breeding of vectors do not arise; and » Pollution of the environment and harm to health are prevented. 		<p>and disposal during construction and operation is required to be undertaken in accordance with the requirements of the Act, as detailed in the EMP (refer to Appendix G).</p> <p>The volumes of waste to be generated and stored on the site during construction and operation of the facility will not require a waste license (provided these remain below the prescribed thresholds).</p>
National Road Traffic Act (Act No 93 of 1996)	<ul style="list-style-type: none"> » The technical recommendations for highways (TRH 11): "Draft Guidelines for Granting of Exemption Permits for the Conveyance of Abnormal Loads and for other Events on Public Roads" outline the rules and conditions which apply to the transport of 	<ul style="list-style-type: none"> » South African National Roads Agency Limited (national roads) » Provincial 	<p>An abnormal load/vehicle permit may be required to transport the various components to site for construction. These</p>

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	<p>abnormal loads and vehicles on public roads and the detailed procedures to be followed in applying for exemption permits are described and discussed.</p> <ul style="list-style-type: none"> » Legal axle load limits and the restrictions imposed on abnormally heavy loads are discussed in relation to the damaging effect on road pavements, bridges, and culverts. » The general conditions, limitations, and escort requirements for abnormally dimensioned loads and vehicles are also discussed and reference is made to speed restrictions, power/mass ratio, mass distribution, and general operating conditions for abnormal loads and vehicles. Provision is also made for the granting of permits for all other exemptions from the requirements of the National Road Traffic Act and the relevant Regulations. 	<p>Department of Transport</p>	<p>include route clearances and permits will be required for vehicles carrying abnormally heavy or abnormally dimensioned loads.</p> <p>Transport vehicles exceeding the dimensional limitations (length) of 22m. Depending on the trailer configuration and height when loaded, some of the components may not meet specified dimensional limitations (height and width).</p>
<p>Promotion of Access to Information Act (Act No 2 of 2000)</p>	<p>All requests for access to information held by state or private body are provided for in the Act under S11.</p>	<p>Department of Environmental Affairs</p>	<p>No permitting or licensing requirements.</p>
<p>Promotion of Administrative Justice Act (Act No 3 of 2000)</p>	<p>In terms of S3 the government is required to act lawfully and take procedurally fair, reasonable, and rational decisions.</p> <p>Interested and affected parties have a right to be heard.</p>	<p>Department of Environmental Affairs</p>	<p>No permitting or licensing requirements.</p>
Provincial Legislation			
<p>Northern Cape Nature Conservation Act, Act No. 9 of 2009</p>	<p>This Act provides for the sustainable utilisation of wild animals, aquatic biota and plants; provides for the implementation of the Convention on International</p>	<p>Provincial Department of Environmental Affairs</p>	<p>A permit is required for any activities which involve species listed under</p>

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	<p>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:</p> <ul style="list-style-type: none"> » 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 animal) must take the necessary steps to eradicate or destroy such species. » The Act provides lists of protected species for the Province. 		<p>Schedule 1 or 2. Of relevance for the current development is the fact that several plant families and genera are listed in their entirety as protected, this includes, inter alia Mesembryanthemaceae, Amaryllidaceae, Apocyanaceae, Asphodeliaceae, Crassulaceae, Iridaceae and Euphorbia. A permit obtainable from the DENC permit office in Kimberly would be required for the site clearing. A permit would also be required to destroy or translocate any nationally or provincially listed species from the site. A single integrated permit, which covers all of these permitting requirements as well as meets ToPS regulations, is used.</p>

11. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

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

YES	<input checked="" type="checkbox"/>
If YES, what estimated quantity will be produced per month?	13.5 m ³

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

The solid waste will be disposed of at a licensed waste disposal facility by a suitably qualified contractor.

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

The solid waste will be disposed of at the closest registered waste facility.

Will the activity produce solid waste during its operational phase?

<input checked="" type="checkbox"/>	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?

<input type="checkbox"/>	<input checked="" type="checkbox"/>
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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.

Oils from the transformers are considered hazardous. Changing of oil from the

transformers will generate waste oil. However, the quantities is not large enough to require waste licencing/ a Scoping and EIA in terms of the NEM: Waste Act.

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

	NO
--	----

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 ³
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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
--	----

If YES, provide the particulars of the facility:

Facility name:			
Contact person:			
Postal address:			
Postal code:			
Telephone:		Cell:	
E-mail:		Fax:	

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

Not applicable.

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:

Minor dust impacts may occur during the construction of the substation and power line and any new access roads, but will not exceed acceptable limits.

d) Waste permit

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

	NO
--	----

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?

	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:

Noise may be generated by vehicle movement during construction, but would not exceed acceptable limits. Corona noise is emitted from a substation, however this is not a significant noise source.

12. 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	The activity will not use water
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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:

YES

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

YES

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

The developer is in process of applying for a water use licence to the Department of Water Affairs for the construction and operation of the larger project – the wind energy facility, including the substation, power line and associated infrastructure.

13. ENERGY EFFICIENCY

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

Not applicable.

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

The wind facility will generate electricity from a renewable source (i.e. the wind). The substation and power line will transmit this electricity into the Eskom grid for use.

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

1. 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):

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

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

YES	
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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:

Province	Northern Cape Province
District Municipality	Namakwa District Municipality
Local Municipality	Hantam Local Municipality
Ward Number(s)	5
Farm name and number	Farm Sous 226
Portion number	The Remaining Extent of Farm Sous 226 Portion 3 of Farm Sous 226 (the railway line)
SG Code	C015000000002260000 C015000000002260003

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:

Agriculture (Livestock)

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?

YES

The substation site would be required to be rezoned and a servitude would be required to be registered for the power line

A. KHOBAB SUBSTATION SITE

The section below relates to the environment affected by the Khobab substation site (preferred and alternative site):

A1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1 (preferred option)

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 S2:

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		

A2. LOCATION IN LANDSCAPE

Both substation sites have the same landscapes, in close proximity to each other.

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

2.1 Ridgeline	<input type="checkbox"/>	2.4 Closed valley	<input type="checkbox"/>	2.7 Undulating plain / low hills	<input type="checkbox"/>
2.5 Open valley	<input type="checkbox"/>	2.8 Dune	<input type="checkbox"/>		
2.3 Side slope of hill/mountain	<input type="checkbox"/>	2.6 Plain	<input checked="" type="checkbox"/>	2.9 Seafront	<input type="checkbox"/>

A3. 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)		NO		NO	YES	NO
Dolomite, sinkhole or doline areas		NO		NO	YES	NO
Seasonally wet soils (often close to water bodies)		NO		NO	YES	NO
Unstable rocky slopes or steep slopes with loose soil		NO		NO	YES	NO
Dispersive soils (soils that dissolve in water)		NO		NO	YES	NO
Soils with high clay content (clay fraction more than 40%)		NO		NO	YES	NO
Any other unstable soil or geological feature		NO		NO	YES	NO
An area sensitive to erosion	YES		YES		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.

A4. 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).

Both substation sites had the same ground cover characteristics

Natural veld - good condition ^E	Natural veld with scattered aliens^E	Natural veld with heavy alien infestation ^E	Veld dominated by alien species ^E	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.

See Appendix D: Ecological Basic assessment Report:

The abundance of alien species at the site was generally low. The only large woody invader observed at the site was *Prosopis glandulosa*, which occurred infrequently within the lower lying parts of the site. Other less significant alien species observed includes *Salsola kali*, *Atriplex lindelyi subsp inflata* and *Atriplex semibacatta*.

The entire site falls within the Bushmanland Basin Shrubland vegetation type. This is one of the most extensive vegetation types in South Africa. Bushmanland Basin Shrubland occurs on the extensive basin centered on Brandvlei and Van Wyksvlei, spanning Granaatboskolk in the west to Copperton in the east, and Kenhardt in the north to around Williston in the south. The area is characterized by slightly irregular plains dominated by a dwarf shrubland, 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. Rainfall ranges from 100-200mm and falls mostly during the summer months as thunder storms. As a result of the arid nature of the area, very little of this vegetation type has been affected by intensive agriculture and it is classified as Least Threatened. The vegetation of the site is relatively homogenous and consists largely of a dwarf shrubland dominated by perennial shrubs less than 40cm tall.

A5. SURFACE WATER

Indicate the surface water present on and or adjacent to the site and alternative sites?
 Both substation alternatives consisted of the same surface water characteristics.

Perennial River		NO	
Non-Perennial River		NO	
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.

The substation alternative option 2 is located adjacent to a drainage line (however not within in it). The NFEPA suggests that there are a number of small pans/ drainage lines at the site. In practice the majority of these are drainage areas of bare ground where water collects occasionally and are not vegetated.

A6. 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:

Both substation sites have the same land use character as that of the surrounding area

Natural area	Dam or reservoir	Polo fields
Low density residential	Hospital/medical centre	Filling station ^H
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential ^A	Church	Agriculture (Sheep Farming)
Retail commercial & warehousing	Old age home	River, stream or wetland
Light industrial	Sewage treatment plant ^A	Nature conservation area
Medium industrial ^{AN}	Train station or shunting yard ^N	Mountain, koppie or ridge
Heavy industrial ^{AN}	Railway line ^N	Museum
Power station	Major road (4 lanes or more) ^N	Historical building
Office/consulting room	Airport ^N	Protected Area
Military or police base/station/compound	Harbour	Graveyard
Spoil heap or slimes dam ^A	Sport facilities	Archaeological site
Quarry, sand or borrow pit	Golf course	Agriculture

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:

Both alternatives displayed the same environmental characteristics and impacts.

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.

A map showing the SKA project and the Khobab substation and power line is attached to Appendix A. The developer has submitted an application to SKA. Feedback/ comment from SKA will be obtained.

B. KHOBAB-HELIOS POWER LINE

The section below relates to the environment affected by the preferred and alternative Khobab – Helios Power line:

B1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Preferred Alternative S1:

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 S2:

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		

B2. LOCATION IN LANDSCAPE

Both power line options had the following landscape attributes. 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	<input type="checkbox"/>	2.5 Open valley	<input type="checkbox"/>	2.8 Dune	<input type="checkbox"/>
2.3 Side slope of hill/mountain	<input type="checkbox"/>	2.6 Plain	<input checked="" type="checkbox"/>	2.9 Seafront	<input type="checkbox"/>

B3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

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

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.

B4. 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).

Both power line options displayed the same ground cover characteristics.

Natural veld - good condition ^E	Natural veld with scattered aliens^E	Natural veld with heavy alien infestation ^E	Veld dominated by alien species ^E	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.

Refer to Appendix D: Ecological Assessment

The abundance of alien species at the site was generally low. The only large woody invader observed at the site was *Prosopis glandulosa*, which occurred infrequently within the lower lying parts of the site. Other less significant alien species observed includes *Salsola kali*, *Atriplex lindelyi subsp inflata* and *Atriplex semibacatta*.

The entire site falls within the Bushmanland Basin Shrubland vegetation type. This is one of the most extensive vegetation types in South Africa. Bushmanland Basin Shrubland occurs on the extensive basin centered on Brandvlei and Van Wyksvlei, spanning Granaatboskolk in the west to Copperton in the east, and Kenhardt in the north to around Williston in the south. The area is characterized by slightly irregular plains dominated by a dwarf shrubland, 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. Rainfall ranges from 100-200mm and falls mostly during the summer months as thunder storms. As a result of the arid nature of the area, very little of this vegetation type has been affected by intensive agriculture and it is classified as Least Threatened. The vegetation of the site is relatively homogenous and consists largely of a dwarf shrubland dominated by perennial shrubs less than 40cm tall. The abundance of alien species at the site was generally low. The only large woody invader observed at the site was *Prosopis glandulosa*, which occurred infrequently within the lower lying parts of the site. Other less significant alien species observed includes *Salsola kali*, *Atriplex lindelyi subsp inflata* and *Atriplex semibacatta*.

B5. SURFACE WATER

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

Both power line options cross a non-perennial drainage line.

Perennial River		NO	UNCERTAIN
Non-Perennial River (Drainage Lines)	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.

The power line traverse non-perennial (seasonal) drainage lines at two points (refer to environmental sensitivity map). Note that the pylons can easily be strung across the drainage lines to avoid the banks and riparian vegetation. The NFEPA layer suggests that there are a number of small pans at the site. In practice the majority of these are areas of bare ground where water collects occasionally and are not vegetated.

B6. LAND USE CHARACTER OF SURROUNDING AREA

Both power line options cross the same land use types and characteristics.

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:

Natural area	Dam or reservoir	Polo fields
Low density residential	Hospital/medical centre	Filling station ^H
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential ^A	Church	Agriculture (Sheep Farming)
Retail commercial & warehousing	Old age home	River, stream or wetland
Light industrial	Sewage treatment plant ^A	Nature conservation area
Medium industrial ^{AN}	Train station or shunting yard ^N	Mountain, koppie or ridge
Heavy industrial ^{AN}	Railway line ^N	Museum
Power station	Major road (4 lanes or more) ^N	Historical building
Office/consulting room	Airport ^N	Protected Area
Military or police base/station/compound	Harbour	Graveyard
Spoil heap or slimes dam ^A	Sport facilities	Archaeological site
Quarry, sand or borrow pit	Golf course	Agriculture

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.

A map showing the SKA project and the Khobab substation and power line is attached to Appendix A. The developer has submitted an application to SKA. Feedback/ comment from SKA will be obtained.

C. CULTURAL/HISTORICAL FEATURES

This section is applicable for both Substation options and the Khobab-Helios power line

Are there any signs of culturally or historically significant elements, as 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:

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:

Input from a heritage specialist was obtained (refer to Appendix D for heritage report). A walk through survey of the substation sites and power line was undertaken and did not reveal any significant heritage/ cultural features.

Will any building or structure older than 60 years be affected in any way?

	NO
	NO

Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

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

D. SOCIO-ECONOMIC CHARACTER

The description below is relevant for all components of the proposed project

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:

Employment levels in the Namakwa District Municipality were substantially better than the province in total, probably due to exported unemployment and conversely imported labour for the mining industry. These workers would then return to their home areas if employment levels declined in the district. High local level employment is probably due to a small population largely employed in the agricultural sector (MasterQ Research, 2012, Socio-Economic Assessment for the Wind Energy Facility near Facility).

Economic profile of local municipality:

The Northern Cape is comparatively sparsely populated as a province, which usually translates into low economic output when compared to population centres. Gross Domestic Product figures support this notion and the Northern Cape contributed only 2.3% of national GDP in 2008 (StatsSA, 2009).

The Namakwa DM area contains a historically important mining node in the province, namely the area surrounding the town of Springbok, and the mining industry has been one of the main productive forces in the NDM area. The NDM LED plan indicates that mining continues to dominate the economic landscape in that area with a contribution

of 52%. In general it appears that the NDM area is not economically diversified and therefore more prone to economic shocks in its key industries, especially the mining industry. This happened in 2008 during the global economic crisis, when the economy was adversely affected to a significant degree due to a number of mining operations closing down temporarily in the Springbok area (Urban Econ, 2009).

The Local Economic Development (LED) documentation for the NDM area indicates that distance from markets and a lack of infrastructure represent the biggest challenges to development as these factors limit the ability of businesses to access major markets in a cost effective manner. Furthermore, the NDM area and the Northern Cape Province is currently experiencing a population decline, putting a severe constraint on available local skills for growth and development. According to the above documentation the economic development strategies and future target areas of the NDM area focuses on the development, diversification and stabilization of the regional economy (MasterQ Research, 2012, Socio-Economic Assessment for the Wind Energy Facility near Loeriesfontein).

Level of education:

Large portions (81%) of the adult population (20+years) in Hantam Local Municipality have not completed secondary education (MasterQ Research, 2012, Socio-Economic Assessment for the Wind Energy Facility near Loeriesfontein).

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	~R20 million
What is the expected yearly income that will be generated by or as a result of the activity?	N/A
Will the activity contribute to service infrastructure?	YES
Is the activity a public amenity?	YES
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	18-30
What is the expected value of the employment opportunities during the development and construction phase?	Unknown
What percentage of this will accrue to previously disadvantaged individuals?	Unknown
How many permanent new employment opportunities will be created during the operational phase of the activity?	Nil. Eskom will maintain the substation from current staff complement
What is the expected current value of the employment opportunities during the first 10 years?	N/A

What percentage of this will accrue to previously disadvantaged individuals?	N/A
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E. 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. 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.

Refer to Ecology specialist report contained in Appendix D.

- 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)	The site does not fall within the CBA and the nearest CBAs are more than 10km from the development footprint, suggesting that the area is not likely to be highly significant in terms of known biodiversity pattern or for the maintenance of broad-scale ecological processes.

- 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	0%	

Near Natural (includes areas with low to moderate level of alien invasive plants)	98%	Relatively good condition
Degraded (includes areas heavily invaded by alien plants)	0%	
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	2%	Cultivation, roads, homesteads.

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)	Estuary	Coastline		
	Endangered					
	Vulnerable					
	Least Threatened					
	YES			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)

Vegetation:

The national vegetation map (Mucina & Rutherford 2006) for the study area is depicted in Figure 1.3. The entire site falls within the Bushmanland Basin Shrubland vegetation type. This is one of the most extensive vegetation types in South Africa. Bushmanland Basin Shrubland occurs on the extensive basin centered on Brandvlei and Van Wyksvlei, spanning Granaatboskolk in the west to Copperton in the east, and Kenhardt in the north to around Williston in the south. The area is characterized by slightly irregular plains dominated by a dwarf shrubland, 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. Rainfall ranges from 100-200mm and falls mostly during the summer months as thunder storms. As a result of the arid nature of the area, very little of this vegetation type has been affected by intensive agriculture and it is classified as Least Threatened. The vegetation of the site is relatively homogenous and consists largely of a dwarf shrubland dominated by perennial shrubs less than 40cm tall.

Endemic Species

There are few endemic and biogeographically important species present at the site and only *Tridentea dwequensis* is listed by Mucina and Rutherford as biogeographically important while *Cromidon minimum*, *Ornithogalum bicornutum* and *O.ovatum* subsp *oliverorum* are listed as being endemic to the vegetation type. Although a full description of the common and dominant species which typically dominate this vegetation type is provided by Mucina and Rutherford, this is not related here as an actual description of the vegetation as it occurs at the site.

Other vegetation types which occur in the area include Hantam Karoo, Bushmanland Vloere and Western Bushmanland Klipveld. However, none of these vegetation are in close proximity to the site and the site visit supports the national vegetation map which has only Bushmanland Basin Shrubland within the site.

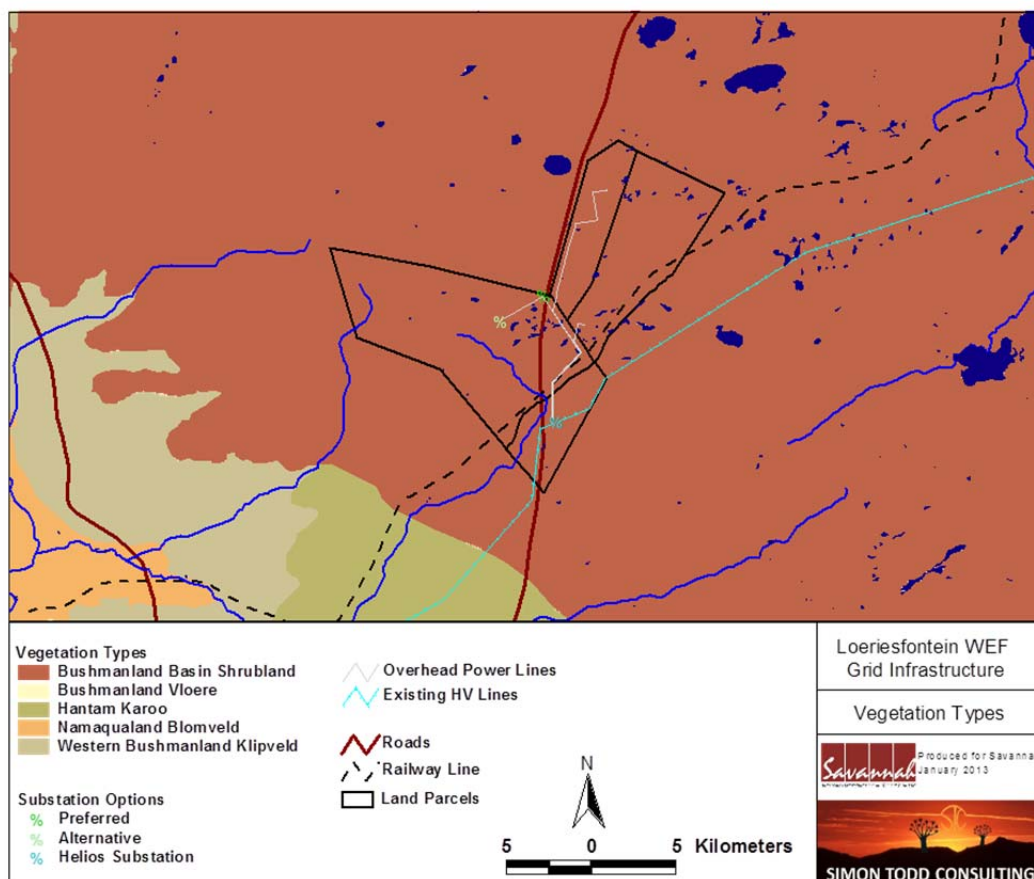


Figure 1.3. The national vegetation map (Mucina & Rutherford 2006) for the study area. Rivers and wetlands delineated by the National Freshwater Ecosystem Priority Areas Assessment (Nel et al. 2011) are also depicted.

Listed Plant Species

The study area has been very poorly sampled in the past and many of the quarter degree squares in the area have no data available whatsoever. According to the SIBIS database, a total of 135 indigenous species are known from the area. This is however clearly an underestimate and the broad area is likely to harbor significantly more species. However, the area is not species-rich and even with more intensive sampling the area is not likely to demonstrate exceptional richness. Apart from the listed species- *Hoodia gordonii* and *Aloinopsis luckhoffii* which was observed at the site, the only other listed species which may occur at the site are *Cephalophyllum fullerii* which is classified as Rare and *Lithops otzeniana* which is classified as Vulnerable.

Overall, the site is not considered highly sensitive in terms of biodiversity.

SECTION C: PUBLIC PARTICIPATION

» **ADVERTISEMENT AND NOTICE**

Publication name	Noordwester and Ons Kontrei	
Date published	22 February 2013	
Site notice position	Latitude	Longitude
	30°29'50.38"	19°33'27.34"
	30°26'27.95"	19°33'27.27"
Date placed	15 February 2013	

Include proof of the placement of the relevant advertisements and notices. See Appendix E1.

» **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.

<p>The public consultation process has included the following tasks:</p> <ul style="list-style-type: none"> » Placement of site notices on site and in public places in the study areas » Publishing of newspaper adverts which advertised the proposed project and availability of draft Basic Assessment report for public review. » Distribution of notification letters to identified I&APs. » Providing written notice to affected and neighbouring landowners and consultation through one-on-one consultation sessions and via telephone.
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Key stakeholders (other than organs of state) identified in terms of Regulation 54(2) (b) of GN R.543:

Title, Name and Surname	Affiliation/ key stakeholder status	Contact details (tel number or e-mail address)

A list of key stakeholders is included as Appendix E5.
--

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.

» **ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES**

All 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 attached as Appendix E in the final Basic Assessment Report.

Summary of main issues raised by I&APs	Summary of response from EAP

» **COMMENTS AND RESPONSE REPORT**

The practitioner must record all comments received from I&APs and respond to each comment before the Draft 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.

All 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 attached as Appendix E in the final Basic Assessment Report.

» **AUTHORITY PARTICIPATION**

Authorities and organs of state identified as key stakeholders:

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No	Fax No	e-mail	Postal address
Department of Agriculture, Forestry & Fisheries	Ms Thoko Buthelezi	0123197634		thokob@daff.gov.za	Private Bag X120 Pretoria 0001
Department of Agriculture, Forestry & Fisheries	Ms Jacoline Mans	0543385909	0543340030	jacolinema@daff.gov.za	PO Box 2782 Upington 8800
Department of Agriculture, Forestry & Fisheries	Ms Mashudu Marubani	0123197619		mashuduma@daff.gov.za	Private Bag X120 Pretoria 0001
Department of Energy	DDG Programmes and Projects	0124067568			Private Bag X96 Pretoria 0001
Department of Energy	The Director: Northern Cape	0538071752	0865627065		Private Bag X6093 Kimberley 8300
Department of Mineral Resources	Ntsundeni Ravhugoni	0538071700	0538300827	Ntsundeni.Ravhugoni@dmr.gov.za	Private Bag X6093 Kimberley 8300
Department of Rural Development and Land Reform	Ms Debbie Khan	0123129490	0123236072	dkhan@ruraldevelopment.gov.za	Private Bag X833 Pretoria 0001
Department of Science and Technology	Nombuyiselo Mokoena	0128436632			Private Bag X894 Pretoria 0001
Department of Water Affairs	Mr A Abrahams	0828836741	0538314534	abrahamsa@dwaf.gov.za	Private Bag X6101 Kimberley 8300
Department of Water Affairs	Ms Tocky Ngobeni		0123367488	ngobenit@dwa.gov.za	Private Bag X313 Pretoria 0001
Department of	Ms Mashudu	05333858		ranwedzim@dwaf.gov.za	Department of

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No	Fax No	e-mail	Postal address
Water Affairs	Ranwedzi	00		a.gov.za	Water Affairs Louisvale Road Upington 8800
Eskom	Mr John Geeringh	0115167233	0866614064	john.geeringh@eskom.co.za	PO Box 1091 Johannesburg 2001
Eskom	Henk Landman	021 9803412	086 6626503	henk.landman@eskom.co.za	PO Box 222 Brackenfell 7561
Hantam Local Municipality	Mr Charl Du Plessis	0273418500	0273418501	municipalmanager@hantam.gov.za	Private Bag X14 Calvinia 8190
Hantam Local Municipality	Mr Ivan Valentein	0273418542	0273418401		Private Bag X14 Calvinia 8190
Namakwa District Municipality	Ms Madeline Brand	0277128000	0277128040	jolenes@namakwa-dm.gov.za	Private Bag X20 Springbok 8240
Northern Cape Department of Agriculture, Land Reform & Rural Development	Mr Ali Diteme	0538389106	0538324328	aditeme@agri.ncape.gov.za	Private Bag X5018 Kimberley 8300
Northern Cape Department of Environment and Nature Conservation	Mr E Botes	0538077300	0538077367	twessels@ncpg.gov.za	Private Bag X6102 Kimberley 8300
Northern Cape Department of Environment and Nature Conservation	Mr J Mutyorauta	0538077431		jmutyorauta@ncpg.gov.za	Private Bag X6010 Kimberley Northern Cape 8300
Northern Cape Department of Roads and Public Works	Mr Kenneth Markman	0536311355	0536311357	kenneth.markman@vodamail.co.za	PO Box 133 De Aar 7000
Northern Cape Department of Roads and Public Works	Mr Kholikile Nogwili	0538382109	0866176108	lucindavanwyk@ncpg.gov.za	PO Box 3132 Squarehill Park Kimberley 8300

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No	Fax No	e-mail	Postal address
Northern Cape Department of Roads and Public Works	Ms Ruth Palm	05383921 03	05383922 90		PO Box 3132 Squarehill Park Kimberley 8300
Northern Cape Provincial Heritage Resources Agency	Mr Andrew Timothy	05383125 37	05383314 35	ratha.timothy@gmail.com	PO Box 1930 Kimberley 8300
South African Civil Aviation Authority	Ms Lizell Stroh	01154512 32	01154512 82	strohl@caa.co.za	Private Bag X 73 Halfway House 1685
South African Heritage Resources Agency (SAHRA)	Ms Mariagrazia Galimberti	02146245 02	02146245 09	mgalimberti@sahra.org.za	PO Box 4637 Cape Town 8000
South African Heritage Resources Agency (SAHRA)	Ms Kathryn Smuts	02146245 02		ksmuts@sahra.org.za	PO Box 4637 Cape Town 8000
South African National Roads Agency Limited (SANRAL)	Rene De Kock	02195746 07		decockr@nra.co.za	Private Bag X19 Bellville Cape Town 7535
Square Kilometre Array (SKA): South Africa	Mr Adrian Tiplady	01144224 34		atiplady@ska.ac.za	PO Box 522940 Saxonwold 2132

Include proof that the Authorities and Organs of State received written notification of the proposed activities. See **appendix E4**.

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

» **CONSULTATION WITH OTHER STAKEHOLDERS**

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.

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.

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

1. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES:

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

- » Construction of the proposed Khobab Substation;
- » Construction of the 132kV Khobab-Helios Power line; and
- » Associated infrastructure such as access roads, a temporary lay down area, a temporary construction compound and operation and maintenance (O&M) building.

The extent of the infrastructure required is as follows:

- » 132 kV Substation building and high voltage yard (1 hectare);
- » 132kv Power Line (36m wide servitude and up to 11 km in length);
- » Operations and Maintenance building (20m x 20m building footprint);
- » Operations and Maintenance yard (1 hectare);
- » Temporary Lay-down area (1 hectare);
- » Temporary Construction compound (5000m² / 0.5 hectares);
- » Access road (up to 10m wide) to the substation and along the power line route.

The total development footprint for the substation and associated infrastructure is therefore up to 5 hectares in extent, plus the 10m wide access road (linear activity).

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.

A. ASSESSMENT OF KHOBAB SUBSTATION ALTERNATIVES

Two alternative sites have been identified for the Khobab Substation within the Khobab Wind Energy Facility. These alternatives are assessed in the tables which follow.

Alternative 1: Khobab Substation (technically preferred site)

Activity	Impact summary	Significance	Proposed mitigation
Alternative 1 (Technically Preferred Alternative)			
Loss of vegetation due to the construction activities.	Direct Impacts: The construction of the substation will result in loss of the Bushmanland Basin Shrubland vegetation type within the development footprint	Medium	<ul style="list-style-type: none"> » Vegetation clearing to 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. » 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.
	Indirect impacts: None	-	-
	Cumulative impacts: There is other power generation and transmission infrastructure in the broader area (including power lines, substations, and wind energy developments) which would cause similar impacts.	Low	Minimise area of disturbance as far as possible.
Construction activities for the substation could result in mortality and loss of habitat for terrestrial fauna.	Direct impacts: There are a few animal species of special concern that occur within the study site. The site falls within the distribution range of 40 terrestrial mammals suggesting that potential	Low	<ul style="list-style-type: none"> » Any fauna directly threatened by the construction activities should be removed to a safe location by the ECO or other suitably qualified person. » 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. » Fires should only be allowed within fire-safe demarcated areas. » No unauthorized persons should be allowed onto the site.

Activity	Impact summary	Significance	Proposed mitigation
	mammalian, reptile and amphibian diversity at the site is low.		» All construction vehicles should adhere to a low speed limit to avoid collisions with susceptible species such as snakes and tortoises.
	Indirect impacts: None	-	-
	Cumulative impacts: The construction 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	Low	» None required.
The development footprint of 5 hectares for the substation, access road, laydown areas etc., will be cleared and excavations are required, which can result in bare areas which can trigger soil erosion	Direct Soil erosion/ soil loss	Medium	<ul style="list-style-type: none"> » If it is not possible to retain a good plant cover during construction, erosion control measures should be implemented to keep the soil covered by other means, i.e. straw, mulch, erosion control mats, etc., until a healthy plant cover is again established. » Care should also be taken to control and contain storm water run-off. » Re-vegetation of the site must be undertaken after decommissioning of the substation and after removal of temporary infrastructure such as lay-down areas and temporary construction compound. » Existing access roads to be utilised, as far as possible.
	Indirect impact: None	None	-
	Cumulative Impacts: Soil Loss	Low	» Implement erosion management measures]
Use of potential sources of contaminants on the	Direct Soil contamination	Medium	<ul style="list-style-type: none"> » Vehicles and equipment must be serviced regularly and maintained in a good running condition. » Storage of chemicals must be done under strict industry standards

Activity	Impact summary	Significance	Proposed mitigation
<i>site (i.e. transformer oil, petrol, diesel and other substances used for the substation, by the vehicles and equipment) during the operational phase of the substation.</i>			and as per the requirements of the Hazardous Substances Act » A procedure to clean up any spillage must be developed and kept onsite (at the substation site). » Spill kits must be kept at the substation site.
	Indirect impact: None	-	-
	Cumulative Impacts: None	-	-
Construction (excavations) of the substation, access road and other infrastructure.	Direct impact: The potential damage or loss of below and above ground archaeological/ heritage sites/ graves / fossils.	Low	» No mitigation is proposed before construction starts because the archaeological remains (if any) are of low significance (excluding human remains). However, all construction activities of the substation site must be monitored by a trained ECO. If concentrations of archaeological materials are exposed then all work must stop for an archaeologist to investigate and record the site as may be required by the heritage authority. » If any human remains, fossils or any other concentrations of archaeological heritage material are exposed during construction, all work must cease and it must be reported immediately to the nearest museum/archaeologist or the Northern Cape Heritage Authority. » A systematic and professional investigation of any finds must be undertaken. Sufficient time should be allowed to investigate and to remove/collect such material.
	Indirect impact: None	-	-
	Cumulative impact: No heritage sites of importance were identified on the development footprints.	Low	-

Activity	Impact summary	Significance	Proposed mitigation
	Minimal archaeological traces mean that cumulative impacts would be negligible.		
<p>Visibility of the substation and scarring of the landscape by temporary laydown areas/ construction camp.</p>	<p>Direct impact: Potential visual impact of the substation on any visual receptors and sense of place.</p>	Low	<ul style="list-style-type: none"> » Institute a planting regime around the boundaries of the chosen substation. » The steel components within the substation should not be painted but be galvanised and allowed to oxidise naturally over time. The grey colour produced in this process will help to reduce the visual impact. » Those parts of the substation that require the protection of paint should be painted in colours chosen from a palette that is matched to the natural colours found in the surrounding landscape. » New road construction must be kept to a minimum. Utilise existing roads and tracks to the extent possible.
	<p>Indirect impact: The infrastructure associated with the substation is of such a nature that the status quo could be regained to a large degree after decommissioning of the proposed activity. Providing that the site is rehabilitated to its current state, the visual impact will also be removed.</p>	Low	As above
	<p>Cumulative impacts: Due notice is taken of the intention and approval to develop the large scale wind energy facility on the</p>	Medium	As above

Activity	Impact summary	Significance	Proposed mitigation
	remainder of the project site. The cumulative impact of the establishment of wind turbines and the power line will be of a medium significance.		
Staff required for construction and maintenance of the substation	Direct During construction a few temporary jobs (~13-30) will be created to construct the substation and power line. The operational phase will also create a few jobs.	Low (Positive)	<ul style="list-style-type: none"> » Employ local staff, as far as possible. » Attempt to provide skills development/ training for local employees.
	Indirect -	-	-
	Cumulative The development of the wind energy facility on the site, adds to possible social benefits and spin-offs.	Medium (Positive)	<ul style="list-style-type: none"> » Employ local staff, as far as possible. » Attempt to provide skills development/ training for local employees
Presence of construction workers on the site and temporary construction camp	Direct » Noise, dust, traffic, risk of damage to existing farm infrastructure associated with the construction of the substation.	Low (if the site is well managed)	<ul style="list-style-type: none"> » No open fires must be allowed on site and areas for smoking must be demarcated. » Members of the construction team should be easily identifiable (through the use of uniforms or name badges) and should behave fittingly at all times. » Fines should be given for not adhering to rules and regulations (with regards to conduct and safety). » Residents should be informed of the construction activities and schedules prior to the construction workforce entering the property. Privacy of residents and property owners should be respected. The

Activity	Impact summary	Significance	Proposed mitigation
			substation construction site should be fenced off to avoid any unauthorised individuals entering the site. » Good housekeeping and waste management. » Dust control on access roads. » Construction vehicles to keep to the speed limit on roads.
	Indirect Impacts: None	N/A	-
	Cumulative Impacts: The development of the wind energy facility on the site, adds to possible social risks to the local community/landowners.	Low	» The EMP developed for the wind project together with that developed for the substation must be utilised to manage social impacts. » The developer to maintain communication with the local community during construction and operations.

Alternative 2: Khobab Substation

Activity	Impact summary	Significance	Proposed mitigation
Alternative 2			
Loss of vegetation due to the construction activities.	Direct Impacts: The construction of the substation will result in loss of this vegetation type within the development footprint	Low	<ul style="list-style-type: none"> » Vegetation clearing to 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. » 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.
	Indirect impacts: None	-	-
	Cumulative impacts: There is other power generation and transmission infrastructure in the broader area (including power lines, substations and wind energy developments) a number of additional power lines in the area which would cause similar impacts.	Low	Minimise area of disturbance as far as possible.
Construction activities for the substation could result in mortality and loss of habitat for terrestrial fauna.	Direct impacts: There are a few animal species of special concern that occur within the study site. The site falls within the distribution range of 40 terrestrial mammals	Low	<ul style="list-style-type: none"> » Any fauna directly threatened by the construction activities should be removed to a safe location by the ECO or other suitably qualified person. » 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. » Fires should only be allowed within fire-safe demarcated areas.

Activity	Impact summary	Significance	Proposed mitigation
	suggesting that potential mammalian, reptile and amphibian diversity at the site is low.		<ul style="list-style-type: none"> » No unauthorized persons should be allowed onto the site. » All construction vehicles should adhere to a low speed limit to avoid collisions with susceptible species such as snakes and tortoises.
	Indirect impacts: None	-	-
	Cumulative impacts: The construction 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	Low	None required.
Impact of construction and operation of the substation on drainage lines.	Direct Damage to drainage lines due to Substation Option 2 which is adjacent to a seasonal drainage line	Medium	<ul style="list-style-type: none"> » Avoid placing infrastructure within the drainage line. » Manage soil erosion on-site to prevent siltation of the drainage line. » Control storm water and runoff from the substation into drainage lines
	Indirect impacts	None	-
	Cumulative Impacts:	Low	-
The development footprint of 5 hectares for the substation, access road, laydown areas etc., will be cleared and excavations is required, which can	Direct Soil erosion/ soil loss	Low	<ul style="list-style-type: none"> » If it is not possible to retain a good plant cover during construction, erosion control measures should be implemented to keep the soil covered by other means, i.e. straw, mulch, erosion control mats, etc., until a healthy plant cover is again established. » Control and contain storm water run-off. » Re-vegetation of the site must be undertaken after decommissioning of the substation and after removal of temporary infrastructure such as lay-down areas and temporary construction compound.

Activity	Impact summary	Significance	Proposed mitigation
<i>result in bare areas which can trigger soil erosion</i>			» Existing access roads to be utilised, as far as possible.
	Indirect impact: None	None	-
	Cumulative Impacts: Soil Loss	Low	Implement erosion control measures.
<i>Use of potential sources of contaminants on the site (i.e. transformer oil, petrol, diesel and other substances used for the substation, by the vehicles and equipment) during the operational phase of the substation.</i>	Direct Soil contamination	Medium	<ul style="list-style-type: none"> » Vehicles and equipment must be serviced regularly and maintained in a good running condition. » Storage of chemicals must be done under strict industry standards and as per the requirements of the Hazardous Substances Act » A procedure to clean up any spillage must be developed and kept onsite (at the substation site). » Spill kits must be kept at the substation site.
	Indirect impact: None	-	-
	Cumulative Impacts: None	-	-
<i>Construction (excavations) of the substation, access road and other infrastructure.</i>	Direct impact: The potential damage or loss of below and above ground archaeological/ heritage sites/ graves / fossils.	Low	<ul style="list-style-type: none"> » No mitigation is proposed before construction starts because the archaeological remains (if any) are of low significance (excluding human remains). However, all construction activities of the substation site must be monitored by a trained ECO. » If concentrations of archaeological materials are exposed then all work must stop for an archaeologist to investigate and record the site as may be required by the heritage authority. » If any human remains, fossils or any other concentrations of archaeological heritage material are exposed during construction, all work must cease and it must be reported immediately to the nearest museum/archaeologist or the Northern Cape Heritage Authority. » A systematic and professional investigation of any finds must be

Activity	Impact summary	Significance	Proposed mitigation
	<p>Indirect impact: None</p> <p>Cumulative impact: No heritage sites of importance were identified on the development footprints. Minimal archaeological traces mean that cumulative impacts would be negligible.</p>	<p>-</p> <p>Low</p>	<p>undertaken. Sufficient time should be allowed to investigate and to remove/collect such material.</p> <p>-</p>
<p>Visibility of the substation and scarring of the landscape by temporary laydown areas/ construction camp.</p>	<p>Direct impact: Potential visual impact of the substation on any visual receptors and sense of place.</p>	<p>Low</p>	<ul style="list-style-type: none"> » Institute a planting regime around the boundaries of the chosen substation. » The steel components within the substation should not be painted but be galvanised and allowed to oxidise naturally over time. The grey colour produced in this process will help to reduce the visual impact. » Those parts of the substation that require the protection of paint should be painted in colours chosen from a palette that is matched to the natural colours found in the surrounding landscape. » New road construction must be kept to a minimum. Utilise existing roads and tracks to the extent possible.
	<p>Indirect impact: The infrastructure associated with the power lines are of such a nature that the status quo could be regained to a large degree after decommissioning of the proposed activity. Providing</p>	<p>Low</p>	<p>As above</p>

Activity	Impact summary	Significance	Proposed mitigation
	that the site is rehabilitated to its current state, the visual impact will also be removed.		
	Cumulative impacts: Due notice is taken of the intention and approval to develop the large scale wind energy farm on the remainder of the project site. The cumulative impact of the establishment of wind turbines and the power line will be of a medium significance.	Medium	As above
Staff required for construction and maintain acne of the substation	Direct During construction a few temporary jobs (~13-30) will be created to construct the substation. The operational phase will also create a few jobs.	Low (Positive)	<ul style="list-style-type: none"> » Employ local staff, as far as possible. » Attempt to provide skills development/ training for local employees.
	Indirect -	-	-
	Cumulative The development of the wind energy facility on the site, adds to possible social benefits and spin-offs.	Medium (Positive)	<ul style="list-style-type: none"> » - Employ local staff, as far as possible. » Attempt to provide skills development/ training for local employees
Presence of construction workers	Direct » Noise, dust, traffic, risk of	Low (if the site is well	» No open fires must be allowed on site and areas for smoking must be demarcated.

Activity	Impact summary	Significance	Proposed mitigation
on the site and temporary construction camp	damage to existing farm infrastructure associated with the construction of the substation.	managed)	<ul style="list-style-type: none"> » Members of the construction team should be easily identifiable (through the use of uniforms or name badges) and should behave fittingly at all times. » Fines should be given for not adhering to rules and regulations (with regards to conduct and safety). » Residents should be informed of the construction activities and schedules prior to the construction workforce entering the property. Privacy of residents and property owners should be respected. The substation construction site should be fenced off to avoid any unauthorised individuals entering the site. » Good housekeeping and waste management. » Dust control on access roads. » Construction vehicles to keep to the speed limit on roads.
	Indirect Impacts: None	N/A	-
	Cumulative Impacts: The development of the wind energy facility on the site, adds to possible social risks to the local community/ landowners.	Low	<ul style="list-style-type: none"> » The EMP developed for the wind project together with that developed for the substation must be utilised to manage social impacts. » The developer to maintain communication with the local community during construction and operations.

Comparison of Substation Alternatives:

Both substation location alternatives are proposed on the Farm Sous 226, as follows:

- » Option 1 - The technically preferred substation location: located in the north-eastern corner of the Farm Sous 226, just off the Granaatboskolk gravel road which passes through the site.
- » Option 2 - The alternative substation location: located in the central part of the Farm Sous 226.

In terms of the substation options, either option would be acceptable from an environmental and social perspective. However, the technically preferred option is upheld as the best environmental option. The vegetation composition at the two sites is similar, but the preferred location is adjacent to the public road and therefore would generate fewer disturbances to the vegetation and soils as it is within an area that already experiences disturbance from the traffic on the road. In addition, Substation Option 2 is located adjacent to a drainage line and is therefore more sensitive than the Substation Option 1. Therefore, **Substation Option 1** (the technically preferred location) is preferred from an environmental perspective.

No-Go Alternative:

No-go option
This option will result in no impacts occurring on the biophysical environment (i.e. biodiversity, soils) due to substation. However, this will result in the situation where the Khobab Wind Energy Facility cannot be connected to the electricity grid (as the current authorised connection point is no longer feasible). This will result in a lost opportunity for renewable energy production within the country. The no-go option is therefore not preferred.

B. ASSESSMENT OF KHOBAB-HELIOS 132kV POWER LINE ALTERNATIVES

Two alternative corridors have been identified for the proposed Khobab-Helios 132kV power line. The route extending from substation option 1 is Power Line Option 1 and the route extending from substation option 2 is Power Line Option 2. The length of each power line options are therefore as follows:

- » Power line Option 1 (linked to the preferred Substation Option 1) is approximately 9 km in length).
- » Power line Option 2 (linked to the alternative Substation Option 2) is approximately 11km in length).

Both power line options crosses/ spans the Remainder of Farm Sous 226, and Portion 3 of Farm Sous 226 (the railway line), until the point of connection to the existing Helios Substation (located on Portion 1 of Farm Sous 226). The section below provides an assessment of these alternatives.

Alternative 1: (Linked to the preferred Substation Option 1)

Activity	Impact summary	Significance	Proposed mitigation
Alternative 1 (Technically preferred alternative)			
Clearing of vegetation for power line servitude.	Direct Impacts: Loss of vegetation due to the construction of the power line.	Medium	<ul style="list-style-type: none"> » Keep removal of vegetation and trampling to a minimum. » Educate staff to keep construction activities within the demarcated areas. » Conduct a thorough search and rescue operation of all footprint areas prior to construction to remove and relocate species of conservation concern that can be re-planted. » Prevent spillage of construction material beyond area affected by servitude. » Control and regularly monitor the establishment of alien invasive species and remove as soon as detected.
	Indirect impacts: Reduction of Indigenous	Medium	As listed above.

Activity	Impact summary	Significance	Proposed mitigation
	species. Cumulative impacts: There is other power generation and transmission infrastructure in the broader area (including power lines, substations and the proposed wind energy facility) a number of additional power lines in the area which would cause similar impacts	Low-Medium	Management of the individual pieces of infrastructure.
Construction of power line (vegetation clearing, stringing of the power line and excavations for pylons).	Direct impacts: Temporary displacement and disturbance to animals, wildlife and avifauna.	Low	<ul style="list-style-type: none"> » Any animals directly threatened by the construction activities should be removed to a safe location by the ECO or other suitably qualified person. However if small animals are trapped they are to be caught and released in the general area. » 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. » Fires should only be allowed within fire-safe demarcated areas. » If the construction camp or lay down area 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. » All hazardous materials should be stored in the appropriate manner to prevent contamination of the site. Any accidental chemical, fuel and oil spills that occur at the site should be cleaned up in the appropriate manner as related to the nature of the spill. » All construction vehicles should adhere to a low speed limit to avoid collisions with susceptible species such as snakes and tortoises.
	Indirect impacts: -	-	-

Activity	Impact summary	Significance	Proposed mitigation
	Cumulative impacts: The further loss of habitat due to other power generation and transmission infrastructure being developed in the broader area (including power lines, substations and wind energy developments) may exacerbate the impact.	Low	-
Construction of power line (vegetation clearing, stringing of the power line and excavations for pylons) and access roads.	Direct: Soil Erosion	Medium	<ul style="list-style-type: none"> » If it is not possible to retain a good plant cover during construction, erosion control measures 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. » Care should also be taken to control and contain storm water run-off. » Re-vegetation of the site must be undertaken after decommissioning of the power line and after removal of temporary infrastructure such as lay-down areas and temporary construction compound. » Pylon foundations and access roads to be regular inspected to determine is erosion control or soil stabilisation is required.
	Indirect:-	-	-
	Cumulative: Accelerated erosion, gully / sheet erosion and soil loss due to disturbance due to the wind energy facility and substation construction	Medium	<ul style="list-style-type: none"> » Good soil management of various sites/ project is required. » Implement appropriate erosion control measures at individual sites.
	Direct: Damage to drainage lines.	Low	<ul style="list-style-type: none"> » Place pylons as far as possible out of the drainage lines and their embankments » Do not use the drainage lines or their banks as access points for construction activities.

Activity	Impact summary	Significance	Proposed mitigation
			<ul style="list-style-type: none"> » String power line across the drainage lines. » Monitor drainage lines and stabilise the soils, if required. » During heavy rainfall event, avoid construction across drainage lines.
	<p>Indirect: Erosion, increased run-off, sedimentation downstream of the drainage lines and possible soil loss.</p>	Low	As above
	Cumulative: -	-	-
Excavations for pylons	<p>Direct impact: The potential damage or loss of below and above ground pre-colonial archaeological /heritage sites/graves/fossils.</p>	Low	<ul style="list-style-type: none"> » No mitigation is proposed before construction starts because the archaeological remains (if any) are of low significance (excluding human remains). However, all construction activities of the substation site must be monitored by a trained ECO.If concentrations of archaeological materials are exposed then all work must stop for an archaeologist to investigate and record the site as may be required by the heritage authority. » If any human remains, fossils or any other concentrations of archaeological heritage material are exposed during construction, all work must cease and it must be reported immediately to the nearest museum/archaeologist or the Northern Cape Heritage Authority. » A systematic and professional investigation of any finds must be undertaken. Sufficient time should be allowed to investigate and to remove/collect such material.
	Indirect impact:-	-	
	<p>Cumulative impact: No heritage sites of importance were identified on the development footprints. Minimal archaeological traces mean that cumulative impacts would be negligible.</p>	Low	
Power Line structures and operation	<p>Direct Collision and/ electrocution of bird species with the power line.</p>	Medium	<ul style="list-style-type: none"> » Build the proposed steel monopole with the standard Eskom Bird Perch on top of the pole to provide sufficient safe perching space for vultures above the dangerous hardware. » Utilise bird perches. » In addition to the Bird Perch, the structure must conform to Eskom's bulletin on bird friendly structures. » The entire power line should be marked with Bird Flight Diverters, to
	Indirect Impacts:	Medium	
	<p>Cumulative: There is an existing power</p>	Medium	

Activity	Impact summary	Significance	Proposed mitigation
	line in the broader study area, therefore higher bird mortalities is possible		reduce the risk of collisions of specifically Ludwig's Bustard. Bird collisions or electrocutions will be minimised through the installation of bird flappers. »
Visibility of the Power line structures during its operational life	Direct: Potential visual impact of the power line on any visual receptors and sense of place	Low	None is possible.
	Indirect:-	-	-
	Cumulative: Due to various electricity infrastructure in the area	-	-
Staff required for construction and maintenance of the power line	Direct During construction a few temporary jobs (~13-30) will be created to construct the power line. The operational phase will also create a few jobs.	Low (Positive)	» Employ local staff, as far as possible. » Attempt to provide skills development/ training for local employees.
	Indirect -	-	-
	Cumulative The development of the wind energy facility on the site, adds to possible social benefits and spin-offs.	Medium (Positive)	» Employ local staff, as far as possible. » Attempt to provide skills development/ training for local employees
Presence of construction workers on the site during construction.	Direct » Noise, dust, traffic, risk of damage to existing farm infrastructure associated	Low (if the site is well managed)	» No open fires must be allowed on site and areas for smoking must be demarcated. » Members of the construction team should be easily identifiable (through the use of uniforms or name badges) and should behave

Activity	Impact summary	Significance	Proposed mitigation
	with the construction of the power line.		fittingly at all times. » Fines should be given for not adhering to rules and regulations (with regards to conduct and safety). » Residents should be informed of the construction activities and schedules prior to the construction workforce entering the property. Privacy of residents and property owners should be respected. » Good housekeeping and waste management of servitude that is under construction. » Dust control on access roads. » Construction vehicles to obey the speed limit.
	Indirect Impacts: None	N/A	-
	Cumulative Impacts: The development of the wind energy facility on the site, adds to possible social risks to the local community/landowners.	Low	» The EMP developed for the wind project as well as that for the power line must be utilised to manage social impacts. » The developer to maintain communication with the local community during construction and operations.

Alternative 2: (Linked to the Substation Option 2)

Activity	Impact summary	Significance	Proposed mitigation
Alternative 1 (preferred alternative)			
Clearing of vegetation for power line servitude.	Direct Impacts: Loss of vegetation due to the construction of the power line.	Medium	<ul style="list-style-type: none"> » Keep removal of vegetation and trampling to a minimum. » Educate staff to keep construction activities within the demarcated areas. » Conduct a thorough search and rescue operation of all footprint areas prior to construction to remove and relocate species of conservation concern that can be re-planted. » Prevent spillage of construction material beyond area affected servitude. » Control and regular monitor the establishment of alien invasive species and remove as soon as detected.
	Indirect impacts: Reduction of Indigenous species.	Medium	As listed above.
	Cumulative impacts: There is other power generation and transmission infrastructure in the broader area (including power lines, substations and the proposed wind energy facility) a number of additional power lines in the area which would cause similar impacts	Low-Medium	Management of the individual pieces of infrastructure.
Construction of power line (vegetation clearing, stringing of the	Direct impacts: Temporary displacement and disturbance to animals, wildlife and avifauna.	Low	<ul style="list-style-type: none"> » Any animals directly threatened by the construction activities should be removed to a safe location by the ECO or other suitably qualified person. However if small animals are trapped they are to be caught and released in the general area.

Activity	Impact summary	Significance	Proposed mitigation
<p><i>power line and excavations for pylons).</i></p>			<ul style="list-style-type: none"> » 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. » Fires should only be allowed within fire-safe demarcated areas. » If the construction camp or lay down area 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. » All hazardous materials should be stored in the appropriate manner to prevent contamination of the site. Any accidental chemical, fuel and oil spills that occur at the site should be cleaned up in the appropriate manner as related to the nature of the spill. » All construction vehicles should adhere to a low speed limit to avoid collisions with susceptible species such as snakes and tortoises.
	<p>Indirect impacts: -</p>	-	-
	<p>Cumulative impacts: The further loss of habitat due to power generation and transmission infrastructure being developed in the broader area (including power lines, substations and wind energy developments) may exacerbate the impact. -</p>	Low	-
<p>Construction of power line (vegetation clearing, stringing of the power line and</p>	<p>Direct: Soil Erosion</p>	Medium	<ul style="list-style-type: none"> » If it is not possible to retain a good plant cover during construction, erosion control measures 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. » Care should also be taken to control and contain storm water run-off.

Activity	Impact summary	Significance	Proposed mitigation
excavations for pylons) and access roads.			<ul style="list-style-type: none"> » Re-vegetation of the site must be undertaken after decommissioning of the power line n and after removal of temporary infrastructure such as lay-down areas and temporary construction compound. » Pylon foundations and access roads to be regular inspected to determine is erosion control or soil stabilisation is required.
	Indirect:-	-	-
	Cumulative: Accelerated erosion, gully / sheet erosion and soil loss due to disturbance due to the wind energy facility and substation construction	Medium	<ul style="list-style-type: none"> » Good soil management of various sites/ project is required. » Implement appropriate erosion control measures at individual sites.
	Direct: Damage to drainage lines (at five different crossings).	Medium	<ul style="list-style-type: none"> » Place pylons as far as possible out of the drainage lines and their embankments » Do not use the drainage lines or their banks as access points for construction activities. » String power line across the drainage lines. » Monitor drainage lines and stabilise the soils, if required. » During heavy rainfall event, avoid construction across drainage lines.
	Indirect: Erosion, increased run-off, sedimentation downstream of the drainage lines and possible soil loss.	Low	As above
	Cumulative: -	-	-
Excavations for pylons	Direct impact: The potential damage or loss of below and above ground pre-colonial archaeological /heritage sites/graves/ fossils.	Low	<ul style="list-style-type: none"> » No mitigation is proposed before construction starts because the archaeological remains (if any) are of low significance (excluding human remains). However, all construction activities of the substation site must be monitored by a trained ECO. » If concentrations of archaeological materials are exposed then all work must stop for an archaeologist to investigate

Activity	Impact summary	Significance	Proposed mitigation
	Indirect impact:-	-	If any human remains or any other concentrations of archaeological heritage material are exposed during construction, all work must cease and it must be reported immediately to the nearest museum/archaeologist or the Northern Cape Heritage Authority). A systematic and professional investigation can be undertaken. Sufficient time should be allowed to investigate and to remove/collect such material.
	Cumulative impact: No heritage sites of importance were identified on the development footprints. Minimal archaeological traces mean that cumulative impacts would be negligible.	Low	
Power Line structures and operation	Direct Collision and/ electrocution of bird species with the power line.	Medium	<ul style="list-style-type: none"> » Build the proposed steel monopole with the standard Eskom Bird Perch on top of the pole to provide sufficient safe perching space for vultures above the dangerous hardware. » Utilise Bird Perches » In addition to the Bird Perch, the structure must conform to Eskom's bulletin on bird friendly structures. » The entire power line should be marked with Bird Flight Diverters, to reduce the risk of collisions of specifically Ludwig's Bustard. Bird collisions or electrocutions will be minimised through the installation of bird flappers.
	Indirect Impacts:	Medium	
	Cumulative: There is an existing power line in the broader study area, therefore higher bird mortalities is possible	Medium	
Visibility of the Power line structures during its operational life	Direct: Potential visual impact of the substation on any visual receptors and sense of place	Low	None is possible.
	Indirect:-	-	-
	Cumulative:-	-	-
Staff required for construction and maintenance of the power line	Direct During construction a few temporary jobs (~13-30) will be created to construct the power line. The operational phase will also create a few	Low (Positive)	<ul style="list-style-type: none"> » Employ local staff, as far as possible. » Attempt to provide skills development/ training for local employees.

Activity	Impact summary	Significance	Proposed mitigation
	jobs.		
	Indirect -	-	-
	Cumulative The development of the wind energy facility on the site, adds to possible social benefits and spin-offs.	Medium (Positive)	<ul style="list-style-type: none"> » Employ local staff, as far as possible. » Attempt to provide skills development/ training for local employees
Presence of construction workers on the site during construction.	Direct » Noise, dust, traffic, risk of damage to existing farm infrastructure associated with the construction of the power line.	Low (if the site is well managed)	<ul style="list-style-type: none"> » No open fires must be allowed on site and areas for smoking must be demarcated. » Members of the construction team should be easily identifiable (through the use of uniforms or name badges) and should behave fittingly at all times. » Fines should be given for not adhering to rules and regulations (with regards to conduct and safety). » Residents should be informed of the construction activities and schedules prior to the construction workforce entering the property. Privacy of residents and property owners should be respected. Good housekeeping and waste management of servitude that is under construction. » Dust control on access roads.
	Indirect Impacts: None	N/A	-
	Cumulative Impacts: The development of the wind energy facility on the site, adds to possible social risks to the local community/ landowners.	Low	<ul style="list-style-type: none"> » The EMP developed for the wind project as well as that for the power line must be utilised to manage social impacts. » The developer to maintain communication with the local community during construction and operations.

Comparison of Power Line Alternatives:

Power line Option 1 (the preferred option) traverses drainage lines at three points, while option 2 (which is also the longer power line) traverses drainage lines at 5 points, making power line Option 2 more sensitive than Option 1. Refer to the environmental sensitivity map contained in Appendix A. In addition, Option 1 is shorter in length than Option 2 and will therefore impact on a smaller area. Therefore, **Power Line Option 1** (along with its associated substation Option 1) is the preferred option from an environmental and social perspective.

No-Go Alternative:

This option will result in no impacts occurring on the biophysical environment (i.e. biodiversity, soils) due to development of the Power Line. However, this will result in the situation where the Khobab Wind Energy Facility cannot be connected to the electricity grid (as the current authorised connection point is no longer feasible). This will result in a lost opportunity for renewable energy production within the country. The no-go option is therefore not preferred.

2. ENVIRONMENTAL IMPACT STATEMENT – 132KV KHOBAB SUBSTATION (DEA REF. NO.: 14/12/16/3/3/1/814)

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.

Substation Alternatives 1 and 2

In order to connect the Khobab Wind Energy Facility to the national electricity grid, South Africa Mainstream Renewable Power Khobab (Pty) Ltd is proposing the establishment of the Khobab 132 kV substation to link the wind energy facility to the Eskom electricity grid via the existing Helios substation.

Two alternative locations for the Khobab Substation and associated infrastructure (including a temporary lay down area, a temporary construction compound, access roads and operation and maintenance (O&M) building) were assessed in this report. Both location alternatives are proposed on the Farm Sous 226, as follows:

- » Option 1 - The preferred substation location: located in the north-eastern corner of the Remainder of Farm Sous 226, just off the Granaatboskolk gravel road which passes through the site.
- » Option 2 - The alternative substation location: located in the central part of the Remainder of Farm Sous 226.

Both substation locations fall within the previously authorised Khobab Wind Energy Facility site. The extent of the infrastructure required for the substation is as follows:

- » 132 kV Substation building and high voltage yard (1 hectare);
- » Operations and Maintenance building (20m x 20m building footprint);
- » Operations and Maintenance yard (1 hectare);
- » Temporary Lay-down area (1 hectare);
- » Temporary Construction compound (5000m² / 0.5 hectares);
- » Access road (up to 10m wide).

The total development footprint for the substation and associated infrastructure is therefore up to 5 hectares in extent, plus the 10m wide access road (linear activity)..

The two substation sites which were assessed (Option 1 and Option 2) will have similar environmental impacts and are both considered to be acceptable.

The following conclusions have been made:

- » **Flora and Fauna:** The total disturbed footprint of 5 hectares will result in vegetation loss and disturbances to fauna, it is expected that many of the impacts can be reduced with effective management of the substation site as well as the utilization of rehabilitation / re-vegetation of the site, after construction and decommissioning. Therefore the impact on ecology will be of **low significance**. For the plant species of special concern, it is recommended that these species are identified and rescued before construction commences.
- » **Soils:** The construction of the substation and associated infrastructure can result in exposed areas which can trigger soil erosion. Appropriate erosion management measures are therefore required to minimise the erosion potential of these areas. The use of chemicals (such as oil or fuel) during construction and operations can result in soil contamination. Impacts in this regard are however expected to be limited and which can be easily controlled. With the use of soil erosion management measures during the construction and operation of the substation and associated infrastructure, the development is likely to have **low impacts on soils**. It is however recommended that re-vegetation of the site after construction and after decommissioning of the substation must be undertaken.
- » **Heritage:** In general the proposed substation sites appear to be of low cultural and archaeological significance and therefore an impact of **low significance** is expected. Although it would appear unlikely that any significant in situ heritage sites/material will be exposed during the construction phase of these developments, sites/materials may be covered by soil and vegetation.
- » **Visual:** It is not expected that the proposed infrastructure will significantly alter the outcome of the potential visual impacts associated with the Khobab wind energy facility. The potential visual impacts associated with the proposed substation should not alter/influence the outcome of the project decision-making. Visual impacts of the substation will be of a **low significance**

The two substation site options are similar from an environmental perspective (in terms of impacts on vegetation, soils, heritage and visual). Option 1 is adjacent to the public road and would generate less disruption of the landscape as it is within an area that already experiences significant disturbance from the traffic on the road. In addition, Option 2 is located adjacent to a drainage line which may result in impacts on the drainage line, and is considered more environmental sensitive than Option 1. Of the two substation site options, Substation Option 1 is nominated as the preferred location for the substation. This option is also the technically preferred alternative.

Through the implementation of the EMPr (Appendix G), it is expected that impacts expected to be associated with the construction and operation of the Khobab substation and associated infrastructure can be mitigated to acceptable levels.

It is the conclusion of the Environmental Assessment Practitioner that the establishment of the Khobab 132kV substation is considered acceptable from an

environmental perspective provided the recommended mitigation measures are implemented. Based on the nature and extent of the proposed project, the potential impacts associated with the proposed substation and its relevant infrastructure can be mitigated to an acceptable level.

Alternative B: N/A

Alternative C: N/A

No-go alternative (compulsory)

This is the option of not constructing the proposed substation. This option will result in no impacts occurring on the biophysical environment (i.e. biodiversity, soils), and will result in no visual impacts. However, this will result in the situation where the Khobab wind energy facility cannot be connected to the Eskom national electricity grid (as the current authorised connection point is no longer feasible). This is an undesirable option for the project as it will pose negative impacts on the Khobab Wind Energy Facility as well as a lost opportunity for renewable energy production within the country, and will impact on the economic development of the local community.

3. ENVIRONMENTAL IMPACT STATEMENT – 132KV KHOBAB – HELIOS POWER LINE (DEA REF. NO.: 14/12/16/3/3/1/815)

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.

Power Line Alternatives Option 1 and 2

In order to connect the Khobab Wind Energy Facility⁶ to the national electricity grid, South Africa Mainstream Renewable Power Khobab (Pty) Ltd is proposing the establishment of a 132 kV power line to link the wind energy facility to the Eskom electricity grid via the existing Helios substation.

The route extending from substation option 1 is Power Line Option 1, and the route extending from substation option 2 is Power Line Option 2. The length of each of the power line options are as follows:

- » Power line Option 1 (linked to the preferred Substation Option 1), is approximately

⁶ This project was previously known as a Wind Energy Facility near Loeriesfontein (DEA reference: 2/12/20/2321/3 and authorised by DEA in 2012. An application for amendment to the environmental authorisation for the change in the name of the project to Khobab Wind Energy Facility has been submitted to DEA.

9 km in length.

- » Power line Option 2 (linked to the alternative Substation Option 2), approximately 11km in length.

Both power line options crosses/ spans the Remainder of Farm Sous 226, and Portion 3 of Farm Sous 226 (the railway line), until the point of connection to the existing Helios Substation (located on Portion 1 of Farm Sous 226).. **The two power line options which were assessed (Option 1 and Option 2) will have similar environmental impacts and are both considered to be environmentally acceptable.** The following conclusions have been made:

- » **Flora and Fauna:** Due to the small footprint of the power line (tower footprints within 36 metre servitude) and linear nature, many of the impacts on flora and fauna will be reduced with effective management of the site as well as the utilization of rehabilitation after construction. For the plant species of special concern, it is recommended these species are identified and rescued before construction commences. Loss of vegetation is also important for animals as it constitutes habitat loss for the fauna. However, these impacts can be reduced to a **low** negative if mitigation measures are actively implemented.
- » **Soils:** The construction of the power line and associated access road can result in exposed areas which can trigger soil erosion. With the use of soil erosion management measures during the construction and operation of the power line and associated infrastructure, the development is likely to have a **low impacts on soils.**
- » **Heritage:** In general the proposed power line alignments appear to be of low heritage and cultural significance and therefore an impact of **low** significance is expected. Although it would appear unlikely that any significant in situ heritage sites/material will be exposed during the construction phase of these developments, sites/materials may be covered by soil and vegetation.
- » **Visual:** It is not expected that the proposed power line will significantly alter the outcome of the potential visual impacts associated with the Khobab wind energy facility. The potential visual impacts associated with the proposed power line should therefore not alter/influence the outcome of the project decision-making. Visual impacts of the power line will be of a **low significance**
- » **Avifauna:** Collision and mortality of bird species with the power line is possible and expected to be of a **medium** significance. The entire power line should be marked with Bird Flight Diverters, to reduce the risk of collisions for Ludwig's Bustard specifically. Bird collisions or electrocutions will be minimised through the installation of bird diverters and appropriate design of the power line towers.

Both power lines corridors are expected to have similar impacts on the environment (in terms of impacts on vegetation, heritage and visual characteristics). Option 2 is however considered more environmentally sensitive. Power line Option 1 traverses

drainage lines at three points, while Option 2 (which is also the longer power line) traverses drainage lines at 5 points, making power line Option 2 more sensitive than Option 1 (Refer to Environmental Sensitivity Map in Appendix A). In addition, Option 1 (9km) is shorter in length than Option 2 (11km). Therefore, **Power Line Option 1** (along with its associated substation Option 1) **is the preferred option** from an environmental and social perspective. Through the implementation of the EMPr (Appendix G), it is expected that impacts on identified sensitive areas can be mitigated to acceptable levels.

It is the conclusion of the Environmental Assessment Practitioner that the establishment of the 132kV power line to connect the Khobab wind energy facility to Helios Substation is considered acceptable from an environmental perspective provided the recommended mitigation measures are implemented. Based on the nature and extent of the proposed power line, the potential impacts associated with the proposed power line and its relevant infrastructure can be mitigated to an acceptable level.

Alternative B: N/A

Alternative C: N/A

No-go alternative (compulsory)

This is the option of not constructing the proposed power line. This option will result in no impacts occurring on the biophysical environment (i.e. biodiversity, soils), and will result in no visual impact. However, this will result in the situation where the Khobab wind energy facility cannot be connected to the Eskom national electricity grid (as the current authorised connection point is no longer feasible). This is an undesirable option for the project as it will pose negative impacts on the Khobab Wind Energy Facility as well as a lost opportunity for renewable energy production within the country, and will impact on the economic development of the local community.

4. SECTION E. RECOMMENDATION OF PRACTITIONER - 132KV KHOBAB SUBSTATION (DEA REF. NO.: 14/12/16/3/3/1/814)

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.

It is the conclusion of the Environmental Assessment Practitioner that the establishment of the Khobab substation is considered acceptable from an environmental perspective. Based on the nature and extent of the proposed project, the potential impacts associated with the proposed project can be mitigated to an acceptable level. Impacts associated with all substation alternatives assessed were similar. However, based on the outcome of the specialist studies undertaken, Substation Option 1 is recommended as the preferred option for implementation from an environmental perspective. This is also the technically preferred alternative.

The following mitigation and management measures should be implemented:

Construction:

- » All relevant practical and reasonable mitigation measures detailed within this report and the specialist reports contained within Appendix D must be implemented.
- » The EMPr should form part of the contract with the Contractor appointed to construct the proposed package plant, and must be used to ensure compliance with environmental specifications and management measures. The implementation of this EMPr for all life cycle phases of the proposed project is considered key in achieving the appropriate environmental management standards as detailed in this report.
- » An independent Environmental Control Officer (ECO) should be appointed to monitor compliance with the specifications of the EMPr for the duration of the construction period.
- » Existing tracks/roads should be used as far as possible, and construction activities should be limited to the authorised site.
- » Identified sensitive areas should be avoided as far as possible.
- » During construction, unnecessary disturbance to habitats should be strictly

controlled and the footprint of the impact should be kept to a minimum.

- » Disturbed areas should be rehabilitated as soon as possible once construction is complete in an area.
- » A walk-through survey of the final substation site should be undertaken by an ecologist to determine any additional site-specific mitigation which should be implemented.
- » Before development can continue the regions need to be checked for the presence of bird nesting sites.
- » Contractors must be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites.
- » All declared alien plants 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.
- » The developer should obtain all necessary permits prior to the commencement of construction.
- » Re-vegetation of the site must be undertaken after decommissioning of the substation and after removal of temporary infrastructure such as lay-down areas and temporary construction compound.

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.

- » Maintenance of erosion control measures.
- » Development and implementation of a storm water management plan.
- » On-going maintenance of the infrastructure to minimise the potential for visual impacts.
- » On-going monitoring of the development sites to detect and restrict the spread of alien plant species.

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.

5. SECTION F. RECOMMENDATION OF PRACTITIONER - 132KV KHOBAB – HELIOS POWER LINE (DEA REF. NO.: 14/12/16/3/3/1/815)

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.

It is the conclusion of the Environmental Assessment Practitioner that the establishment of the Khobab- Helios power line is considered acceptable from an environmental perspective. Based on the nature and extent of the proposed project, the potential impacts associated with the proposed project can be mitigated to an acceptable level. Impacts associated with both power line alternatives assessed were similar. However, based on the outcome of the specialist studies undertaken, Power Line Option 1 is recommended as the preferred options for implementation from an environmental perspective.

The following mitigation and management measures should be implemented:

Construction:

- » All relevant practical and reasonable mitigation measures detailed within this report and the specialist reports contained within Appendix D must be implemented.
- » The EMPr should form part of the contract with the Contractor appointed to construct the proposed package plant, and must be used to ensure compliance with environmental specifications and management measures. The implementation of this EMPr for all life cycle phases of the proposed project is considered key in achieving the appropriate environmental management standards as detailed in this report.
- » An independent Environmental Control Officer (ECO) should be appointed to monitor compliance with the specifications of the EMPr for the duration of the construction period.
- » Existing tracks/roads should be used as far as possible, and construction activities should be limited to the authorised site.
- » Identified sensitive areas should be avoided as far as possible.
- » During construction, unnecessary disturbance to habitats should be strictly

<p>controlled and the footprint of the impact should be kept to a minimum.]</p> <ul style="list-style-type: none"> » Disturbed areas should be rehabilitated as soon as possible once construction is complete in an area. » A walk-through survey of the final power line tower positions should be undertaken by an ecologist and avifauna specialist to determine any additional site-specific mitigation which should be implemented. » Before development can continue the region need to be checked for the presence of bird nesting sites. » Contractors must be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites. » All declared alien plants 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. » The developer should obtain all necessary permits prior to the commencement of construction. <p>Operation Phase:</p> <p>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.</p> <ul style="list-style-type: none"> » Maintenance of erosion control measures (i.e. berms). » Development and implementation of a storm water management plan. » On-going maintenance of the infrastructure to minimise the potential for visual impacts. » On-going monitoring of the development sites to detect and restrict the spread of alien plant species. » Bird diverters must be installed and maintained along the entire length of the power line in order to minimise the risk of collision.

Is an EMPr attached?	YES
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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