

Proposed Inyanda - Roodeplaat Wind Energy Facility Final Scoping Report

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Inyanda Energy Projects (Pty) Ltd

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Proposed Inyanda - Roodeplaat Wind Energy Facility

Final Scoping Report

Inyanda Energy Projects (Pty) Ltd

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List of Abbreviations

BID	Background Information Document
BLMC	Biodiversity Land Management Classes
BNR	Baviaanskloof Nature Reserve
CAA	Civil Aviation Authority
CAR	Civil Aviation Regulations
CBA	Critical Biodiversity Areas
CEMP	Construction Environmental Management Programme
CES	Coastal and Environmental Services
CFRPA WHS	Cape Floristic Region Protected Areas World Heritage Site
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CSP	Concentrated Solar Power
DAFF	Department of Agriculture, Forestry and Fisheries
DEA	Department of Environmental Affairs (National)
DEDEAT	Department of Economic Development, Environmental Affairs and Tourism
DMR	Department of Mineral Resources
DOE	Department of Energy
DSR	Draft Scoping Report
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECA	Environment Conservation Act
ECBCP	Eastern Cape Biodiversity Conservation Plan
ECPAES	Eastern Cape Protected Areas Expansion Strategy
ECPHRA	Eastern Cape Provincial Heritage Resources Authority
ECPTA	Eastern Cape Parks and Tourism Agency
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
EMF	Environmental Management Framework
EMI	Electromagnetic Interference
EMPr	Environmental Management Programme
ERC	Elands River Conservancy

FOBW	Friends of the Baviaanskloof Wilderness Area
FPA	Fire Protection Association
FROG	Friends of Groendal
FSR	Final Scoping Report
GHG	Greenhouse Gas Emissions
GW	Gigawatt
HIA	Heritage Impact Assessment
IAPs	Interested and Affected Parties
IBA	Important Bird Areas of Southern Africa
IDP	Integrated Development Plan
IDZ	Industrial Development Zone
IEP	Integrated Energy Plan
IPP	Independent Power Producer
IRP	Integrated Resources Plan
IUCN	International Union for Conservation of Nature
LTMS	Long Term Mitigation Scenario
LUPO	Land Use Planning Ordinance
MVA	Megavolt ampere
MW	Megawatt
NEMA	National Environmental Management Act
NEMBA	National Environmental Management: Biodiversity Act
NEMPAA	National Environmental Management: Protected Areas Act
NERSA	National Energy Regulator of South Africa
NGO	Non-governmental Organization
NMBM	Nelson Mandela Bay Municipality
NMMU	Nelson Mandela Metropolitan University
NPAES	Protected Areas Expansion Strategy Area
PNCO	Provincial Nature Conservation Ordinance
PPA	Power Purchase Agreement
PPP	Public Participation Process
PV	Photovoltaics
REFIT	Renewable Energy Feed – in Tariff
REIPPPP	Renewable Energy Independent Power Producer Procurement Programme
RFP	Request for Proposal
SACAA	South African Civil Aviation Authority
SAHRA	South African Heritage Resource Agency
SANBI	South African National Biodiversity Institute
SANRAL	South African National Roads Agency
SANS	South African National Standards
SDF	Spatial development Framework

SEA	Strategic Environmental Assessment
SIBIS	SANBI's Integrated Biodiversity Information System
SKEP	Succulent Karoo Ecosystem Plan
SSC	Species of Special Concern
STEP	Subtropical Thicket Ecosystem Planning Project
ToR	Terms of Reference
UNFCCC	United Nations Framework Convention on Climate Change
VIA	Visual Impact Assessment
WEF	Wind Energy Facility
WESSA	Wildlife and Environment Society of Southern Africa
WTG	Wind Turbine Generator
WWTW	Wastewater Treatment Works
+ve	Positive
-ve	Negative

Glossary of Terms

Blades	The part of a wind turbine rotor (consisting of three blades) that catches the wind. Wind blowing over the blades causes them to lift and rotate.
Critical Biodiversity Areas	Areas that are considered irreplaceable or important and necessary in terms of meeting targets for biodiversity pattern and process.
Environment	The external circumstances, conditions and objects that affect the existence and development of an individual, organism or group. These circumstances include biophysical, social, economic, historical and cultural aspects.
Environmental Impact Assessment (EIA)	A study of the environmental consequences of a proposed course of action.
Fundamental Alternatives	Alternatives that are totally different from the proposed project and usually involve a different type of development on the proposed site, or a different location for the proposed development
Geotechnical Study	A study on the physical properties of soil and rock to inform the design of earthworks and foundations
Hub	The hub connects the blades.
Incremental Alternatives	Modifications or variations to the design of a project that provide different options to reduce or minimise environmental impacts
Independent Power Producer	Independent Power Producer is an entity, which is not a public electric utility, but which owns and or operates facilities to generate electric power for sale to a utility, central government buyer and end users.
Indigenous vegetation	Vegetation consisting of indigenous plant species occurring naturally in an area, regardless the level of alien infestation and where the topsoil has not been lawfully disturbed during the preceding ten years.
Interested and Affected Party	Any person, group of persons or organisation interested in or affected by an activity, and any Organ of State that may have jurisdiction over any aspect covered by the activity.
Nacelle	The structure on top of the tower attached to the rotor and houses all of the generating components (i.e., the gearbox, low and high speed shafts, generator, controller and brake).
No-go Alternative	The no-go alternative assumes that the proposed development does not go ahead and the site remains in its current state

Plan of Study for EIA	A document which forms part of a Scoping Report and sets out how an Environmental Impact Assessment must be conducted.
Registered Interested and Affected Party (IAP)	An Interested and Affected Party whose name is recorded in the register opened for the application / project.
Renewable Energy Independent Power Producer Procurement Programme	As part of the rollout of renewable energy in South Africa the Department of Energy (DoE) has entered into a bidding process for the procurement of 3725 MW of renewable energy from independent power producers by 2016. This process is known as the Renewable Energy Independent Power Producer Procurement Programme (REIPPP)
Renewable Energy Feed – in Tariff	The National Energy Regulator of South Africa (NERSA) commissioned the development of a Renewable Energy Feed-in Tariff (REFIT) for South Africa, under its authority to regulate electricity tariffs in the country. The feed-in tariff requires the Renewable Energy Purchasing Agency (REPA), in this case the Single Buyer Office (SBO) of the national electricity utility Eskom, to purchase renewable energy from qualifying generators at pre-determined prices[
Rotor	The hub and the blades (i.e. the noticeably spinning part of the turbine).
Scoping	A procedure to consult with stakeholders to determine issues and concerns and for determining the extent of and approach to an EIA, used to focus the EIA.
Scoping Report	A written report describing the issues identified to date for inclusion in an EIA.
Subtropical Ecosystem Planning Project	The project aims to identify priority areas that would ensure the long-term conservation of the subtropical thicket biome
Succulent Karoo Ecosystem Plan	Provides a framework to guide conservation efforts of the Succulent Karoo biome
Tower	The tower holds the nacelle and the rotor.
Wind Energy	The process by which wind is used to generate mechanical power or electricity. Wind turbines convert the kinetic energy in the wind into mechanical power and a generator can then be used to convert this mechanical power into electricity

Disclaimer

The opinions expressed in this Report have been based on the information supplied to SRK Consulting (South Africa) (Pty) Ltd. (SRK) by Inyanda Energy Projects (Pty) Ltd. SRK has exercised all due care in reviewing the supplied information. Whilst SRK has compared key supplied data with expected values, the accuracy of the results and conclusions from the review are entirely reliant on the accuracy and completeness of the supplied data. SRK does not accept responsibility for any errors or omissions in the supplied information and does not accept any consequential liability arising from commercial decisions or actions resulting from them. Opinions presented in this report apply to the site conditions and features as they existed at the time of SRK's investigations, and those reasonably foreseeable. These opinions do not necessarily apply to conditions and features that may arise after the date of this Report, about which SRK had no prior knowledge nor had the opportunity to evaluate.

Note on Content from CES Scoping Report

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1 Background and Introduction

Inyanda Energy Projects (Pty) Ltd proposes to construct a Wind Energy Facility (WEF) of up to 140 MW installed capacity on a number of properties, referred to collectively in this report as the farm Roodeplaat, situated in the Groot Winterhoek Mountains west of the town of Uitenhage in the Eastern Cape (see Figure 1-3 for site locality).

An Environmental Impact Assessment (EIA) for the project was started by Coastal Environmental Services (CES, and now trading as EOH Coastal Environmental Services) in January 2013, and a Draft Scoping Report was issued for public and stakeholder comment in November 2013, as per the requirements of the NEMA 2010 EIA regulations¹. In October 2014, Inyanda Energy Projects (Pty) Ltd appointed SRK Consulting (South Africa) (Pty) Ltd (SRK) to complete the EIA process commenced by CES, including the finalisation of the scoping report. CES have subsequently provided all relevant documentation, including (but not limited to) public participation material, generated in the EIA process up to the date that SRK was appointed.

This Final Scoping Report (FSR) is intended to be a reproduction of the FSR that was under preparation by CES immediately prior to SRK's appointment and as such most of this report is derived directly from the CES report, either verbatim or with minor typographical editing aimed at improving the readability of the document. The authors of this report hereby acknowledge the CES report as the primary source.

1.1 Background to the study

Inyanda Energy Projects (PTY) Ltd (referred to hereafter as 'Inyanda Energy'), a renewable energy company, plans to develop a wind energy facility (or 'wind farm' to be named the Inyanda - Roodeplaat WEF) between the towns of Patensie and Kirkwood, within the Sundays River Valley Municipality, Eastern Cape Province, South Africa (Figure 1-1). According to Inyanda Energy, available wind data in South Africa shows this area to have favourable wind conditions sufficient to support a wind farm. This has been confirmed by on site wind monitoring that has been ongoing since June 2012. The proposed project area consists of approximately 12 200 ha located on 22 adjacent property portions illustrated below (Table 1-1 and Figure 1-2).

The proposed Inyanda - Roodeplaat WEF will consist of approximately 43 to 48 turbines (depending on selected turbine) each capable of generating approximately 3 to 3.3 MW. The turbine footprints and associated facility infrastructure (internal access roads, substation, construction compound, batching plant and operations building) will potentially cover an area of approximately 60 ha depending on final layout design should the project proceed. An investigation of the wind regime of the site will decide the model of turbines to be installed. The facility will have a maximum generating output of up to 140 MW.

In accordance with the requirements of the NEMA 2010 EIA regulations the proposed project requires a full Scoping and EIA process to be conducted.

Note on Content from CES Scoping Report

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¹ Government Notice No R.543, published in Government Gazette No 33306 of 2 August 2010 in terms of the National Environmental Management Act No. 107 of 1998

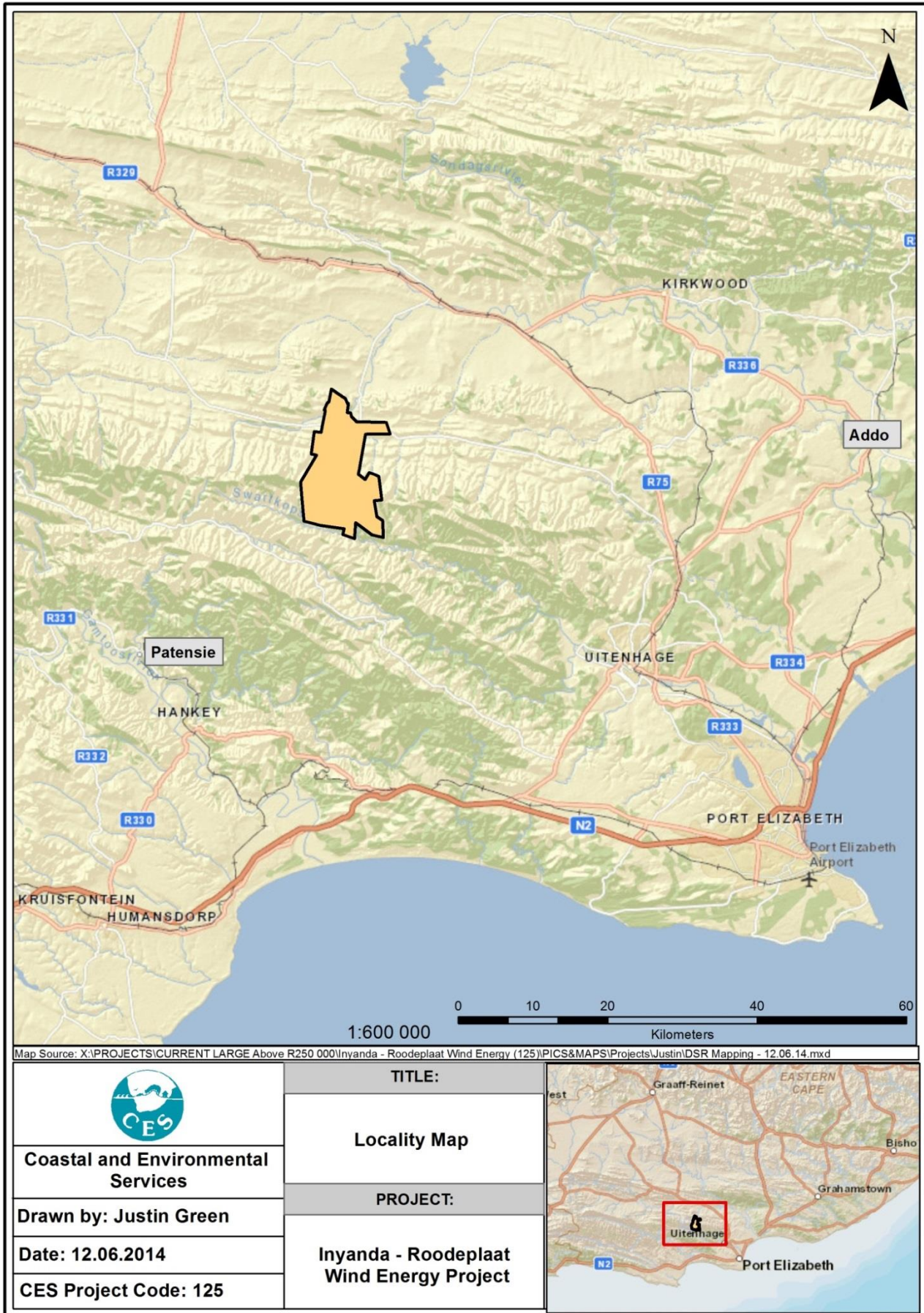


Figure 1-1: Site Locality Plan showing approximate shape of study area

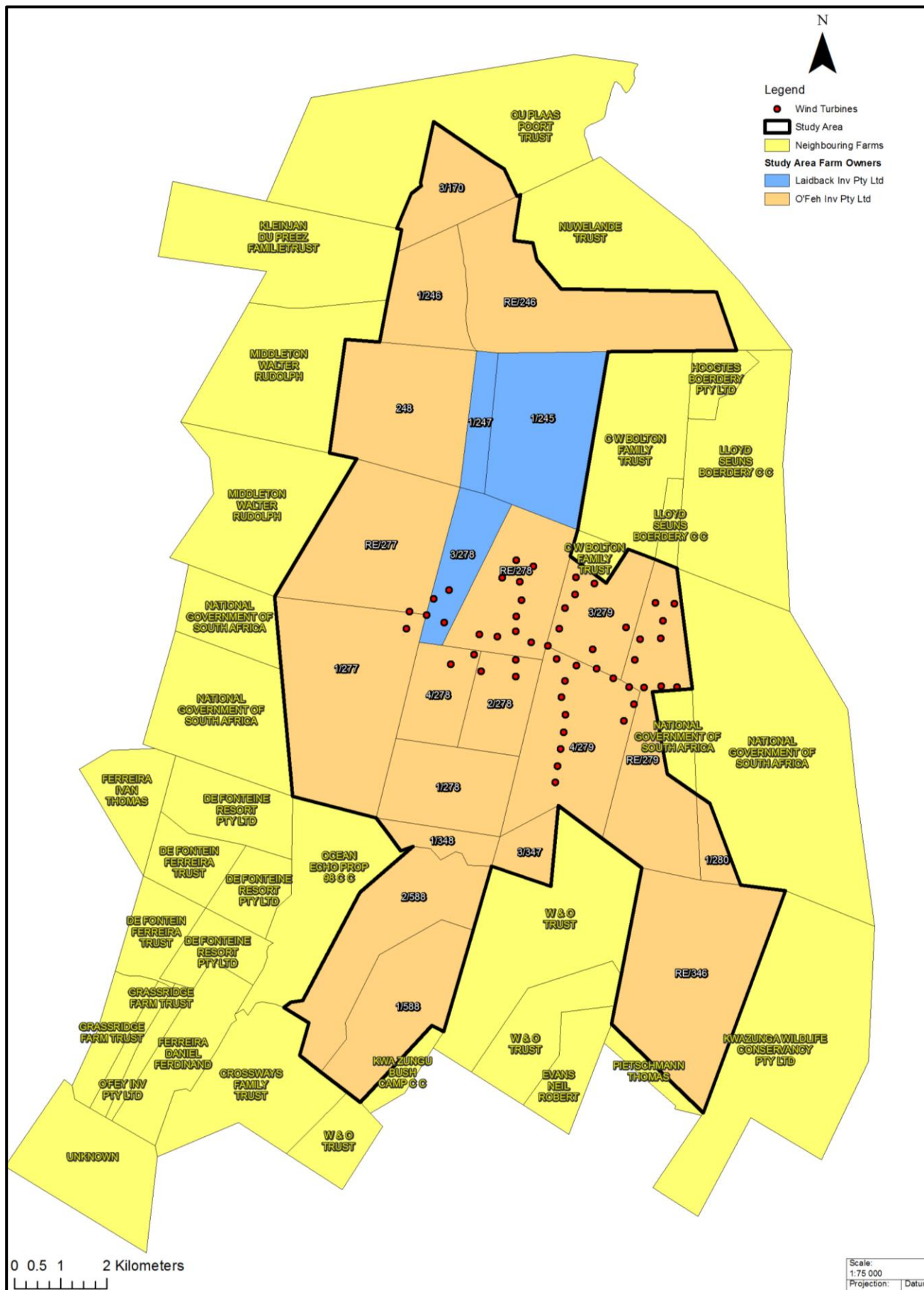


Figure 1-2: Farm numbers and ownership

Table 1-1: Farm name and property portions comprising the study area

Farm Number	Property Portion	Size (ha)
170	Portion 3	353
245	Portion 1	779
246	Portion 1 and Remaining Extent	392 and 1014
247	Portion 1	153
248	-	784
277	Portion 1, Remaining Extent	1128 and 859
278	Portion 1, 2, 3, 4 and remaining Extent	482, 290, 289, 289 and 579
279	Portion 3, 4 and remaining Extent	395, 775 and 777
280	Portion 1	99.5
346	Remaining Extent	1186
347	Portion 3	149.8
348	Portion 1	138
588	Portion 1 and 2	616 and 725

1.2 The environmental impact assessment process

The EIA process is guided by regulations made in terms of Chapter 5 of the National Environmental Management Act No. 107 of 1998 (NEMA), published as Government Notice No R.543 in Government Gazette No 33306 of 2 August 2010. The regulations set out the procedures and criteria for the submission, processing and consideration of and decisions on applications for the environmental authorisation of activities.

Three lists of activities, published on 2 August 2010, as Government Notice Numbers R.544, R.545 and R.546, define the activities that require, respectively, a Basic Assessment (applies to activities with limited environmental impacts), or a Scoping and Environmental Impact Assessment (applies to activities which are significant in extent and duration).

The activities potentially triggered by the proposed Inyanda - Roodeplaat WEF are listed in Table 1-2 below.

Table 1-2: Listed activities potentially triggered by the proposed Inyanda - Roodeplaat WEF

The number and date of the relevant notice:	Activity No (s) (in terms of the relevant notice) :	Description of each listed activity as per project description
Listing notice 1 of GNR 544 EIA regulations dated 18 June 2010.	(10) The construction of facilities or infrastructure for the transmission and distribution of electricity – (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts;	A substation will be constructed on site which will collect power generated by the turbines, step up the voltage to 132 kV, and then transfer this power via an overhead power line to Eskom infrastructure (either a substation or a transmission line).
Listing notice 1 of GNR 544 EIA regulations dated 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	The project will involve the construction of roads and underground electrical cables which are likely to cross drainage lines or watercourses.

The number and date of the relevant notice:	Activity No (s) (in terms of the relevant notice) :	Description of each listed activity as per project description
Listing notice 1 of GNR 544 EIA regulations dated 18 June 2010.	(18) The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock or more than 5 cubic metres from: (i) a watercourse.	The project will involve the construction of roads and underground electrical cables which are likely to cross drainage lines or watercourses.
Listing notice 1 of GNR 544 EIA regulations dated 18 June 2010.	(22) The construction of a road, outside urban areas, (ii) where no reserve exists where the road is wider than 8 m	A number of internal roads will be constructed as part of this project. However, these roads will not exceed 8 m and this activity is therefore not applied for. Internal roads will be wider than 4 m and triggers Activity 4 in Listing Notice 3 (see below).
Listing Notice 1 of R544 EIA Regulations dated 18 June 2010.	(38) The expansion of facilities for the transmission and distribution of electricity where the expanded capacity will exceed 275 kilovolts and the development footprint will increase.	Wherever possible underground cabling will link the turbines with an on-site substation proposed to be constructed as part of the facility. An overhead line will then link this substation with an Eskom substation or overhead line. Power from the on-site substation to the Skilpad substation will be a new 132 kV line. As the power line will be new it is not considered "expansion", and as the voltage of the power line is below the 275 kV threshold, this activity will not be triggered.
Listing notice 2 of GNR 545 EIA regulations dated 18 June 2010.	(1) The construction of facilities or infrastructure for the generation of electricity where the electricity output is 20 megawatts or more.	The exact amount of power to be produced by the facility will be specified in the EIR. The proposed development would have a power output of up to 140 MW.
Listing Notice 2 of R545 EIA Regulations dated 18 June 2010.	(8) The construction of facilities or infrastructure for the transmission and distribution of electricity with a capacity of 275 kilovolts or more, outside an urban area or industrial complex.	Wherever possible underground cabling will link the turbines with an on-site substation proposed to be constructed as part of the facility. An overhead line will then link this substation with the nearest Eskom substation or overhead line. Power from the on-site substation to the Skilpad substation will be a 132 kV line. As the voltage of the power line is below the 275 kV threshold, this activity will not be triggered.
Listing notice 2 of GNR 545 EIA regulations dated 18 June 2010.	(15) Physical alteration of undeveloped, vacant or derelict land for commercial and industrial use where the total area to be transformed is 20 hectares or more.	The exact construction phase footprint and operation phase footprint will be specified in the EIR. The permanent footprint of the proposed development will be more than 30 hectares, confirming the applicability of this listed activity.
Listing notice 3 of GNR 546 EIA regulations dated 18 June 2010.	(2) The construction of reservoirs for bulk water supply with a capacity of more than 250 cubic metres (a) In the Eastern Cape (iii). Outside urban areas in: (aa) National Protected Areas Expansion Strategy Focus Areas	Temporary water storage capacity of approximately 300 m ³ will be required during the construction phase. This temporary storage is likely to be in multiple plastic tanks (as opposed to a single reservoir). Most of the site is identified as a National Protected Areas Expansion Strategy Focus Area.

The number and date of the relevant notice:	Activity No (s) (in terms of the relevant notice) :	Description of each listed activity as per project description
	(dd) Critical Biodiversity Areas as identified in systematic biodiversity plans	The majority of the site is identified as a critical biodiversity area in terms of at least one systematic biodiversity plan (the Eastern Cape Biodiversity Conservation Plan).
Listing notice 3 of GNR 546 EIA regulations dated 18 June 2010.	<p>(4) The construction of a road wider than 4 m with a reserve less than 13.5 m.</p> <p>(a) In the Eastern Cape (ii). Outside urban areas in:</p> <p>(bb) National Protected Areas Expansion Strategy Focus Areas</p> <p>(ee) Critical Biodiversity Areas as identified in systematic biodiversity plans</p> <p>(gg) ... 5 km from any protected area identified in terms of NEMPAA.</p>	<p>Roads will need to be constructed that will link the turbines and other infrastructure components.</p> <p>Most of the site is identified as a National Protected Areas Expansion Strategy Focus Area.</p> <p>The majority of the site is identified as a critical biodiversity area in terms of at least one systematic biodiversity plan (the Eastern Cape Biodiversity Conservation Plan)</p> <p>The site is within 5 km of the Groendal Nature Reserve.</p> <p>Refer to Figure 1-3.</p>
Listing notice 3 of GNR 546 EIA regulations dated 18 June 2010.	<p>(10) The construction of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres</p> <p>(a) in the Eastern Cape (ii) outside urban areas, in:</p> <p>(bb) national protected area expansion strategy focus areas</p> <p>(ee) ... Critical Biodiversity Areas as identified in systematic biodiversity plans</p>	<p>During construction the contractor is likely to require a temporary facility for the storage of fuel, probably at the Construction Plant Storage area, where mechanical plant can be re-fuelled as necessary, or from where fuel bowsers can be filled and despatched to fill mechanical plant on site. Storage of oils, such as for electrical transformers, would also be required, and it is likely that the combined storage capacity threshold of 30 m³ would be exceeded.</p> <p>Most of the site is identified as a National Protected Areas Expansion Strategy Focus Area.</p> <p>The majority of the site is identified as a critical biodiversity area in terms of at least one systematic biodiversity plan (the Eastern Cape Biodiversity Conservation Plan).</p>
Listing notice 3 of GNR 546 EIA regulations dated 18 June 2010.	<p>(12) the clearance of an area of 300 square metres or more of vegetation where 75% of the vegetative cover constitutes indigenous vegetation</p> <p>(b) within critical biodiversity areas identified in bioregional plans</p>	A number of bioregional plans identify critical biodiversity areas coinciding with the proposed development footprint.
Listing notice 3 of GNR 546 EIA regulations dated 18 June 2010.	<p>(13) The clearance of an area of 1 hectare or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation.</p> <p>(b) national protected area expansion strategy focus areas</p> <p>(c) In the eastern cape (ii) outside an urban area</p>	<p>Temporary and permanent clearing of indigenous vegetation in excess of 1 hectare (the precise extent will be reported in the EIR) will be required.</p> <p>Parts of the site are identified as National Protected Areas Expansion Strategy Focus Areas</p>

The number and date of the relevant notice:	Activity No (s) (in terms of the relevant notice) :	Description of each listed activity as per project description
	(bb) national protected area expansion strategy focus areas (ff) ... 5 km from any protected area identified in terms of NEMPAA.	Most of the site is identified as a National Protected Areas Expansion Strategy Focus Area. The site is within 5 km of the Groendal Nature Reserve.
Listing notice 3 of GNR 546 EIA regulations dated 18 June 2010.	(14) The clearance of an area of 5 hectares or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation. (a) In the Eastern Cape (i) All areas outside urban areas.	Temporary and permanent clearing of indigenous vegetation in excess of 5 hectares (the precise extent will be reported in the EIR) will be required.
Listing Notice 3 of R546 EIA Regulations dated 18 June 2010.	(16)The construction of: (iv) infrastructure covering 10 square metres or more where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse. (a) In Eastern Cape: ii. Outside urban areas. (bb) National Protected Areas Expansion Strategy Focus Areas (ff) Critical Biodiversity Areas as identified in systematic biodiversity plans (hh) ... 5 km from any protected area identified in terms of NEMPAA.	A number of internal roads will cross watercourses, and a gravel road will be constructed within 32 m of the KwaZunga River in order for water tankers to abstract water. Most of the site is identified as a National Protected Areas Expansion Strategy Focus Area. The majority of the site is identified as a critical biodiversity area in terms of at least one systematic biodiversity plan (the Eastern Cape Biodiversity Conservation Plan). The site is within 5 km of the Groendal Nature Reserve.
Listing notice 3 of GNR 546 EIA regulations dated 18 June 2010.	(19) The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre. (a) In the Eastern Cape: ii. Outside urban areas in: (bb) National Protected Areas Expansion Strategy Focus Areas (ee) Critical Biodiversity Areas as identified in systematic biodiversity plans (gg) ... 5 km from any protected area identified in terms of NEMPAA.	Existing farm roads may be widened as part of the development. Existing tracks are generally very narrow and widening thereof is likely to be by more than 4 m Most of the site is identified as a National Protected Areas Expansion Strategy Focus Area. The majority of the site is identified as a critical biodiversity area in terms of at least one systematic biodiversity plan (the Eastern Cape Biodiversity Conservation Plan). The site is within 5 km of the Groendal Nature Reserve.

Because the proposed development triggers a number of listed activities from GNR.545, it will require a full Scoping and EIA. This process (Figure 1-4) is regulated by Chapter 3 of Part 3 of the EIA regulations.

Continued on page 9

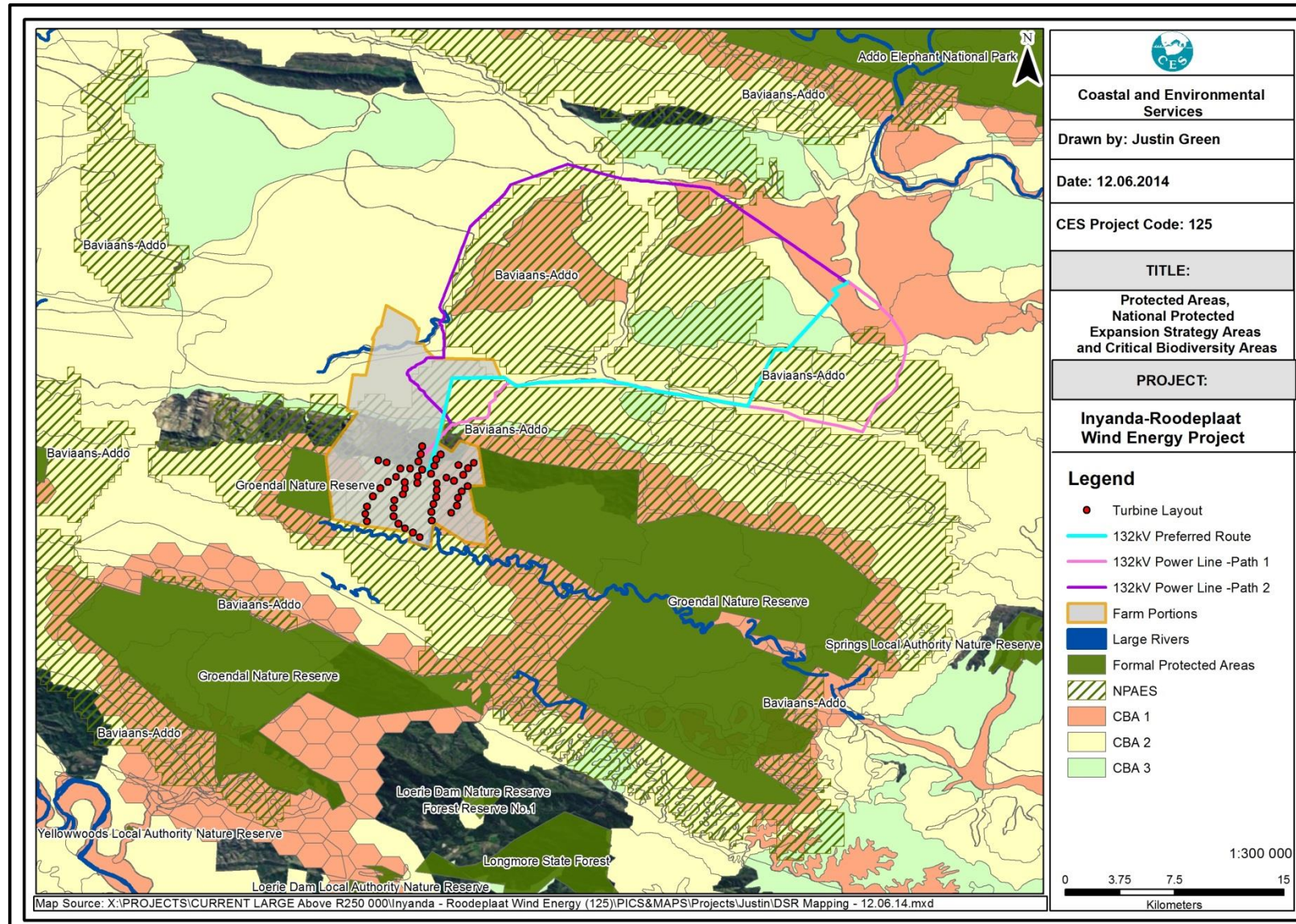


Figure 1-3: Protected Areas, National Protected Expansion Strategy Areas and Critical Biodiversity Areas found within or near the project site and which trigger Listing Notice 3. Note Groendal Nature Reserve that adjoins the project study area on the eastern and western boundaries

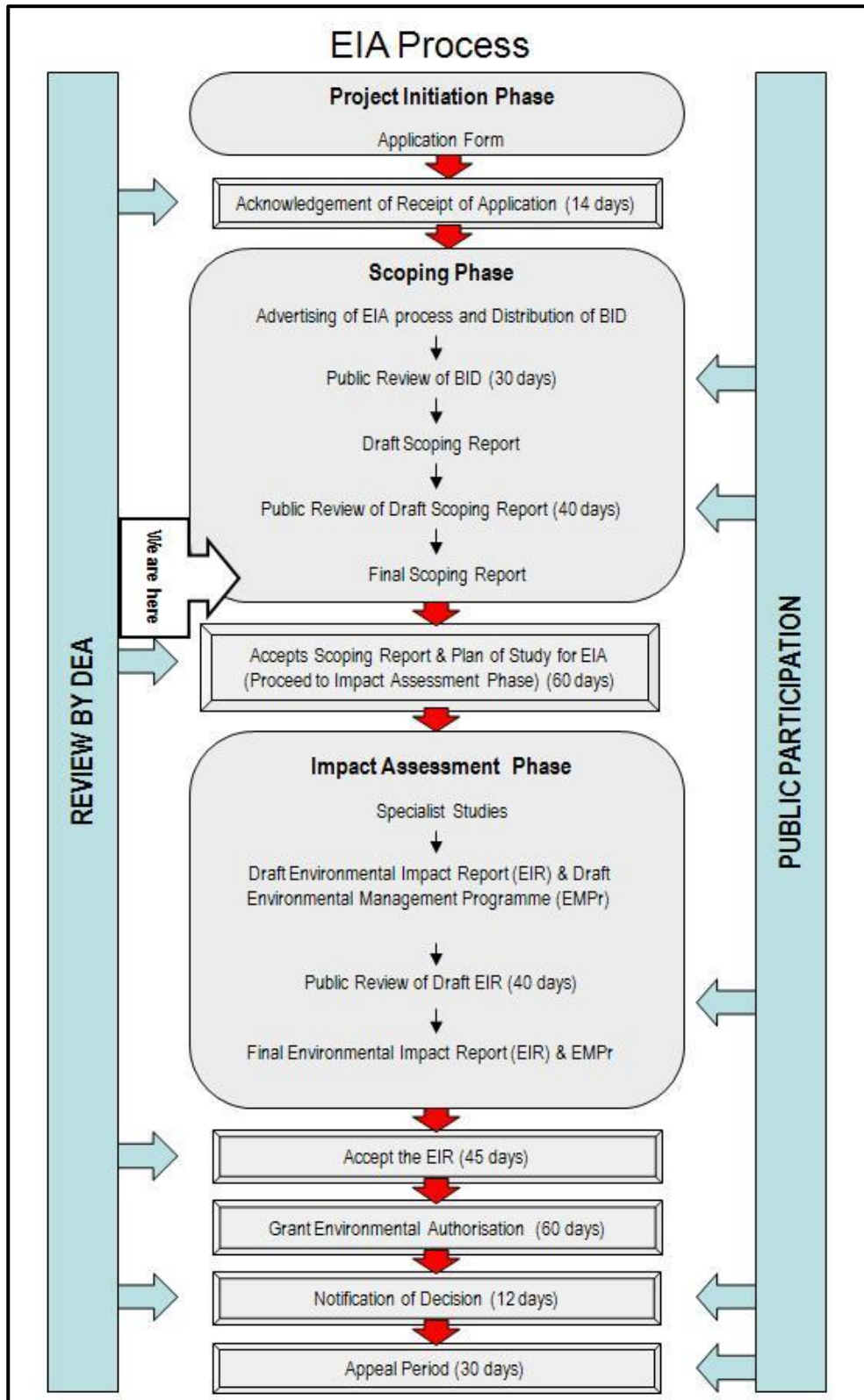


Figure 1-4: The EIA process under the NEMA 2010 EIA regulations

The competent authority that must consider and decide on the application for authorisation in respect of the activities listed in Table 1-2 is the Department of Environmental Affairs (DEA), as the Department has reached agreement with all Provinces that all electricity-related projects, including generation, transmission and distribution, are to be submitted to DEA, irrespective of the nature of the applicant. This decision has been made in terms of Section 24(C)(3) of the National

Environmental Management Act (Act No 107 of 1998). The decision is effective for all projects initiated before, and up until, approximately 2015.

In addition to the requirements for an authorisation in terms of the NEMA, there may be additional legislative requirements that need to be considered prior to commencing with the activity, for example: the National Heritage Resources Act (Act No 25 of 1999), the National Water Act (Act No 36 of 1998), Civil Aviation Act (Act No 74 of 1962) as amended, National Environmental Management Biodiversity Act 10 of 2004, National Forests Act 84 of 1998 and the Eastern Cape Nature and Environmental Conservation Ordinance 19 of 1974 to name the most relevant. These are discussed in the following section.

1.3 Relevant legislation

In addition to the EIA regulations referenced in the preceding section, a number of laws are relevant to the proposed development. Typically this is either because they have bearing on the project's need & desirability, or alternatively because define the need for the competent authority (DEA) to obtain input from other licensing / permitting authorities prior to making a decision on whether or not to authorise the proposed development.

This section provides a summary of the key legislation that is relevant to this proposed development.

1.3.1 International

The 1992 United Nations Framework Convention on Climate Change (UNFCCC)

The UNFCCC is a framework convention which was adopted at the 1992 Rio Earth Summit. South Africa signed the UNFCCC in 1993 and ratified it in August 1997 (Glazwesky, 2005). The stated purpose of the UNFCCC is to, "*achieve....stabilisation of greenhouse gas concentrations in the atmosphere at concentrations at a level that would prevent dangerous anthropogenic interference with the climate system*".

Relevance to the proposed project:

The UNFCCC is relevant in that the proposed project will contribute to a reduction in the production of greenhouse gases by providing an alternative to fossil fuel-derived electricity, and will assist South Africa to begin demonstrating its commitment to meeting international obligations.

The Kyoto Protocol (2002)

The Kyoto Protocol is a protocol to the UNFCCC which was initially adopted for use on 11 December 1997 in Kyoto, Japan, and which entered into force on 16 February 2005 (UNFCCC, 2009). The Kyoto Protocol is the chief instrument for tackling climate change. The major feature of the Protocol is that, "*it sets binding targets for 37 industrialized countries and the European community for reducing greenhouse gas (GHG) emissions. These amount to an average of five per cent against 1990 levels, over the five-year period 2008-2011*" (UNFCCC, 2009). The major distinction between the Protocol and the Convention is that, "*while the Convention encouraged industrialised countries to stabilize GHG emissions, the Protocol commits them to do so*".

Relevance to the proposed project:

The Kyoto Protocol is relevant in that the proposed project will contribute to a reduction in the

production of greenhouse gases by providing an alternative to fossil fuel-derived electricity, and will assist South Africa to begin demonstrating its commitment to meeting international obligations.

1.3.2 National

The Constitution Act (108 of 1996)

This is the supreme law of the land. As a result, all laws, including those pertaining to the proposed development, must conform to the Constitution. The Bill of Rights, Chapter 2 of the Constitution, includes an environmental right (Section 24) according to which, everyone has the right:

- a *To an environment that is not harmful to their health or well-being; and*
- b *To have the environment protected for the benefit of present and future generations, through reasonable legislative and other measures that:

 - i *Prevent pollution and ecological degradation;*
 - ii *Promote conservation; and*
 - iii *Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.**

Relevance to the proposed project:

Obligation to ensure that the proposed development will not result in pollution and ecological degradation; and

Obligation to ensure that the proposed development is ecologically sustainable, while demonstrating economic and social development.

The National Environmental Management Act (NEMA) (107 of 1998)

The objective of NEMA is: *“To provide for co-operative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance and procedures for coordinating environmental functions exercised by organs of state; and to provide for matters connected therewith.”* A key aspect of NEMA is that it provides a set of environmental management principles that apply throughout the Republic to the actions of all organs of state that may significantly affect the environment. The proposed development must be assessed in terms of possible conflicts or compliance with these principles.

As these principles are utilised as a guideline by the competent authority in ensuring the protection of the environment, the proposed development should, where possible, be in accordance with these principles. Where this is not possible, deviation from these principles would have to be very strongly motivated.

NEMA introduces the duty of care concept, which is based on the policy of strict liability. This duty of care extends to the prevention, control and rehabilitation of significant pollution and environmental degradation. It also dictates a duty of care to address emergency incidents of pollution. A failure to perform this duty of care may lead to criminal prosecution, and may lead to the prosecution of managers or directors of companies for the conduct of the legal persons. Employees who refuse to perform environmentally hazardous work, or whistle blowers, are protected in terms of NEMA. In addition NEMA introduces a new framework for environmental impact assessments, the EIA Regulations (2010) discussed previously.

Relevance to the proposed project:

The developer must be mindful of the principles, broad liability and implications associated with NEMA and must eliminate or mitigate any potential impacts.

The developer must be mindful of the principles, broad liability and implications of causing damage to the environment.

The National Environment Management: Biodiversity Act (10 of 2004)

This Act provides for the management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act 107 of 1998. In terms of the Biodiversity Act, the developer has a responsibility for:

- a *The conservation of endangered ecosystems and restriction of activities according to the categorisation of the area (not just by listed activity as specified in the EIA regulations).*
- b *Application of appropriate environmental management tools in order to ensure integrated environmental management of activities thereby ensuring that all developments within the area are in line with ecological sustainable development and protection of biodiversity.*
- c *Limit further loss of biodiversity and conserve endangered ecosystems.*

The objectives of this Act are:

- a *To provide, within the framework of the National Environmental Management Act, for –*
 - i *The management and conservation of biological diversity within the Republic;*
 - ii *The use of indigenous biological resources in a sustainable manner.*

The Act's permit system is further regulated in the Act's Threatened or Protected Species Regulations, which were promulgated in February 2007.

Relevance to the proposed project:

The proposed development must conserve endangered ecosystems and protect and promote biodiversity, it must assess the impacts of the proposed development on endangered ecosystems, no protected species may be removed or damaged without a permit, and the proposed site must be cleared of alien vegetation using appropriate means.

The National Forests Act (84 of 1998)

The objective of this Act is to monitor and manage the sustainable use of forests. In terms of Section 12 (1) (d) of this Act and GN No. 1012 (promulgated under the National Forests Act), no person may, except under licence:

- *Cut, disturb, damage or destroy a protected tree; or*
- *Possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree or any forest product derived from a protected tree.*

Relevance to the proposed project:

If any protected trees in terms of this Act occur on site, the developer will require a licence from the DAFF to perform any of the above-listed activities.

National Heritage Resources Act (25 of 1999)

The protection of archaeological and paleontological resources is the responsibility of a provincial heritage resources authority and all archaeological objects, paleontological material and meteorites are the property of the State.

In terms of the Act, historically important features such as graves, archaeological artefacts/sites, and fossil beds are protected. Similarly, culturally significant symbols, spaces and landscapes are also afforded protection. In terms of Section 38 of the National Heritage Resources Act, the heritage resources authority can call for a Heritage Impact Assessment (HIA) where certain categories of development are proposed. The Act also makes provision for the assessment of heritage impacts as part of an EIA process and indicates that if such an assessment is deemed adequate, a separate HIA is not required.

The Act requires that:

“...any person who intends to undertake a development categorised as (a) the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length... ..must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.”

Relevance to the proposed project:

An archaeological and paleontological impact assessment must be undertaken during the detailed EIR phase of the proposed project.

No person may alter or demolish any structure or part of a structure, which is older than 60 years or disturb any archaeological or paleontological site or grave older than 60 years without a permit issued by the relevant provincial heritage resources authority.

No person may, without a permit issued by the responsible heritage resources authority destroy, damage, excavate, alter or deface archaeological or historically significant sites.

National Water Act No. 36 of 1998

The National Water Act 36 of 1998 provides for the promotion of efficient, sustainable and beneficial use of water in the public interest; for the facilitation of social and economic development; for the protection of aquatic and associated ecosystems and their biological diversity; and for the reduction and prevention of pollution and degradation of water resources. The Act also provides for emergency situations where pollution of water resources occurs. Section 21 of the Act describes activities that will require prior permitting before these activities may be implemented, including any changes to the river course and banks, changes to water flows and the discharge of water containing waste.

Relevance to the proposed project:

The development is likely to include activities that are listed under section 21, i.e. the altering of bed or banks of a watercourse, associated with the widening or rehabilitation of bridges on the roads accessing the site. Water Use Licences will be required for those activities.

National Environmental Management: Air Quality Act (39 of 2004)

As with the Atmospheric Pollution Prevention Act 45 of 1965, the objective of the new Air Quality Act is to protect the environment by providing the necessary legislation for the prevention of air pollution. However, in terms of the proposed project it is not expected that any of the Act's provisions will be applicable.

Integrated Energy Plan for the Republic of South Africa, March 2003

The former Department of Minerals and Energy (DME) commissioned the Integrated Energy Plan (IEP) in response to the requirements of the National Energy Policy in order to provide a framework by which specific energy policies, development decisions and energy supply trade-offs could be made on a project-by-project basis. The framework is intended to create a balance between energy demand and resource availability so as to provide low cost electricity for social and economic development, while taking into account health, safety and environmental parameters. In addition to the above, the IEP recognised the following:

- South Africa is likely to be reliant on coal for at least the next 20 years as the predominant source of energy;
- New electricity generation will remain predominantly coal based but with the potential for hydro, natural gas and nuclear capacity;
- Need to diversify energy supply through increased use of natural gas and new and renewable energies;
- The promotion of the use of energy efficiency management and technologies;
- The need to ensure environmental considerations in energy supply, transformation and end use;
- The promotion of universal access to clean and affordable energy, with the emphasis on household energy supply being coordinated with provincial and local integrated development programmed;
- The need to introduce policy, legislation and regulations for the promotion of renewable energy and energy efficiency measures and mandatory provision of energy data, and;
- The need to undertake integrated energy planning on an on-going basis.

Relevance to the proposed project:

The proposed Wind Farm project is in line with the IEP with regards to diversification of energy supply and the promotion of universal access to clean energy.

Electricity Regulation Act (Act No. 4 of 2006)

The Electricity Regulation Act (Act No. 4 of 2006) became operation on 1 August 2006 and the objectives of this Act are to:

- Facilitate universal access to electricity;
- Promote the use of diverse energy sources and energy efficiencies, and;
- Promote competitiveness and customer and end user choice.

Relevance to the proposed project:

The proposed Wind Farm project is in line with the call of the Electricity Regulation Act No. 4 of 2006 as it has the potential to improve energy security of supply through diversification.

Electricity Regulation on New Generation Capacity (Government Notice No R 399 of 4 May 2011)

On 4 May 2011 the government of the Republic of South Africa promulgated the Electricity Regulations on New Generation Capacity (Government Gazette No R 399) which were made by the Department of Energy in terms of the Electricity Regulation Act 2006, and are applicable to: - (a) new generation capacity derived from renewable energy sources and co-generation; (b) base load, mid-merit load and peak load new generation capacity; and (c) cross border projects. The objectives of these regulations are:

- to facilitate planning for the establishment of new generation capacity;
- the regulation of entry by a buyer and a generator into a power purchase agreement;
- to set minimum standards or requirements for power purchase agreements;
- the facilitation of the full recovery by the buyer of all costs incurred by it under or in connection with a power purchase agreement and an appropriate return based on the risks assumed by the buyer thereunder and to ensure transparency and cost reflectivity in the determination of electricity tariffs; and
- the provision of a framework for implementation of an IPP bid programme, a REFIT bid programme, and the relevant agreements to be concluded.

While the Regulations deal generally with procurement under an IPP bid programme (defined in the Regulations to mean a bidding process for the procurement of new generation capacity and/or ancillary services from IPPs), and specify the use of a bidding process involving requests for prequalification, requests for proposals and negotiations with the preferred bidder, the Regulations set out a special process for the procurement of renewable energy and cogeneration under the REFIT programme, described in Regulation 7. Refer to Section 1.3.4 below for more detail on the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP).

Relevance to the proposed project:

The proposed project is required to comply with any guidelines relating to the IPP bid programme and the REFIT programme.

Aviation Act (Act No. 74 of 1962): 13th Amendment of the Civil Aviation Regulations 1997

Section 14 of obstacle limitations and marking outside aerodrome or heliport (CAR Part 139.01.33) under this Act specifically deals with wind turbine generators (wind farms). According to this section, "A wind turbine generator is a special type of aviation obstruction due to the fact that at least the top third of the generator is continuously variable and offers a peculiar problem in as much marking by night is concerned. The Act emphasizes that, when wind turbine generators are grouped in numbers of three or more they will be referred to as "wind farms".

Of particular importance to the proposed project are the following:-

- **Wind farm placement:** Due to the potential of wind turbine generators to interfere on radio navigation equipment, no wind farm should be built closer than 35 km from an aerodrome. In addition, much care should be taken to consider visual flight rules, routes, proximity of known recreational flight activity such as hang gliders, en route navigational facilities etc.
- **Wind farm Markings:** Wind turbines shall be painted bright white to provide the maximum daytime conspicuousness. The colours grey, blue and darker shades of white should be avoided altogether. If such colours have been used, the wind turbines shall be supplemented with daytime lighting, as required.
- **Wind farm Lighting:** Wind farm (3 or more units) Lighting: In determining the required lighting of a wind farm, it is important to identify the layout of the wind farm first. This will allow the proper

approach to be taken when identifying which turbines need to be lit. Any special consideration to the site's location in proximity to aerodromes or known corridors, as well as any special terrain considerations, must be identified and addressed at this time.

Relevance to the proposed project:

The proposed wind farm project is required to get authorization from the Civil Aviation Authority for the construction of wind turbines.

Occupational Health and Safety Act (85 of 1993)

The objective of this Act is to provide for the health and safety of persons at work. In addition, the Act requires that, "*as far as reasonably practicable, employers must ensure that their activities do not expose non-employees to health hazards*" (Glazewski, 2005: 575). The importance of the Act lies in its numerous regulations, many of which will be relevant to the proposed wind energy project. These cover, among other issues, noise and lighting.

Relevance to the proposed project:

The developer must be mindful of the principles and broad liability and implications contained in the OHS Act and mitigate any potential impacts.

1.3.3 Other relevant legislation

Other legislation that may be relevant to the proposed Inyanda - Roodeplaat WEF includes:-

- The Conservation of Agricultural Resources Act 43 of 1983 controls and regulates the conservation of agriculture and lists all regulated invasive species;
- The Environment Conservation Act No 73 of 1989 (ECA) Noise Control Regulations, which specifically provide for regulations to be made with regard to the control of noise, vibration and shock, including prevention, acceptable levels, powers of local authorities and related matters and provides for effective protection, control and utilisation of the environment;
- The Mountain Catchment Areas Act 63 of 1970 provides for catchment conservation;
- The National Veld and Forest Fire Act (Act 101 of 1998);
- The Development Facilitation Act 67 of 1995 provides for development and planning;
- The Telecommunication Act (1966) which has certain requirements with regard to potential impacts on signal reception;
- The Physical Planning Act 135 of 1991 provides land use planning;
- The Tourism Act 72 of 1993 provides for the promotion of tourism and regulates the tourism industry;
- The Skills Development Act 97 of 1998 promotes the development of skills;
- Provincial Nature and Environmental Conservation Ordinance (No. 19 of 1974), which lists species of special concern which require permits for removal; and
- The Mineral and Petroleum Resources Development Act (Act 28 of 2002).

In addition to the above, aside from the environmental authorisation, there are other permits, contracts and licenses that will need to be obtained by the project proponent for the proposed project some of which fall outside the scope of the EIA. However, for the purposes of completeness, these include:-

- Local Municipality: Land Rezoning Permit. LUPO Ordinance 15 of 1985
- National Energy Regulator of South Africa (NERSA): Generation License
- Eskom: Connection agreement and Power Purchase Agreement (PPA)

How the above statutory considerations are relevant to the IPP procurement and bidding process are detailed below.

1.3.4 Renewable Energy Independent Power Producer Procurement Programme (REIPPPP)

Under the Department of Energy's current procurement policy for renewable energy, Independent Power Producers (IPPs) have to comply with the requirements as detailed in the Request for Proposal (RFP) document that was released in August 2011. 3725 MW are to be allocated to renewable energy resources to ensure the continued uninterrupted supply of electricity. This 3725 MW is broadly in accordance with the capacity allocated to renewable energy generation in Integrated Resources Plan (IRP) 2010-2030. The RFP document underpins five rounds of a competitive bid process to which a total of 1850 MW for wind energy projects has been allocated. The first round of bid submissions were made in November 2011, while subsequent windows were March 2012, November 2013, and August 2014 as identified to date. Bid Round Five is anticipated to take place in August 2015, however due to the delayed announcement of Round Four preferred bidders, this speculated date may be pushed out.

In what is effectively a substantial vetting process, IPPs are required to meet the minimum requirements set out in six volumes of the RFP document covering legal, technical (of which the EIA process forms a part), financial and economic development criteria. Over and above the necessary environmental authorisation for a project the aspects listed below also require review and the associated application, reporting and permitting processes to be conducted as part of the bid process.

Heritage

In terms of the National Heritage Resources Act (25 of 1999) the protection of archaeological and paleontological resources is the responsibility of a provincial (or national) heritage resources authority. All archaeological objects, paleontological material and meteorites are the property of the State. The project is required to undertake the relevant heritage permitting processes and requirements identified by the provincial heritage authority.

Water

Authorisations are needed in terms of section 21(c) & (i) of the National Water Act (36 of 1998) whenever new roads and/or cables cross watercourses (even dry headwaters), and when upgrades to existing causeways/bridges are required to allow transportation of long/heavy components and equipment: This is defined as a "water use" in terms of the Act.

Activities for the water use licensing application for stream crossings and groundwater abstraction are underway independently of this EIA process. SRK's understanding is that officials from DWS have visited the site and that the general authorisation process for applications will be followed.

Civil Aviation Authority

In terms of the Civil Aviation Act (Act 13 of 2009) prescriptions listed above the project proponent is required to secure the relevant permits and clearances from the Civil Aviation Authority. A mapping exercise applying the relevant buffer zones around aerodromes, air space, flight paths, and communication/navigation/surveillance assets will be carried out, ongoing into the EIA process. The CAA will require submission of a final layout prior to full approval being granted.

Agriculture

In terms of the Conservation of Agricultural Resources Act (43 of 1983) and the Subdivision of Agricultural Land Act (70 of 1970) all projects that impact on agricultural resources require comment from the national and/or provincial agriculture departments. This will be secured from the national and provincial departments for this project.

1.3.5 Municipal by-laws

Certain activities related to the proposed development may, in addition to National legislation, be subject to control by municipal by-laws. Relevant by-laws will be identified as part of the various specialist studies during the EIA Phase of this EIA process. These are generally applicable to land use consent processes that will have to be entered into if the project receives environmental authorisation and continues to the bid phase.

1.4 Details and expertise of the environmental assessment practitioner

This section presents the details of the CES personnel responsible for preparing the original scoping report as well as those of SRK's personnel responsible for finalising the scoping report and taking the EIA process forward.

1.4.1 Coastal and Environmental Services (CES)

The EIA for this project was started by Coastal Environmental Services (CES, and now trading as EOH Coastal Environmental Services). CES's contact details are as follows:

Physical Address: 67 African Street, Grahamstown 6139

Postal Address: P.O. Box 934, Grahamstown 6140

Telephone: +27 46 622 2364

Fax: +27 46 622 6564

Website: www.cesnet.co.za

Email: info@cesnet.co.za

Expertise of the Consultancy and Environmental Assessment Practitioner (EAP)

CES is a specialist environmental consulting firms in southern Africa. Established in 1990, and with offices in Grahamstown, East London, Port Elizabeth, Cape Town and Maputo, they primarily specialise in assessing the impacts of development on the natural, social and economic environments. CES's core expertise lies in the fields of strategic environmental assessment, environmental management plans, environmental management systems, ecological/environmental water requirements, environmental risk assessment, environmental auditing and monitoring, integrated coastal zone management, social impact assessment and state of environment reporting. In addition to adhering to all relevant national legislative requirements, CES is often required to review and summarise for specific projects, acquisition of equity funding from the majority of financial institutions demands that developments must meet certain minimum standards that are generally benchmarked against the Policy and Performance Standards of the International Finance Corporation and the World Bank Operational Directives and Policies. CES has worked on large projects in throughout Africa and the Indian Ocean islands.

Provided below are short *curriculum vitae* (CVs) of each of the team members involved in the proposed project EIA to date, as well as the EAP and Project Leader, Marc Hardy.

Dr. Kevin Whittington-Jones

(Role: Report Review)

Kevin holds a PhD in Environmental Biotechnology and an MSc in Zoology (marine ecology) and is a Director at CES. His professional interests include environmental business risk, management systems, waste management and climate change. Prior to joining CES he held various academic posts at Rhodes University, including that of Senior Lecturer at the Rhodes Investec Business School. Kevin has consulted extensively on environmental issues throughout Africa, including South Africa, Namibia, Swaziland, Mozambique, Sierra Leone, Kenya, Madagascar and Egypt. In addition to routine environmental impact assessments, waste management specialist studies and environmental due diligence and site contamination assessments, he has been actively involved in a number of climate change-related projects. These include the climate change risk assessment for all South African ports, the Greenhouse Gas Assessments for two biofuel projects and a heavy mineral mining operation and the climate change strategy for the Eastern Cape Province of South Africa. He has also been involved in EIAs for numerous wind farm projects around South Africa.

Mr Marc Hardy

(Role: Project Leader and Environmental Assessment Practitioner - EAP)

Marc holds a M. Phil (Environmental Management) from the University of Stellenbosch's School of Public Management and Planning. His professional interests include environmental impact reporting for linear, energy and bulk infrastructure projects, strategic environmental policy development and reporting, compliance monitoring and environmental auditing. Before entering the consulting field he gained extensive experience in the EIA regulatory field whilst in the employ of the Gauteng Department of Agriculture, Conservation and Environment being responsible for the review of infrastructure projects such as the Gautrain Rapid Rail Link and representing the Department on various spatial and environmental planning project steering committees. Prior to joining CES Marc has been project manager for, amongst others, the Dinokeng EMF (Gauteng), the Milnerton Refinery to Ankerlig Power Station Liquid Fuels Transportation Infrastructure Project (on behalf of Eskom Generation – Cape Town), numerous Eskom Transmission and Distribution power line and substation EIAs countrywide, mining EMPR compliance audits, the Return-To-Service compliance audits for Camden, Grootvlei and Komati Power Stations (Mpumalanga Province) and the new high hazard waste management facility for the Coega Development Corporation (Coega IDZ). He is currently managing the EIA processes for numerous large infrastructure, renewable energy and mining developments throughout Africa.

Ms Amber Jackson

(Role: Project Manager and report production)

Ms Amber Jackson, has an M.Phil in Environmental Management from the University of Cape Town. Topics covered included environmental management theory, social and ecological systems, climate change and environmental law. With a dissertation in food security that investigated the complex food system of soft vegetables produced in the Philippi Horticultural Area and the soft vegetables purchased at different links, both formal and informal, in the food system. Prior to this she obtained a BSc degree in Zoology and 'Ecology, Conservation and Environment' and a BSc (Hons) in 'Ecology,

Conservation and Environment' from the University of the Witwatersrand. Her honours thesis title was: Landscape Effects on the Richness and Abundance of the Herpetofauna in the Kruger National Park.

Ms Tarryn Martin

(Role: Report Production and botanical specialist)

Tarryn holds a BSc (Botany and Zoology), a BSc (Hons) in African Vertebrate Biodiversity and a MSc with distinction in Botany from Rhodes University. Tarryn's Master's thesis examined the impact of fire on the recovery of C₃ and C₄ Panicoid and non-Panicoid grasses within the context of climate change. She conducts vegetation assessments including vegetation and sensitivity mapping to guide developments, thereby minimising their impacts on sensitive vegetation. Her experience includes local South African Projects as well as international projects in Mozambique.

Mr Justin Green

(Role: Public Participation and report production)

Justin has a B.Sc. degree in Zoology and Entomology as well as a Post Graduate Diploma in Enterprise Management from Rhodes University. Justin's research interests include a broad range of environmental conservation focussing on African mammology and estuarine ecology with the main focus on invertebrate faunal community structure. Justin is currently employed in the Grahamstown office of CES.

1.4.2 SRK Consulting

SRK Consulting were appointed in October 2014 to complete the EIA process commenced by CES. SRK's contact details are as follows:

Physical Address: Ground Floor, Bay Suites, 1a Humewood Road, Humerail, Port Elizabeth

Postal Address: PO Box 21842, Port Elizabeth, 6000

Telephone: +27 41 509 4800

Fax: +27 41 509 4850

Website: www.srk.co.za

Email: portelizabeth@srk.co.za

SRK Profile and Expertise of Relevant Environmental Assessment Practitioners (EAP's)

SRK Consulting comprises over 1,500 professional staff worldwide, offering expertise in a wide range of environmental and engineering disciplines. SRK's Port Elizabeth environmental department has a distinguished track record of managing large environmental projects and has been practicing in the Eastern Cape since 2001. SRK has rigorous quality assurance standards and is ISO 9001 certified.

Project Manager: Nicola Rump, MSc, EAPSA

Nicola Rump is an environmental scientist and has been involved in environmental management for the past 7 years working on South African and international projects including EIAs and ISO 14001 auditing for a variety of activities. Her experience includes Basic Assessments, Environmental Impact Assessments, Environmental Management Plans, Environmental Auditing and Stakeholder Engagement.

Project Director and Internal Reviewer: Rob Gardiner, MSc, MBA, Pr Sci Nat

Rob Gardiner is the Principal Environmental Scientist and head of SRK's Environmental Department in Port Elizabeth. He has more than 19 years environmental consulting experience covering a broad range of projects, including Environmental Impact Assessments (EIA), Environmental Management Systems (EMS), Environmental Management Programmes (EMPr), and environmental auditing. His experience in the development, manufacturing, mining and public sectors has been gained in projects within South Africa, Lesotho, Botswana, Angola, Zimbabwe, Suriname and Argentina.

1.5 Statement of SRK Independence

Neither SRK nor any of the authors of this Report have any material present or contingent interest in the outcome of this Report, nor do they have any pecuniary or other interest that could be reasonably regarded as being capable of affecting their independence or that of SRK.

SRK's fee for conducting this EIA process is based on its normal professional daily rates plus reimbursement of incidental expenses. The payment of that professional fee is not contingent upon the outcome of the Report(s) or the EIA process.

As required by the legislation, SRK has completed and submitted a declaration of interest, as part of the EIA application form. A copy of this is included in Appendix A of this report and the qualifications and experience of the individual practitioners responsible for this project are detailed above.

1.6 Purpose of this Final Scoping Report

The proposed project is currently in the Scoping Phase. The aim of this phase is to determine, in detail, the scope of the EIA required for the proposed activities. The principal objectives of the Scoping Phase in accordance with the regulatory requirements are to:

- Describe the nature of the proposed project;
- Enable preliminary identification and assessment of potential environmental issues or impacts to be addressed in the subsequent EIA phase;
- Define the legal, policy and planning context for the proposed project;
- Describe important biophysical and socio-economic characteristics of the affected environment;
- Undertake a public participation process that provides opportunities for all Interested and Affected Parties (IAPs) to be involved;
- Identify feasible alternatives that must be assessed in the EIA phase; and
- Define the Plan of Study (PoS) for the EIA phase.

This Final Scoping Report (FSR) forms the basis of the Terms of Reference (ToR) for specialist studies, and it is therefore important that all issues and potential impacts that may be associated with the proposed development be identified and recorded. IAPs are therefore encouraged to review the FSR to ensure that their comments have been accurately recorded and understood. Comments on the FSR must be directed to the DEA, as indicated in Sections 4.5 and 7.

Before proceeding to the EIA phase, the Scoping Report and Plan of Study for EIA are assessed by the Department of Environmental Affairs (DEA). In the spirit of cooperative governance, DEA will consult with other relevant organs of state before making a decision. These organs of state could include:

- Department of Economic Development, Environmental Affairs and Tourism (DEDEAT);
- Department of Agriculture, Forestry and Fisheries (DAFF);
- Department of Water & Sanitation (DWS);
- Sundays River Municipality;
- Eastern Cape Parks and Tourism Agency (ECPTA); and
- Eastern Cape Provincial Heritage Resources Authority (ECPHRA).

All the organs of state listed above have been notified previously of the development by CES, have had an opportunity to make input into this Final Scoping Report, and will also be given an opportunity to comment on this report.

1.7 Assumptions and limitations

As noted in the Draft Scoping Report, this report is based on currently available information and, as a result, the following limitations and assumptions are implicit in it:

- Descriptions of the natural and social environments are based on limited fieldwork and available literature. More information will be provided in the EIA phase based on the outcomes of the specialist studies;
- The report is based on a project description taken from preliminary design specifications and site layouts for the proposed wind energy facility that have not yet been finalised and are likely to undergo a number of iterations and refinements before they can be regarded as definitive. All potential turbine array alternatives will, however, be contained within the property boundaries of the study area; and
- The preliminary turbine site layout and associated infrastructure will be presented in the EIA phase and subject to the necessary specialist assessments. It is anticipated that this preliminary layout will be further refined as per the outcomes of these studies and overall EIA findings.
- That, due to the cost of preparing detailed designs and plans, such detailed design/ planning information would only be developed in the event of environmental authorisation being granted. As such, it is anticipated that, as is typically the case in an EIA process, the EIA will assess broad land uses.

Notwithstanding these assumptions, it is our view that this Final Scoping Report provides a good description of the potential issues associated with the proposed development, and a reasonable Plan of Study for EIA.

1.8 Structure of this report

This report is divided into eight chapters:

Chapter 1 Background and Introduction

Introduces the Scoping Study, and the legal context, for the proposed Inyanda - Roodeplaat WEF.

Chapter 2 Description of Development Proposal

Describes the various components of, and the motivation for, the proposed Inyanda - Roodeplaat WEF.

Chapter 3 Description of the Affected Environment

Provides an overview of the bio-physical and socio-economic characteristics of the site and the surrounding area that may be affected by the proposed development. This is description compiled largely from published information, but in some cases includes site specific data obtained as part of this project.

Chapter 4 Public Participation

Describes the Public Participation Process (PPP) followed thus far and the issues & concerns that have been raised by Interested and Affected Parties (IAPs).

Chapter 5 Identification of Potential Impacts

Identifies potential positive and negative environmental impacts of the proposed Inyanda - Roodeplaat WEF.

Chapter 6 Plan of Study for EIA

Provides a plan of what studies are proposed in order to address the identified potential impacts in the EIA phase.

Chapter 7 The Way Forward

Describes the next step in the EIA process.

Chapter 8 References

Cites any texts referred to during preparation of this report.

Appendices

Supporting information is presented in various appendices.

2 Description of Development Proposal

This chapter identifies the location and size of the site of the proposed Inyanda - Roodeplaat WEF, and provides a description of its various infrastructure components and arrangements on the site.

2.1 Motivation for the development proposal

2.1.1 Electricity supply

According to the project proponent, the establishment of the proposed WEF will contribute to strengthening the existing electricity grid for the area and will aid the government in achieving its goal of a 30% share of all new power generation being derived from Independent Power Producers (IPPs). In addition to the above-mentioned potential benefits, the proposed project site was selected due to:

- **Excellent** wind resources suitable for the installation of a large wind energy facility;
- The proposed project site has localised wind potentially intensified by a funnelling effect caused by surrounding topographical features;
- The site is accessible from gravel roads off the R75 which will assist in the transportation of wind turbine components to the site;
- The surrounding area is not densely populated; and
- There is potential and a desire within the Sundays River Valley Local Municipality to engage with new technologies and industries.

The Inyanda - Roodeplaat WEF will provide additional electricity and greater grid stability. Upgrading of the local electricity supply infrastructure may be required depending on the actual maximum installed capacity of the WEF. The local Municipality is the provider of electricity within Sundays River Valley Municipality and has identified the supply of electricity as a priority issue in its Integrated Development Plan (IDP) based on the weaknesses specific to electricity supply below:

- Scattered households impede electrification;
- Some of the areas are inaccessible;
- Limited substations, many areas far from the grid;
- Load shedding by Eskom;
- Electricity increases will affect affordability; and
- Over-subsidising of consumers.

Specific measures to address these weaknesses are currently not proposed and it is assumed that these would form part of a local economic development strategy to be defined during the bidding process.

2.1.2 Climate change

Most of South Africa's energy comes from non-renewable sources like coal, petroleum, natural gas, propane, and uranium; however the proponents of renewable energy sources like biomass, geothermal energy, hydropower, solar energy, and wind energy is a major factor that the South African sector need to consider. It is estimated that approximately only 1% of the country's electricity is currently generated from renewable energy sources. The energy sector in South Africa alone

emits approximately 380,988.41² Green House Gases (GHGs) (Eastern Cape Climate Change Conference, 2011). South Africa's total emissions was estimated to be 461 million tonnes CO₂ equivalent in the year 2000. Approximately 83% of these emissions were associated with energy supply and consumption, 7% from industrial processes, 8% from agriculture, and 2% from waste. Eskom currently generates 95% of the electricity used in South Africa with an approximate 40.87 GW net maximum installed capacity.

By the year 2020 an additional 20 GW generation capacity would be required and up to 40 GW by 2030 to sustain the energy demands in the country. National energy policy has called for a change in the energy mix to reduce the dependency of the economy on fossil fuels and facilitate the uptake of renewable energy resources. This is in accordance with the prescriptions of the United Nations Convention on Climate Change 1994 (UNFCCC) and its associated Kyoto protocol of 1997, South Africa has put in place a long term mitigation scenario (LTMS) by which the country aims to develop a plan of action which is economically viable and internationally aligned to the world effort on climate change. During this period (2003-2050) South Africa will aim to take action to mitigate GHG emissions by 30% to 40% by the year 2050. This is a reduction of between 9000 tons and 17 500 tons of CO₂ by 2050. In January 2010, South Africa pledged to the UNFCCC, a 34% and 42% reduction against business as usual emissions growth trajectory by the year 2020 and 2025 respectively.

Due to concerns such as climate change, and the on-going exploitation of non-renewable resources, there is increasing international pressure on countries to increase their share of renewable energy generation. The South African Government (White Paper on Renewable Energy, 2003) has recognised the country's high level of untapped renewable energy potential and the equally high level of current fossil-fired power generation, and has placed targets of 10,000 GWh of renewable energy (biomass, wind, solar and small hydro) by 2013 in order to begin to redress the balance..

South Africa's current electricity generation and supply system is over stretched with the Eastern Cape Province constrained by the availability and stability of electricity supply reliant on the import of power. Under the IPP Producer Procurement Programme, South Africa will seek to procure the first 3,725 MW of renewable capacity by 2016 (1,850 MW of on-shore wind) to meet the renewable energy target of 4,000 MW by 2014³ and 9,000 MW by 2030. Fossil fuels supply 90% of South Africa's energy needs with demands on energy supply increasing by 3.5% in the next 20 years.

The establishment of the proposed Inyanda - Roodeplaat WEF will assist in strengthening the existing electricity grid for the area and contribute to government achieving its goal of a 30% share of all new power generation being derived from Independent Power Producers (IPP).

2.1.3 Social and economic development

Inyanda Energy intends to promote local economic growth and development through direct and indirect employment, as well as the identification and implementation of social development schemes during the projects operational phase. A local community trust or organisation is intended to directly benefit from the project.

² It is assumed this refers to carbon dioxide equivalents per annum. No attempt has been made to check this against the reference.

³ It is recognised that these targets under this programme would need to be revised, but as this is not material to the report, the text from the DSR has not been amended.

In the event that the project goes through the REIPPPP bidding process, one of the key assessment criteria is likely to be the local economic development plan. This plan is currently not available.

2.1.4 Conservation potential

As noted above, the proposed wind energy facility is located within an area designated as a National Protected Areas Expansion Strategy Area (PAES). The project study area forms a contiguous corridor linking two disparate sections of the adjacent Groendal Nature Reserve (Figure 1-3). Although historically utilised for agricultural and livestock production purposes, these land portions have mostly been purchased by Mr Ronnie Watson (one of Inyanda Energy's associates), who is gradually converting these portions to game farming land uses.

Mr Watson is investigating the potential for setting aside all 12,200 hectares of these portions as conservation areas to offset the impact of the wind energy facility. In theory, the addition of these property portions to the disparate Groendal Nature Reserve portions will create a connection corridor between these two portions which would be desirable from a conservation perspective. The potential, or even viability of this proposal, has been discussed with relevant parks and conservation bodies, at national and provincial level. Early indications from the Eastern Cape Parks and Tourism Association (ECPTA) are that they are not supportive of the project in general. Should the proposal be viable it would have to be subject to a biodiversity offset process assessment in the EIA phase of this reporting process.

The landowner has had discussions regarding a stewardship agreement with the ECPTA since the initial consultations reported in the previous paragraph. It is unclear whether the landowner's willingness to enter into a stewardship agreement with ECPTA for the portions of land in the study area is contingent on the development of a wind energy facility, or whether such stewardship agreement would be entered into irrespective of whether the proposed development is authorised or not. If it is the former, then this could be considered a motivation for the development proposal.

2.2 Location and site description of the proposed project

The proposed wind farm is located in the Sundays River Valley Municipality within the Cacadu District Municipality, Eastern Cape Province, South Africa (Figure 1-1). The project has a study area of approximately 12,200 ha located on 22 property portions which are listed in Table 1-1. A more detailed description of the activities associated with the proposed wind energy facility is contained in Section 2.3.

2.3 Detailed description of the proposed project

The wind energy facility which will be spread over 17 property portions in the project area comprising 22 adjacent properties. These land portions are planned to host up to 47⁴ turbines dependent on turbine supplier, each with a nominal power output of approximately 3 MW per turbine. The maximum total potential output of the wind farm would therefore be approximately 140 MW, which will serve to further support the regional and national power balance. The ultimate size of the wind

continued on page 28

⁴ Note that although 52 turbine locations are shown on the site development plan(s), the intention is to establish a wind farm with an installed capacity of 140 MW, i.e. 43 to 48 turbines when looking at the range of nameplate capacity (3 – 3.3 MW per turbine) of the turbines under consideration. Note further that the selection of turbines is not within the scope of the EIA.

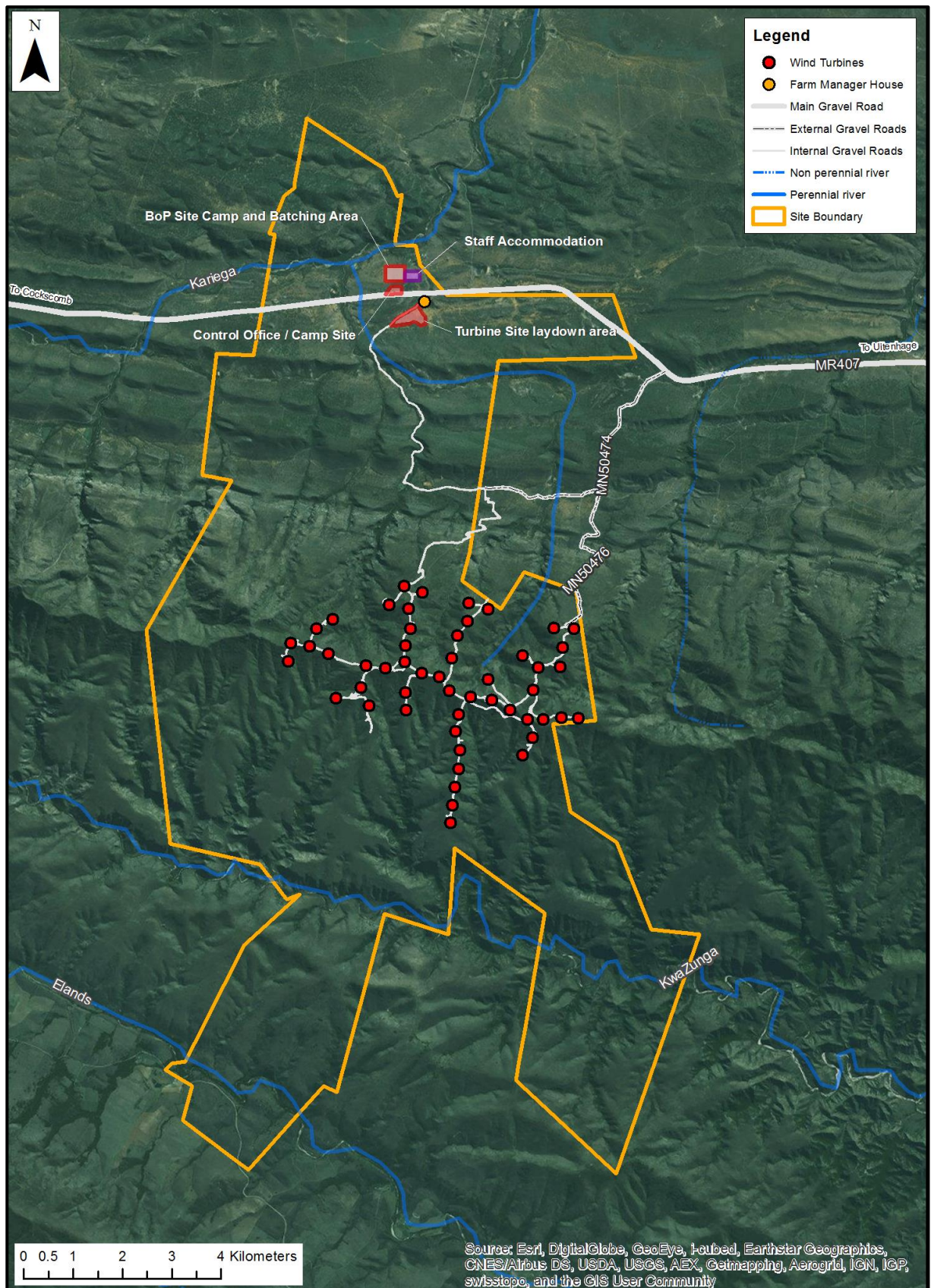


Figure 2-1: Site Layout Plan (Larger versions of the site development plan are provided in Appendix G)

turbines will depend on further technical assessments but will typically consist of three blades each approximately 60 m in length therefore creating rotor diameters of up to 125 m mounted atop a 100 m high steel (or hybrid steel/concrete) tower, i.e. the height of the wind turbine generator would be approximately 165 m from ground level to the tip of the rotor. Other infrastructure components associated with the proposed wind energy facility are inter alia:

- Concrete or rock adaptor foundations to support the wind turbine towers;
- Internal access roads to each turbine - approximately 6 meters wide (Figure 2-9);
- Underground cables connecting the wind turbines to the on-site substation. It has been confirmed that all internal power lines will be underground, and located within footprint of the internal roads, as depicted in a typical cross section (Figure 2-9);
- 132 kV electrical substation;
- Possible upgrading of existing roads for the transportation of the turbines to the wind energy facility;
- Buildings to house the control instrumentation, as well as a store room for the maintenance equipment; and
- Construction compound, on-site staff accommodation, and a concrete batching plant.

The arrangement of the various elements of the project is described in Section 2.3.3.

2.3.1 Production of electricity from wind

Wind energy is a form of solar energy. Winds are caused by the uneven heating of the atmosphere by the sun, the irregularities of the earth's surface, and rotation of the earth. Wind flow patterns are modified by the earth's terrain, bodies of water, and vegetation. This wind flow or motion energy (kinetic energy) can be used for generating electricity. The term "wind energy" describes the process by which wind is used to generate mechanical power or electricity. Wind turbines convert the kinetic energy in the wind into mechanical power and a generator can then be used to convert this mechanical power into electricity. A typical wind turbine consists of (refer to Figure 2-2):

- A rotor, with 3 blades, which react with the wind and convert the energy into rotational motion;
- A nacelle which houses the equipment at the top of the tower;
- A tower, to support the nacelle and rotor;
- Electronic equipment i.e. controls, transformers, electrical cables and switchgear, ground support equipment, and interconnection equipment; and
- Turbine step-up transformer which can be externally sited to the turbine (refer to Plate 2-1), alternatively, depending on the turbine model this may be inside the turbine structure.

The amount of energy which the wind transfers to the rotor depends on the density of the air (the heavier the air, the more energy received by the turbine), the rotor area (the bigger the rotor diameter, the more energy received by the turbine), and the wind speed (the faster the wind, the more energy received by the turbine). Provided in the sections that follow, is a detailed discussion on the various components of the proposed project.

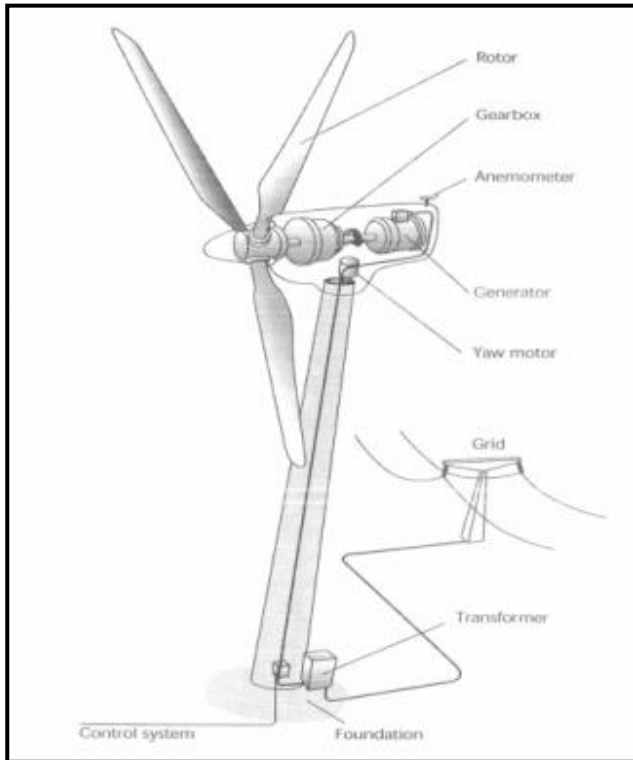


Figure 2-2: Illustration of the main components of a typical wind turbine. Note that certain models have an internal transformer



Figure 2-3: Photographs illustrating the external turbine step-up transformer

2.3.2 Stages of wind farm development

Typically, the development of a wind farm is divided into four phases namely:-

- Pre-feasibility
- Feasibility
- Wind Measurement
- Implementation

Each of the above-mentioned phases is described in detail in sections below.

Pre-feasibility

During the pre-feasibility phase, the proponent conducts surveys to ensure that obvious issues surrounding the project should not impact on the progress and the final acceptance of the project. This includes visits to local authorities, civil aviation authorities, identifying local communities, wind resource evaluation from existing data, grid connectivity, environmental impact assessment, logistical and project phasing requirements.

Feasibility

During the feasibility phase the proponent will firm up and carry out thorough investigations to establish the actual costs, and economic viability of the project by designing the financial model with financial institutions, verifying wind resources by onsite measurement, ensuring grid connection is economical and feasible in the timeframes of the project and identifying possible off-takers for the electricity. Once the feasibility studies are complete the proponent will identify which parts of the project will be constructed first. Then, in an organised fashion the project will be expanded according to the availability of grid capacity and turbines.

Wind Measurement

It is necessary to erect a wind measurement mast to gather wind speed data and correlate these measurements with other meteorological data in order to produce a final wind model of the proposed project site. A measurement campaign of at least 12 months in duration is necessary to ensure verifiable data is obtained. The project proponent already erected two masts (a 60 m and 80 m mast) in the project study area in June 2012 (Figure 2-4) and has commenced with the data capturing campaign. This data will advise on the economics of the project and finalise the positions of the wind turbines. The masts are 'marked' as per the requirements of the Civil Aviation Authority.



Figure 2-4: An example of a meteorological mast

Implementation

The construction of a wind farm is divided into three phases namely:-

- Civil works
- Erection/commissioning
- Operational

Each of the above-mentioned phases is described below.

Civil works

Geotechnical studies and foundation works

A geotechnical study of the area is always undertaken for safety purposes, usually after the environmental authorisation has been secured. This comprises drilling, penetration and pressure assessments. For the purpose of the foundations, approximately 500 m³ of spoil substrate would need to be excavated for each turbine of the dimensions described above. These excavations are then filled with steel-reinforced concrete (Figure 2-5). The foundations can vary according to the quality of the soil. The main dimensions for the foundation of a 3 MW, 100 m high, wind turbine are shown in Figure 2-6 with underground foundation, tower base, above ground foundation, and ground level.



Figure 2-5: Concrete pouring of a turbine foundation – note the tower base collar in the foreground

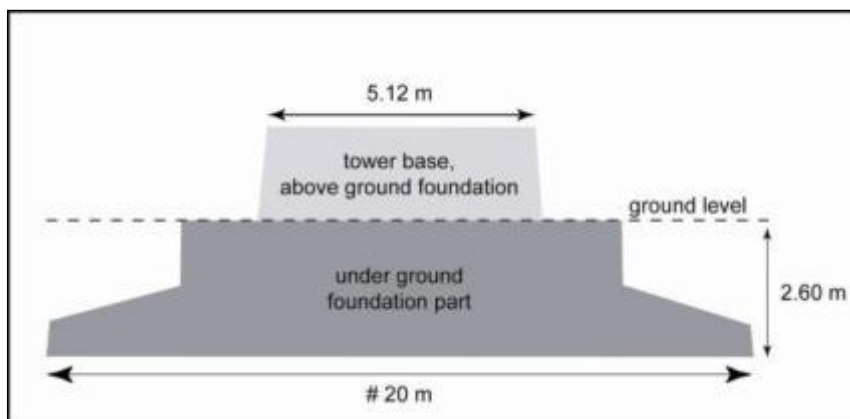


Figure 2-6: The main dimensions for the foundation of a 3MW/100m high wind turbine

Electrical cabling and substation

Electrical and communication cables will be entrenched (approximately 1 m deep) and be routed adjacent to the access roads to the on-site 132 kV substation. The substation location and description is provided in Section 2.3.3.

Erection/commissioning

Turbine erection

The process for erection is around 3 days per turbine if the weather conditions permit and utilises heavy lift cranes in the assembly process (Figure 2-7). Two methods are commonly used to attach the hub and blades to the nacelle. The blades can be mounted to the hub on the ground and then lifted to the nacelle attachment as one assemblage i.e. as the rotor. Due the space limitations on this site, the proposed method for this project is for the hub to be lifted first and mounted on the nacelle, after which the rotor blades are lifted individually and mounted on the hub.



Figure 2-7: Assembly and erection of the tower sections using cranes

Electrical connection

Each turbine is often fitted with its own transformer that steps up the voltage usually to 22 kV or 33 kV. The entire wind farm is then connected to the “point of interconnection” which is the electrical boundary between the wind farm and the municipal or national grid. Most of these works will typically be carried out by and in agreement with the transmission or distribution company (line upgrade, connection to the sub-station, burial of the cables etc.) Eskom, the local Municipality, or an independent system operator as the case may be, although installation of the substation and burying 22 kV or 33 kV cables will typically be undertaken by the project owner. The electricity will be fed into the national ESKOM grid.

The interconnection of the wind farm to the Eskom Distribution electrical grid will require the construction of a 132 kV substation on the project site to step up the 22 kV or 33 kV turbine supply. Various route alignment alternatives for the power lines from the project substation site to Eskom’s Skilpad substation will be assessed in the EIR phase. These are depicted in Figure 2-12.

Operational phase

During the period when the turbines are operational, on-site human activity drops to a minimum, and includes routine maintenance requiring only light vehicles to access the site. Only major breakdowns would necessitate the use of cranes and trucks.

Timing estimation

Based on existing publications, the development, construction and implementation of a wind farm of these approximate dimensions would require about 18-24 months, depending on the delivery times of the main equipment. Described below is a typical schedule:

- Platforms/Roads/cables laydown = 35 weeks;
- Turbines foundations = 10 weeks for each foundation (including 8 weeks to let the foundation concrete dry – these activities are conducted simultaneously for multiple turbine foundations);
- Civil works for the substation = 16 weeks;
- Wind turbines/electrical substation erection = 2 turbines/week (in good low wind weather conditions);
- Substation erection = 8 weeks; and
- Commissioning and electrical connection = 20 weeks.

Refurbishment and rehabilitation of the site after operation

Current wind turbines are designed to last for over 25 years and this is the figure that has been used to plan the life span of a modern wind farm. Should the re-powering of the wind farm be financially, environmental and socially viable, the life span can be extended by another 20-25 years. Should the wind farm be decommissioned, Inyanda Energy undertakes to dismantle all wind turbines and foundations in line with all relevant legislation.

2.3.3 Conceptual site development plan

Figure 2-1 is the preliminary layout that has been developed taking the local social and ecological sensitivities identified to date into account. The final road layout and cable routing will be defined at a later stage based on the definition of the final locations of the turbines.

Various (but not all) elements of the site development plan are discussed below.

On-site staff accommodation

Temporary accommodation for approximately 200 construction personnel will be required at the peak of construction. Provision is made in the site development plan, as depicted in Figure 2-1, for staff accommodation in the vicinity of the existing staff quarters and workshops. Details of the proposed water supply, ablution facilities and waste management are not available at this stage of the project and it is expected these would only be designed in the event that the project receives environmental authorisation. However, these facilities will all be contained in the footprint shown. It is anticipated that water will be provided from new boreholes (approximately 26.9 kL/day at the peak of construction) and that sewage would be directed to a conservancy tank. All solid waste associated with on-site accommodation would need to be removed from site for recycling or disposal at a registered landfill.

Cement batching plant

A cement batching plant is proposed as part of the construction camp area. The total volume of cement that is required for the project is expected to be at least 25,300 m³ and would require on-site bulk storage of aggregate, cement and sand, all of which would be imported to the site from commercial sources, i.e. no mining or crushing of materials is proposed. It is anticipated that the water demand for concrete production would be approximately 5,060 kL over a 16 month period and would be supplied by new borehole(s) in vicinity of the batching plant.

Details of the batching plant are not known at this stage, but will all be contained within the footprint of the construction camp site.

Storage of hazardous chemicals

Apart from the storage of cement powder associated with the batching plant, it is anticipated that temporary storage facilities for various hydrocarbons would be required during construction. Due to the remoteness of the site, the contractor is likely to require a bulk fuel storage tank from which mechanical plant on the site can be refuelled. It is therefore anticipated that an above ground storage tank with a capacity of 20 kL would be required for the duration of construction.

Additionally, provision would need to be made for the temporary storage of oils, paints and other chemicals, typically inside shipping containerised storage areas, which together with the fuel storage may exceed the 30 kL threshold of Activity 10, Listing Notice 3 (see Section Table 1-2).

The location of the storage facility would most likely be at the Construction Plant Storage area, where plant can be re-fuelled as necessary, or from where fuel bowsers can be filled and despatched to fill plant on site. Storage areas will be on impervious concrete floors with secondary containment. Drainage from such areas (e.g. to accommodate rain water) will be to a water-tight sump and/or oil trap from where it can be removed off-site for disposal.

All hydrocarbon storage facilities will not be permanent and will completely be removed on completion of construction.

Transformer oil will be brought to site for the filling of transformers after they have been installed and prior to operation. This is a once off operation, with a typical 56/80 MVA 33 kV/132 kV transformer requiring approximately 26,000 litres of oil. Transformers themselves will be installed on concrete floors, surrounded with a low impervious wall. Oil will be brought to site by tanker at the time that it is needed and as such there will be no need to store this oil on the site. Transformer oil which will be required for maintenance purposes will not be stored on site but will be transported to site as necessary. Under normal operational conditions, the transformers should only be re-filled after a 10 year operation period.

Lay down area for turbine components

A temporary combined laydown area of approximately 15 ha is provided for in the site development plan. Due to space constraints on the platforms, it is proposed that turbine components are temporarily stored at the laydown area on arrival from Ngqura Harbour, and then transported individually to the platform on demand. It is anticipated that the laydown area will require earthworks to level the site, and gravel layerworks to achieve a suitable hardstanding. In general it is expected that the site will be constructed of compacted earth.

Turbine Platforms

A permanent platform is required at each turbine foundation site to ensure safe and stable access by heavy machinery and equipment (bulldozers, trucks, cranes etc.) during the construction phase. The standard layout proposed for this project is shown in Figure 2-8.

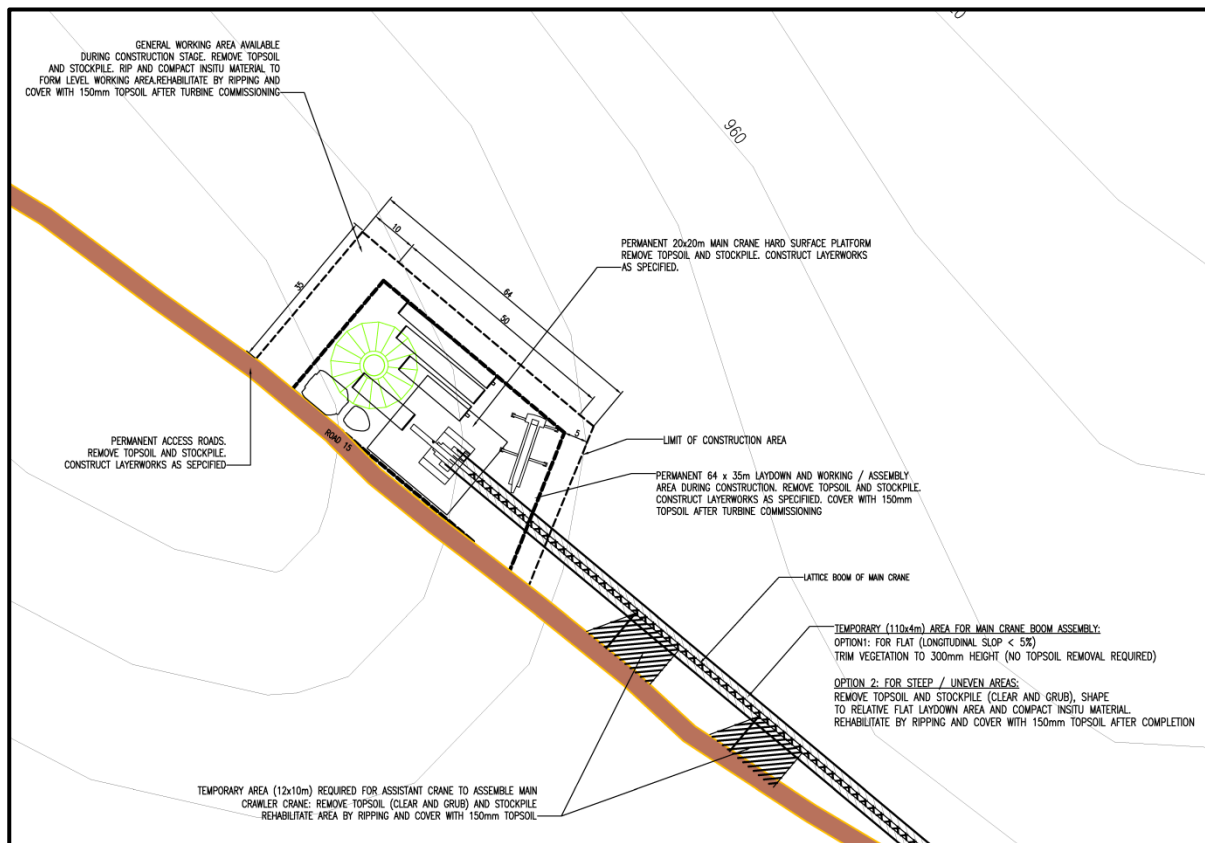


Figure 2-8: Sketch of wind turbine generator platform layout (see Appendix G for larger drawing)

Due to the topography of the site, the platform area for each turbine, excluding the working space and access road that will run adjacent to the platform, will be limited to 60 m x 30 m. The overall footprint of each platform would be greater than the level 60 m x 30 m area, due to the cut and fill profiles. It is proposed to crush the excavated material on each platform for use as layer works backfill on that platform. A mobile crushing plant must therefore be accommodated on the platform, together with mechanical plant for excavation, backfilling and compaction.

During the construction phase this footprint is likely to be extended to accommodate topsoil stockpiles, and crushed material prior to backfilling. Temporary platforms for laydown areas may also be required (as depicted in Figure 2-8). The use of the cut material on the platform site may reduce the footprint associated with excess fill (i.e. reduce the amount of spoil material).

To limit the overall footprint, the electrical earth mat required for each WTG would be installed under the hardstand platform.

The project engineers have confirmed that the 60 m x 30 m platform area is sufficient to accommodate the activities required for the erection of each wind turbine generator, recognising that the limited working area may pose logistical and time challenges during construction.

Internal Roads

Turbine platforms will be connected by internal access roads that must meet the following requirements:

- Generally 6 m in width. Road side stormwater drainage will be limited to 1 m wide trapezoidal channels, approximately 300 mm deep, as per the typical road cross section drawing;
- After excavation (cut & fill) of bulk material, road pavement layerworks will be limited to 350 mm thickness;
- Generally slopes must be limited to 12.5% gradient. However in this instance several sections will have longitudinal gradients in excess of 25% (e.g. 1:4). In these instances circumstances, concrete strips will be constructed to limit rutting and erosion of road surface, especially at gradients where excessive natural loose gravel exist.
- Minimum horizontal turning radii for tyres and payloads (estimated to be 40 m and 50 m respectively).

A typical cross section specific to this project is included in Figure 2-9 and Appendix G.

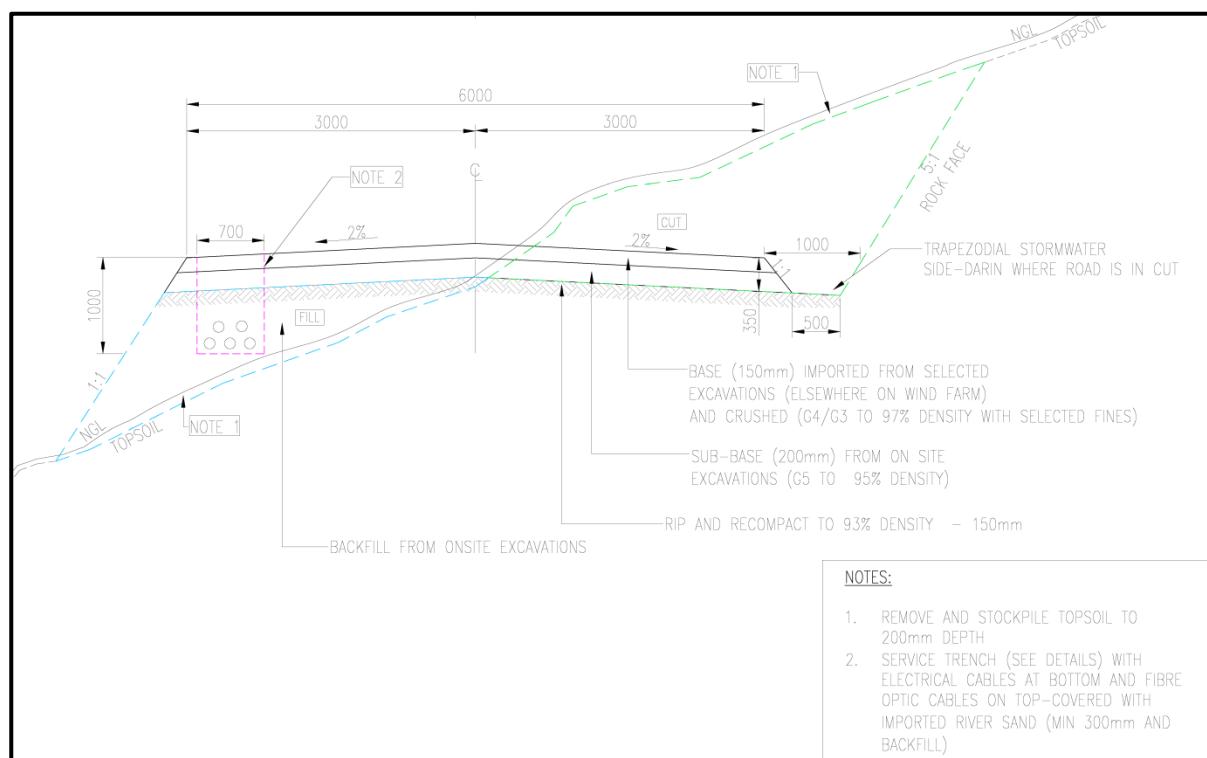


Figure 2-9: Typical road cross section for internal roads (see larger drawing n Appendix G)

Substation

The location for the substation is depicted in Figure 2-10. The sub-station is located near the centre of the WEF for technical (electrical) reasons. A more focussed view of the substation is depicted in Figure 2-10.

The 132 kV substation will comprise a fenced area of about 80 m x 40 m. The platform will be split into various levels (terraces) for the transformers, substation building, etc. to limit the cut and fill

outside of this platform to less than 10 m horizontal distance. As with the wind WTG platforms, the electrical earth mat will be installed within this footprint.



Figure 2-10: Electrical substation preliminary design (see Appendix G for larger drawing)

Access to the site

The site is accessible along a number of provincial minor gravel roads that lead off the R75 and existing roads on the project area. Various alternatives are shown in Figure 2-11. Gravel roads may need widening and resurfacing prior to the start of the project and in some cases minor culverts / bridges may require upgrading. Based on the width of the existing road, the preferred route for abnormal loads is from the Cockscomb station turnoff although at least for some traffic, other routes might be followed.

The possible upgrading, resurfacing, and/or rehabilitation of these gravel roads and associated borrow pits is outside the scope of this EIA process.

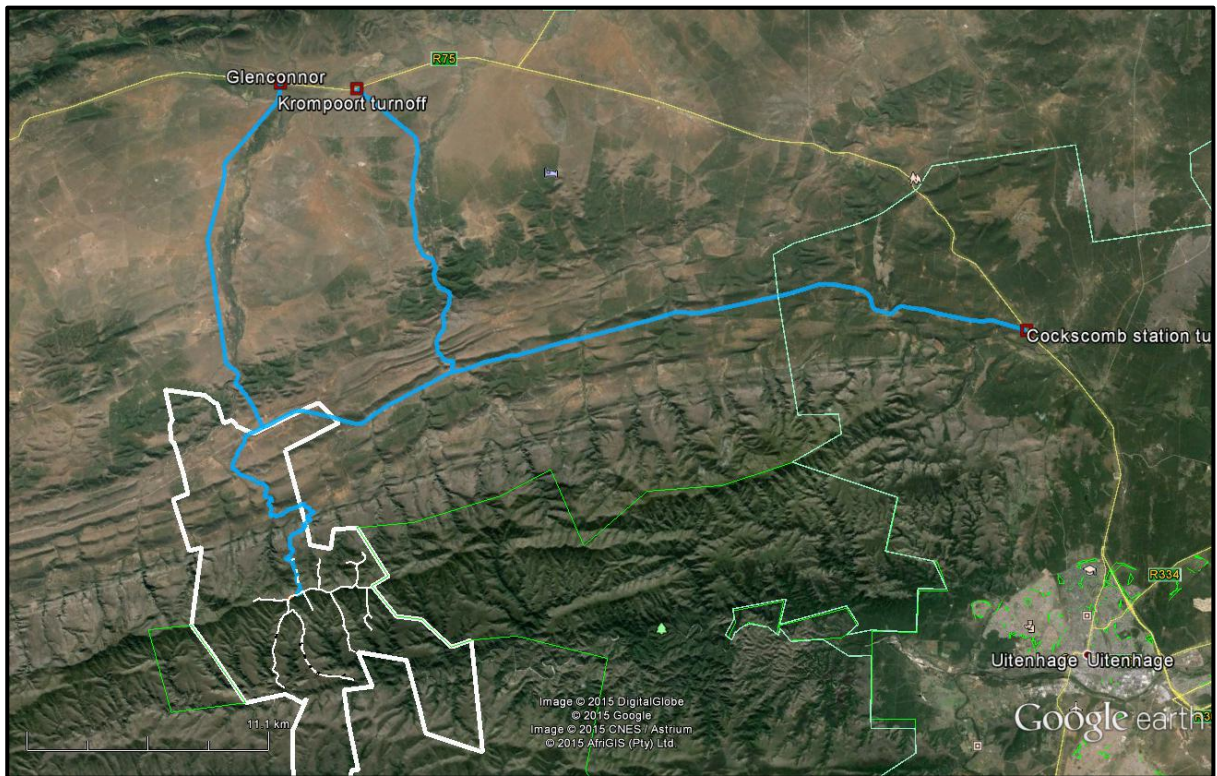


Figure 2-11: Site access alternatives

2.4 Project Alternatives

One of the objectives of an EIA is to investigate alternatives to the proposed project. There are two types of alternatives - Fundamental Alternatives and Incremental Alternatives.

Alternatives should include consideration of all possible means by which the purpose and need of the proposed activity 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.

“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 type of activity to be undertaken;
- (b) the property on which or location where it is proposed to undertake the activity;
- (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.

All alternatives mentioned in this Final Scoping Report are aimed at all reasonable and feasible alternatives that have been identified up until this point.

The technology and design alternatives are considered and implemented throughout the EIA phase as important information comes to light.

2.4.1 Fundamental alternatives

Fundamental alternatives are developments that are totally different from the proposed project and usually involve a different type of development on the proposed site, or a different location for the proposed development.

A different type of development

The current zoning for the property portions is agriculture. The current development proposed is the production of renewable energy. Non-renewable production of energy is unfavourable in terms of the Kyoto Protocol and therefore not an option. Alternative types of developments are explored in the table below (Table 2-1)

Table 2-1: Alternative types of development

Alternative level	Alternatives	Advantages	Disadvantages	Reasonable and feasible	Further assessment
<u>Type of technology</u> This refers to the fundamental technology options, such as energy generation from wind vs. coal fired power plant, and the environmental risks and impacts associated with such options.	Alternative energy technology 1 – Wind turbines (Preferred alternative)	<ul style="list-style-type: none"> Clean and renewable energy Mitigate climate change Does not require large areas of land 	<ul style="list-style-type: none"> Visually intrusive 	YES	YES
	Alternative energy technology 2 – Solar PV	<ul style="list-style-type: none"> Clean and renewable energy Mitigate climate change 	<ul style="list-style-type: none"> Visually intrusive Requires large area of land 	YES	NO
	Alternative energy technology 3 – Concentrated Solar Power (CSP)	<ul style="list-style-type: none"> Clean and renewable energy Mitigate climate change 	<ul style="list-style-type: none"> Visually intrusive Requires large area of land Water probably a limiting factor Reflectivity of mirrors probably a significant issue 	NO	NO

Alternative level	Alternatives	Advantages	Disadvantages	Reasonable and feasible	Further assessment
	Alternative energy technology 4 – Coal fired power plant	<ul style="list-style-type: none"> None identified 	<ul style="list-style-type: none"> Air pollution from coal dust and smoke stack emissions (SO₂) Contribution to climate change Ground contamination from coal dust 	NO	NO
	Alternative energy technology 5 – biomass	<ul style="list-style-type: none"> Clean and renewable energy Mitigate climate change 	<ul style="list-style-type: none"> Expensive source of energy 	NO	NO
	Alternative energy technology – nuclear power	<ul style="list-style-type: none"> Greater electricity generation with little raw material required 	<ul style="list-style-type: none"> Raw material highly radioactive 	NO	NO

The above discussion of fundamental technology alternatives for electricity generation is generic in nature and is not relevant *per se* to the proposed development, e.g. the motivation for site selection is based on the good wind resource. There are, in addition, many economic and/or technical reasons why some of the fundamental technology alternatives listed above are not feasible, including:

- Distance from coal reserves makes coal generation uneconomical;
- General topography of the area make sites unsuitable for most large infrastructure projects;
- Nuclear power in this location is unlikely to be feasible due to the absence of cooling water.

Nevertheless, Table 2-1 confirms that, with the exception of solar PV (which typically requires a flat site), alternative technologies for electricity generation on this site are not feasible. As such, the scope of this EIA process does not include an assessment of fundamental technology alternatives.

A different location

High wind levels occur in specific areas across South Africa. A limited number of those areas are available for development. The main determinants in selecting the proposed location were:-

- Wind speed;
- Proximity to a grid connection point, and;
- Available land.

Preliminary investigations have identified that the proposed project site meets these criteria and so different locations for the current project will not be considered. The wind resource and connectivity to the grid are the critical factors to the overall feasibility of the project.

Based on the above, the scope of this EIA process does not include an assessment of site alternatives.

Land use alternatives

The development of a wind farm is not a mutually exclusive land use. A number of activities can be carried out in close proximity to the turbines without adverse effect. There are, however, activities that must be excluded from the immediate vicinity and possibly even the surrounding areas. Table 2-2 is a simple matrix (as determined by CES) indicating some of the land use activities that may, or cannot, be complementary to wind farm development.

Table 2-2: Matrix indicating land uses contemplated to occur in conjunction with development of a wind farm

Land use	Same land		Surrounding land	
	Yes	No	Yes	No
Farming				
Livestock	*		*	
Crops	*		*	
Game	*		*	
Eco-tourism (perception-dependent)	*	*	*	
Settlement		*	*	
Light Industry (Industry-dependent)	*	*	*	
Aerodromes		*		*
Conservation	*		*	

No-Go alternative

The no development option assumes the site remains in its current state, i.e. agricultural land. The no-go alternative will be used as a baseline throughout the assessment process against which potential impacts will be compared in an objective manner and will be fully assessed in the EIR.

The no-go alternative in this instance is that the farms within the study area would be fenced to enable stocking with endemic game species that would easily broach the current perimeter without fencing – such species include Burchell's zebra and cape eland. This may improve the commercial prospects of the farms, specifically in terms of game farming, hunting and/or game viewing, although there is currently no proposal to pursue such commercial activities. Therefore, the no-go alternative would see the current land use continuing, albeit it in a slightly modified way with the introduction of fencing (which is not precluded in the event that the wind farm is developed), and probably in the absence of a stewardship agreement with the ECPTA.

2.4.2 Incremental alternatives

Incremental alternatives are modifications or variations to the design of a project that provide different options to reduce or minimise environmental impacts. There are several incremental alternatives that can be considered, including:

- The design or layout of the activity;
- The technology to be used in the activity; and
- The operational aspects of the activity.

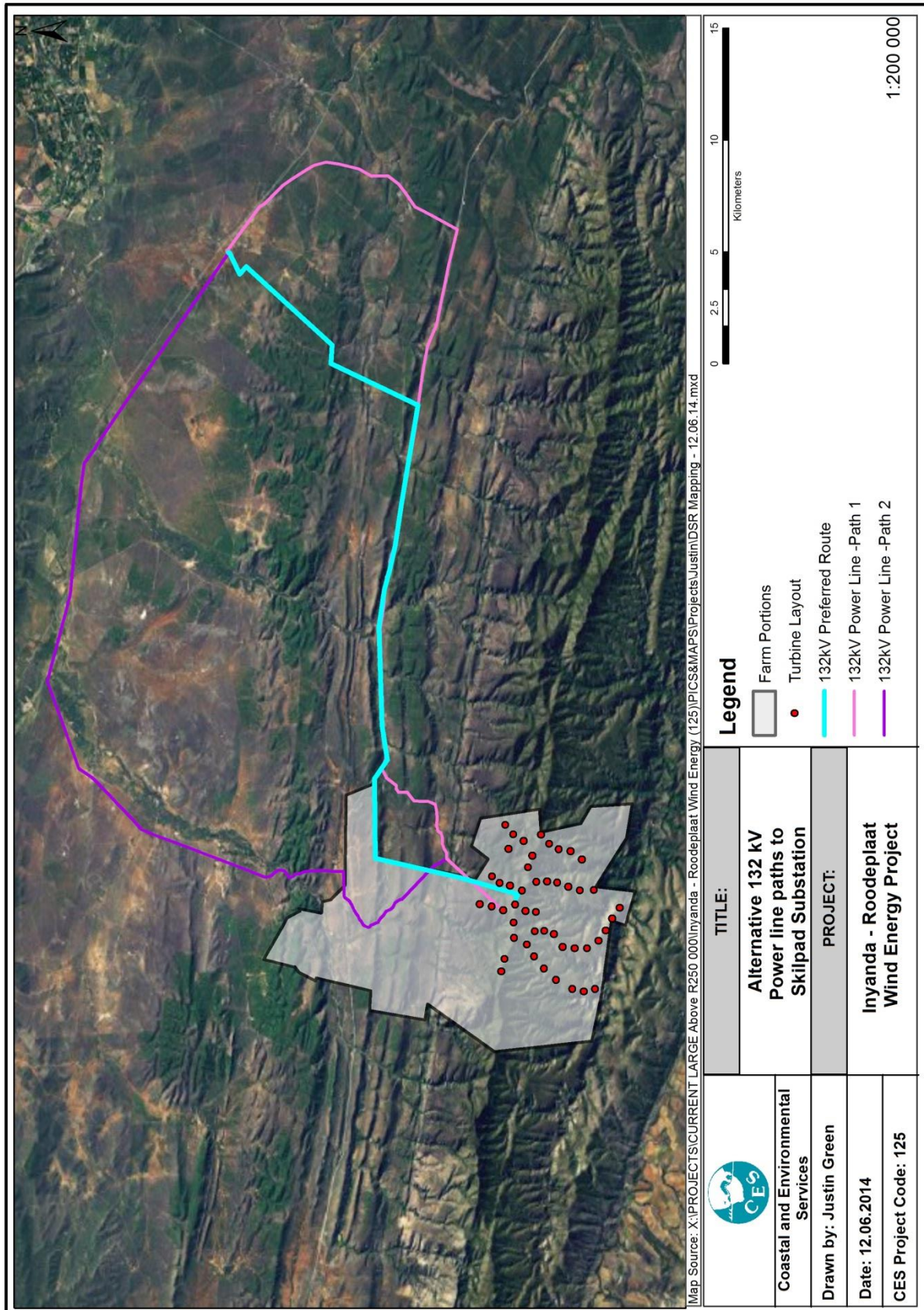


Figure 2-12: Alternative 132 kV power line route alignment to the Skilpad substation (turbine layout indicative only)

Layout Alternatives

In the EIA phase, layouts (siting of wind turbines) will be assessed and refined based on specialist environmental feedback to determine which one will have the least impacts. The current layout of the proposed wind farm is illustrated in Figure 2-1.

Numerous changes in the layout as a result of environmental information generated during the course of the scoping study have been incorporated in the site development plan, as summarised in Figure 2-1. It is expected that further incremental changes to the site layout will take place during the EIA phase of the process.

Route alignment alternatives are to be assessed for the construction of a new 132 kV overhead power line and substation from the proposed Inyanda - Roodeplaat WEF site to the existing Skilpad substation to the north east of the site, a distance of approximately 28 km. From the proposed substation three alternative routes have been proposed for the power line (see Figure 2-12). Both the 132 kV power line and substation will be constructed by Inyanda Energy and handed over to Eskom for operation. Since the release of the Draft Scoping Report, the preferred route alignment depicted in Figure 2-12 has been verified as being the preferred route alignment, due to the shorter length of the alignment (± 35 km) compared with the other alternatives and terrestrial ecological impacts. In the impact assessment phase, this will be subjected to further assessment in terms of avifauna and visual impacts.

It is anticipated that the developer will consider the following criteria in determining the final layout: (1) recommendations from the various specialists, (2) guidelines from relevant bioregional plans, (3) comments from IAPs and other stakeholders, (4) site visits, (5) scientific publications, and (6) wind data recorded on site.

An assessment of the final layout, and a detailed description of the layout itself, will be presented in the Draft EIR.

3 Description of the Affected Environment

This chapter provides a description of the natural and socio-economic environments that could potentially be impacted by the proposed Inyanda - Roodeplaat WEF.

Descriptions of the flora are based on a survey of the relevant literature to determine what could be expected to be found on or near the site. A socio-economic profile of the Sundays River Valley - the area that will be most directly affected by the construction and operation of the proposed wind energy project is presented in Section 3.8 of this chapter. The profile includes basic demographic data on the municipal area.

3.1 Geology and Landform

The Eastern Cape Province contains a wide variety of landscapes, from the stark Karoo (the semi-desert region of the central interior) to mountain ranges and gentle hills rolling down to the sea. The climate and topography gives rise to the great diversity of vegetation types and habitats found in the region.

The mountainous area on the northern border forms part of the Great Escarpment. Another part of the escarpment lies just north of Bisho, Somerset East and Graaff-Reinet. In the south of the province, the Cape Fold Mountains start between East London and Port Elizabeth and continue westward into the Western Cape. As is the situation in KwaZulu-Natal, the Eastern Cape is characterised by a large number of short, deeply incised rivers flowing parallel to each other.



Figure 3-1: Photographs illustrating the general topography of the area

3.1.1 Topography

The site is an area of steep hills arranged on an east-west axis, with slopes facing north and south. The elevation ranges between 280 and 1400 meters above sea level with steep hills and high summits. The site is transected by three rivers which flow in an easterly direction across the site. Furthest south is the Elands River. In approximately the centre of the site is the Kwazungu River. Furthest north is the Kariega River. The rivers are fed by numerous streams draining off the surrounding slopes.

3.1.2 Geology

The dominant geological feature in these biomes is the east-west trending Cape Fold Belt. These mountain ranges consist mostly of the folded strata of the Cape Supergroup. The study area is found to be underlain by the Table Mountain and Bokkeveld Groups, these being groups within the Cape Supergroup sequence of rocks (Kunz et al., 2007). The coarse textured rocks of the Table Mountain Group, typically found in sharply folded mountain systems, combined with steep slopes and a high percentage of quartz sand gives rise to coarse, unstructured soils that are shallow and nutrient poor.

3.2 Climate

The Eastern Cape Province of South Africa has a complex climate due to its location at the confluence of several climatic regimes, namely temperate and subtropical. As a result there are wide variations in temperature, rainfall and wind patterns, mainly as a result of movements of air masses, altitude, mountain orientation and the proximity of the Indian Ocean.

The climatic data described here has been obtained from Buckle (1989) describing the nearby Baviaanskloof Nature Reserve, and as such is relevant to the project site. Rainfall is distributed equally over the year with the highest rainfall generally occurring in March and November. The average annual rainfall is 451 mm with the southern slopes being wetter (average annual rainfall: 461 mm) than the northern slopes (435 mm) (Buckle, 1989). Thunderstorms are frequent. Temperatures as high as 44°C are not uncommon, occurring as a result of warm winds from the high plateau.

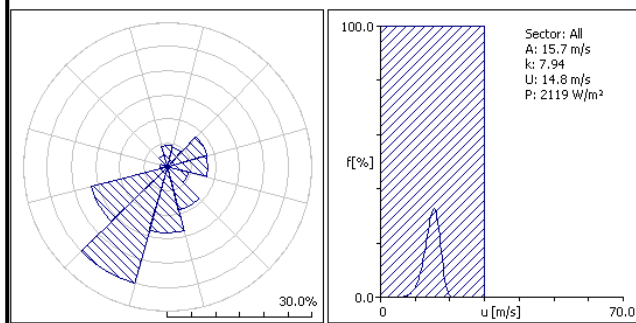
In low lying areas, the average maximum temperature recorded is 32°C in January and 18°C in July. The average minimum temperature is 15°C in January and 5°C in July. Frost is experienced in winter. In summer the prevailing wind direction is south to south-east. In winter the prevailing wind direction is northwest (Buckle, 1989).

A summary of on-site wind measurements is shown in Figure 3-2. As is typically the case with elevated locations, the site represents a good wind resource. The data show wind direction is predominantly from the south west during most seasons, with the prevailing wind direction in the winter months from the north east.

3.3 Current Land use

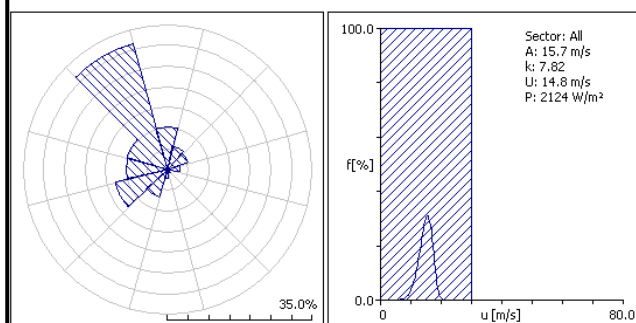
The majority of study area is currently used as a private lodge and game farm by the landowner. The owner has removed livestock from his property. Consequently, the vegetation is in fairly good condition and as a result antelope species have begun to recolonize the area.

-	Unit	Measured	Weibull-fit	Discrepancy
Mean wind speed	m/s	7.89	14.81	87.80%
Mean power density	W/m ²	546.94	2118.51	287.34%



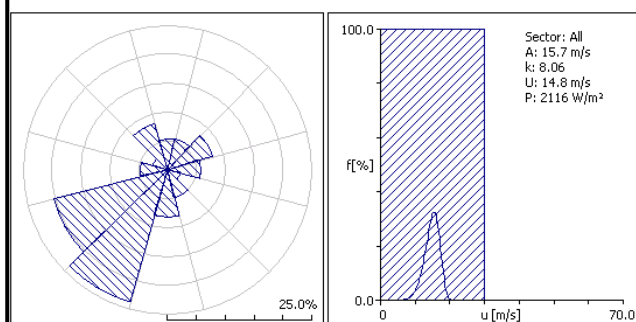
Mid October to Mid February

-	Unit	Measured	Weibull-fit	Discrepancy
Mean wind speed	m/s	9.77	14.81	51.68%
Mean power density	W/m ²	1089.85	2124.03	94.89%



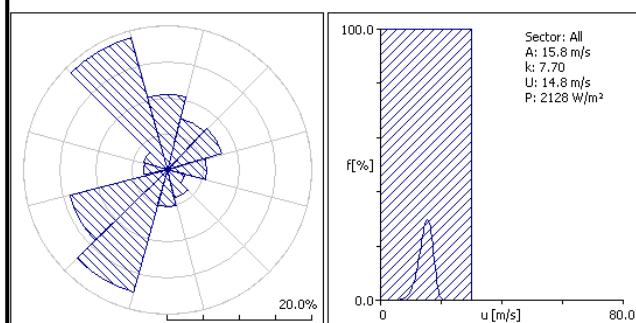
May to July

-	Unit	Measured	Weibull-fit	Discrepancy
Mean wind speed	m/s	8.51	14.81	74.07%
Mean power density	W/m ²	650.98	2115.78	225.01%



August to Mid October

-	Unit	Measured	Weibull-fit	Discrepancy
Mean wind speed	m/s	8.26	14.81	79.41%
Mean power density	W/m ²	659.10	2128.19	222.89%



Mid February to April

Figure 3-2: Seasonal wind data from the 60 m on-site mast

3.4 Vegetation of the study area

Note that a terrestrial ecological assessment has already been performed in anticipation of the EIA phase. This terrestrial ecological assessment is not included in the scoping report as it is based on an earlier version of the site development plan and will be revised during the impact assessment phase of the EIA. In a few limited cases, the original text from the draft scoping report is augmented here (and highlighted as new text) to provide clarity on some of the comments received on the DSR.

3.4.1 Regional Vegetation

Mucina and Rutherford

Mucina and Rutherford (2006) have developed the National Vegetation map as part of a South African National Biodiversity Institute (SANBI) funded project: *“It was compiled in order to provide floristically based vegetation units of South Africa, Lesotho and Swaziland at a greater level of detail than had been available before.”* The map was developed using a wealth of data from several contributors and has allowed for the best national vegetation map to date, the last being that of Acocks developed over 50 years ago. This is a Regional scale mapping tool presented at 1:250 000 and supplies a general idea of vegetation types in the area which forms the base of finer scale bioregional plans such as STEP. This SANBI Vegmap project has two main aims:

- *“to determine the variation in and units of southern African vegetation based on the analysis and synthesis of data from vegetation studies throughout the region, and*
- *to compile a vegetation map. The map was to accurately reflect the distribution and variation on the vegetation and indicate the relationship of the vegetation with the environment. For this reason the collective expertise of vegetation scientists from universities and state departments were harnessed to make this project as comprehensive as possible.”*

The map and accompanying book describe each vegetation type in detail, along with the most important species including endemic species and those that are biogeographically important. This is the most comprehensive data for vegetation types in South Africa.

Mucina and Rutherford (2006) define the following vegetation types that occur within the 500 m buffer zone (Figure 3-3) and from which source these descriptions are derived:

Sundays Thicket

This vegetation type occurs in the Eastern Cape Province and is characterised by undulating plains and low mountains and foothills covered with tall dense thicket. The Sundays Thicket is composed of a mosaic of predominantly spinescent species that include trees, shrubs and succulents. It is classified as ‘Least Threatened’ with a conservation target of 19%. 6% has been transformed by cultivation and urban development. This vegetation type occurs in the northern section of the project site.

Albany Alluvial Vegetation

Albany Alluvial Vegetation occurs in the Eastern Cape between East London and Cape St. Francis. Thornveld and riverine thicket are the two major vegetation types that occur in Albany Alluvial vegetation type. It is classified as ‘Endangered’ with a conservation target of 31%. Only 6% has been statutorily conserved. A small section of this vegetation type occurs in the northern section of the project site..

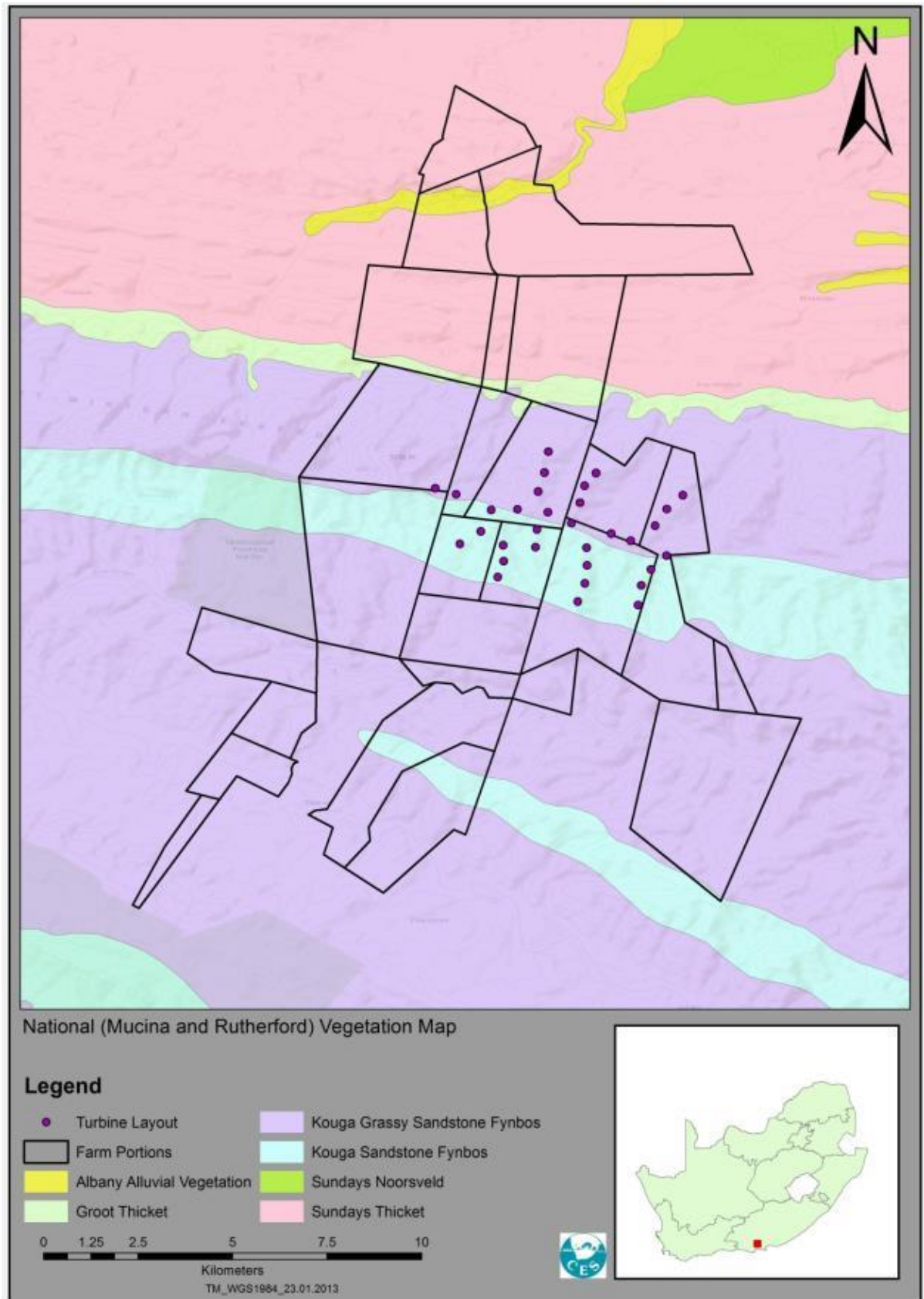


Figure 3-3: Mucina and Rutherford vegetation map of the study area (turbine layout indicative only)

Kouga Grassy Sandstone Fynbos

This vegetation type occurs between Uniondale and Uitenhage in the Western and Eastern Cape Provinces respectively. It is characterised by low shrubland with sparse, emergent tall shrubs and an understorey dominated by grasses or grassland with scattered ericoid shrubs. It is classified as 'Least Threatened' with a conservation target of 23%. Approximately 20% is conserved and 9% has been transformed. This is one of the dominant vegetation types in the project area occurring from the middle of the project site and down to the south. This vegetation type will be impacted by the wind energy facility.

Kouga Sandstone Fynbos

The Kouga Sandstone Fynbos occurs in the Western and Eastern Cape along moderately steep to gentle slopes. The high altitude slopes support communities dominated by low fynbos and the intermediate slopes support three strata with *Proteaceae* shrubs forming the dominant tall shrub stratum. This vegetation type is classified as 'Least Threatened' with a conservation target of 23%. About 40% is statutorily conserved. A narrow band of this vegetation type traverses the project site through the middle. This vegetation type will also be impacted by the wind energy facility.

Groot Thicket

This vegetation type occurs in the Eastern Cape Province along moderate to steep slopes on the ridges of the mountain ranges dominated by a low succulent thicket, usually fairly dense and closed. It is classified as 'Least Threatened' with a conservation target of 19%. Approximately 11% is currently statutorily conserved. This vegetation type occurs as a narrow band, separating the Sundays Thicket from the Kouga Grassy Sandstone Fynbos. A small section of this vegetation type may be affected by the wind energy facility.

Subtropical Ecosystem Planning (STEP) Project

The Subtropical Ecosystem Planning (STEP) Project aims to identify priority areas that would ensure the long-term conservation of the subtropical thicket biome and to ensure that the conservation of this biome is considered in the policies and practices of the private and public sector that are responsible for land-use planning and the management of natural resources in the region (Pierce *et al.* 2005). STEP (Figure 3-4) identifies four vegetation types in this region. Pierce and Mader (2006) define the following vegetation types from which source these descriptions are derived:

Baviaans Spekboom Thicket

Baviaans Spekboom Thicket is a type of valley thicket dominated by *Portulacaria afra* and *Pappea capensis* and typified by the abundance of *Aloe speciosa*. This vegetation type is listed as 'Vulnerable' by STEP. This vegetation type occurs as a thin band that traverses the northern section of the study area and separates the Sundays Spekboomveld from the Cockscomb Mountain Fynbos Thicket. A small section of this vegetation type may be impacted by the wind energy facility.

Cockscomb Mountain Fynbos Thicket

The Cockscomb Mountain Fynbos Thicket is a mosaic of different vegetation types growing in the Elandsberg and Groot Winterhoek Mountains. The lower south facing slopes are characterised as being grassy while the proteas and cone bushes are common at higher altitudes and in the wetter south-eastern parts. The lower north-facing slopes are generally sparse. This vegetation type is

listed as 'Currently Not Vulnerable'. This is the dominant vegetation type that occurs within the study site and will be impacted on by the wind energy facility.

Zuurberg Forest Thicket

The Zuurberg Forest Thicket is characterised as being tall and dense with species typical of the Sundays Thicket but including patches of temperate forest, with species such as *Afrocarpus falcatus* and *Ekebergia capensis*, occurring on the wetter slopes. This vegetation type is listed as 'Currently Not Vulnerable'. A small section of this vegetation type occurs towards the south east section of the study site. This vegetation will remain unaffected by the turbines.

Sundays Spekboomveld

This vegetation type is dominated by *Pappea capensis* and *Portulacaria afra* while *Euphorbia coerulescens* and *Crassula ovata* are abundant succulent plants that characterise this vegetation type. This spekboomveld is distinguished from adjacent noorsveld by the relatively high cover of *Portulacaria afra*, *Pappea capensis* and *Schotia afra*. This vegetation type is listed as 'Endangered'. This vegetation type occurs in the northern section of the project site and is unlikely to be affected by the wind energy facility.

Sundays Doringveld

Sundays Doringveld is characterised by a mosaic of thicket clumps and a Nama-karoo matrix. Thicket clumps often have a low species diversity with species that are typical of the Sundays Valley Thicket. Dominant species in the Nama-karoo matrix comprise of *Acacia karoo*, *Lycium sp.* and *Cynodon dactylon* and include a suite of succulents, some of which are rare endemics such as *Haworthia sordida*. This vegetation type is listed as 'Vulnerable'. A small section of this vegetation type occurs in the northern section of the study site. This vegetation is unlikely to be affected by the wind energy facility.

Kromme Fynbos/Renosterveld Mosaic

The Kromme Fynbos/Renosterveld Mosaic forms part of the fynbos biome and comprises a mosaic of grassland, grassy fynbos and renosterveld that is dominated by *Elytropappus rhinocerotis*, *Cliffortia linearifolia* and *Themeda triandra*. This vegetation type is listed as 'Vulnerable' by STEP. This vegetation type occurs along the southern boundary of the study site. It is unaffected by the wind energy facility but may be affected by potential access roads.

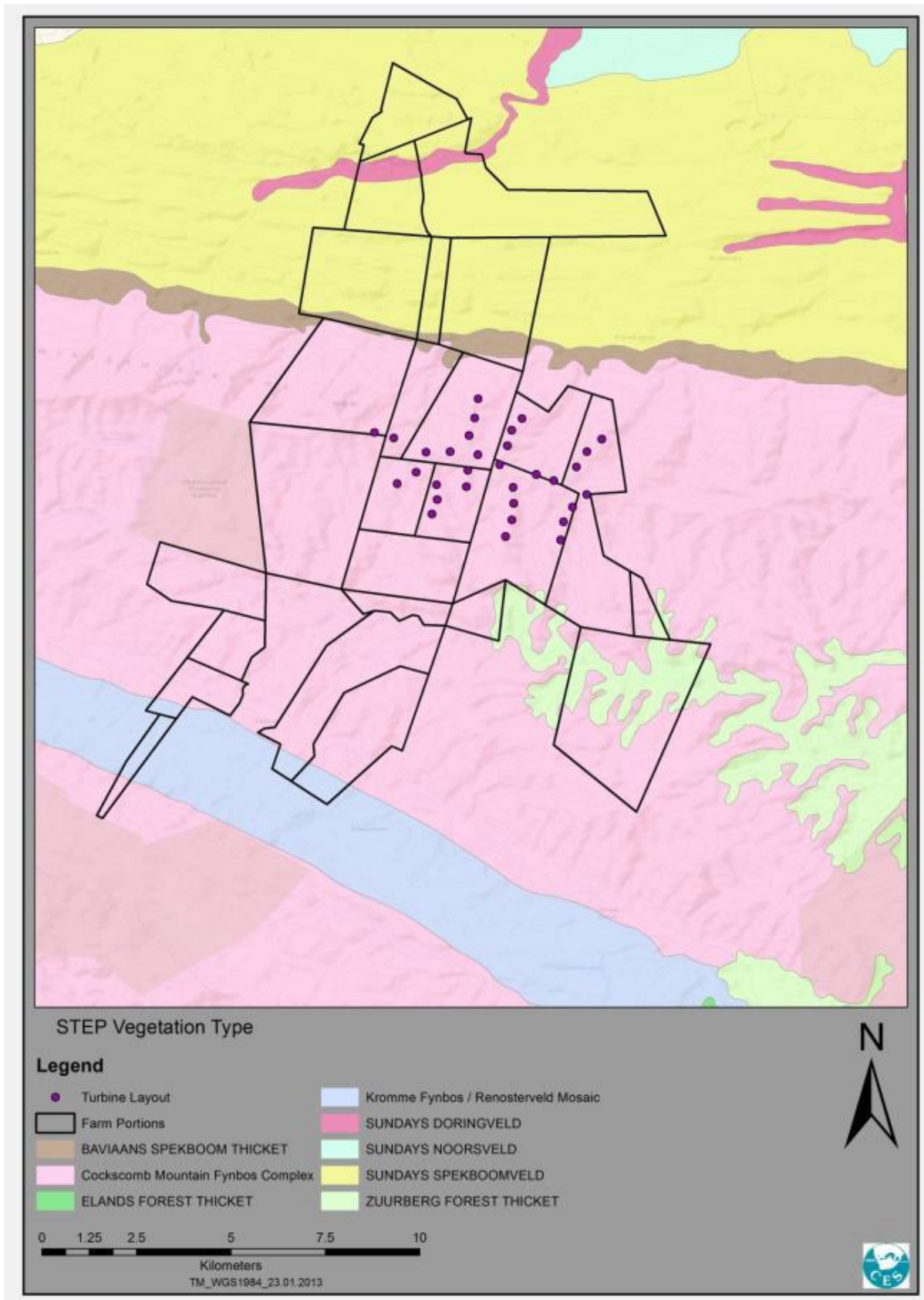


Figure 3-4: STEP vegetation map of the study area (turbine layout indicative only)

Succulent Karoo Ecosystem Plan (SKEP)

The Succulent Karoo biome extends from the south-west through to the north west of South Africa and up into Namibia (Driver *et al.*; 2003). It is classified as one of the 25 internationally recognised

biodiversity hotspots and is the world's only arid hotspot. It is remarkably diverse with 6,356 plant species, 40% of which are endemic and 17% of which are listed on the Red Data list. Despite this rich diversity and high level of endemism, only 3.5% of the biome is formally conserved. As a result the biome's diversity is under pressure from human impacts, especially mining, agriculture, overgrazing and climate change. The goal of the Succulent Karoo Ecosystem Plan (SKEP) is therefore to provide a framework to guide conservation efforts of this unique biome (Driver *et. al.*; 2003). The three main aims of the project are to:

- “provide a hierarchy of priority actions to guide conservation efforts and donor investment in the biome (both on and off formal reserves);
- build human resource capacity to implement the plan by including training and mentorship activities as part of the planning process;
- generate the institutional and government support required to ensure its effective implementation”

Three of the six vegetation types described by SKEP are found in the project area (Figure 3-5):

- Quartz and Gravel patch Succulent Karoo;
- Thicket; and
- Fynbos

3.5 Floristics

The vegetation of the Eastern Cape is complex and is transitional between the Cape and subtropical floras, and many taxa of diverse phytogeographical affinities reach the limits of their distribution in this region. The region is best described as a tension zone where four major biomes converge and overlap (Lubke *et al.* 1988). The dominant vegetation is Succulent Thicket (Spekboomveld or Valley Bushveld), a dense spiny vegetation type unique to this region. While species in the canopy are of subtropical affinities, and generally widespread species, the succulents and geophytes that comprise the understory are of karroid affinities and are often localised endemics.

The study area falls within the Cape Floristic Kingdom which covers nearly 90 000 km² and stretches from the Cederberg in the north-west, down to the Western Cape coast and into the Eastern Cape. The Cape Floristic Kingdom is a biodiversity hotspot with over 9 600 recorded plant species, 70% of which are endemic to the area.

Species endemic to the area are described by Mucina and Rutherford (2006). In addition to the endemic taxa, there are also a number of species expected to be found in the study area, some of which are listed as protected by various conservation bodies. The list is not complete as many species and taxa require additional study. The taxa with many data deficient species include specifically the *Mesembryanthemaceae* family, as well as members of the *Amaryllidaceae* (Amaryllids), *Iridaceae* (Irises), *Orchidaceae* (Orchids) and *Apocynaceae* (Lianas), as well as members of the genus *Aloe*.

Potential SSC include all those plants listed in terms of the IUCN, CITES and both national and provincial legislation that may occur in the area of study. The list of potential SSC includes an estimated 450 species which are listed individually by the IUCN red data list (2012), the South African National Biodiversity Institute (SANBI) and the Forests Act. Table 3-2 is a summary of the number of potential SSC that could occur in the area under each conservation body. Based on historical records for the region, it is likely that approximately twenty-five threatened species occur in this area (Table 3-2) (SIBIS, 2013). A full list of species of special concern will be provided in the ecological specialist study to be reported in the Environmental Impact Report stage of the EIA.

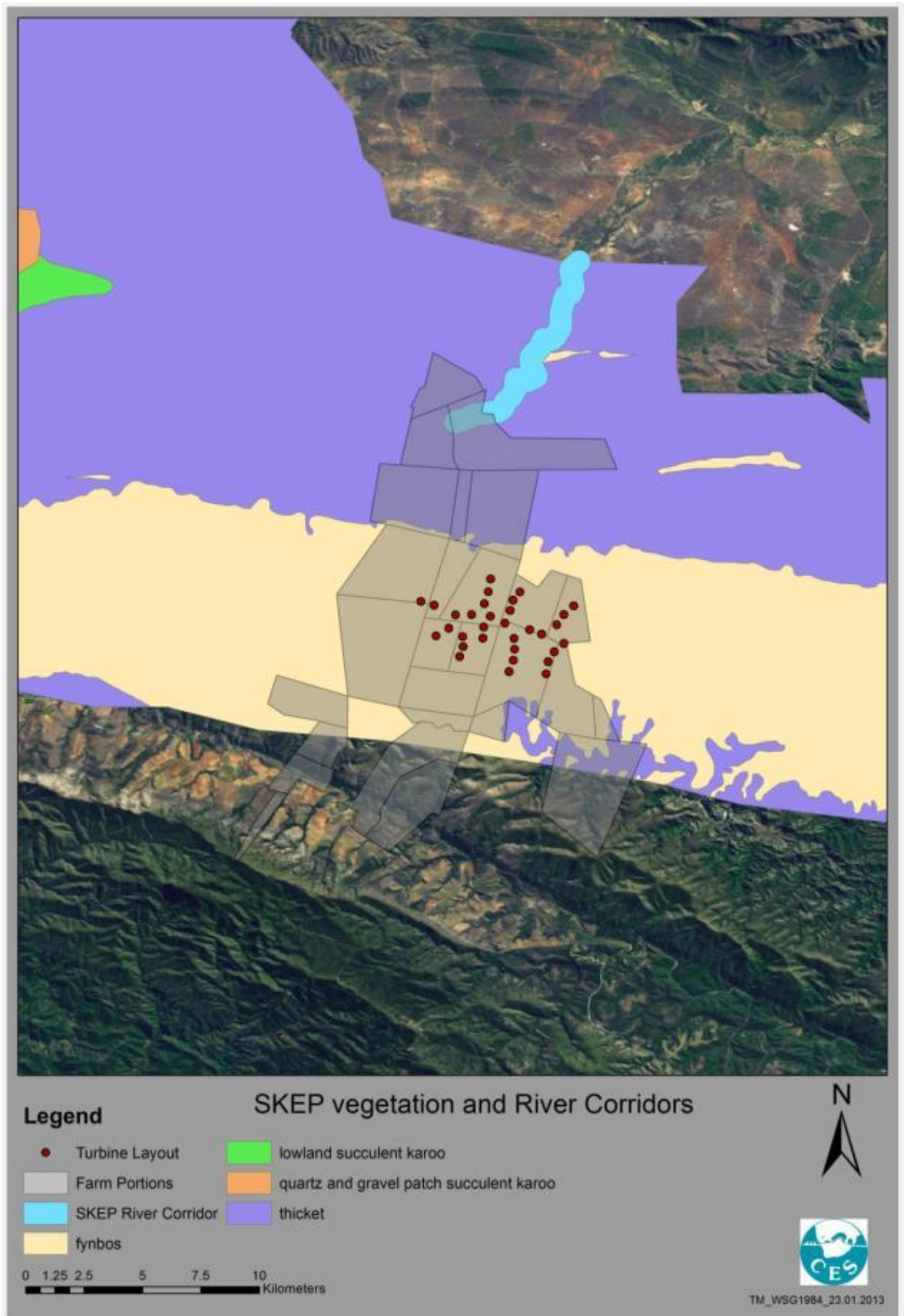


Figure 3-5: SKEP vegetation map of the study area (turbine layout indicative only)

Table 3-1: A summary of the number of plant species that occur on the various conservation bodies lists

Conservation Body/ relevant legislation	Conservation Status	Number of Species
IUCN	Vulnerable	1
	Near Threatened	1
	Data Deficient	1
SA Red Data List	Critically Endangered	4
	Endangered	8
	Vulnerable	13
	Near Threatened	12
	Rare	12
	Declining	6
	Data Deficient	10
NEMBA	Protected	1
CITES	Appendix II	21
PNCO	Schedule 3	1
	Schedule 4	138
Protected Trees		5

Table 3-2: Threatened Species that are likely to occur within the study site (SIBIS, 2013)

Scientific Name	IUCN	Red List Status	NEMBA	CITES	PNCO	Protected Trees
<i>Haworthia cooperi</i>	-	Critically Rare	-	-	-	-
<i>Leucadendron comosum</i>	-	Critically Rare	-	-	Schedule 4	-
<i>Crassula perforata</i>	-	Critically Rare	-	-	-	-
<i>Ornithogalum juncifolium</i>	-	Critically Rare	-	-	-	-
<i>Adromischus mammillaris</i>	-	Endangered	-	-	-	-
<i>Argyrobium crassifolium</i>	-	Endangered	-	-	-	-
<i>Euphorbia globosa</i>	-	Endangered	-	li	Schedule 4	-
<i>Haworthia longiana</i>	-	Endangered	-	-	-	-
<i>Leucadendron orientale</i>	-	Endangered	-	-	Schedule 4	-
<i>Paranomus reflexus</i>	-	Endangered	-	-	Schedule 4	-
<i>Protea rupicola</i>	-	Endangered	-	-	-	-
<i>Senecio scaposus</i>	-	Endangered	-	-	-	-
<i>Agathosma microcarpa</i>	-	Vulnerable	-	-	-	-
<i>Agathosma stenopetala</i>	-	Vulnerable	-	-	-	-
<i>Aloe ciliaris</i>	-	Vulnerable	-	-	-	-
<i>Aloe striata</i>	-	Vulnerable	-	-	-	-
<i>Cotyledon tomentosa</i>	-	Vulnerable	-	-	-	-
<i>Crassula obovata</i>	-	Vulnerable	-	-	-	-
<i>Cullumia cirsioides</i>	-	Vulnerable	-	-	-	-
<i>Dioscorea sylvatica</i>	-	Vulnerable	-	-	-	-
<i>Erica glandulosa</i>	-	Vulnerable	-	-	Schedule 4	-

Scientific Name	IUCN	Red List Status	NEMBA	CITES	PNCO	Protected Trees
<i>Erica inconstans</i>	-	Vulnerable	-	-	Schedule 4	-
<i>Gladiolus leptosiphon</i>	-	Vulnerable	-	-	Schedule 4	-
<i>Gymnosporia elliptica</i>	-	Vulnerable	-	-	-	-
<i>Leucadendron spissifolium</i>	-	Vulnerable	-	-	Schedule 4	-

3.6 Animal species

3.6.1 Amphibians and Reptiles

Amphibians and reptiles are well represented in sub-Saharan Africa. However, distribution patterns in southern Africa are uneven both in terms of species distribution and in population numbers (du Preez and Carruthers, 2009). Climate, centres of origin and range restrictions are the three main factors that determine species distribution.

The eastern coast of South Africa has the highest amphibian diversity and endemism while reptile diversity is generally highest in the north eastern extremes of South Africa and declines to the south and west (Alexander and Marais, 2010).

Reptiles

South Africa has 350 species of reptiles, comprising 213 lizards, 9 worm lizards, 105 snakes, 13 terrestrial tortoises, 5 freshwater terrapins, 2 breeding species of sea turtle and 1 crocodile (Branch, 1998). Of those 350 reptile species, the Eastern Cape is home to 133 which include 21 snakes, 27 lizards and eight chelonians (tortoises and turtles).

The majority of these are found in Mesic Succulent Thicket and riverine habitats. Consultation of the Animal Demography Unit historical records indicates that 15 species of reptiles are likely to occur in the project site. One of these (*Bradypodion taeniabronchum* – Elandsberg Dwarf Chameleon) is classified as Critically Endangered IUCN Red Data List.

Amphibians

Amphibians are important in wetland systems, particularly where fish are excluded or of minor importance. In these habitats, frogs are dominant predators of invertebrates, many of which are disease vectors. Reports of declining amphibian populations continue to increase globally, even in pristine protected areas (Phillips 1994). These declines are not simple cyclic events; for example, frogs have been identified as bio-indicator species that reflect the wellbeing of aquatic ecosystems (Poynton and Broadley 1991). Frog abundance and diversity is a poignant reflection of the general health and well-being of aquatic ecosystems.

According to historical records, 12 species of frog have been documented in the Quarter Degree Squares that the project area falls in. No species of conservation concern occur in the area.

The following text related to amphibians and reptiles is extracted from the as yet unpublished Terrestrial Ecological Report, the final version of which will be distributed with the EIR, and is included in this FSR to clarify comments raised by IAPs in relation to the occurrence of specific species in the area.

Hewitt's Ghost Frog (*Heleophryne hewitti*)

Hewitt's ghost frog is an endangered species only known from two confirmed locations, the Elandsberg Mountains and Cockscomb Mountains. Three more localities (Enkeldoorn-, Diep- and Wittiver) in the Baviaanskloof World Heritage Site discovered by Richard Boycott in the mid-80's may be assigned to this species. Subsequent surveys (Burger, Clark & Smith in 1995; Burger & Tolley in 2006) confirmed the presence of this species at only one of the sites (e.g. Enkeldoorn), but at very low numbers. Recent target surveys conducted by Port Elizabeth Museum and ECPTA of both Enkeldoorn and Diepriver site failed in finding this species and it may be an indication that these populations may be extinct due to climate change. It is thought that this frog could also occur in Groendal Nature Reserve (UNEP 2006, Burger 1994) but no confirmed records of this exist (Conradie et al. 2012).

Surveying the kloofs in the current project site would be required to determine the presence/absence of the species. During the terrestrial ecological specialist study, it was noted that although the streams had running water at the time of the site visit in late May, they seem not to be perennial enough to hold a viable population. These species are restricted to perennial streams and the tadpoles have an extended larval period of 18+ months and can't tolerate dry conditions. It cannot be stated with confidence however that the frog does not occur elsewhere on the project site and additional surveys of the remaining potentially suitable habitat on the project site would be required to determine this.

Groendal Dwarf Chameleon (*Bradypodion* sp. "sp4")

The status of the cryptic Groendal dwarf chameleon is still unresolved and has been proposed to be a separated undescribed species. It is closely related to the Elandsberg chameleon (*Bradypodion taeniabronchum*) from the Elandsberg mountain range, but morphologically it is similar to the Baviaanskloof dwarf chameleon and the beardless dwarf chameleon (Tolley & Burger 2004). As yet these three species are undescribed and thus not assessed against IUCN standards. Morphology and landscaping techniques are needed to define these species (K. Tolley pers. comm.).

The whole of the project site, except for the northern sections, have suitable habitat for this species and it is highly likely to occur within the project site.

Baviaanskloof Flat Gecko (*Afroedura* sp. "Kouga")

Recently a new species of Flat Gecko was discovered from Cockscomb area, less than 25 km west from project site. It is highly likely this species will occur on the project site, but will be restricted to larger north facing rocky outcrops, and is thus very unlikely to be affected by the construction of the wind farm. More surveys would need to be conducted in the area to determine the presence of this species on the project site.

Threatened Species

The only Red List species of reptile that may occur on the project site is the Elandsberg chameleon (*Bradypodion taeniabronchum*). The taxonomy between this species and the Groendal dwarf chameleon is still unresolved and may represent an undescribed species. If it is a separated species it will also be regarded as rare and listed by IUCN. They are restricted to montane fynbos (especially *restios*).

CITES Species

Ten reptile species of special concern (Elandsberg Dwarf Chameleon – *Bradypodion taeniabronchum*, Eastern Cape Dwarf Chameleon – *Bradypodion ventrale*, Cape Girdle Lizard – *Cordylus cordylus*, Karoo Girdle Lizard - *Karusasaurus polyzonus*, Rock Monitor – *Varanus albigularis*, Water Monitor – *Varanus niloticus*, Leopard Tortoise – *Stigmochelys pardalis*, Angulate Tortoise – *Chersina angulata*, Parrot-beaked Dwarf Tortoise – *Homopus areolatus*, and Tented Tortoise – *Psammobates tentorius*) are listed on Appendix II of CITES. CITES protects the international trade of species.

3.6.2 Birds

Nine bird species are endemic to South Africa, but there are no Eastern Cape endemics. However, there are 62 threatened species within the Eastern Cape Province (Barnes, 2000). Most of these species occur in grasslands or are associated with wetlands, indicating a need to conserve what is left of these ecosystems (Barnes, 2000). Historical records indicate that there is one 'Endangered' species, three 'Vulnerable' species and three 'Near Threatened' species likely to be found in the area.

A total of 20 target bird species were identified during the pre-construction monitoring as being of particular relevance on this site (Table 3-3). Target species are those of conservation concern which may at risk from the proposed facility. Of these target species, the species of most concern at present are the Verreaux's Eagle and the Martial Eagle. In each case the species' regional (Taylor, 2014) and global (IUCN 2013) conservation status is presented and whether the species has been confirmed on the site. In the case of Red List species an indication of whether they are believed likely to breed on site is also presented as well as each species' preferred habitat.

Table 3-3: Target species for the Inyanda-Roodeplaat Wind Energy Facility pre-construction bird monitoring programme (Smallie, 2014)

Common name (<i>Taxonomic name</i>)	Ecological group	Taylor 2014	IUCN 2013	SAB AP1	SAB AP2	TOPS listed	Presence on site	Preferred micro habitat
African Harrier-Hawk (<i>Polyboroides typus</i>)	Raptor	-	LC	x	x		Confirmed	Generalist
African Crowned Eagle <i>Stephanoaetus coronatus</i>	Raptor	VU	NT	x	x		Confirmed	Indigenous forest
Black Harrier <i>Circus maurus</i>	Raptor	EN	VU	-	x		Confirmed	Grassland, wetlands, Fynbos
Black-shouldered Kite <i>Elanus caeruleus</i>	Raptor	-	LC	x	x		Possible	Generalist
Booted Eagle <i>Aquila pennatus</i>	Raptor	-	LC	x	x		Confirmed	Mountains with cliffs
Cape Clapper Lark <i>Mirafra apiata</i>	Small terrestrial	-	-	-	x		Confirmed	Fynbos, shrublands
Cape Eagle Owl <i>Bubo capensis</i>	Raptor	-	LC	-	-		Confirmed	Rocky outcrops, cliffs
Grey-winged Francolin <i>Scleroptila africanus</i>	Small terrestrial	-	LC	-	x		Confirmed	Grassland, Fynbos
Jackal Buzzard <i>Buteo rufofuscus</i>	Raptor	-	LC	x	x		Confirmed	Generalist

Common name (<i>Taxonomic name</i>)	Ecological group	Taylor 2014	IUCN 2013	SAB AP1	SAB AP2	TOPS listed	Presence on site	Preferred micro habitat
Lanner Falcon <i>Falco biarmicus</i>	Raptor	VU	LC	-	x		Confirmed	Grassland, arable land
Long-billed Pipit <i>Anthus similis</i>	Small terrestrial	-	-	-	x		Confirmed	Fynbos, shrublands, sparse woodland on rocky slopes
Martial Eagle <i>Polemaetus bellicosus</i>	Raptor	EN	VU	-	x	VU	Confirmed - breeding	Generalist
Orange-breasted Sunbird <i>Anthobaphes violacea</i>	Small terrestrial	-	LC	x	x		Confirmed	Fynbos
Peregrine Falcon <i>Falco peregrinus</i>	Raptor	-	LC	x	x	VU	Confirmed	Grassland, Fynbos, cliffs
Rock Kestrel <i>Falco rupicolus</i>	Raptor	-	-	x	x		Confirmed	Generalist
Southern Pale Chanting Goshawk <i>Melierax canorus</i>	Raptor	-	-	x	x		Confirmed	Arid shrubland
Steppe Buzzard <i>Buteo buteo</i>	Raptor	-	LC	x	x		Confirmed	Generalist
Verreaux's Eagle <i>Aquila verreauxii</i>	Raptor	VU	LC	x	x		Confirmed - breeding	Mountains and rocky areas
Yellow-billed Kite <i>Milvus aegyptius</i>	Raptor	-	-	-	-		Possible	Generalist

EN = Endangered, VU = Vulnerable, NT = Near-threatened, LC = Least Concern

The Important Bird Areas of Southern Africa (IBA) directory was compiled in 1998 and identified within South Africa 122 IBAs containing 59 threatened and 64 near-threatened bird species. All these IBAs were objectively determined using established and globally accepted criteria. An IBA is selected on the presence of the following bird species in a geographic area:

- Bird species of global or regional conservation concern;
- Assemblages of restricted-range bird species;
- Assemblages of biome-restricted bird species; and
- Concentrations of numbers of congregatory bird species.

The rationale behind the IBA Programme is that in order to conserve species of conservation concern you need to conserve the habitat that the species occupies and uses. The development does not fall within an IBA however, IBAs identified nearby include: Kouga-Baviaans Complex and Maitland Gamtoos Coast (Figure 3-6).

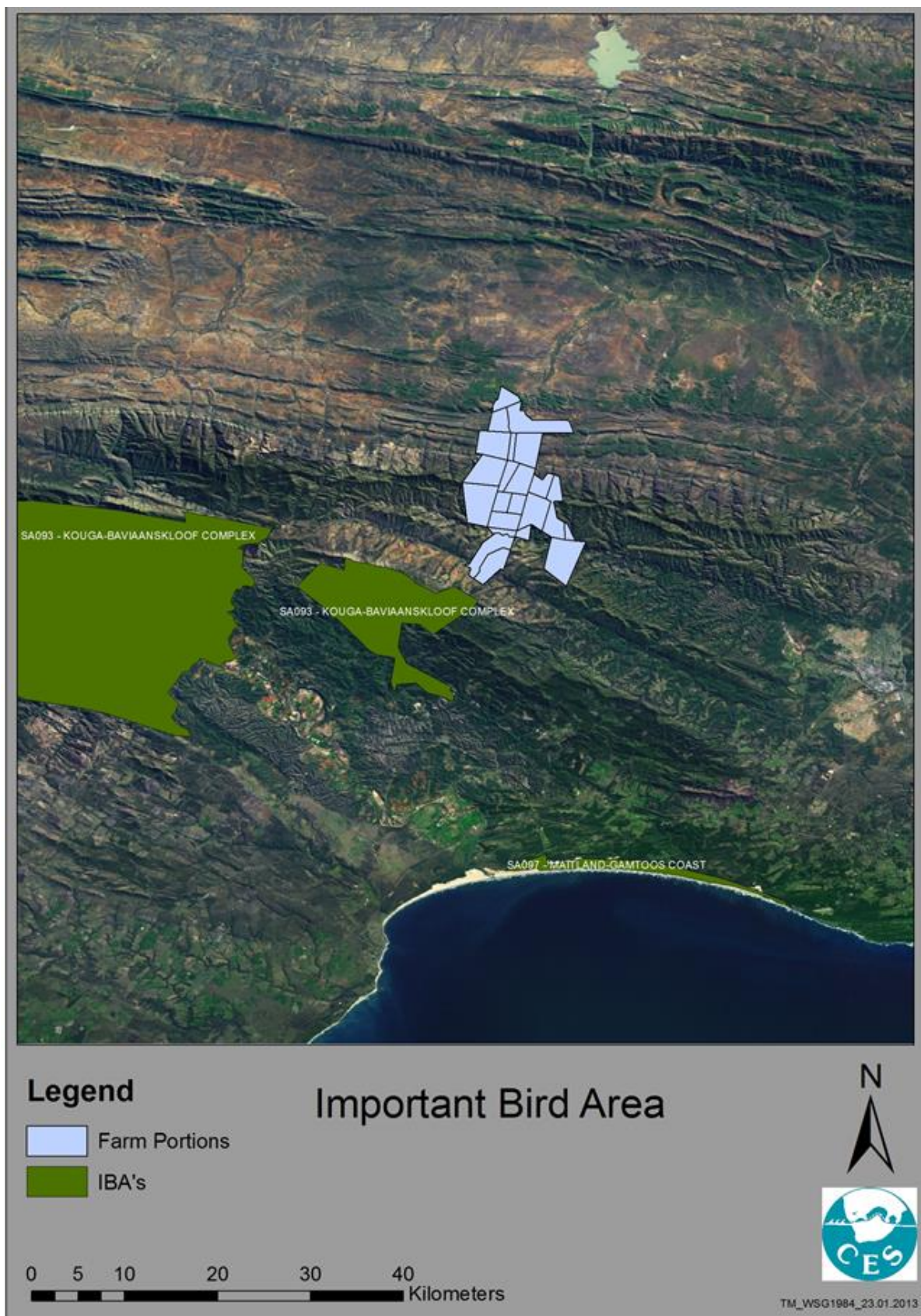


Figure 3-6: Important Bird Areas in close proximity to the Study Area

3.6.3 Mammals

Large game makes up less than 15% of the mammal species in South Africa and a much smaller percentage in numbers and biomass. In developed and farming areas, this percentage is greatly reduced, with the vast majority of mammals present being small or medium-sized.

The conservation status of South African mammals has recently been re-assessed and a number of species have been downgraded, for example, the African wild cat, Aardvark, Blue duiker, and Honey badger are no longer considered threatened.

According to NEMBA, three protected mammal species and one vulnerable species have distributions that coincide with the project area (Table 3-4). Based on habitat availability it is likely that all four of these species are likely to occur on site (Stuart and Stuart, 2007).

The species list was run through the IUCN data base. Two species with distributions that occur in the project area are listed as Near Threatened (Leopard and Schreibers Long-fingered bat) and one species (the White tailed mouse) is listed as 'Endangered'.

Table 3-4: Mammals of conservation concern likely to be found within the project site

Scientific Name	Common Name	IUCN	NEMBA
<i>Atelerix frontalis</i>	South African hedgehog	-	Protected
<i>Miniopterus schreibersii</i>	Schreibers Long-fingered bat	NT	
<i>Mystromys albicaudatus</i>	White-tailed mouse	EN	
<i>Panthera pardus</i>	Leopard	NT	Vulnerable
<i>Mellivora capensis</i>	Honey Badger	-	Protected
<i>Vulpes chama</i>	Cape Fox	LC	Protected

EN = Endangered, VU = Vulnerable, NT = Near-threatened, LC = Least Concern

Of conservation importance in the Bavianskloof Mega Reserve is the presence of leopard populations. Internationally this species is classified as Near Threatened. In South Africa this species is listed by NEM:BA (2004) as vulnerable meaning that it faces "a high risk of extinction in the wild in the medium-term future, although they are not critically endangered".

The Centre for African Conservation Ecology estimate that there are between 10-17 individuals living in the Bavianskloof Mega Reserve and that one of the major threats to this population is its vulnerability to becoming genetically isolated. Recent studies on leopard populations in the south eastern and western region of South Africa suggest that at least 21 individuals occur in the Cape Fold Mountains with nearly half of these originating between Addo Elephant National Park in the east and Uniondale in the west (Jeanine McManus pers. comm.; 2013).

The data collected from this study raises concerns that further habitat fragmentation in this area will result in further isolating these populations, especially since leopards are territorial animals with large home ranges (30,000 ha for males and 15,000 for females).

3.7 Conservation and Spatial Planning Tools

Several conservation planning tools are available for the area. These tools allow for the determination of any sensitive and important areas from a vegetation and faunal point of view at the early stage of a development. They allow for the fine-tuning of plans and turbine layouts with a view

to reducing potential environmental impacts at the planning stage of the development. The instruments under discussion are outlined in Table 3-5 below.

Table 3-5: Conservation and planning tools considered for the proposed Inyanda - Roodeplaat WEF

Tool	Motivation	Relevancy	Implications
National			
Protected Areas	Protected areas are areas that are already conserved. Areas in close proximity to the proposed development may be affected by the development and thus must be taken into account.	Relevant. The study site falls between three portions of the Groendal Nature Reserve (Figure 3-7).	Since the study area is less than 5 km protected area the activity will trigger activities on Listing notice 3 of GNR 546 EIA regulations dated 18 June 2010. Identified activities that will be triggered are reproduced in Table 1-2. An ecological assessment will be conducted during the EIA phase.
Protected Areas Expansion Strategy	The objective of the PAES is to form an overarching strategic framework for a protected area network that " <i>conserves a comprehensive, representative and adequate sample of biodiversity and maintains key ecological processes across the landscape and seascape</i> ". The areas earmarked by this study should be protected.	Relevant. The study site falls within the Baviaans-Addo NPAES (Figure 3-7).	Since this development occurs in areas designated as part of the Protected Areas Expansion Strategy it will trigger activities on Listing notice 3 of GNR 546 EIA regulations dated 18 June 2010. Identified activities that will be triggered are reproduced in Table 1-2. NPAES and their relevance will be discussed in further detail in the ecological specialist study.
National Wetlands Inventory	Wetlands are very important aspects of the ecosystem as they are process areas. Not only do they form habitat for both flora and fauna, they also perform vital ecosystem functions. It is for this reason that wetlands are always rated with a high sensitivity and should be conserved.	Relevant. The cables and access roads are likely to cross at least one water course.	Listing Notice 1 of GNR 544 EIA regulations dated 18 June 2010 and Listing Notice 3 of R546 EIA Regulations dated 18 June 2010 will be triggered by this development. The project will involve the construction of roads and underground electrical cables which are likely to cross drainage lines. This will be discussed in further detail during the EIA phase.

Tool	Motivation	Relevancy	Implications
National List of Ecosystems that are Threatened and in need of Protection. (NEMBA, Act 10 of 2004)	The National Environmental Management: Biodiversity Act provides a list of threatened terrestrial ecosystems. This has been established as little attention has historically been paid to the protection of ecosystems outside of protected areas. The purpose of listing threatened ecosystems is primarily to reduce the rate of ecosystem and species extinction. This includes preventing further degradation and loss of structure, function and composition of threatened ecosystems.	Irrelevant. No threatened ecosystems occur within the project site (Figure 3-8).	N/A
Important Bird Area (IBA)	Important Bird Areas are globally recognized areas essential for the protection of bird species. In order to be classified as an IBA, an area must contain globally threatened species, restricted range species, biome restricted species or congregations of species.	Relevant. The study site occurs less than 10 km from an important bird area (Figure 3-6).	An avifaunal specialist study will be required during the EIA phase of the project.
Provincial			
STEP	The Subtropical Thicket Ecosystem Planning Project maps vegetation and assigns each of these a conservation criterion. It is very important in determining sensitivity.	Relevant. The northern portion of the project site falls into the STEP category ENDANGERED and VULNERABLE. A small section of the southern portion of the project site is classified as VULNERABLE. The rest of the area is classified as CURRENTLY NOT VULNERABLE (Figure 3-4).	<p>Ecosystems are classified as Endangered when their original extent has been severely reduced, and whose health, functioning and existence is endangered. This is considered to be Class II land which can withstand minimal loss of natural area through disturbance or development</p> <p>Ecosystems are classified as Vulnerable if they cover much of their original extent but where further disturbance or destruction could harm their health and functioning. This is considered to be Class III land which can withstand limited loss of area through disturbance or development.</p> <p>See Section 3.4 for further details describing the vegetation of the study area.</p> <p>This will be further assessed during the EIA phase.</p>

Tool	Motivation	Relevancy	Implications
The Eastern Cape Biodiversity Conservation Plan (ECBCP)	The Eastern Cape Biodiversity Conservation Plan (ECBCP) is responsible for mapping areas that are priorities for conservation in the province, as well as assigning land use categories to the existing land depending on the state that it is in (Berliner et al. 2007). Critical Biodiversity Areas (CBAs) are defined as "terrestrial and aquatic features in the landscape that are critical for conserving biodiversity and maintaining ecosystem functioning".	Relevant. The proposed project site occurs in areas classified as Critical Biodiversity Areas (CBA) 1 and 2 (Figure 3-10).	<p>Since this development occurs in areas classified as CBA's it will trigger activities on Listing notice 3 of GNR 546 EIA regulations dated 18 June 2010. Identified activities that will be triggered are reproduced in Table 1-2.</p> <p>CBA's and their relevance to the project will be further discussed during the EIA phase.</p>

3.7.1 Protected Areas

According to the National Environmental Management: Protected Areas (Act No 57 of 2003) the declaration of protected areas is:

- *“to protect ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes in a system of protected area;*
- *to preserve the ecological integrity of these areas;*
- *to conserve biodiversity in these areas;*
- *to protect areas representative of all ecosystems, habitats and species naturally occurring in South Africa;*
- *to protect South Africa's threatened or rare species;*
- *to protect an area which is vulnerable or ecologically sensitive;*
- *to assist in ensuring the sustained supply of environmental goods and services*
- *to provide for the sustainable use of natural or biological resources;*
- *to create or augment destinations for nature based tourism;*
- *to manage the inter-relationship between natural environment biodiversity, human settlement and economic development;*
- *generally to contribute to human, social, cultural, spiritual and economic development;*
- *to rehabilitate and restore degraded ecosystems and promote the recovery of endangered and vulnerable species”*

3.7.2 Protected Areas Expansion strategy

A National Spatial Biodiversity Assessment was conducted in 2004, revealing a lack of protection for a representative sample of the country's biodiversity, nor conserving adequate process areas. The Protected Areas Expansion Strategy allows for increased conservation of these aspects of the country in order to meet national biodiversity targets. The strategy outlines two methods of expanding the current National Protected Areas:

- For public land, the declaration of available, under-utilised and strategic parcels of public land in concordance with the relevant legal requirements for disposal of such land; and
- For private land, contractual agreements with the affected landowners.

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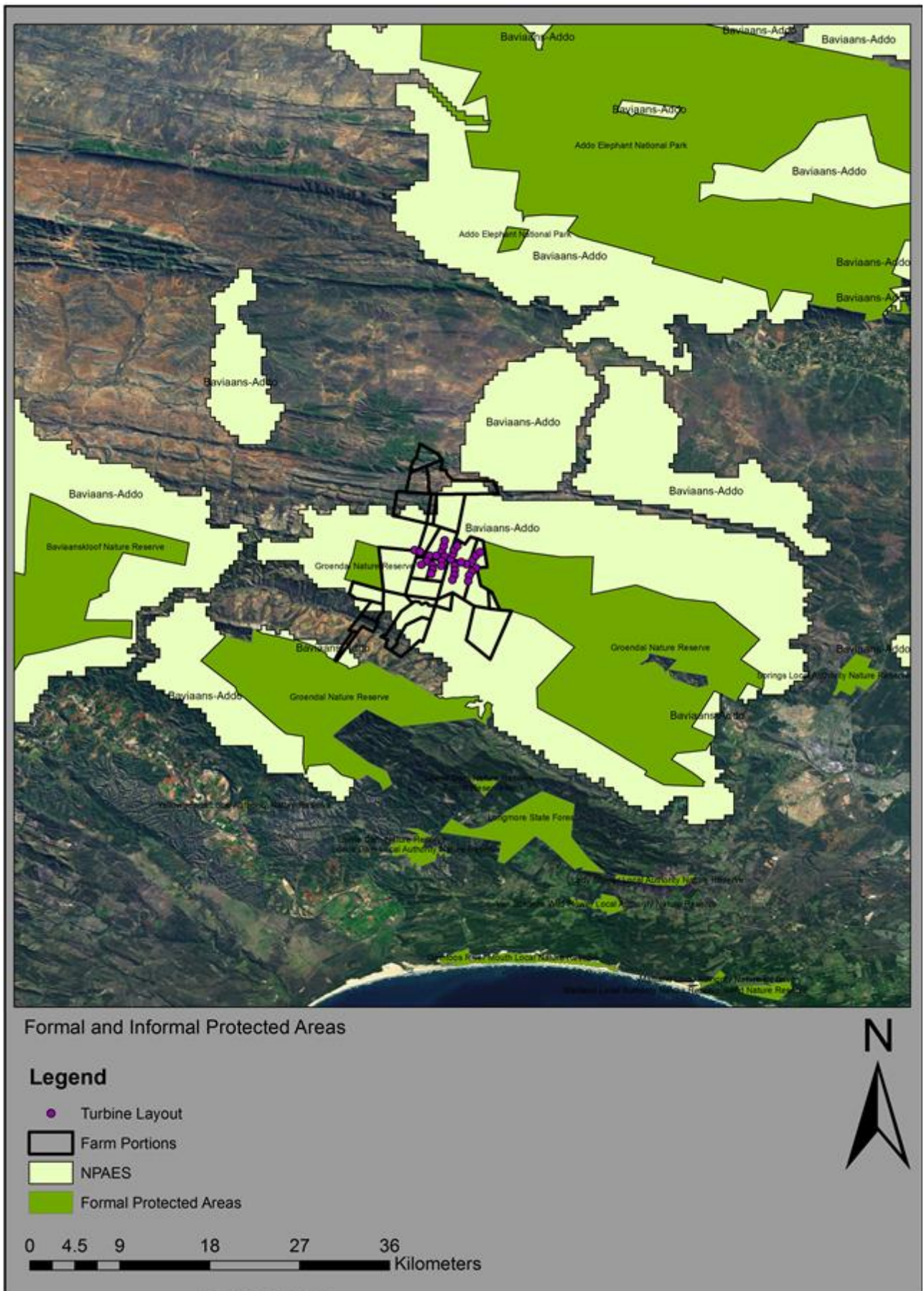


Figure 3-7: Protected Areas and Expansion Strategy Areas that occur within and near the project study area (turbine layout indicative only)

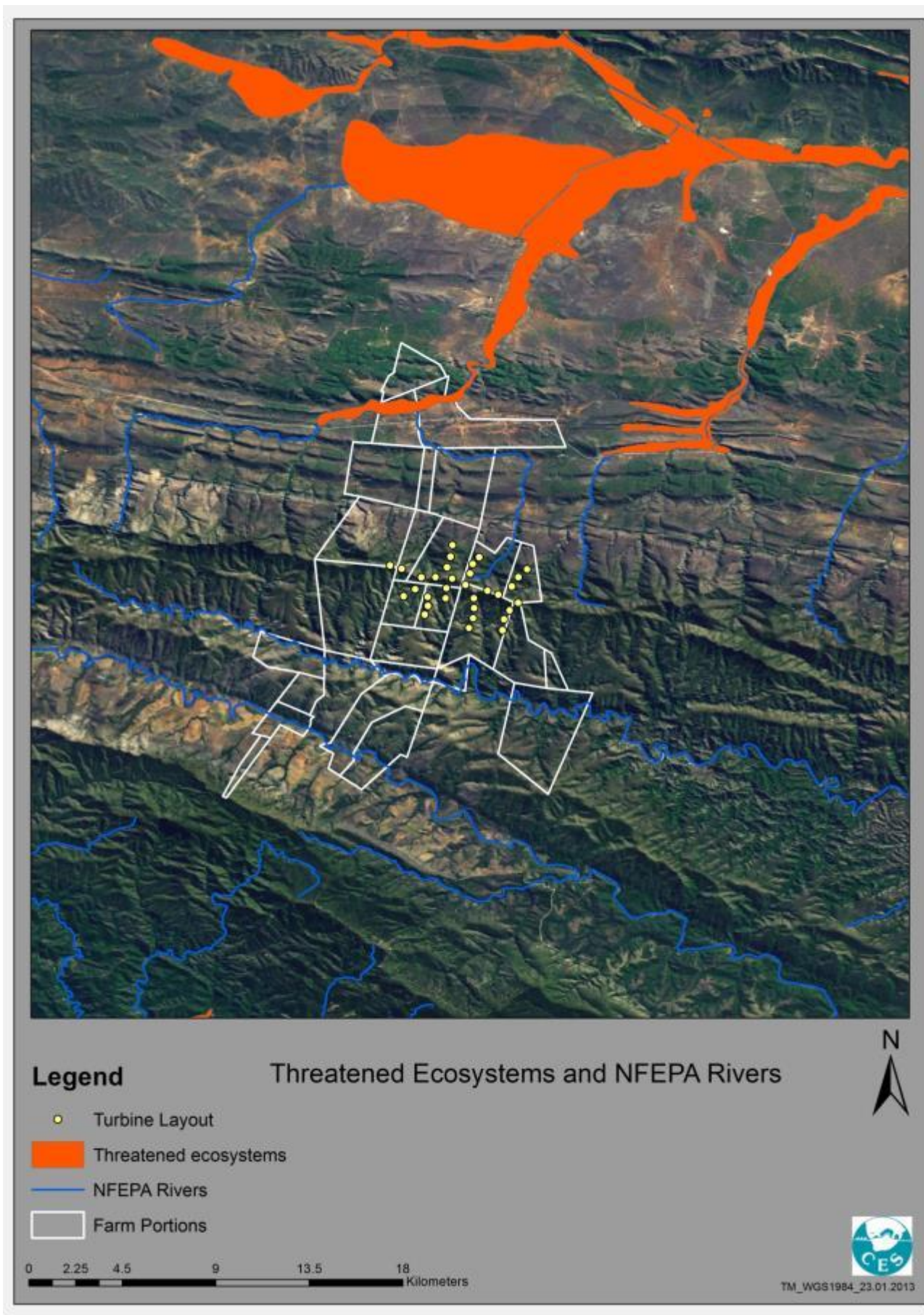


Figure 3-8: Threatened Ecosystems and the National Freshwater Ecosystems Priority Rivers relative to the study area (turbine layout indicative only)

An area is considered important for expansion if it contributes to meeting biodiversity thresholds, maintaining ecological processes or climate change resilience. Forty-two focus areas for land-based protected area expansion have been identified and are composed of large, intact and fragmented areas suitable for the creation or expansion of large protected areas.

As indicated above, the landowner of the project area land portions has indicated his willingness to engage with the relevant planning authorities Eastern Cape Parks and Tourism Agency (ECPTA) and SANParks as to the viability of utilising these land portions as a connectivity corridor between two Groendal Nature Reserve portions.

3.7.3 Subtropical Thicket Ecosystem Planning (STEP) Project

STEP was developed originally in 2003 in order to provide conservation and planning tools for the STEP region (Pierce and Mader 2006). The STEP region is the region containing the Subtropical Thicket Biome and its constituents, as well as those biomes closely related to it. The STEP region includes 6 Biomes and forms a Bioregional Programme.

A Bioregional Programme is defined by Pierce and Mader (2006 pg 27) as: “*Bioregional programmes are initiatives that aim to secure the conservation of priority biodiversity within a specific biome or bioregion, involving a variety of stakeholders*”. The aims include (pg 28):

- Promote the conservation of biodiversity both within and outside protected areas;
- Promote the sustainable use of natural resources and the development of sustainable livelihoods based on principles of sustainable land-use management- a “*biodiversity economy*”;
- Strengthen partnerships, institutions and governance and continue to involve communities throughout the lifespan of the programme; and
- Support implementation of projects and guide them to ensure that funds achieve maximum conservation benefit.

Several of these bioregional plans have been developed that occur within the borders of the Eastern Cape, and these may overlap in areas (Pierce and Mader, 2006). The STEP mapping and related information is specifically designed to be incorporated into planning and spatial development frameworks. It indicates areas for priority conservation, and what kind of development is appropriate for each landscape class. It is important to note that it cannot be used for fine scale planning.

Each vegetation type is assigned an ecosystem status, which indicates if it is sufficiently conserved, how much of its original extent is still covered, and how healthy and functioning they may be (Pierce and Mader, 2006).

The project aims to guide the necessary but destructive development away from areas of endangered biodiversity and promote sustainable land use. In terms of STEP, a feature that has much more extant habitat than is needed to meet its target, is considered Currently Not Vulnerable OR Least Threatened (Table 3-6).

STEP provides management recommendations for each of the classes given to vegetation types. As the study area contains vegetation types listed as Least Threatened (Currently Not Vulnerable), and Vulnerable by STEP, recommendations for these classes are provided below and summarised in Table 3-6.

Currently Not Vulnerable (Class IV)

A vegetation type that has much more extant habitat than is needed to meet its conservation target, is considered Currently Not Vulnerable, or Least Threatened. For Currently Not Vulnerable vegetation, STEP recommends three Land use management procedures, these include:

1. Proposed disturbance or developments should preferably take place on portions which have already undergone disturbance or impacts rather than on portions that are undisturbed or unspoilt by impacts.
2. In response to an application for a non-listed activity which will have severe or large-scale disturbance on a relatively undisturbed site (unspoilt by impacts), the Municipality should first seek the opinion of the local conservation authority.
3. For a proposed "listed activity", EIA authorisation is required by law.

Table 3-6: Summary of the STEP Project conservation priorities, classifications and general rules (Pierce, 2003)

Conservation priority	Classification	Brief Description	General Rule
IV	Currently not vulnerable area	Ecosystems which cover most of their original extent and which are mostly intact, healthy and functioning	Depending on other factors, this land can withstand loss of natural area through disturbance or development
III	Vulnerable area	Ecosystems which cover much of their original extent but where further disturbance or destruction could harm their health and functioning	This land can withstand limited loss of area through disturbance or development
II	Endangered area	Ecosystems whose original extent has been severely reduced, and whose health, functioning and existence is endangered	This land can withstand minimal loss of natural area through disturbance or development
I - Highest Priority	Critically endangered area	Ecosystems whose original extent has been so reduced that they are under threat of collapse or disappearance. Included here are special ecosystems such as wetlands and natural forests	This Class I land can NOT withstand loss of natural area through disturbance or development. Any further impacts on these areas must be avoided. Only biodiversity-friendly activities must be permitted.
High Priority	Network Area	A system of natural pathways e.g. for plants and animals, which if safeguarded, will ensure not only their existence, but also their future survival.	Land in Network can only withstand minimal loss of natural area through disturbance and developments
Highest Priority	Process Area	Area where selected natural processes function e.g. river courses, including their streams and riverbanks, interfaces between solid thicket and other vegetation types and sand corridors	Process area can NOT withstand loss of natural area through disturbance and developments
	Municipal reserve, nature reserve, national parks	Protected areas managed for nature conservation by local authorities, province or SA National Parks	No loss of natural areas and no further impacts allowed

Conservation priority	Classification	Brief Description	General Rule
Dependant on degree on existing impacts	Impacted Area	Areas severely disturbed or destroyed by human activities, including cultivation, urban development and rural settlements, mines and quarries, forestry plantations and severe overgrazing in solid thicket.	Ability for this land to endure further disturbance or loss of natural area will depend on the land's classification before impacts, and the position, type and severity of the impacts

From a Spatial planning (forward planning – Spatial Development Framework (SDF)) point of view, for Currently Not Vulnerable vegetation, STEP presents two restrictions and gives examples of opportunities. The two spatial planning restrictions are as follows:

1. Proposed disturbance or developments should preferably take place on portions which have already undergone disturbance or impacts rather than on portions that are undisturbed.
2. In general, Class IV land can withstand loss due to disturbance of natural areas through human activities and developments.

Opportunities depend on constraints (such as avoidance of spoiling scenery or wilderness, or infra-structure limitations) Class IV land can withstand loss of, or disturbance to, natural areas. Within the constraints, this class may be suitable for a wide range of activities (e.g. extensive urban development, cultivation, tourist accommodation, ecotourism and game farming).

Vulnerable (III)

Vulnerable ecosystems are those where further disturbance or destruction could harm their health and functioning. For Vulnerable vegetation, STEP recommends four Land use management procedures, these include:

1. As a rule, developments with limited area or impacts should be allowed on Class III land.
2. In response to an application for a non-listed activity which will have severe or large-scale disturbance on a relatively undisturbed site (unspoilt by impacts), the Municipality should first seek the opinion of the local conservation authority.
3. Proposed disturbance or developments should preferably take place on sites which have undergone disturbance or impacts rather than on sites that are undisturbed.
4. For a proposed "listed activity", EIA authorisation is required by law.

From a Spatial planning (forward planning – Spatial Development Frameworks (SDF)) point of view, for Vulnerable vegetation, STEP presents three restrictions and gives examples of opportunities. The three spatial planning restrictions are as follows:

1. In general, Class III land can withstand only limited loss of natural area or limited disturbance through human activities and developments.
2. Proposed disturbance or developments should preferably take place on sites which have undergone disturbance or impacts rather than on sites that are undisturbed.
3. In general, Class IV land should be developed in preference to Class III land.

Depending on constraints (such as avoidance of spoiling scenery or wilderness, or infra-structure limitations), Class III land can withstand a limited loss of, or disturbance to, natural areas. Within the constraints, this class may be suitable for a moderate range of activities that are either compatible with the natural environment (e.g. sustainable stock-farming, ecotourism, game farming and wilderness) or of limited extent (e.g. small-scale housing or urban development, small-scale cultivation).

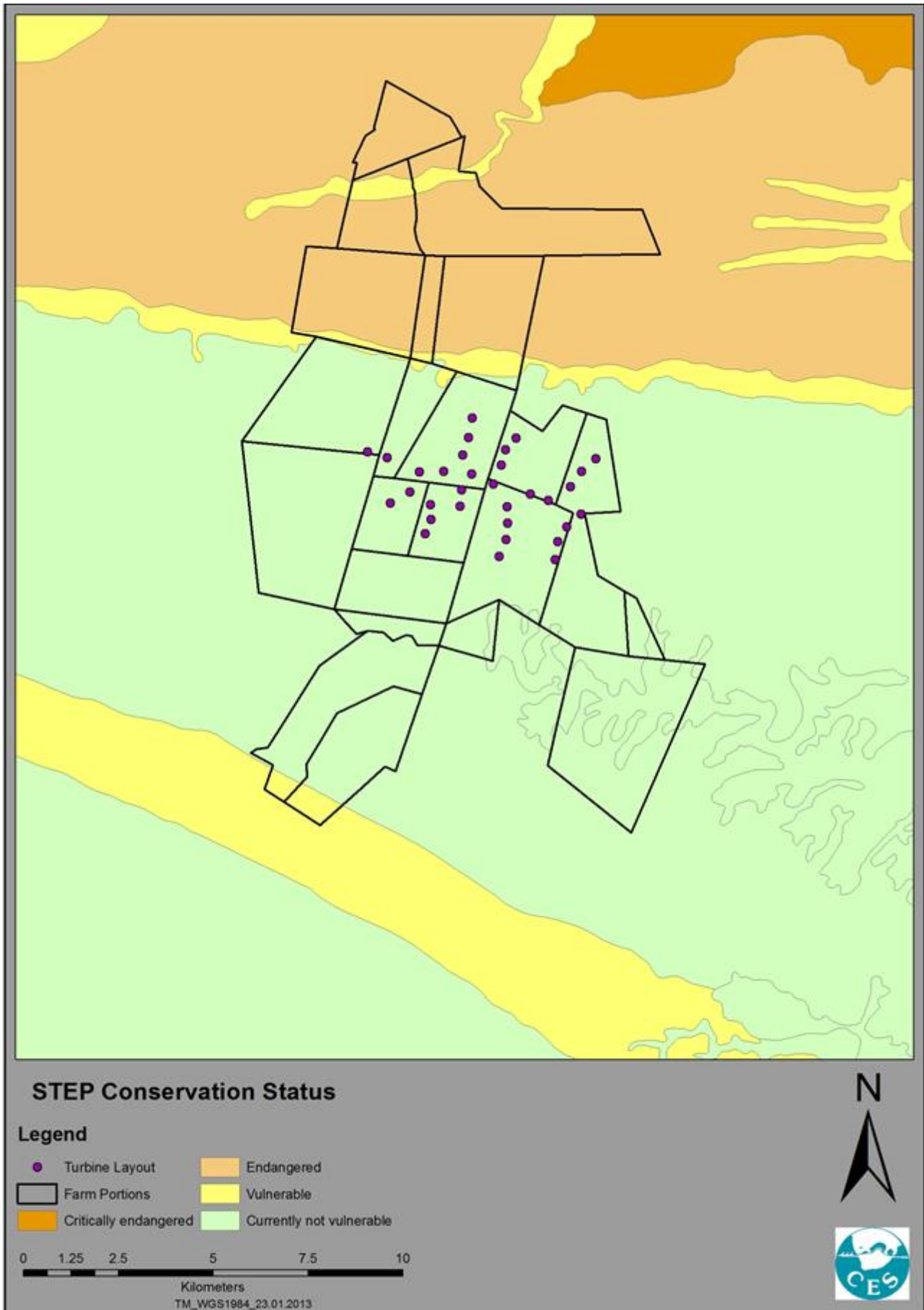


Figure 3-9: STEP Conservation Status map (turbine layout indicative only)

3.7.4 The Eastern Cape Biodiversity Conservation Plan

The Eastern Cape Biodiversity Conservation Plan (ECBCP) is responsible for mapping areas that are priorities for conservation in the province, as well as assigning land use categories to the existing land depending on the state that it is in (Berliner et al. 2007).

Critical Biodiversity Areas (CBAs) are defined by Berliner et al. (2007) as: “CBAs are *terrestrial and aquatic features in the landscape that are critical for conserving biodiversity and maintaining ecosystem functioning*”. These areas are classified as natural to near-natural landscapes. In addition to the CBA’s the ECBCP also defines Other Natural Areas (ONA) as well as Transformed Areas.

Biodiversity Land Management Classes (BLMCs) are also used in the plan: “Each BLMC sets out the desired ecological state that an area should be kept in to ensure biodiversity persistence. For example, BLMC 1 refers to areas which are critical for biodiversity persistence and ecosystem functioning, and which should be kept in as natural a condition as possible”. Table 3-7 shows how the BLMCs relate to the CBAs.

Table 3-7: Terrestrial Critical biodiversity Areas and Biodiversity Land Management Classes as described by the Eastern Cape Biodiversity Conservation Plan

CBA map category	Code	BLMC		Recommended land use objective
Protected areas	PA1	BLMC 1	Natural landscapes	Maintain biodiversity in as natural state as possible. Manage for no biodiversity loss.
	PA2			
Terrestrial CBA 1 (not degraded)	T1	BLMC 2	Near-natural landscapes	Maintain biodiversity in near natural state with minimal loss of ecosystem integrity. No transformation of natural habitat should be permitted.
Terrestrial CBA 1 (degraded)	T1			
Terrestrial CBA 2	T2			
	C1			
Other natural areas	ONA T3	BLMC 3	Functional landscapes	Manage for sustainable development, keeping natural habitat intact in wetlands (including wetland buffers) and riparian zones. Environmental authorisations should support ecosystem integrity.
	ONA			
Transformed areas	TF	BLMC 4	Transformed landscapes	Manage for sustainable development.

Ten principles of land use planning for biodiversity persistence:

1. Avoid land use that results in vegetation loss in critical biodiversity areas.
2. Maintain large intact natural patches – try to minimise habitat fragmentation in critical biodiversity areas.
3. Maintain landscape connections (ecological corridors) that connect critical biodiversity areas.
4. Maintain ecological processes at all scales, and avoid or compensate for any effects of land uses on ecological processes.
5. Plan for long-term change and unexpected events, in particular those predicted for global climate change.
6. Plan for cumulative impacts and knock-on effects.
7. Minimise the introduction and spread of non-native species.
8. Minimise land use types that reduce ecological resilience (ability to adapt to change), particularly at the level of water catchments.

9. Implement land use and land management practices that are compatible with the natural potential of the area.
10. Balance opportunity for human and economic development with the requirements for biodiversity persistence.

The study site falls within CBA 1, CBA 2 and CBA 3 areas. As indicated in Figure 3-10, 10 turbines are located within the CBA 1 area and 16 occur in a CBA 2 area. According to STEP and Mucina and Rutherford this area was expected to be covered in thicket. However, the site survey revealed it to be a mosaic of grasses and karoo scrub. ECBCP, although mapped at a finer scale than the National Spatial Biodiversity Assessment (Driver *et al.*, 2005) is still, for the large part, inaccurate and 'coarse'. Therefore it is imperative that the status of the environment, for any proposed development must first be verified before the management recommendations associated with the ECBCP are considered (Berliner and Desmet, 2007). This will be done in the EIA phase by the ecological specialist.

3.7.5 Baviaanskloof Reserve Cluster

The Eastern Cape Parks and Tourism Agency (ECPTA) is responsible for the management of the Baviaanskloof Nature Reserve (BNR) which forms the core of the Baviaanskloof Mega Reserve. In 2004 the Baviaanskloof Nature reserve was proclaimed a World heritage Site based on the high level of biodiversity and threatened species that are characteristic of the area (Boshoff, 2008). The BNR forms part of the Baviaanskloof Reserve Cluster which includes the Groendal and Formosa Nature Reserves.

The project area lies adjacent to two portions of the Groendal Wilderness Area. Groendal Wilderness Area comprises of two sections. The Kwa-Zunga Section is part of Groendal Wilderness Area and Stinkhoutberg Nature reserve is an independent nature reserve.

The Groendal Wilderness Area lies at the eastern extremity of the Groot Winterhoek Mountains and protects the water catchment of the Swartkops and KwaZunghu River. It is characterised by unspoilt vegetation with numerous kloofs and streams that form a pristine wilderness area.

It is estimated that the Baviaanskloof Nature Reserve and World Heritage Site houses over 1 100 plant species, 20 of which are known to be endemic and 52 that are listed as Red Data Book Species (Erlank, 2010). It is expected that this list will increase by at least 100 species if Groendal Nature Reserve and Formosa Nature Reserve are also included.

As noted above, the ECPTA and SANParks were engaged in the Scoping phase to solicit preliminary opinion on the proposed project as well as the potential for private landowner conservancy agreements for the property portions in question. Early indications from the ECPTA are that they are not supportive of the above option or the project in general, with SANParks indicating that the proposal does not intrude on any areas within their conservation planning domain. Should the proposal be viable it would have to be subject to a biodiversity offset process assessment in the EIA phase of this reporting process.

Issues or concerns raised by ECPTA are noted in Table 4-1 and Table 4-2 in Section 4.4 of this report.

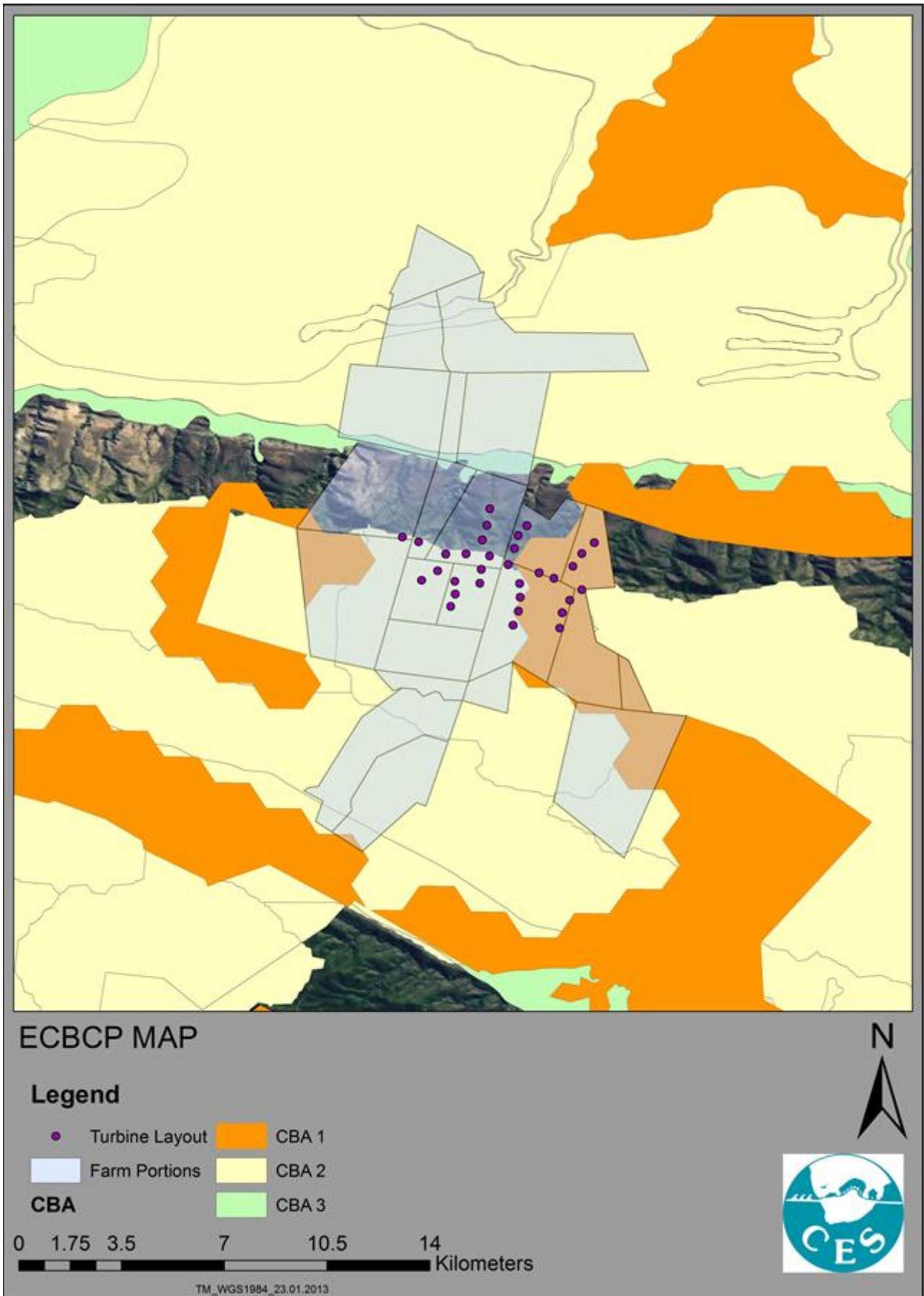


Figure 3-10: Critical Biodiversity Areas found within the project site (turbine layout indicative only)

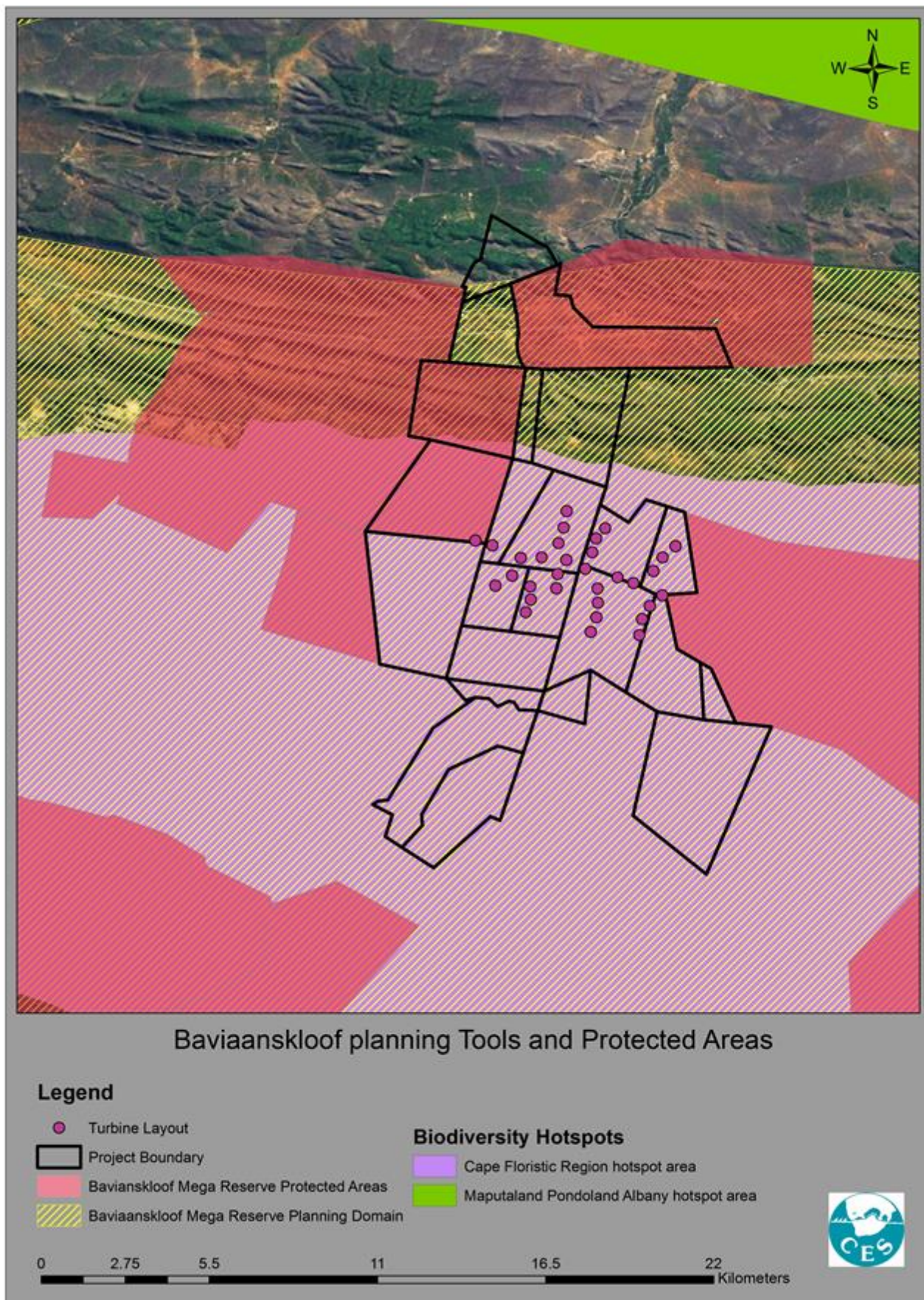


Figure 3-11: Baviaanskloof planning tools

3.8 Socio-Economic Profile

The proposed Inyanda - Roodeplaat WEF is to be developed in the Sundays River Valley Municipality situated within the Cacadu District Municipality, Eastern Cape Province. The Sundays River Municipality is located approximately 80 km north and east of the Nelson Mandela Bay Municipality and includes the coastal zone between Alexandria and the Sundays River Mouth as well as inland areas that extend to the Klein Winterhoek and Zuurburg Mountains. The main activities in the area include high intensity irrigation farming, eco-tourism and game farming.

The Sundays River Municipality is the fourth most populous municipality within the Cacadu district with a population of 54 504 people (StatsSA, 2011). The population is diversified across race groups and culture and is characterised by varying socio-economic levels of development. These are outlined in Table 3-8 to Table 3-10. These statistics show a predominantly black population with the majority of the population being employed or not economically active. Children constitute 26.1 % of Sunday's River Valley population, the economically active population is at 65.8 % and persons aged 65 and older at 5.6 %.

Table 3-8: Representative population groups in the Sundays River Valley Local Municipality (Census, 2001)

Population Group	Percentage
Black	76.6
Coloured	18.06
Indian/Asian	0.02
White	5.35

Table 3-9: Employment status in the Sundays Rive Valley Municipality (Census, 2011)

Employment Status	Percentage
Employed	29.5
Unemployed	5.2
Not Economically Active	65.3

Table 3-10: Income groups in the Sundays River Valley Municipality (Census, 2011)

Annual average household income	Percentage
No income	11,7%
R1 - R4,800	3,7%
R4,801 – R9,600	6,6%
R9,601 – R19,600	25,3%
R19, 601- R38, 200	26,7%
R38, 201 – R76, 400	15,3%
R76, 401 - R153, 800	5,4%
R153, 801 – R307,600	2,9%
R307, 601 – R614, 400	1,6%
R614, 401 - R1, 228, 800	0,3%
R1, 228, 801 – R2, 457, 600	0,1%
R2, 457, 601+	0,3%

The largest industry in the area is agriculture followed by Community and Social Services (Table 3-11). The largest group of the population is the employed group (between the ages of 15-64) constituting approximately 65.8% of the population. This data reflects that the majority of the population does not receive income and the majority of those who do earn an income earn within the R1601 – R3200 bracket. This reflects the level of poverty within the municipality.

Table 3-11: Industry amongst the employed in Sundays River Valley Municipality (Census, 2007)

Industry amongst the employed aged 15 to 65 years	Percentage
Agriculture; forestry and fishing	48.6
Undetermined	13.2
Community/Social Services	10.2
Private households	9.2
Wholesale Retail	7.5
Manufacturing	4.8
Financial, insurance, real estate	2.3
Construction	2.1
Transport, storage, communication	1.5
Electricity, gas, water	0.6
Mining / quarrying	0.1

The **Cacadu District Municipality Integrated Development Plan (IDP)** recognizes that although the electricity network within the District is generally regarded as reasonable, there are slight disparities that exist between the different local municipalities due to their location. While the majority of the communities of most Local Municipalities have direct access to electricity there are backlogs with respect to electricity provision that need to be addressed. It is envisaged that significant capital outlays will be required to upgrade both the urban and rural networks if they are to meet their target of ensuring universal access to electricity by 2014.

The **Sunday's River Integrated Development Plan (IDP)** identifies the need to continue to build, revamp and maintain electricity infrastructure, including its generation, distribution and reticulation to ensure that there is a sufficient and sustainable supply. It also recognises the need to develop alternative energy sources to meet these requirements.

4 Public Participation

This Section of the report provides the details of the Public Participation Process followed during the Scoping Phase of the EIA for the proposed Inyanda - Roodeplaat WEF.

The Scoping phase of the EIA provides for the involvement of Interested and Affected Parties (IAPs), in forums that allow them to voice their opinions and concerns, at an early stage of the proposed project. Such engagement is critical in the EIA process as it contributes to a better understanding of the proposed project among IAPs and raises important issues that need to be assessed in the EIA phase of the process.

The four key steps followed within the overall public participation process so far include:

- Notifying IAPs of the EIA;
- Holding public meetings;
- Making provision for IAPs to review and comment on all reports before they are finalised and submitted to the competent authority; and
- Making a record of responses to comments and concerns available to IAPs.

Prior to the preparation of this Scoping Report the above steps have comprised the activities described in Sections 4.1 to 4.4 below.

4.1 Notifying IAPs of the EIA

4.1.1 Background Information Document

A four-page Background Information Document (BID) that provided basic information on the proposed project, the EIA process, a list of property portions and contact details for registration as an IAP was prepared in both English and Afrikaans. The BID was sent to the landowner, all neighbouring farm owners, all persons responding to the inception advertising and organisations identified as potential IAPs. The BID is reproduced in Appendix C.

4.1.2 Written notices

Written notices were sent to the owners and/or occupants of land immediately surrounding and within 100 m of the proposed project area. Copies of these letters, together with the details of the landowner in question to whom the letters were sent, are included in Appendix F.

Letters were also sent to:

- Department of Agriculture, Fisheries and Forestry;
- Department of Energy;
- The South African National Roads Agency (SANRAL);
- Department of Economic Development and Environmental Affairs;
- The Department of Water Affairs;
- DEDEAT – Cacadu District;
- Department of Environmental Health – Cacadu District;
- Uitenhage Transitional Council;
- Wildlife and Environment Society of Southern Africa (WESSA);
- ESKOM;
- Various Ward Councillors;
- South African Civil Aviation Authority (SACAA);

- South African Heritage Resources Agency (SAHRA);
- Birdlife SA;
- Groendal Nature Reserve;
- Eastern Cape Parks and Tourism Authority;
- SANParks: Strategic Park Planning and Development;
- Kirkwood Local Farmers Association; and
- Local Tourism Office.

Copies of these letters and proof of them being sent are included in Appendix F.

4.1.3 Advertisements

An advertisement was placed in two Provincial Newspapers (Die Burger on 23 March 2013 and The Herald on 22 March 2013) and one local newspaper (UD News) on 28 March 2013 in order to:

- Advise readers of the intention to undertake an EIA for the proposed project, and
- Invite them to register as IAPs.

A copy of the advertisement is included in Appendix B.

A second advertisement was placed in the Provincial Newspaper Die Burger on 12 October 2013 and two local newspapers, UD News on 17 October 2013, and Coega Express 17 October 2013 in order to:

- Advise IAPs of the release of the Draft Scoping Report for the proposed Inyanda - Roodeplaat WEF; and
- Inform them of where they can access the Draft Scoping Report for review.

A period of 40 days (11 October 2013 to 20 November 2013) was allowed for public review of the Draft Scoping Report by IAPs after the advertisement appeared. Copies of the advertisements are included in Appendix B.

4.1.4 Site notices

The NEMA regulations require the erection of *“a notice board at a place conspicuous to the public at the boundary or on the fence of the site where the activity to which the application relates is or is to be undertaken; and any alternative site mentioned in the application”*.

Therefore in accordance with this requirement, three 800 x 600 mm single sided corex notice boards were placed on the boundary of the proposed project sites near the proposed locations. The location, text of the site notice and photographs of the fixed notices are provided in Appendix D.

4.2 Public review period of Draft Scoping Report and meetings

During the 40 day public review period (11 October 2013 to 20 November 2013) for the DSR a public meeting was held on 23 October 2013 at the Feather Market Hall in Port Elizabeth as well as the Kroonenhoff Guesthouse in Kirkwood. Notice of this was advertised in the above mentioned newspapers prior to the meeting. The DSR was available for review at the following places:

- Port Elizabeth Public Library (Market Square, Govan Mbeki Avenue, PE);
- Uitenhage Public Library (Market St, Uitenhage Central, Uitenhage);
- Kirkwood Public Library (Middelstraat, Kirkwood); and
- The CES website (www.cesnet.co.za) – on the public documents link.

All registered IAPs to date were informed in writing of the meeting venue and date, along with all other significant stakeholders engaged with to date.

4.3 Registration of IAPs and comments database

A register of IAPs to date has been compiled, containing all available contact details of those who responded to the advertisement(s) and/or registered as IAPs (Appendix E).

CES has provided SRK with all IAP documentation and a copy of the IAP database. SRK will keep all registered IAPs informed of the EIA process and maintain the IAP database for the duration of the EIA process.

4.4 Comments and Responses

Table 4-1: Issues and concerns prior to the release of the DSR

Name	Issue	Date	Response
General			
Tinus Vermaak Elands River Fire Protection Association (FPA) and Tourism Chairman	Need information with regards to planned information meetings and program indicating EIA process and progress	10/06/2013 Email	[CES] All interested and affected parties were supplied with a background information document (BID) that contains a brief description of the EIA process. All registered IAPs will be informed of any events such as public meetings and release of report for comment. [CES] The Environmental Impact Assessment (EIA) process is fully explained within the draft Scoping Report that will be released and available for public review and comment. This report will be made available in the Uitenhage and Kirkwood library as well as an online copy on our website. IAPs will be informed of this.
Alastair Gordon Rudman Merora Farming cc.	Where are the transmission lines and where will it connect into substations	11/06/2013 Email	[CES] The initial placement of the power lines for the project site can be found in the alternatives section of the scoping report. Two alternative line corridors have been proposed; they run from the north of the site and connect to the Eskom grid at the Skilpad substation. These will be assessed in the specialist impact studies that will form part of the Environmental Impact Assessment Report. [SRK] Since the release of the Draft Scoping Report, it has been confirmed that the southern route alignment in Figure 2-12 is the preferred alignment, based on length and sensitivity of vegetation. Only this route alignment alternative will be assessed in the EIA phase.
Asanda Sontele Eastern Cape Parks and Tourism Agency	The Department of Environmental Affairs (DEA) is currently conducting a Strategic Environmental Assessment for South Africa for Wind Energy which will create strategic nodes to site wind energy farms. Due to the high level of sensitivity of the proposed development site and its surrounding, ECPTA recommends that this process aligns itself with the outcomes of that SEA.	6/11/2013 Email	[CES] According to the CSIR website, "Finalisation of Renewable Energy Development Zones (REDZs) identification is planned for the third quarter of 2014, after which it will be submitted for Cabinet approval and subsequent gazetting". Even though this will be gazetted and the SEA will recommend ideal placement of renewable energy development, this will not preclude developers from applying for renewable energy developments outside of the areas recommended by the SEA. This information is

Name	Issue	Date	Response
			also available on the CSIR website, which states: "No existing projects already applied for at DEA will be affected by the SEAs given that the SEAs will only come into effect after 2014 after which the current EIA process, including motivating for development in any area, will still be available for any development outside the REDZs."
Asanda Sontele Eastern Cape Parks and Tourism Agency	Is situated in a priority area identified in the ECPAES and between three nature reserves (Groendal, Stinkhoutberg & Mierhoopplaas) and the Baviaanskloof WHS. The nature reserves will all become part of the Cape Floristic Region Protected Areas World Heritage Sites (CFRPA WHS) once the extension process has been completed.	6/11/2013 Email	[CES] This is a concern of ours. The developer has discussed plans to maintain the property as a conservation area after the construction of the wind turbines are completed (should an EA be granted).
	A portion of the site falls within a CBA 1 as identified by the Eastern Cape Biodiversity Conservation Plan (ECBCP). Most of the remainder is in a CBA 2. Portions of the site also identified in the Baviaanskloof Conservation Plan as CBA 1 and 2.		[CES] Noted. During the EIA phase of the project, an Ecological Impact Assessment will be completed to determine the effect the turbines will have on the surrounding environment. This will be discussed in detail. Ecological mapping has also been prepared to assess the proposed areas and presented above.
Rolf Clotz	Farmer in the Elands River Valley expressed interest in the project and requested that his property be considered for inclusion.	Email 21/07/13	[CES] CES contacted both the developer and the land owner. CES identified the potential land portions and is awaiting confirmation from Mr Clotz.
Visual, noise and ecological impact			
Neil Robert Evans Private land owner Neighbour	Visual and Noise Impact	Fax	[CES] Noted. A Visual Impact Assessment and Noise Impact Assessment will be undertaken during the EIA phase of the project. The specialists will be notified of all these concerns and asked to address them where possible. The study will model the suggested turbine type, and use topographical and climatic data to indicate the visual noise impacts on the surrounding areas.
Alastair Gordon Rudman Merora Farming cc.	What are the : Visual and Aesthetic Impacts	11/06/13 Email	[CES] As mentioned above.
	Ecological Impact		[CES] Noted. A terrestrial ecological specialist study will be undertaken during the EIR phase of the project. This study will note all relevant species within the study area well as noting any species of special concern.
	Noise impact on domestic livestock		[CES] Noted. A noise specialist study will be undertaken during the EIR phase of the project to identify any issues or features relevant to potential noise impacts and the potential significance thereof
	How will this affect indigenous trees, fauna and flora		[CES] Noted. A terrestrial ecological specialist study will be undertaken during the EIR phase of the project. This study will note all relevant species within the study area well as noting any species of special concern.

Name	Issue	Date	Response
Asanda Sontele Eastern Cape Parks and Tourism Agency	Impacts on views and sense of place (especially considering that Groendal is a declared wilderness area). From the top of the plateaus at Groendal (which form part of the network of hiking trails) there is a completely uninterrupted view all the way to the Baviaanskloof. The presence of 120 m wind turbines right on the boundary (the closest one is less than 100 m from the boundary) of Groendal could have a severe impact on views and sense of place.	6/11/2013 Email	[CES] Noted, and is part of the Visual Impact Assessment (VIA) study that will be conducted.
Mr Bool Smuts Landmark Foundation	As independent environmental consultants CES should desist from marketing the company that is proposing the development as in your words: <i>"company, was founded to supply Africa with clean, renewable and sustainable power sources"</i> . Such comments will in due course be interpreted as a conflict of interest for your company.	Email 19/05/2013	[CES] CES can assure that we have no interest in marketing any applicant, neither do we have any commercial interest or otherwise in any applicants' ventures. The wording about the company is theirs, as are they entitled to in these notifications and process related submissions.
Mr Bool Smuts and Ms Jeannine Landmark Foundation	<p>This new development for yet another wind farm is again transecting a very important leopard connectivity corridor. The PhD that is about to be concluded indicates that we are sitting with a locally and critically endangered population of less than 40 individual territorial cats in the about 350 000 ha region surrounding the Baviaanskloof, Stinhoutberg, Groendal complex, inclusive of the Winterhoek mountains you have identified in this correspondence sequence. I have no doubt that this proposed industrial size development in a key part of their habitat will be the death-knell for the species that already has to contend with intense farmer persecutions.</p> <p>You would be familiar with our position, which would likely be similar to the objections raised on the Brakkefontein Wind Farm development. The details we can provide as part of the IAP.</p>	Email 19/05/2013	<p>[CES] CES is aware of the landmark Foundations work in the Eastern Cape and has requested they shed some light on their teams' work, if any, in the project area itself. Jeannine kindly supplied us with some information from her PhD work of leopards in the area.</p> <p>[SRK] CES has integrated some of the information regarding leopard into the Final Scoping Report. No specific specialist studies regarding habitat fragmentation of leopard is proposed in the EIA phase. Instead, it is proposed to rate the significance of habitat fragmentation of leopard habitat based on available literature and stewardship arrangements (if any) between the landowner and ECPTA.</p>
Impact on Groendal dam			
Thomas Pietschmann Neighbour	It is a watershed area servicing the Groendal Dam which supplies drinking water to Uitenhage area. A wilderness area which is sacred for life.	Email	<p>[CES] An Ecological Impact Assessment will determine the effect that the proposed project will have within the study area.</p> <p>Should it be found that the project does have any potential impacts, mitigation strategies will be prepared to combat this. Water Use Licenses will also be completed should they be required.</p>

Name	Issue	Date	Response
			[SRK] A specialist study to assess potential water quality impacts is not proposed. Instead, it is proposed that measures to prevent water contamination be included in the Environmental Management Programme that will form part of the Final Environmental Impact Report.
Asanda Sontele Eastern Cape Parks and Tourism Agency	Eastern Cape Parks and Tourism is the designated Management Authority for the Baviaanskloof World Heritage Site as well as the Groendal Nature Reserve. The proposed area for the Wind Energy facility falls within the buffer zone around Baviaanskloof WHS.	18/06/2013 Email	[CES] Noted. The ECPTA has been invited to focus group meeting at the CES offices to discuss these matters. The area has been completely mapped with all the relevant ecological information available.
Neil Robert Evans Private land owner Neighbour	Site is a watershed for Groendal Dam, it will result in siltification.	Fax	[CES] Same as above.
Asanda Sontele Eastern Cape Parks and Tourism Agency	This proposed site is situated within a mountain catchment, which is the source of the Kwazunga River which feeds into Groendal Dam – the main water reservoir for Uitenhage domestic water supply. Disturbance of the area has the potential to negatively affect catchment as well as increase siltation of the dam.	18/06/2013 Email	[CES] As previously stated above.
Groendal Nature Reserve			
Thomas Pietschmann Neighbour	Totally unacceptable. The area falls directly between the future planned Groendal and Baviaans Mega Reserve.	Email	[CES] The land is privately owned. It has been proposed to be maintained as a conservation area with dual use.
Avifaunal and bat			
Alastair Gordon Rudman Merora Farming cc.	What are the noise impacts on domestic wild life and birds – Endangered species?	11/06/2013 Email	<p>[CES] The avifaunal and bat studies will demarcate bird and bat sensitive areas that need to be excluded from development. This will be looked at during the EIR phase.</p> <p>In addition to this, a twelve month long monitoring program is under way that will make more recommendations that will reduce the impact on these species. An avifaunal study will demarcate bird sensitive areas that need to be excluded from development. This will be looked at during the EIR phase.</p> <p>[SRK] In addition to the measures recorded above, a noise impact assessment is recommended in the Plan of Study for EIA (See Section 6.2.3). As is typically the case, the noise impact assessment will be limited to the potential impact on people.</p> <p>It is believed that these two studies will enable a reasonable assessment of the potential impact on endangered species.</p>

Table 4-2: Issues and concerns following the release of the DSR (Appendix F)

Raised by:	Date	Issue, concern, comment	Response
General Issues			
D Govender (Regional Manager DEDEAT; Cacadu)	email 2013/12/04	Figure1-1: Important information was not included in the map., for example, boundaries of the protected areas., existing power lines, existing substations, minor roads, rivers, catchments/sub-catchments; municipal boundaries.	[CES] The map is meant to show protected areas in the vicinity of the site and putting more information as suggested on the map would render it impossible to read. The relevant requested information will be included in the EIA report mapping.
		Is there more than one volume?	[CES] No this is a Scoping Report more volumes will be available in the EIR.
		A summary of the "available wind data" should be included in the EIR to substantiate the statement "According to Inyanda, available wind data in South Africa shows this area to have favourable wind conditions sufficient to support a wind farm" Climate: There is no discussion on wind regimes despite the fact that this is an application for a wind farm.	[SRK] A summary of wind monitoring data from the 60 m mast on the site has been included in this FSR (Figure 3-2 on page 46). An underlying assumption in the EIA process is that the financing of the proposed development would only be forthcoming if the site has a proven wind resource.
		Please indicate in which Registration Division each property is located; the size of the farm; and the owner(s) of the farm.	[CES] The registration division is the administrative District of Cape and the size of the farm portions have been included in Table 1-1 on page 4. [SRK] Ownership of farm portions within and adjacent to the study area are depicted in Figure 1-2 on page 3.
		The batching plant should preferably be off-site and concrete brought by trucks.	[SRK] Noted. The project engineers have indicated that a concrete batching area is needed for this development. The proposed location of the concrete batching area is depicted in Figure 2-1 and a description of the typical infrastructure in Section 2.3.3. .
		3 rd Par; 3 rd Bullet: Where are the nearest overhead lines and substation	[CES] Skilpad is the nearest substation and overhead power line connection to the proposed development approximately 28 km north east of the project site. The length of the preferred powerline route alignment is ±35 km.
		3 rd Par; 5 th bullet: Why is the fact the area is "not densely populated" an important criteria for choosing the area?	[CES] There will be fewer people that are impacted on negatively by direct impacts of the proposed project.
		In what phase/stage is this project?	[CES] The project is still in the feasibility phase of which the EIA process is an integral component.
D Govender (Regional Manager DEDEAT; Cacadu)	email 2013/12/04	Background to the study: Where does the wind Energy Farm get the name Roodeplaat from?	[Afri-Coast] Roodeplaat is derived from the original farm name.
		Background to the study: There is no figure 1 overleaf. It is on page ii.	[CES] Noted
		Pg. 9; 1 st Par; Third line: This is the Draft Scoping Report	[CES] Noted
		Pg. 4 & 12 Figure 1-1 & 2-1: The map is too small. At this scale a lot of detail is lost, it should be provided at an A3 size at least.	[CES] Noted these have been provided with final scoping report. [SRK] Larger versions of selected maps / are included in Appendix F.

Raised by:	Date	Issue, concern, comment	Response
		Page 14; (Header): The header refers to the incorrect section of the report.	[CES] Noted
		As with the previous maps there is important information missing, particularly the locality of the protected areas. The reproduction of the maps was poor and certain information is illegible. It should be provided at an A3 size at least. Figure 4-4; 4-7; 4-8; 7-1; 7-2.	<p>[CES] Noted. Each map is presented to show the location of the project in relation to each guideline and management regime. If all information were to be viewed on one map it would render it illegible. It is the opinion of CES that the suggested maps have the appropriate content and are illustrated at the appropriate size. All maps should be read in conjunction with Figure 1.1.</p> <p>[SRK] Note that the numbering of these figures has changed in the FSR as follows:</p> <ul style="list-style-type: none"> • Figure 4-4 in the DSR, is now Figure 3-6: Important Bird Areas in close proximity to the Study Area; • Figure 4-7 in the DSR is now Figure 3-4: STEP vegetation map of the study area; • Figure 4-8 in the DSR is now Figure 3-10: Critical Biodiversity Areas found within the project site; • Figure 7-1 in the DSR has been removed; and • Figure 7-2 in the DSR is now Figure 2-12: Alternative 132 kV power line route alignment to the Skilpad substation
		Section 4.2 describes Climate.	[CES] Noted.
		NPAES and PAES are not in the abbreviation list. Give a brief explanation of these strategies. Pg. 41 (Table 4-5) Second Row: Protected Areas Expansion Strategy:	[CES] Noted. Has been included in the abbreviations list. The explanation of these is presented in the Section 3.7.2.
		Section 4.3 describes current Land Use. Pg. 41 (Table 4-5) Second Row: Protected Areas Expansion Strategy: Right Hand Cell; Third Paragraph:	[CES] Noted
		Pg. 58; 6.1 (Table 6-1) 2 nd Row; 4 th Cell: Design of the turbine layout will.....	[CES] Noted
		Pg. 62; 6.1 (Table 6-1) Wetlands & Ground water 1 st bullet: Turbines should be placed a minimum of 100 m from the drainage lines.	[CES] Noted this will be part of the Construction Environmental Management Programme (CEMP _r).
D Govender (Regional Manager DEDEAT; Cacadu)	email 2013/12/04	Pg. 65; 6.2 Issues Arising from IAPs 1 st Row: FPA is not in the list of abbreviations.	[CES] Noted
		Pg. 65; 6.2 Issues Arising from IAPs 2 nd Row; 4 th Cell: The placement of the power lines is not in the alternatives section.	[CES] The placement of power lines is in the alternatives section. Refer to Figure 2-12.
		Pg. 65; 6.2 Issues Arising from IAPs 3 rd Row; 3 rd Cell: What is the correct date?	[CES] 06/11/2013

Raised by:	Date	Issue, concern, comment	Response
		Pg. 65; 6.2 Issues Arising from IAPs 3 rd Row; 4 th Cell: Please substantiate the opinion that developers may apply for renewable energy projects outside areas recommended by the SEA. This would defeat the objectives of having a SEA. This department supports the ECPTA's recommendation that this EIA process aligns itself with the outcomes of the SEA. The statement from CSIR's website is mainly an opinion. They do not know what will finally be gazetted.	[CES] The SEA referred to is still under development and as such it is impossible for this EIA process align itself with any future outcomes or designations stemming from the SEA process. The lack of an SEA type policy at this time cannot preclude an applicant from continuing with the EIA process. It should be noted that the potential opportunity and constraint areas that would have to be defined in this SEA are those based on a broad scale study and should an applicant wish to conduct an application for a project that may fall in an eventually determined constraint zone they still have the legal right to proceed with an EIA application regardless.
		Pg. 66; 6.2 Issues Arising from IAPs 1 st Row; 2 nd Cell: These are two of the reasons why this Department does not support the construction of a wind farm in this area.	[CES] Noted
		Pg. 67; 6.2 Issues Arising from IAPs 4 th Column; 4 th Cell: Where is "point 2 above"?	[CES] Noted, correction was made in the table.
Elands River Conservancy (ERC)	email 2013/11/25	The ERC strongly supports the development and use of environment friendly renewable energy sources, however these developments still need to be handled responsibly and with the least possible detrimental effect to the environment – in particular the location of sites.	[CES] The specialist studies to be conducted during the EIR phase will highlight all the possible positive and negative impacts associated with the proposed site. [SRK] Further to the selection of a site for a wind farm, micro-siting of turbine locations can also affect the significance of impacts, e.g. distance from breeding sites may reduce impacts on certain birds. The site layout has been amended to accommodate some of the anticipated impacts (see Section 2.4.2) and will be assessed further during the impact assessment phase.
Marthinus Briers Neighbour	email 25.11.2013	The existence of the Groendal Nature Areas is proof of the need to protect the area. It would be unforgiveable if the Groendal area is split with a wind farm that will change the landscape and potentially devastating consequences for the environment.	[CES] Noted
Tinus Vermaak Elands River Fire Protection Association (FPA) and Tourism Chairman	Undated	Will the land owners of the proposed wind farm join the Elands River Valley Fire Prevention Association?	[Afri-Coast] It would be in the interests of Inyanda Energy, as operator of the wind farm, to be a member of the fire protection association.
Dr Paul Martin Private Environmental Consultant	email 2013.04.02	I would like to know where the wind farm is proposed and whether "standard" turbines (like the Coega one) will be used.	[SRK] It is assumed that CES provided this information to Dr Martin at the time of the request. For the record, the site location is presented in Figure 1-1 and a description of the turbines in Section 2.3. The precise choice of turbine has yet to be confirmed. The assessment is based on a turbine with a 100 m high hub height and approximately 60 m rotor length. The possibility of using concrete towers is under consideration as this may have positive socio-

Raised by:	Date	Issue, concern, comment	Response
			economic benefits due to being manufactured in South Africa. A potential environmental advantage is that concrete towers are produced in shorter lengths, which may then reduce the footprint of roads and/or platforms, and thereby reduce the environmental impact. This will be assessed in the impact assessment phase.
Dr Paul Martin Private Environmental Consultant	email 2013.08.05	There are many potential places for wind farms in the E Cape – this does not seem to be an appropriate location.	[SRK] Noted.
Ecological			
Dr P Martin Private Environmental Consultant	email 2013.08.05	The existing Protected Area Network must be clearly shown and the development assessed in terms of both the nearby protected areas and the future plan for an Eden to Addo Protected Area corridor that would presumably include the project area.	[SRK] The location of protected areas and the NPAES are included in the Figure 3-7 of this report. The terms of reference for the ecological specialist (Section 6.2.2) and the visual specialist (Section 6.2.1) proposed in the plan of study include items to assess impacts associated with the development of this site in relation to the current and proposed protected areas.
Alastair Gordon Rudman Merora Farming cc	email 11.06.13	How will this affect indigenous trees, fauna & flora?	[SRK] Impacts on flora and fauna will be assessed through an ecological specialist study, the terms of reference of which are included in Section 6.2.2.
Marthinus Briers Neighbour	email 2013.12.02	It is important to expand the study to the surrounding area and not just the study area as there is minimal fencing and area is part of an eco-system that stretches from Uitenhage into the Baviaanskloof. The potential impact on conservation corridors needs to be studied.	[SRK] Agreed. It is proposed to assess this through an ecological specialist study, the terms of reference of which are included in Section 6.2.2 . As is the case with all specialist studies, specialists are required to define an appropriate zone of influence of any potential impact and record this in their assessment.
Dr Dave Balfour ECPTA	email 2013.11.20	The DSR notes that the landowner is interested in game farming, is aware that the properties are in an important corridor between protected areas and is interested in biodiversity offset. Due to the high level of sensitivity of the proposed development and its surroundings, the development is definitely not one that ECPTA can support. ECPTA remains of the opinion that the proposed development is fatally flawed.	[SRK] The ECPTA's position is noted in this FSR. SRK has been informed that the landowner and ECPTA have, subsequent to this correspondence, been in discussion regarding a potential stewardship agreement which would amongst other factors, address the proposed wind farm.
Dr Dave Balfour ECPTA	email 2013.11.20	The site is in the Groot Winterberg Mountains and lies between 3 nature reserves (Groendal, Stinkhoutberg & Mierhoopplaat) and the Baviaanskloof section of the Cape Floristic Region World Heritage Site (CFR WHS). Both Stinkhoutberg and Groendal Wilderness are included in a proposed extension to the CFR WHS. The site may also fall within the current 10 km buffer of the Baviaanskloof WHS.	[SRK] The proximity of the proposed development to these conservation areas is recorded in Figure 3-7 and Figure 3-11. The ecological significance of the proposed development in relation to these conservation areas will be assessed in the ecological specialist study, the terms of reference for which are proposed in Section 6.2.2.

Raised by:	Date	Issue, concern, comment	Response
Dr Dave Balfour ECPTA	email 2013.11.20	The site is situated in a priority area in the Eastern Cape Protected Area Expansion Strategy (ECPAES), and a portion of the site falls within a Critical Biodiversity Area (CBA) 1 as identified by the Eastern Cape Biodiversity Conservation Plan. Most of the remainder is in a CBA 2. Portions of the site are also identified in the Baviaanskloof Conservation Plan as CBA 1 and 2. The DSR does consider the outcomes of planning products such as SKEP and NPAES but these are outdated and the EIA should rather refer to more recent conservation strategies such as ECPAES and the fine-scale conservation plan for the Baviaanskloof.	[SRK] Noted. The terms of reference for the ecological specialist study have been amended to include consideration of the ECPAES and the fine-scale conservation plan for the Baviaanskloof.
D Govender (Regional Manager DEDEAT; Cacadu)	email 2013/12/04	Climate, Geology, topography and current land-use: The relevance of these parameters should be discussed in the EIR.	[CES] Noted
		Pg. 37 (Amphibians) Keeping to the relevance of information for the project is important (malaria and bilharzia in this area?)	[CES] The reference to disease vectors for malaria and bilharzia is a general statement that pertains to the importance of amphibians. This statement has been excised to avoid confusion since as noted is not relevant to the project area itself.
		Pg. 71; Table 7-1. 1 st Row: Twenty four properties covering 12 000ha is a large area. The ecological impact is very much understated in this report.	[SRK] DEDEAT appear to have misunderstood this table which is aimed at the relative merits of different energy generation technologies. The ecological impact of the proposed footprint will be assessed and reported on in the impact assessment phase of the project.
		Pg. 41 (Table 4-5) Third Row: National Wetlands Inventory: Routes to cross drainage lines must be chosen very carefully with measures to mitigate the impacts.	[CES] These will be considered in the final placement of the turbines and a CEMPr will be developed to provide mitigation measures.
		Pg. 53 Figure 4-9. Figure 4-9 needs to be brought into the context of the project. What is its relevance?	[CES] The figure shows the Baviaanskloof Planning areas in relation to the wind turbines.
		(ix): Vegetation and flora: This is a pretty meaningless description. Most IAPs will most probably not understand what is described here.	[CES] Noted, CES (now SRK) will make every effort to ensure that the EIR presents the ecological specialist findings in an appropriate manner and more simplified terminology.
		(x) Fauna: Does the chameleon have any legal status in South Africa law?	[CES] This will be clarified by the Ecological specialist in the EIR. Comment on the status of chameleons in the study area, extracted from the baseline study that will be distributed with the Draft Environmental Impact Report is included in Section 3.6.1.
		(x) Fauna: All species are of conservation concern. This sentence needs to be reworded.	[CES] CES is unsure which sentence is being referred to
		(x) Fauna: Third Paragraph Last sentence: What are these three species?	[CES] This will be clarified by the Ecological specialist in the EIR.
(x) & (pg. 40): Fauna: What relevance	[CES] CES is unsure which sentence is being		

Raised by:	Date	Issue, concern, comment	Response
		has this paragraph on the project?	referred to
		Pg. 32-34: STEP and SKEP: What is the relevance of describing three vegetation types? Unless there is a good reasons. Mucina & Rutherford should be adequate.	[CES] Noted. The scoping phase identifies all relevant planning tools and spatial mapping relevant to the project area. These tools present supplementary information that Mucina & Rutherford does not include.
D Govender (Regional Manager DEDEAT; Cacadu)	email 2013/12/04	Pg. 30 Kouga Grassy Sandstone Fynbos: It will important to discuss that fire is a dominant factor in ecological processes in this vegetation type.	[CES] This will be addressed in the ecological impact assessment during the EIR phase.
		Pg. 42 (Table 4-5) Third Row: STEP: Right Hand Cell: Third Paragraph Section 4.4 describes the vegetation of the study area.	[CES] Noted
		Pg. 46- 48: STEP project What is the relevance of STEP in the project?	[CES] The STEP project in relation to the project area is presented on two maps, Figure 3-4 and Figure 3-8 which illustrates the project area includes areas of threatened ecosystem and critically endangered, endangered and vulnerable classified areas. However the land portions proposed for construction fall outside the threatened ecosystem delineations.
		Pg. 50-51: 4.7.4 ECBCP What is the relevance of ECBCP in this project?	[CES] The ECBCP is the main Provincially developed conservation planning tool available. It is uncertain why the DEDEAT would deem it to be irrelevant if that is the statement they are making. As presented on the map Figure 3-10 and explained in Section 3.7.4 on page 70, according to ECBCP the proposed project falls within CBA 1 and CBA 2 which are described in Table 3-7.
		Pg. 51: 4.7.4 ECBCP; Last Paragraph. What is the relationship between STEP, Mucina & Rutherford and ECBCP?	[CES] STEP, Mucina & Rutherford and ECBCP are the available planning tools and spatial mapping relevant to the project area, however there is no direct relationship between these as they have spate objectives and aims
		Pg. 52 Figure 4-8 A third of the proposed wind turbines are in CBA 1. Figure 4-9 needs to be brought into the context of the project. What is its relevance?	[CES] Agreed and was stated on page 51 ten turbines are located within the CBA 1 area and 16 occur in a CBA 2 area. Section 3.7.5 describes the relevance of Figure 4-9 (now Figure 3-11) and the figure illustrates the area suggested for the Baviaanskloof Mega Reserve.
		Pg. 90 There is a new edition (2007) of Skead that should be consulted for information on mammals.	[CES] Noted and updated
		Pg. 29 & 30 Mucina & Rutherford? The first three paragraphs can be omitted. Just refer to the reference Mucina & Rutherford (2006). It would be appropriate to discuss that this is Regional scale map (1:250 000) and thus gives a general idea of the vegetation types.	[CES] Noted. Reference made to the regional scale mapping of Mucina and Rutherford.
		Pg. 30 Albany Alluvial Vegetation: (last line): Delete the phrase: "However as with the Sundays River Thicket"	[CES] Deleted

Raised by:	Date	Issue, concern, comment	Response
		Pg. 34 (Last paragraph) Is this the South African or IUCN Red Data list? Which version of the Red Data list was consulted?	[CES] In the paragraph it is the IUCN Red Data list. As referenced the 2012 version
		Pg. 34 (Last paragraph) Fifth Line: The term "Conservation Body" is inappropriate. The first column is Table 4 actually refers to legislation (NEMBA, CITES, PNCO, and Protected Trees). Only the IUCN is conservation body: an international NGO. A brief explanation of this legislation and the IUCN in the context of SSC would be appropriate as the terminology would be confusing to IAPs.	[CES] Noted the table (now Table 3-1) has been corrected to reflect both legislation and conservation body.
D Govender (Regional Manager DEDEAT; Cacadu)	email 2013/12/04	Pg. 36 (Table 4-2) The IUCN column should be deleted as third column describes the IUCN Red Data Status of the species. Is this SA Red Data List? Critically Rare should read Critically Endangered if there is no TOPs (NEMBA) or Protected Trees. Why include these columns in the table?	[CES] Noted, columns are included to illustrate that these were assessed and none were found to occur within the study site.
		Pg. 38: 4.6.2 (Table 4-3) Is this Red Data List the South African or IUCN version?	[CES] Both are referred to here and will be clarified further in the EIA
		Pg. 40: 4.6.3 (Mammals) Explain that these are Threatened or protected Species promulgated in terms of regulations published under NEMBA.	[CES] Noted, this will be explained further in the EIR
		Pg. 40 Table 4-4 Are these from the South African or IUCN Red Data Species List? PNCO and SITES column should be added to Table 4-4.	[CES] Both are referred to here and will be clarified further in the EIA as well as the inclusion of the columns for the PNCO and CITES.
		Pg. 77; 8.2.2 2 nd Par – Last Line: Plants are also afforded protection by the nature and Environmental Conservation Ordinance (No 10 of 1974) and the Forest Act.	[CES] Noted and included.
		(iii); Pg. 7; Pg. 41- 42 3 rd Par; 2 nd bullet: The department does not support the construction of a wind farm so close to the Groendal Wilderness Area, in an area that is earmarked as part of the expansion strategy of the ECPTA. A CBA 1 and in the catchment of the Groendal Dam.	[CES] Noted. [SRK] DEDEAT's position is noted in this FSR. SRK has been informed that the landowner and ECPTA have, subsequent to this correspondence, been in discussion regarding a potential stewardship agreement which would amongst other factors, address the proposed wind farm.
		Pg. 67; 6.2 Issues Arising from IAPs 3 rd Row: The Department is concerned what impact a development of this size will have on the catchment of the Groendal dam?	[CES] It is unclear what the concerns are here, e.g. is it a concern regarding the catchment hydrological function? Water use licensing requirements will be applied for by the applicant during the EIR phase.
		(x) Fauna 7 th Par: What are these three species? Refer to Table 4.4. on page 40?	[CES] Correct. Species have been included in paragraph 7.

Raised by:	Date	Issue, concern, comment	Response
		(iv) 2 nd Par: There are future plans to use this area to connect the Baviaanskloof to Groendal. A wind farm would be incomparable to this. Who are the "key stakeholders" that were identified?	[CES] Please refer to the IAP list in Appendix C8 for the list of stakeholders contacted.
D Govender (Regional Manager DEDEAT; Cacadu)	email 2013/12/04	(x) & (pg. 40): Pg. 68 Mammals: One of the reasons to expand the ECPTA's protected areas would be to provide more habitats to Leopards. The establishment of a wind farm would conflict with this objective.	[CES] The farm could have dual land use options. Conservation and the wind farm. The habitat may be disturbed during construction but during operation there will be minimal activity on site. [SRK] Noted. It is proposed to rate the significance of habitat fragmentation of leopard habitat based on available literature and stewardship arrangements (if any) between the landowner and ECPTA.
		Pg. 51; 4.7.5 Baviaanskloof Reserve Cluster; Second Paragraph The Kwa-Zunga Section is part of Groendal Wilderness Area and Stinkhoutberg Nature reserve is an independent nature reserve.	[CES] Noted and corrected
		Pg. 51; 4.7.5 Baviaanskloof Reserve Cluster; Third Paragraph; Second Line Groendal Wilderness Area protects the catchments of the Swartkops and Kwazunga Rivers.	[CES] Noted and corrected
Dr Dave Balfour ECPTA	email 2013.11.20	The proposed area is a mountain catchment and includes the source of the Kwazunga River which feeds Groendal Dam, which is the main water reservoir for Uitenhage domestic water supply.	[SRK] Noted. The Department of Water & Sanitation is included in the IAP database and have been notified of the proposed development. So far no concerns have been raised by the custodians of the water resource. Measures to protect water quality are important and it is proposed that these be included in the EMP (covering all phases of the proposed development).
Thabo Nokoyo Department of Agriculture, Forestry & Fisheries	email 2013.06.11	As a department we would like to warn that the area of Uitenhage although is mostly covered by thicket with some species that are not covered by our Act i.e. National Forest Act No 84 of 1998, there is usually a large presence of milkwoods and cheesewoods which are protected trees. A license issued under that Act will have to be sought before they are destroyed or disturbed in any manner. This is because wind farms do entail such features as access roads and solid bases for the turbines from 20m x 20m and more and those have huge negative impacts on vegetation especially sensitive ecosystems as thicket and forests. Proper search should be done to establish the presence of the species mentioned above.	[SRK] Comment noted. The potential for protected trees to be impacted on by the proposed development has not been identified during the course of the scoping study. The ecological specialist will be requested to specifically identify protected trees (or forested areas, as the case may be) that may be impacted on during the impact assessment phase of the project. If such areas are identified, alternatives to avoid the impact will be investigated and reported.
Marthinus Briers Neighbour	email 2013.12.02	We also note that the proposed wind farm lies between the eastern and western portions of the Groendal Nature Reserve. The compatibility of these two land uses should be carefully considered.	[SRK] Noted. The ecological significance of the proposed development in relation to these conservation areas will be assessed in the ecological specialist study, the terms of reference for which are proposed in Section 6.2.2.

Raised by:	Date	Issue, concern, comment	Response
		<p>The proposed development is a significant distance from the existing power lines. The impact of the additional power lines needs to be fully investigated, including (a) the impact of the clearance of vegetation under the additional power lines.</p>	<p>[SRK] The terrestrial ecological specialist study will include an assessment on the ecological significance in the loss of vegetation along each of the power line alignment alternatives.</p>
		<p>The following should be investigated during the environmental assessment. Biodiversity. Investigate the impact of the construction and operational phase on the biodiversity of the Greater Baviaanskloof Area.</p> <p>Investigate the long term consequences for biodiversity conservation.</p> <p>A fine scale botanical study needs to be undertaken.</p>	<p>[SRK] Noted. The ecological significance of the proposed development in relation to the greater Baviaanskloof Area will be addressed in the ecological specialist study, including the long term consequences for biodiversity conservation, the terms of reference for which are proposed in Section 6.2.2.</p>
Marthinus Briers Neighbour	email 2013.12.02	<p>Effect the workforce will have on the protection of Cycads in the area. We have hundreds of natural Cape Cycads alone on our property which borders the study area. It will be impossible to control movement of people in the area. These valuable plants could be removed and sold.</p>	<p>[SRK] Management measures aimed at reducing the potential for poaching of plants and animals during the construction phase are routinely included in the Construction Environmental Management Programme (CEMP). It is proposed that such measures be specified in the CEMP for this project. The Draft CEMP will be distributed with the Draft Environmental Impact Report (EIR), and included with the Final EIR to be submitted to DEA for a decision.</p> <p>IAPs will have an opportunity to review and comment on the Draft CEMP and the specific management measures detailed therein.</p> <p>In the event that DEA authorise the development, then SRK would expect that such authorisation would make compliance with the specifications in the Draft CEMP to be a condition of the authorisation, and as such those specifications become legally binding.</p>
Elands River Conservancy (ERC)	email 2013/11/25	<p>Included in Annexure D is a list of trees positively identified in the Elands River Valley. A list of special trees, rare and endemic to a corner of the Eastern Cape is also attached. These lists were compiled by Jenny Eldridge, an arborist and member of the Elands River Conservancy.</p> <p>The cycad species <i>Encephalartos longifolius</i>, which is found at several locations in the valley, is a protected species and a small clump of <i>Sterculia alexandrii</i> has been found on the slopes of Moordenaarskop in the Elands River Valley.</p> <p>The Elands River Valley boasts many species of Aloes as well as Proteas, Leucadendrons, Leucospermums, Ericas and other Fynbos species.</p> <p>The Botanical Society of Port Elizabeth, after visiting only the farm Hillingdon, advised that a specialist should draw up a comprehensive list of the fynbos in the Elands River Valley in order to</p>	<p>[CES] The list provided will be supplied to the ecological specialist and the ecological impact assessment to be conducted during the EIR phase will include the assessment on Aloes and Cycad populations on the site. The assessment will present a comprehensive list of plant species found on site and will identify species of special concern.</p>

Raised by:	Date	Issue, concern, comment	Response
		<p>identify all the species</p> <p>Annexure C contains a list of mammals found in our area, but this list shows only a fraction of the wildlife in the area since reptiles and invertebrates are not included.</p> <p>*Of the less common mammals that roam the Elands River Valley are: Klip springer, Blue Duiker, Grysbok, Cape Mountain Leopard, Mountain Reedbuck, Aardvark, Bushbuck, Honey Badger, Snake mongoose, Aardwolf and Elephant Shrew.</p> <p>* The Mountain Reedbuck's habitat is restricted to bushy, mountainous areas, thus having an ideal habitat in the Elands River Valley and neighbouring Baviaanskloof Wilderness Area and Groendal Nature Reserve. The Reedbuck is a protected species.</p> <p>* The Klipspringer, Grysbok and Bushbuck ewe are also protected.</p> <p>* The Blue Duiker is an endangered species. It is the smallest of all buck species in South Africa and is also endemic. It is extremely sensitive to any disturbance of its habitat.</p> <p>* For the first time in many years, the Elands River Valley has Kudus and we attribute this to the mutual effort of our residents to conserve and hunt responsibly.</p> <p>* The Cape Mountain Leopard is a vulnerable species, and the Elands River Valley has a Leopard committee working with Nature Conservation officials to look at ways of protecting farm stock as well as the leopard.</p> <p>* Due to the fact that the Valley has an erratic pattern of all-year rainfall, many interesting invertebrates are found here. They form an integral part of the biotic co-habitation which is of the utmost importance to our ecosystem. Some of the protected species encountered in the valley are <i>Opisthacanthus spp</i> (Creeping Scorpions) and <i>Harpactira spp</i> (Common Baboon Spider). Researchers are currently emphasizing the importance of the Cape Mountain Cockroach in the eco-system. This insect is found in the mountains of the Elands River Valley.</p> <p>* A diversity of reptiles are seen in the area, including tree snakes and different kinds of adders. Although ordinary, they play a vital role in rodent control in the ecosystem.</p> <p>* Of great importance is the Smith's Dwarf Chameleon that is a protected species. This species is currently under a lot of pressure.</p>	<p>[CES] The report is scoping report and a detail list of species found in the area will be provided in the specialist studies of the EIR.</p>

Raised by:	Date	Issue, concern, comment	Response
Henk Knoetze Landowner	fax 2013/08/13	Animals such as Rhebok, Rock Jumper (<i>Oreotragus oreotragus</i>), Duiker, Bush Buck, Steinbuck and the occasional kudu will no longer be viewed and appreciated and will most definitely disappear from the area.	[SRK] The ecological specialist will be asked to comment on the likely impact of the proposed development on large terrestrial mammals (see Section 6.2.2). No specific specialist studies regarding habitat fragmentation of leopard is proposed in the EIA phase. Instead, it is proposed to rate the significance of habitat fragmentation of leopard habitat based on available literature and stewardship arrangements (if any) between the landowner and ECPTA.
Jeannine McManus Carnegie_Wits Fellow Phd Student	email 2013/05/19	I am concluding research on leopard habitat, geneticism and habitat connectivity which focuses on leopard populations from Addo to Ceres. The development occurs within a corridor connecting leopard populations. Further fragmentation may make these animals genetically isolated over one or two generations.	[SRK] The ecological specialist will be asked to comment on the likely impact of the proposed development on large terrestrial mammals (see Section 6.2.2). No specific specialist studies regarding habitat fragmentation of leopard is proposed in the EIA phase. Instead, it is proposed to rate the significance of habitat fragmentation of leopard habitat based on available literature and stewardship arrangements (if any) between the landowner and ECPTA.
Henk Knoetze Landowner	fax 2013/08/13	Small animals such as 'dassies', rabbits / hares and jackals will vanish	[SRK] The ecological specialist will be asked to comment on the likely impact of the proposed development on large terrestrial mammals (see Section 6.2.2).
Dr Dave Balfour ECPTA	email 2013.11.20	It is suggested that in addition to fauna and flora, the ecological impact assessment should also look at the broader catchment implications of the proposed development.	[SRK] As is the case with all specialist studies, specialists are required to define an appropriate zone of influence of any potential impact and record this in their assessment. The ecological specialist will be required to consider the broader catchment when defining the zone of influence (Section 6.2.2).
Dr Dave Balfour ECPTA	email 2013.11.20	The DSR notes that no frog species of conservation concern occur in the project area. The proposed site is a possible locality of Hewitt's ghost frog which is classified by the IUCN as Endangered and which has a very limited distribution. The proposed area has not been surveyed for ghost frogs but there is a real possibility that they could occur there.	[SRK] Noted. The terms of reference for the ecological specialist have been amended to include an assessment of the ghost frog (Section 6.2.2). An extract from the baseline study that will be distributed with the Draft Environmental Impact Report is included in Section 3.6.1.
Dr Dave Balfour ECPTA	email 2013.11.20	The DSR notes the possible presence of the Elandsberg dwarf chameleon (listed as critically endangered). Note too the presence of Smith's dwarf chameleon (listed as endangered), which inhabits the grassy fynbos areas – exactly where the development is proposed.	[SRK] Noted. The terms of reference for the ecological specialist have been amended to include an assessment of the Elandsberg dwarf chameleon and Smith's dwarf chameleon (Section 6.2.2). An extract from the baseline study that will be distributed with the Draft Environmental Impact Report is included in Section 3.6.1.
Dr Dave Balfour ECPTA	email 2013.11.20	The high numbers of threatened (critically endangered, endangered and vulnerable) species on this site is something which should be highlighted as a fatal flaw.	[SRK] Noted. It seems to have been CES's view, which SRK is inclined to agree with, that the mere presence of threatened species does not in itself present a fatal flaw to the project, and that to offer an opinion regarding this requires further assessment. As such the ecological specialist study is required to comment on the potential impacts on these species (Section 6.2.2).

Raised by:	Date	Issue, concern, comment	Response
Visual			
D Govender (Regional Manager DEDEAT; Cacadu)	email 2013/12/04	Pg. 66; 6.2 Issues Arising from IAPs 4 th Row: It will be virtually impossible to mitigate the visual impacts of wind farm in this area.	[CES] Noted. A visual Impact assessment will be conducted during the EIA phase of the project
		Pg. 67; 6.2 Issues Arising from IAPs 22 nd Row: This Department agrees with ECPTA's opinion on the potential of the proposed project. "Impacts on views and sense of place (especially considering that Groendal is a declared wilderness area). From the top of the plateaus at Groendal (which form part of the network of hiking trails) there is a completely uninterrupted view all the way to the Baviaanskloof. The presence of 120 m wind turbines right on the boundary (the closest one is less than 100 m from the boundary) of Groendal could have a severe impact on views and sense of place."	[SRK] The terms of reference for the visual impact assessment (Section 6.2.1) include an assessment of the impact on sense of place, and from a selection of vantage points.
Marthinus Briers Neighbour	email 25.11.2013	4. The proposed development is a significant distance from the existing power lines. The impact of the additional power lines needs to be fully investigated, including: a. The visual impact b. The impact on the sense of place	[SRK] The terms of reference for the visual impact assessment (Section 6.2.1) specifically include an assessment of the power line alignment and an assessment of the impact on sense of place, and from a selection of vantage points.
		A full visual assessment needs to be undertaken from all areas where the turbines and the additional power lines will be visible.	[CES] Noted. A visual Impact assessment will be conducted during the EIA phase of the project
Dr Dave Balfour ECPTA	email 2013.11.20	From the top of the plateau at Groendal Wilderness Area there is a completely uninterrupted view all the way to the Baviaanskloof (Cockscomb peak. The presence of up to 35 wind turbines of more than 120 m in height right on the boundary of Groendal (the closest one is less than 100m from the boundary) will have a very high impact on landscape aesthetics, views and sense of place of these protected areas and is impossible to mitigate.	[SRK] The terms of reference for the visual impact assessment (Section 6.2.1) include an assessment of the impact on sense of place, and from a selection of vantage points.
Rob Markham Eden to Addo Corridor Initiative	Undated	Visual pollution especially for hikers, nature lovers, birders etc.	[SRK] The terms of reference for the visual impact assessment (Section 6.2.1) include an assessment of the impact on sense of place, and from a selection of vantage points.
Noise			
D Govender (Regional Manager DEDEAT; Cacadu)	email 2013/12/04	Pg. 67; 6.2 Issues Arising from IAPs 2 nd Column; 3 rd Cell: The sentence "Noise impact on document? Is incomplete.	[CES] Should read: "What are the: Noise impacts on domestic livestock"

Raised by:	Date	Issue, concern, comment	Response
Henk Knoetze Landowner	fax 2013/08/13	The noise that will be caused by these towers will be unbearable not only for humans, but wild life.	[SRK] A noise impact assessment is recommended in the Plan of Study for EIA (See Section 6.2.3). As is typically the case, the noise impact assessment will be limited to the potential impact on people. Additionally, consideration will be given in the Avi-Fuana and ecological specialist studies to the impact of the facility on sensitive species.
Agriculture			
D Govender (Regional Manager DEDEAT; Cacadu)	email 2013/12/04	Pg. 70; 7.1.1 4 th Row: This is a weak argument. A convincing motivation is required why a wind farm is a better land-use option (ecologically and economically) than agriculture	[SRK] The section of the DSR referred to in this comment discusses alternative technology options. The reader is directed to Section 7.1.3 of that same report (repeated in this report under the discussion of land use alternatives, Section 2.4.1, page 41) commented on compatibility of agriculture with wind farm development.
Alternatives			
D Govender (Regional Manager DEDEAT; Cacadu)	email 2013/12/04	Pg. 71; Table 7-1. 4 th Row: An advantage of coal fired plant is that it will produce large quantity of electricity.	[SRK] Noted
		Pg. 71; Table 7-1. 5 th Row: Why is the production of electricity from biomass expensive?	[CES] The production of electricity from biomass is considered expensive because it requires large tracts of land, time and agricultural resources to produce enough plant material that would not contribute to food security efforts.
		Pg. 72; 7.1.2 Different location. 1 st Bullet: Wind Speed: The fact that the main determinant for selecting this location for a wind farm is wind supports the motivation for more information as requested in the comment on page 1.	[SRK] A summary of wind monitoring data from the 60 m mast on the site has been included in this FSR (Figure 3-2 on page 46). An underlying assumption in the EIA process is that the financing of the proposed development would only be forthcoming if the site has a proven wind resource.
		Pg. 72. There is no discussion on proposed alternative routes for the power line to connect the wind farm to a substation as proposed in Figure 7-2.	[SRK] Note that this discussion has been moved to Section 2.4.2 in the Final Scoping Report.
		Pg. 72; 7.1.2 Different location 2 nd Bullet; Proximity to grid connection: According to figure 7-2 the Skilpad substation is more than 20 km from the wind farm. This is long distance for a power line over visual sensitive environment. What are the criteria when deciding the proximity of substations for power lines in South Africa?	[SRK] Presumably this comment refers to the maximum distance from a proposed wind farm site to an existing substation/power line to make the project economically/technically viable. An underlying assumption is that the power line was taken into consideration in determining the technical and financial feasibility of this project. The environmental impacts associated with the power line form part of the scope of this assessment.
D Govender (Regional Manager DEDEAT; Cacadu)	email 2013/12/04	Pg. 72; 7.1.2 Different location 3 rd bullet: Available land: It should be appropriate, suitable land. A wind farm should not conflict with existing and future land uses. This includes conservation.	[CES] Noted. It should also be noted that the proposed wind energy facility would not conflict with the existing and current land use. It is possible for the future land use of the proposed project site to be that of a wind energy facility. As stated below and in the report the proposed project site could be utilised for both efforts of conservation and a wind energy facility.

Raised by:	Date	Issue, concern, comment	Response
			[SRK] The terms of reference for the ecological specialist (Section 6.2.2) and the visual specialist (Section 6.2.1) proposed in the plan of study include items to assess impacts associated with the development of this site in relation to the current and proposed protected areas.
		Pg. 72 Table 7-3. Under Eco-tourism Yes and No were chosen. No would be the appropriate choice especially from a visual perspective.	[CES] Noted. The table states that the choice is 'perception' dependant. CES contends that eco-tourism and a wind farm development can co-exist, but this is dependent on viewer perceptions around wind farms in general. Literature on twenty-years' experience of operational wind farms in Europe. Denmark, UK and Spain present some case studies with regards to tourism impacts. In the UK, where there are more than 120 operational wind farms and where the sites often correlates with popular tourist areas such as Cornwall, Wales and Scotland, the studies show there has been no decrease in the tourism trend since the advent of wind farms. In Australia and America, which are more alike to South Africa than Europe, reports reviewing a number of studies evaluating the impact of wind farms on tourism do not show any negative influence of wind farm on tourism and in some cases show increase of interest in the area. It must be noted that a Visual Impact Assessment (VIA) study will be conducted by an independent specialist.
		Pg. 72 Table 7-3 Explain why a wind farm should not occur in conjunction with a settlement when a number of authorised wind farms are close to settlements.	[CES] Previous specialist studies have placed noise restrictions so that turbines are placed 500 m or outside the approximate 45 dB noise buffer from Noise Sensitive Areas (NRAs). Should the ambient noise of a settlement already exceed this buffer then the wind farm could occur in conjunction with a settlement.
		Pg. 72 Table 7-3. Yes and No were chosen. Provide examples of light industry.	[CES] Furniture manufacturing, brick making, agro industry related manufacturing or beneficiation.
		Pg. 72 Table 7-3. These should be raw mineral rights.	[CES] Noted
EIA Process and Reporting			
D Govender (Regional Manager DEDEAT; Cacadu)	2013/12/04	Pg. 85; 8.3.1. It is critical that EIR is not "excessively long and cumbersome" It should only include relevant information necessary to ascertain the potential environmental impacts of the proposed project on the environment.	[SRK] Noted. SRK will endeavour to provide only the essential information for in the EIR to meet the requirements of the various stakeholders. The EIR would then be supplemented by appendices with the supporting detailed information.
Marthinus Briers Neighbour	email 25.11.2013	5. The cumulative impact of all the above factors needs to be assessed.	[SRK] Cumulative impacts will be considered and assessed by all specialists in the EIR phase
		A strategic environmental impact assessment should first be undertaken to identify suitable sites for wind farms in the area. This can be undertaken as part of a review of the SDF.	[CES] Noted but this has to be government led and driven, as such there is nothing available at this time although as noted above there is a process under commencement.

Raised by:	Date	Issue, concern, comment	Response
D Govender (Regional Manager DEDEAT; Cacadu)	email 2013/12/04	(vi); Pg. 25: Other relevant legislation 2 nd Par: The National Veld and Forest Fire Act (Act 101 of 1998) would mostly be applicable in fire-type vegetation, namely Fynbos.	[CES] Noted this will be considered.
		Pg. 25; 3.2.12 The third and fifth bullets are duplicated.	[CES] While the two points mention are found in the ECA they mention two different provisions of the Act.
		Pg. 25; 3.2.12 Other relevant legislation: 3 rd bullet: How much of the ECA still applies?	[CES] Principles
		Pg. 26; 3.2.12 Other relevant legislation: Does the Physical Planning Act still apply?	[CES] Yes – rezoning and land use applications have to be entered into by the project developer.
		Pg. 26; 3.2.12 Other relevant legislation: Does the Tourism Act still apply?	[CES] Yes
		Pg. 34: IUCN is not in the abbreviations.	[CES] Noted. Included in the final scoping report.
		Pg. 103; Appendix C-1 There is no indication in Figure 1 (or verbal description in the text of the BID) that the proposed wind farm is close to a Wilderness Area, other Protected Areas, in areas being considered for expansion of these Protected Areas and in the catchment of the Groendal Dam. This is important information that should have been provided to IAPs.	[CES] The information provided was meant to give IAPs brief information on the project, with more information pertinent to these considerations being provided in the subsequent reports.
		Pg. 56; 5.1.2: Written Notices First Paragraph: Due to IAPs concerns regarding the proposed establishment of other wind farms in similar habitats, this Department is of the opinion that you should contact more than just “the owners and/or occupants of land immediately surrounding and within 100m of the proposed project area” It would also be appropriate to contact AgriEastCape and farmers Union in the area.	[CES] Thanks for pointing this we will try and contact AgriSA. The farmers union in the area was contacted and are well aware of the project, the majority of neighbouring land owners were contacted with help from the farmers union. Though as per legislation an advert was placed in the newspapers to advertise for the registration to IAPs and those who registered are on the list.
D Govender (Regional Manager DEDEAT; Cacadu)	email 2013/12/04	Pg. 76 8.1 EIA Phase 2 nd Bullet: A copy of the report should be made available at a venue in Port Elizabeth due to the proposed locality of the project in the proximity of the Wilderness Area and other Protected Areas.	[SRK] This Final Scoping Report, and future reports, will be placed in the Uitenhage and Kirkwood libraries, these being the closest major libraries to the site.
		(ix); Pg. 34; 4.5 Floristics Lubke et al 1998 is not in the reference (Page 90)	[CES] Noted these have been added to the reference list of the final scoping report.
		Pg. 40; 4.6.3 2 nd Par; Last line: Stuart and Stuart, 2007 are not in the references (Page 90).	
		Pg. 89 A number of references were excluded from the list. Refer to the comments that discuss specific references that excluded.	
		(xvi) List of abbreviations: CDE (refer to the seventh reference on page 90 of the Reference list).	

Raised by:	Date	Issue, concern, comment	Response
		Pg. 24; 3.2.9 Last Par; 1 st Line: Dewey and Le Bouef, 2009 are not in the list of References.	
		Pg. 29; 4.2.Climate: Buckle, 1998 is not in the list of Reference.	
		Pg. 34 (Last paragraph) SIBIS, 2013 is not in the Reference list. Where is Appendix A?	
		Pg. 37 (Amphibians) Phillips, 1994 and Paynton and Braadley, 1991) are not in the Reference List (Pg. 90) There should be more current references than these.	
		Pg. 38: 4.6.2 (paragraph below Table 4-3) Is 1999 the correct date? The date of Birdlife Africa in reference list is 2012.	
		Pg. 50 ECBCP: First Paragraph Last line Berliner <i>et al</i> , 2007 is not in the list of references.	
		Pg. 54; 4.8: Socio-economic profile Stats SA 2011 is not in the reference.	
		Pg. 51; 4.7.5 Baviaanskloof Reserve Cluster; First Paragraph Fourth Line Boshoff, 2008 is not in the reference list.	
		Pg. 57; 5.1.4 Is the Site Notice 3 at the junction of the R75 and the access road to the site? It would be appropriate to indicate the GPS reading of each site notice at each photograph.	[CES] GPS co-ordinates have been inserted below each photo.
		Pg. 43; 4.7.2 Protected Areas Expansion Strategy; Last Paragraph This department should be included in these discussions.	[CES] Noted. Should another focus group meeting be held the department will be invited. All departments were notified of the opportunity to comment on the DSR.
		Pg. 44 Figure 4-5 The information provided on the map is difficult to read. Is the eastern boundary of Groendal correct?	[CES] According to the spatial mapping data sourced from the SANBI website used in the mapping.
		Pg. 51; 4.7.5 Baviaanskloof Reserve Cluster; First Paragraph: Fifth Line Groendal is a wilderness area.	[CES] Noted.
		<p>Pg. 56 -57; 5.1.2: Written Notices</p> <p>Were letters sent to the:</p> <ul style="list-style-type: none"> • Department of Mineral Resources, • Provincial Department of Works and Roads, • Blue Crane Municipality Nelson Mandela Bay Municipality, Cacadu District Municipality, • Birdlife Eastern Cape and • other farmers Associations? <p>Were letters sent to</p> <ul style="list-style-type: none"> • FROG (Friends of Groendal) and • FOBW (Friends of the Baviaanskloof Wilderness Area)? 	[SRK] A list of registered IAPs is included in Appendix E.

Raised by:	Date	Issue, concern, comment	Response
		<p>Fourth & Sixth Bullet: This Department is the Department of Economic Development, Environmental Affairs & Tourism. Its area of jurisdiction coincides with that of Cacadu District Municipality.</p> <p>Is there such an institution as the Department of Environmental Health? Uitenhage Transitional Council was incorporated into NMBM.</p> <p>Who at the Groendal Wilderness Area was contacted?</p> <p>Who at ECPTA was contacted?</p> <p>Which local tourism offices were contacted?</p>	<p>[SRK] Corrections noted. The IAP database has been revised to address these items and is included in Appendix C.</p>
		<p>Pg. 119 & 120, Appendix C-7, IAP register:</p> <p>Was the information sent to Groendal Wilderness Area? It is an authority and a neighbour.</p> <p>RSA Government (Mierhoop Plaas) is part of the Groendal Wilderness Area. This is the Department of Economic Development, Environmental Affairs and Tourism</p> <p>DMR has been omitted from authorities, Wayne Erlank, Sello Mokhanya, Brian Reeves, Patrick Zake, Sizewe Mkhulise, Asanda Sontsele, Peter Bradshaw, John Adendoff and Lennox Zote are associated with authorities.</p> <p>Tiffany Thwaits is post-graduate students at NMMU.</p> <p>Prof Graham Kelly is employed by NMMU. He is no longer a chairperson of the ECPTA.</p> <p>Dr Paul Martin is a private environmental consultant.</p> <p>In general this register needs to be sorted out to ensure accuracy.</p>	<p>[SRK] Corrections noted. The IAP database has been revised to address these items and is included in Appendix C.</p>
D Govender (Regional Manager DEDEAT; Cacadu)	email 2013/12/04	<p>Pg. 95 Appendix B There is no copy of the Application Form submitted to DEA. All the requirements from DEA (their letter dated 5th February 2013) must be met.</p>	<p>[CES] Noted. The application form is not required to be part of the Scoping Report by the relevant regulations; the DEA acceptance of the application form is included. Should DEDEAT wish to see a copy please contact the Department of Environmental Affairs directly.</p>
		<p>Pg. 108 Appendix C-3 Letter of notification to occupiers of land: More information should have been provided. Refer to previous comment.</p>	<p>[CES] Background information documents were sent with these letters.</p>

Raised by:	Date	Issue, concern, comment	Response
		Pg. 110 -111 Appendix C-4 Proof of notification to organs of state: This department email address is not here. The South African Wilderness Foundation, Birdlife South Africa and the Landmark Foundation are not organs of state. Were letters of notification sent to all institutions mentioned in Section 5.1.2 (Pg. 56)? If they were not emailed how were they sent?	[CES] Yes letters were sent to all the institutions listed in the report. Appendix C-4 shows an email that was sent to the different institutions.
		Pg.112: Appendix C-4: Are these people/ institutions all neighbours?	[CES] Some are government departments and some are neighbouring land owners.
		Pg. 51; 4.7.5 Baviaanskloof Reserve Cluster This department should be included in these discussions.	[CES] Noted. Should another focus group meeting be held the department will be invited. All departments were notified of the opportunity to comment on the DSR.
		Pg. 113 & 114, Appendix C-5, The advertisement in the Burger and the Herald are illegible.	[CES] The text for both adverts has been inserted below the advert tear sheets
		Pg. 116, Appendix C-6 Map showing site notices: Refer to comment on other maps: The site notice points should be numbered to correspond with the photographs of each site. GPS readings of the points should be given on the map and at each photograph.	[CES] Noted included in the final Scoping Report.
		Pg. 27; 3.2.12 Other relevant legislation: The Mineral and Petroleum Resources Development Act (Act 28 of 2002) will apply.	[CES] Noted.
		(ix): Vegetation and flora: There is no reference to STEP and SKEP. Is SKEP actually relevant to this area?	[CES] There is a reference to SKEP and STEP on pg ix. Yes it is relevant and discussed in detail on pg 34 of the DSR
		Pg. 29 Geology References to substantiate this description would be appropriate.	[CES] Noted included in the final Scoping Report.
		Pg. 29; 4.2.Climate: Which scholarly article? Include it in the References and quote in the text.	[CES] Noted included in the final Scoping Report.
Dr Dave Balfour ECPTA	email 2013.11.20	ECPTA strongly encourages that the EAP facilitate an authorities meeting where DEDEAT, DEA, DWA and DAFF are present, in order to discuss these concerns and work on a way forward.	[SRK] Noted. A meeting with key stakeholders is proposed in Section 6.4.7.
Social Responsibility, Employment and Tourism			
Elands River Conservancy (ERC)	email 2013/11/25	The proposed wind farm will hold no advantages to the residents of the Elands River Valley. A community 80 km further will reap the benefits as stated in the DSR.	[SRK] Noted. In the event that the project goes through the REIPP bidding process, one of the key assessment criteria is likely to be the local economic development plan. SRK is of the understanding that this plan may only be concluded after the EIA process. A socio-economic impact assessment is proposed (Section 6.2.8) which will consider impacts at a more general level (i.e. as opposed to identifying the actual beneficiaries of a local economic development plan).

Raised by:	Date	Issue, concern, comment	Response
Tinus Vermaak Elands River Fire Protection Association (FPA) and Tourism Chairman	Undated	<p>Local labour cannot be used for external contractors since the Elands River community has a limited workforce for existing employment. This means that contractors will have to employ strangers in the area who could notice our daily routines, observe our area and we may become a target of criminals</p> <p>* We accept the fact that there is a need for additional electricity (whether for local use or export).</p> <p>* The supply of additional electricity can however not be achieved at the expense of the environment and enrichment of a single landowner. All our natural resources, including plant-, bird-, and wildlife, are under constant pressure of so-called infrastructure development.</p> <p>* This generation has the responsibility to protect and conserve what is left of our environment. If we allow the wrong decisions to be made now, this ecological heritage close to the metropolitan area of the NMMM will be lost forever.</p> <p>* The Conservancy foresees that it will become part of the linking corridors for the planned Mega Reserve including the Addo Park and the Baviaanskloof Wilderness Area. Constructing a wind farm of the proposed scale will have a negative impact on this vision.</p> <p>* The Elands River Conservancy will do everything in its mandate to protect our environment and it is therefore it's proposal that other more suitable sites be investigated.</p>	<p>[CES] If there is no available local labour in the area labour can be sources from surrounding areas and transported to and from site daily.</p> <p>The impacts of the wind farm on the environment will be assessed and all impacts will be highlighted in the EIR Report. Mitigation measures will be provided to reduce the negative impacts and promote the positive impacts on the environment.</p>
		Job creation / opportunities for local community?	[SRK] The socio-economic assessment will include an assessment of job creating potential at the local and broader scale.
Elands River Conservancy (ERC)	email 2013/11/25	<p>Eco-tourism relies heavily on visual aesthetics and biodiversity.</p> <p>For many residents, both established and new, tourism became an income generating opportunity as the Elands River Valley is a gateway to the Baviaanskloof Wilderness Area and borders on the Groendal Wilderness Reserve.</p> <p>During the past 10 years, residents have developed eco-tourism related ventures and it is also one of the aims of the Elands River Conservancy to develop this further.</p>	<p>[CES] The visual and aesthetics impact of the proposed wind farm will be assessed in detail in the EIR phase where visual impact study will be conducted.</p> <p>[CES] The visual and aesthetics impact of the proposed wind farm will be assessed in detail in the EIA phase where visual impact study will be conducted. Also the possible impacts of the proposed project on tourism will be assessed (see Section 6.2.1 and 6.2.8).</p> <p>An agricultural impact assessment has also been suggested for the EIR plan of study.</p>

Raised by:	Date	Issue, concern, comment	Response
		Eco-tourism relies heavily on visual aesthetics and biodiversity.	
Tinus Vermaak Elands River Fire Protection Association (FPA) and Tourism Chairman	Undated	Please make available the national aviation report as our Valley serves as a training airspace for learner pilots.	[SRK] It is unclear which aviation report is referred to. Compliance with Civil Aviation Authority regulations (e.g. the colour of wind turbine generators and warning lights) is understood to be a matter of demonstrating compliance with technical requirements, and is therefore considered to be outside of the scope of this EIA process.
Dr Paul Martin Private Environmental Consultant	Sent via email 2013.08.05	This is one of our great wilderness areas. Hikers (e.g. Mountain Club) use the adjacent area. The wind farm will ruin this ambience for humans.	[SRK] The terms of reference for the visual impact assessment (Section 6.2.1) include an assessment of the impact on sense of place, and from a selection of vantage points.
Heritage			
Marthinus Briers Neighbour	Via Email 25.11.2013	<p>We brought the farm for its natural beauty and biodiversity. The area around the KwaZunga river is absolutely pristine unspoilt nature and should be protected. The KwaZunga river is on the foot of the Winterhoek mountain on which the wind turbines are proposed to be erected. The Winterhoek mountain area affords the Port Elizabeth area a landscape as breath-taking as found in the Low-veld of Mpumalanga and can become the Nelson Mandela Bay's Table Mountain. It links Uitenhage with the Baviaanskloof and has great eco-tourism potential.</p> <p>At the foot of the Winterhoek mountain where the proposed turbine will be erected there are caves where Bushman lived. If you visit the area you can see why they chose to live here. Bushman drawings are found in some of the caves. The KwaZunga river offers one of the best hiking trails close to the Metro. The area contributes to the biodiversity of the Greater Baviaans Area. The following should be investigated during the environmental assessment. Heritage. Significance of the area for our heritage and the negative impact that wind turbine project could have on the protection of the Bushman Caves, Bushman drawings and tourism potential of the area. A full heritage assessment needs to be undertaken.</p>	<p>[SRK] The plan of study for EIA includes an assessment of archaeological and paleontological impacts (see section 6.2.4) which would address the potential impacts on Bushman drawings.</p> <p>The socio-economic impact assessment (see terms of reference in Section 6.2.8) would address the potential impacts on eco-tourism activities.</p>
D Govender (Regional Manager DEDEAT; Cacadu)	email 2013/12/04	Pg. 40 (Table 4-5) Fourth Row: National List of Ecosystems : Include this regulation as an appendix to prove that no threatened ecosystems occur within the site.	[SRK] Noted. We do not intend to include regulations as appendices, or otherwise, as part of the FSR or EIR. The ecological specialist will be required to confirm (or refute) this statement. It is anticipated that the competent authority would have ready access to this regulation and would be in a position to verify the statement.

Raised by:	Date	Issue, concern, comment	Response
		Pg. 58; 6.1 (Table 6-1) 3 rd Row; 4 th Cell; 2 nd Bullet: How will the upgrading of roads and electrical connections benefit local communities in such a remote area where many of the properties are owned by one owner?	[CES] More electricity will be available in neighbouring towns and townships as the electricity from the wind farm will be linked to a substation and not individual properties.
		Pg. 54; 4.8: Socio-economic profile Is there a difference between "economically active population" (65.8%) and "employed" (29.5%)	[CES] This should read " <i>not economically active</i> " population and yes there is a difference as this group includes " <i>housewives, retired people, disabled people who cannot work</i> " between ages of 15-65. (Definition from StatsSA)
		Pg. 54; 4.8: Socio-economic profile (Table 4-8) The percentage column adds up to 100%	[CES] Noted, this was taken directly from StatsSA Census 2001
		Pg. 54; 4.8: Socio-economic profile (Table 4-10) Income Group: Is this minority income? The second column cannot be percentage.	[SRK] The heading for this and the column heading have been corrected.
		Pg. 94; Appendix A5 1 st Par; last line: "The proponent is obliged to adhere to these conditions" Replace with must. These conditions are a legal requirement.	[CES] Noted
Elands River Conservancy (ERC)	email 2013/11/25	<p>The Elands River Valley's geographical structure consists of undulating hills, extensive deep kloofs with dense undisturbed, indigenous vegetation.</p> <p>This geomorphology complicates the erection of any large structures over extended distances and makes access to the same for maintenance cumbersome and costly.</p> <p>Due to the geographical structure, building large structures on the proposed farm will have a much larger surface impact since the true distance is considerably bigger, resulting in disturbance of many more plant and animal species than would be the case on flat land.</p> <p>The steep slopes in the valley raise the risk of soil erosion on any disturbed areas considerably.</p>	<p>[CES] The ecological impacts of the wind farm will be assessed in detail in the specialist studies that will be conducted during the EIR. Different specialist studies will be undertaken such as ecological, bat and birds, etc.</p> <p>An environmental management plan will be developed to outline possible mitigation measures against erosion and habitat destruction during construction and operation of the wind farm.</p>
D Govender (Regional Manager DEDEAT; Cacadu)	email 2013/12/04	<p>Pg. 28; 4.1. Geology and Landform: Information relevant to the site should be provided. The sentence is irrelevant.</p> <p>Pg. 31 Figure 4-1 & 4-3: There is a correlation between altitude and topography and vegetation type in the study area. The vegetation types should thus be depicted in a contour map. As with the previous maps there is important information missing particularly the localities of protected area.</p>	<p>[CES] It is unclear which sentence is being referred to</p> <p>[SRK] Noted, this will be drawn to the ecological specialist attention and reported in the EIR.</p>

Raised by:	Date	Issue, concern, comment	Response
Avifauna and bats			
D Govender (Regional Manager DEDEAT; Cacadu)	email 2013/12/04	Pg. 38 4.6.2 Birds Information should be relevant to this specific project.	[CES] The scoping report provides broad information known about avifauna in and around the area. An avifauna specialist study will be conducted for the EIA phase, as well as a year preconstruction bird monitoring study which will provide in depth information specific to the project site.
Elands River Conservancy (ERC)	email 2013/11/25	<p>[comment shortened here – full comment included in the appendix]</p> <p>Included in Annexure B is a list of birds positively identified in the Elands River Conservancy...</p> <ul style="list-style-type: none"> * 135 species identified, 25 species endemic * ...collision of large terrestrial birds with the wires of utility structures, and especially power lines... one of the most important mortality factors. * Certain groups are more susceptible to collisions... As shown in Annexure B, the Elands River Valley hosts many species that will be endangered by the erection of huge structures: * Of significance are various species of ducks, wild geese, raptors and owls. <p>The White Stork, Stanley's Bustard and the Blue Crane are some of the species that have been identified as vulnerable to collisions.</p> <p><i>During the erection of wind farms</i></p> <ul style="list-style-type: none"> * Habitat destruction and alteration inevitably takes place. * Many birds are highly susceptible to disturbance ... temporary or permanent abandonment of the nest.... <p>Neil Evans, a member of the ERC has reported two breeding pairs of Black Eagles in the vicinity of his farm bordering the proposed wind farm.</p> <ul style="list-style-type: none"> * As the Elands River Valley has prolific bird life, the Elands River Conservancy actively protects bird breeding sites. * It should also be noted that although certain species might not be protected or endangered, only a handful of them (in some instances only one pair) are resident in the Valley. If any one of these birds are "lost" it could mean their extinction in the valley. 	<p>[CES] The specialist studies that will be conducted during the EIA will confirm the existence of different species in the project area. The specialist will also be provided the list of birds known to occur in the area supplied by the Elands River Conservancy.</p> <p>Placement of turbines will also take into consideration important nesting areas and routes.</p> <p>A bird monitoring will also be implemented to monitor bird collisions with wind turbines during operations.</p> <p>[SRK] These issues have been included in the terms of reference for the avifauna specialist study (see Section 6.2.5).</p>
BirdLife SA		BirdLife South Africa supports the responsible development of wind energy in South Africa. While wind energy can have negative impacts on birds and their habitats, these impacts can be minimised with careful planning and assessment. The considered location of the wind farm itself and the location turbines within the wind farm are both critical factors in determining the significance of the impacts on birds.	[CES] Noted your guideline will be considered during the Avifaunal specialists study that will be conducted during the EIR.

Raised by:	Date	Issue, concern, comment	Response
		<p>To this end BirdLife and its partner the Endangered Wildlife Trust have developed Best Practice Guidelines to guide the impact assessment and monitoring of birds at wind farms (see attached). These guidelines address both impact assessment and post-construction monitoring. For ease of reference we have summarised the requirements for impact assessment in the attached Minimum Requirements for Avifaunal Impact Assessment for Wind Energy Facilities.</p>	
		<p>While it would have been useful to have included an avifaunal Scoping Report and the proposed avifaunal assessment methodology in the Scoping Report, we trust that our guidelines will help guide the impact assessment.</p>	<p>[SRK] A baseline study has been conducted during using these guidelines as reference. The terms of reference for the specialist studies in the EIA phase are in Section 6.2.5. The avi-fauna specialist report will be presented in the Draft EIR.</p>
		<p>The proposed facility lies just north of the Kouga-Baviaans Complex Important Bird and Biodiversity Area. A number of species vulnerable to the impacts of wind energy have been recorded in the area. These include African Crowned Eagle, African Fish-Eagle, Black Harrier, Black-shouldered Kite, Blue Crane, Denham's Bustard, Forest Buzzard, Jackal Buzzard, Martial Eagle, Spotted Eagle-Owl, Steppe Buzzard and Verreauxs' Eagle. It is therefore critical that the impacts of the proposed facility on birds are carefully assessed. The importance of the proposed wind farm site for these birds must be understood and the risk of collision, habitat loss and displacement is considered.</p>	<p>[SRK] These birds will be considered in the avi-fauna assessment, the general terms of reference for which are recorded in Section 6.2.5. The avi-fauna specialist report will be presented in the Draft EIR.</p>
Henk Knoetze Landowner	fax 2013.08.13	Birds such as the Bearded Vulture and Verreaux's Eagle (Black Eagle) and numerous other birds were spotted on my farm.	[SRK] Noted.[SRK] These birds will be considered in the avi-fauna assessment, the general terms of reference for which are recorded in Section . The avi-fauna specialist report will be presented in the Draft EIR.
Dr Paul Martin Private Environmental Consultant	email 2013.08.05	This wilderness / mountainous area is a haven for birds of prey that will be at risk of collisions.	These birds will be considered in the avi-fauna assessment, the general terms of reference for which are recorded in Section 6.2.5 . The avi-fauna specialist report will be presented in the Draft EIR.
Dr Dave Balfour ECPTA	email 2013.11.20	Groendal is a stronghold of African crowned eagle and probably has some of the highest densities across its range (inter-nest distances of about 2.5 km). This species is long-lived and slow to reproduce (breeds every second year) and mortality from collisions with wind turbines could have a big impact on the local population.	[SRK] Noted. These birds will be considered in the avi-fauna assessment, the general terms of reference for which are recorded in Section 6.2.5. The avi-fauna specialist report will be presented in the Draft EIR.
Tinus Vermaak Elands River Fire Protection Association (FPA) and	Undated	What will the estimated impact be on the Bat population? I could not find a report showing the study that indicates the different bat species in the Elands River Valley or the negative impact that a wind farm might create.	[SRK] A baseline assessment of bats in the vicinity of the wind farm has already commenced and an assessment of impacts, as per the terms of reference in Section 6.2.6 will be presented in the EIR.

Raised by:	Date	Issue, concern, comment	Response
Tourism Chairman			
Dr Paul Martin Private Environmental Consultant	email 2013.08.05	This may be on a bat migration route – bats are very vulnerable to mortality from turbines.	[SRK] A baseline assessment of bats in the vicinity of the wind farm has already commenced and an assessment of impacts, as per the terms of reference in Section 6.2.6 will be presented in the EIR.
Henk Knoetze Landowner	fax 2013.08.13	The fruit bats will also disappear.	[SRK] A baseline assessment of bats in the vicinity of the wind farm has already commenced and an assessment of impacts, as per the terms of reference in Section 6.2.6 will be presented in the EIR.
Roads and Transport			
Dr Paul Martin Private Environmental Consultant	email 2013.08.05	The huge road infrastructure (smooth, 4 m wide & 6 m on bends and the steep gradient that will have to be overcome) that will be required to construct this wind farm will have major impacts on vegetation, animals, visual & habitat fragmentation.	[SRK] The topography of the site has been identified as having larger footprint, with less flexibility, than that of wind farms located in flatter terrain (e.g. those in the vicinity Jeffreys Bay). Each of the specialist studies listed will be required to take this into considerations.
Marthinus Briers Neighbour	email 25.11.2013	Take in account the risk of erosion and disturbance of habitats during the construction phase.	[CES] These will be done during the EIR phase of the project when specialist studies will be conducted.
		The impact of the roads and hard surfaces and the potential risk of erosion or land slips.	[SRK] It is proposed to include measures for the management of stormwater and erosion in the EMPr
Tinus Vermaak Elands River Fire Protection Association (FPA) and Tourism Chairman	Undated	Repair and maintenance of road during and after construction?	[SRK] It is anticipated that the publically accessible roads to the site would require upgrading (e.g. re-gravelling) prior to construction commencing. The long term maintenance of the road following construction is likely to be the responsibility of the provincial Department of Public Works.
Dr Dave Balfour ECPTA	email 2013.11.20	Currently there are hardly any roads in this area and the terrain is very steep and rugged. The developers will need to build a very complicated network of roads (with detours around the N-S orientated gorges) to service turbines and this could have severe impacts (clearing of vegetation, erosion, increase sediment load in rivers, pathways for invasions of alien species).	[SRK] The topography of the site has been identified as having larger footprint, with less flexibility, than that of wind farms located in flatter terrain (e.g. those in the vicinity Jeffreys Bay). Each of the specialist studies listed will be required to take this into considerations.
Elands River Conservancy (ERC)	email 2013/11/25	The Elands River Road is a gravel road used by tourists to and residents from the Elands River Valley. The road is not properly or regularly maintained therefore any increased and especially heavy traffic will greatly deteriorate the condition of the road. In addition the road can at many places only accommodate a single lane of traffic making access problematic.	[SRK] Access to the site is depicted in Figure 2-11. [Afri-Coast] The main length of road (provincial gravel road) has been assessed by the civils teams, both Owners Engineer and Turbine Supplier, no upgrading would be required as the road is in a good stable condition.
D Govender (Regional Manager DEDEAT;	email 2013/12/04	(iii) 3 rd Par; 4 th bullet: How far is the site from R75 and what condition is the road in; what measures will have to be taken to make it accessible to the vehicles transporting the wind turbine	[Afri-Coast] The main length of road (provincial gravel road) has been assessed by the civils teams, both Owners Engineer and Turbine Supplier, no upgrading would be required as the road is in a good stable

Raised by:	Date	Issue, concern, comment	Response
Cacadu)		components.	condition. [SRK] The length of the gravel road from the R75 is approximately 40 km to the site.
		(xii) & Pg. 77; 8.2 Specialists Studies: There should be a transport Impact Assessment. Transportation of wind farm components at the wind farms presently being constructed are resulting in major traffic disruptions.	[CES] CES does not agree with the need for a full transport impact assessment and recommends that an appropriate traffic management strategy be developed prior to construction that will determine route and potential road requirements. This will also incorporate a traffic management strategy for construction plant and vehicles so as to minimise these impacts on national and provincial roads. This has been the standard approach employed by the DEA and DOE in IPPPP bidding rounds.
		Pg. 13 Figure 2-2: Indicate the road access to the north and the R75?	[SRK] Access routes from the R75 to the site are depicted in Figure 2-11 .

4.5 Public Participation Activities for this final Scoping Report

The public participation process so far has given IAPs the opportunity to assist with identification of issues and potential impacts. The Final Scoping Report (this report) has incorporated comments received from IAPs, and will be submitted to DEA for a decision on the proposed plan of study for EIA.

IAPs wishing to provide further comment on this report can still do so by sending comments, within 14 days of the publication of this report, directly to DEA as outlined below. It is important to note that the regulations require an IAP to provide SRK Consulting with a copy of any comments submitted directly to the competent authority.

The Executive Summary of this Final EIR has been distributed to registered IAPs. Printed copies of this report will be available for public review at:

- Uitenhage Public Subscription Library (Caledon Street, Uitenhage); and
- Kirkwood Public Library (Jefferson Ave, Kirkwood).

The report can also be accessed as an electronic copy on SRK Consulting's webpage via the 'Public Documents' link <http://www.srk.co.za/en/page/za-public-documents>

Written comment on this Final EIR should be sent by **17h00 on 07 April 2015** to:

Mr Vincent Chauke
 Department of Economic Affairs
 Private Bag X447, Pretoria, 0001
 Environment House, 473 Steve Biko Road, Arcadia
 Email: vchauke@environment.gov.za
 Reference Number: 14/12/16/3/3/2/464

A copy of the comments must be forwarded to:

SRK Consulting
 PO Box 21842, Port Elizabeth, 6000
 Email: portelizabeth@srk.co.za
 Fax: (041) 509 4850

5 Identification of Potential Impacts

The identification of potential impacts of the proposed activity is based on the following factors:

- The legal requirements;
- The nature of the proposed activity;
- The nature of the receiving environment; and
- Issues raised during the public participation process.

Considering the factors listed above, a number of potential environmental impacts which could potentially result from the proposed Inyanda - Roodeplaat WEF have been identified were identified. These are discussed in this section.

5.1 Possible Environmental Issues & Impacts

Listed below in Table 5-1 to Table 5-4 are the environmental issues and resulting impacts particular to wind farm developments as informed by international, and to a lesser degree, local experience of these facilities. These are grouped according to the following phases of project development: planning and design, construction, operation, and decommissioning.

The identification of these impacts has resulted in the recommendation of various specialist assessments that should be undertaken. These impacts have been identified for all the various options proposed, and hence once clarification on these options is gained, some of these impacts may become redundant. Relevant aspects will be assessed during the EIA phase.

Table 5-1: Issues and impacts potentially relevant to the planning and design phase of the proposed project

Issue	Impact	Nature	Description of Issue/ Impact
Environmental Legal and Policy compliance	Direct	Potentially positive/negative	The planning and design of the wind energy facility should take into account, and comply with all relevant environmental legislation and policy, e.g. Local and District Spatial Development Frameworks
Landscape & visual	Direct/Indirect/Cumulative	Potentially Negative	Design of the wind turbine layout will result in an alteration of the landscape character and sense of place.
Existing infrastructure	Direct/Indirect	Potentially negative/positive	The wind energy facility should be designed to make maximum use of existing infrastructure such as roads, electrical connections and substations, etc. in order to minimize environmental disturbances created by construction. Upgrading of the existing infrastructure such as roads and electrical connections will benefit the local communities.
Electromagnetic Interference (EMI)	Direct/Indirect	Potentially Negative	Wind energy facilities can cause television, radio and microwave interference by blocking and / or causing part of the signal to be delayed. Accurate siting of wind turbines in the planning and design phase should reduce these effects.
Shadow flicker	Direct/Cumulative	Potentially Negative	The layout of wind turbines should be designed in order to minimize the effects of shadow flicker and reflectivity on surrounding landowners.

Table 5-2: Issues and impacts potentially relevant to the construction phase of the proposed project

Issue	Impact	Nature	Description of Issue/ Impact
Landscape & visual	Direct/Indirect	Potentially Negative	Visual disturbance of the landscape during construction will be caused by the construction activity, and the presence and use of very large machinery.
Ecology	Direct/Indirect	Potentially Negative	Irreversible habitat destruction associated with the construction is likely to be the largest source of risk to faunal and floral communities in the broader region. The construction of the wind energy facility could cause disturbances to local wildlife, especially breeding birds. During construction, aquatic fauna could be adversely affected if significant amounts of silt or any hydrocarbons or chemicals are allowed to enter water bodies. These impacts could also occur outside of the site boundary, downstream.
Cultural heritage & archaeology	Direct/Indirect	Potentially Negative	The construction of a wind farm could have a direct physical impact on any undiscovered archaeological remains or other features of cultural heritage on the site. There could also be certain physical impacts along the wider route used to transport turbines to the site, for example heavy or wide loads could damage historic bridges and culverts, and road improvements such as corner widening could damage any features adjacent to the road.
Noise	Direct	Potentially Negative	Adverse noise effects could potentially occur during the construction of the wind farm such as from the movement of heavy goods vehicles.
Socio-economic	Direct/Indirect	Potentially positive/negative	During construction, the wind farm could have a beneficial local economic effect, supporting companies manufacturing turbine parts and providing work for construction and haulage contractors. Jobs may also be created for local communities. It could therefore have a beneficial social and economic impact in the area.
Traffic & transport	Direct/Indirect	Potentially Negative	It is possible that there could be a very high number of heavy vehicle movements spread over the construction period. The average number of heavy vehicle movements per day might not be significant, but there could be peaks that might have a detrimental effect on sensitive receptors, especially if any of these are near the local access route. Transporting turbine parts and specialist construction equipment to the site by long and/or slow moving vehicles could cause traffic congestion, especially if temporary road closures are required. There could also be an adverse effect on the integrity of existing road infrastructure such as bridges. Concrete and water transportation to a licensed waste site and Waste water treatment works (WWTW).

Issue	Impact	Nature	Description of Issue/ Impact
Wetlands, Surface and Groundwater	Direct/ Indirect	Potentially negative	The construction of the wind farm has the potential to affect water quality adversely within the streams on and near to the site and further downstream. Sediment is especially likely to be created during the excavation of turbine foundations, the laying of access tracks, digging of cable runs and soil stripping and stockpiling to create temporary areas of hard-standing, such as the construction compound. Pollution could arise from the spillage or leaking of diesel, lubricant and cement.
Geology and topography	Direct/Indirect	Potentially negative	The construction of the wind turbines will require excavations in order to lay adequate foundations. Approximately 500 m ³ of substrate will have to be excavated for each turbine. Furthermore, minor excavations will be required for the construction of access roads as well as the laying of electrical cabling.
Health and safety	Direct/Indirect	Potentially negative	Health and safety aspects will mostly pertain to activities defined under the Occupational Health and Safety Act (Act No. 85 of 1993).
Removal of top soil and soil erosion	Direct/Indirect	Potentially negative	The construction of the individual wind turbines will require the clearing of vegetation which will result in exposed soil surfaces. This will increase the chances of soil erosion.
Impacts on air quality	Direct/Indirect	Potentially negative	Impacts on air quality during the construction phase will primarily be as a result of increased dust levels associated with the required excavation, vegetation clearing, grading and other construction activities.
Pollution and Solid Waste	Direct/Indirect	Potentially negative	It is anticipated that the proposed development will produce solid waste in the form of building rubble such as excavated soil and vegetation and excess concrete, bricks, etc. and general waste such as litter during the construction phase.
Impacts on soils	Direct/Indirect	Potentially negative	Impacts on soil may primarily be due to compaction, erosion and contamination.

Table 5-3: Issues and impacts potentially relevant to the operational phase of the proposed project

Issue	Impact	Nature	Description of Issue/ Impact
Landscape & visual	Direct/Indirect	Potentially negative	Alteration of the landscape character and sense of place because of the wind turbine array. Due to the elevated nature and steep topography of the site, cleared areas (platforms and roads) and associated cuttings will contribute more to landscape and visual impacts than is typically the case.
Ecology	Direct/Indirect/ Cumulative	Potentially negative	The wind energy facility could result in a permanent physical loss of important habitat and species on the land required for the turbines and ancillary elements. There could additionally be habitat severance and fragmentation, particularly from linear elements such as the access tracks. The maintenance of the wind farm could cause disturbance to local wildlife, especially breeding birds and bat populations.

Issue	Impact	Nature	Description of Issue/ Impact
Avifauna and Bats	Direct/Indirect/ Cumulative	Potentially negative	<p>When the wind farm is operational, certain types of bird species, for example raptors, could avoid the area due to the rotating blades, and could consequently be affected by a loss of feeding habitat.</p> <p>Particular types of bird species, for example, raptors, divers and geese, could be susceptible to collision with the turbines and any overhead wires, particularly if the scheme straddles regular flight lines between roosting and feeding grounds or where the site is used by birds for hunting.</p> <p>The potential impacts on bats may be significant if the study area does in fact support significant communities of these mammals.</p>
Cultural heritage & archaeology	Direct/Indirect	Potentially negative	The presence of a wind farm could indirectly affect the visual appeal of a cultural heritage feature within 35 km of the site (maximum visually discernible distance).
Noise	Direct/Indirect	Potentially negative	The wind turbines could potentially give rise to adverse noise effects, particularly at lower wind speeds or in sheltered locations where the noise of the blades is not masked by the noise of the wind.
Electromagnetic Interference (EMI)	Direct/Indirect	Potentially negative	Wind farms can cause television, radio and microwave interference by blocking and / or causing part of the signal to be delayed.
Shadow flicker & reflectivity	Direct/Indirect/ Cumulative	Potentially negative	Rotating blades may catch and reflect sunlight at short intervals, resulting in flickering that is potentially irritating.
Socio-economics	Direct/Indirect/ Cumulative	Potentially negative or positive	<p>The wind farm could potentially discourage or encourage people from visiting the area and therefore have an unknown effect on tourism.</p> <p>The wind farm could also have a more localized effect on particular tourism facilities nearby and within sight of the wind farm.</p> <p>Jobs may be created for local communities. It could therefore have a beneficial social and economic impact in the area.</p>
Traffic & transport	Direct/Indirect/ Cumulative	Potentially negative or positive	Any road modifications which are provided to facilitate the scheme could, have long lasting traffic benefits.
Air quality & climate change	Direct/Indirect/ Cumulative	Potentially positive	The electricity generated by the wind farm will displace some of that produced by fossil fuel based forms of electricity generation. The scheme, over its lifetime, will therefore avoid the production of a sizeable amount of CO ₂ , SO ₂ and NO ₂ that would otherwise be emitted to the atmosphere.
Wetlands, Surface and Groundwater	Direct/ Indirect	Potentially Negative	<p>The placement of turbines on the banks of drainage lines may result in erosion of the banks and disturbance to the riparian vegetation.</p> <p>The use of blinding cement on roadways could affect the pH of surface water, fines could wash out of bare slopes before natural regeneration has established, and there could be leaks or spillages of lubricants from any permanent maintenance compound.</p> <p>Any deterioration of water quality as a result of the wind farm could potentially affect private water supply abstractions in the vicinity of the site.</p> <p>Areas of ecological value such as wetlands within and beyond the site could be sensitive to any alteration of localized drainage patterns which might arise from the introduction of turbine bases, access tracks and underground cable runs.</p>

Issue	Impact	Nature	Description of Issue/ Impact
			The introduction of roads and impermeable areas of hard standing could increase rates of run-off and therefore the risk of localized flooding.
Loss of agricultural land	Direct	Potentially negative	The proposed development site is currently zoned as agriculture. The proposed development will therefore result in a loss of agricultural potential.
Impacts on aviation	Direct/Indirect	Potentially negative	Wind turbine blade tips, at their highest point, may reach more than 150 m in height. If located near airports or known flight paths, a wind farm may impact aircraft safety directly through potential collision or alteration of flight paths. Furthermore, wind turbines could potentially cause electromagnetic interference with aviation radar.

Table 5-4: Issues and impacts potentially relevant to the decommissioning phase of the proposed project

Issue	Impact	Nature	Description of Issue/ Impact
Landscape & visual	Direct/Indirect	Potentially Negative	Visual disturbance of the landscape during decommissioning will be caused by the presence and use of very large machinery. Changes to the landscape are likely to be permanent (i.e. original topography cannot be re-instated) and cuttings are likely to remain un-vegetated, and therefore visible
Ecology	Direct/Indirect	Potentially Negative/positive	The decommissioning of the wind farm could cause disturbance to local wildlife, especially breeding birds. The removal of the wind turbines could prompt the return of certain species of wildlife that had avoided the area while the turbines were present.
Noise	Direct	Potentially Negative	Adverse noise effects could potentially occur during the decommissioning of the wind farm, for example from the movement of large vehicles.
Socio-economic	Direct/Indirect	Potentially Positive	During decommissioning, the wind farm could have a beneficial local economic effect by providing jobs for local communities. Further employment opportunities may result from any new developments that could occur on the site once the wind turbines have been decommissioned.
Traffic & transport	Direct/Indirect	Potentially Negative	A high number of heavy vehicle movements will occur during the decommissioning phase. The average number of heavy vehicle movements per day might not be significant, but there could be peaks that might have a detrimental effect on sensitive receptors, especially if any of these are near the local access route. Transporting turbine parts and specialist construction equipment away from the site by long and/or slow moving vehicles could cause traffic congestion, especially if temporary road closures are required. There could also be an adverse effect on the integrity of existing road infrastructure such as bridges.
Land Use	Direct/Indirect/ Cumulative	Potentially positive	Land previously unavailable for certain types of land use will now be available for those uses, e.g. agriculture

Issue	Impact	Nature	Description of Issue/ Impact
Soils	Direct/Indirect	Potentially positive	After the removal of all wind farm-related structures, the disturbed soils should be re vegetated to avoid unnecessary soil erosion.

Re-powering phase

Current wind turbines are designed to last for over 25 years and this is the figure that has been used to plan the life span of a modern wind farm. Should the repowering of the wind farm be financially, environmental and socially viable, the life span can be extended by another 25 years.

The potential impacts of repowering would be similar to those of the construction and operation phase, potentially less severe given that all infrastructure would already be in place.

6 Plan of Study for EIA

In line with the above-mentioned legislative requirement, this Chapter therefore sets out the Plan of Study (PoS) for the EIA phase of the assessment. Consultation with DEA will be ongoing throughout this EIA. However, it is anticipated that DEA will provide relevant comment with respect to the adequacy of this Plan of Study for the EIA, as it informs the content of the EIR and sufficiency thereof.

6.1 Elements of the EIA phase

The EIA phase has four key elements, namely:-

- **Specialist Studies:** Specialist studies identified as being necessary during the Scoping Phase, plus any additional studies that may be required by the authorities, will be undertaken during the initial phase of the EIA. Appropriately qualified and experienced specialists will be appointed to undertake the various assessments. Specialists will gather baseline information relevant to the study being undertaken and will assess impacts associated with the development. Specialists will also make recommendations to mitigate negative impacts and enhance benefits. The resulting information will be synthesised into the Environmental Impact Report (EIR), whilst the full specialist reports will be attached to the EIR as a Specialist Volume.

Environmental Impact Report (EIR): The main purpose of this report is to gather and synthesise environmental information and evaluate the overall environmental impacts associated with the development, to consider mitigation measures and alternative options, and make recommendations in choosing the best development alternative. The EIR also identifies mitigation measures and management recommendations to minimise negative impacts and enhance benefits. The EIR and associated specialist reports are made available for public and authority review and comment. The availability of the report will be advertised in one Provincial and one local newspaper and the report will also be made available for public scrutiny in easily accessible locations, i.e. the Kirkwood and Uitenhage libraries and the SRK website.

- **Comments Report:** The comments report provides a detailed record of comments, issues and concerns raised by IAPs and the authorities during the review period, and also provides relevant responses to these comments.

The comments report will be in the form of a comments and response table within the Final EIA, using the same format as the Table 4-2 of this report.

- **Environmental Management Programme (EMPr):** The EMPr provides guidelines to the project proponent and the technical team on how best to implement the mitigation measures and management recommendations outlined in the EIR during the construction and operational phase.

The EMPr will be presented as a chapter in the Draft and Final EIR, and in the form of a Draft EMPr which, if the project were to be authorised, would be finalised to accommodate any conditions specified in the environmental authorisation.

In addition to the above, the Public Participation Process that commenced during the Scoping Phase is continued, during which IAPs are afforded further opportunities to raise their issues, concerns and comments regarding the proposed project. It is possible that some of the project details may have changed in response to the preliminary findings of the FSR, and as a result of design changes made by the project proponent. IAPs and key stakeholders are given the opportunity to review the Draft EIR before it is submitted to the authorities for consideration. Comments on the Draft EIR received from IAPs will be included and addressed in the Final EIR.

6.2 Proposed terms of reference for specialist studies

The following Specialist Studies are proposed for the EIA Phase of the assessment:

- Visual Impact Assessment;
- Ecological Impact Assessment (incorporating flora and fauna);

- Noise Impact Assessment;
- Heritage, Archaeological and Paleontological Impact Assessment;
- Avi-Faunal Assessment;
- Bat Impact Assessment;
- Agricultural Assessment; and
- Socio-economic Assessment.

The Terms of Reference for the above-mentioned studies, which outline the information required from the specialists, are provided below and the methodology for assessing the significance of impacts and alternatives is described in the section that follows. Specialists will also be required to address issues raised by IAPs in their reports.

6.2.1 Visual and Landscape Impact Assessment

The size of the structures is dictated by the design, and there is little that can be done to reduce their dimensions. Therefore, the Visual and Landscape Impact Assessment (the details of which are provided below) will focus on assessing significance within the visual context of the site.

The specific Terms of Reference for the Visual and Landscape Impact Assessment will therefore include:-

1. Conduct a site reconnaissance visit and photographic survey of the proposed project site and the power line route alignment alternatives;
2. Conduct a desk top mapping exercise to establish visual sensitivity:-
 - Describe and rate the scenic character and sense of place of the area and site;
 - Establish extent of visibility by mapping the view-sheds and zones of visual influence;
 - Establish visual exposure to viewpoints; and
 - Establish the inherent visual sensitivity of the site by mapping slope grades, landforms, vegetation, special features and land use and overlaying all relevant above map layers to assimilate a visual sensitivity map.
3. Review relevant legislation, policies, guidelines and standards, including the National Heritage Act.
4. Preparation of a Visual Impact Assessment report:
 - Assessing visual sensitivity criteria such as extent of visibility, the site's inherent sensitivity, visual sensitivity of the receptors, visual absorption capacity of the area and visual intrusion on the character of the area;
 - Prepare photomontages of the proposed development;
 - Assess the proposed project against the visual impact criteria (visibility, visual exposure, sensitivity of site and receptor, visual absorption capacity and visual intrusion) for the site;
 - Assess impacts based on a synthesis of criteria for each site (criteria = nature of impact, extent, duration, intensity, probability and significance); and
 - Establish mitigation measures/recommendations with regards to minimizing visual risk areas.
5. Specific questions that the assessment must address are as follows:
 - The extent to which sense of place will be affected, particularly in relation to the wilderness character of the area, and from key vantage points associated with eco-tourism that benefits from the existing visual character, including current and proposed protected areas;
 - In addition to assessing the visual impacts from the wind turbine generators, the visual assessment must also (as is typically the case) consider the impacts from related infrastructure, including the :
 - Overhead power line;
 - Electrical sub-station;
 - Roads and road cuttings;
 - Cut & fill areas, e.g. for platforms and roads; and

- Site offices, construction camps, control rooms.

Note that modelling of shadow flicker, specified in the DSR has been excluded from the terms of reference in the FSR due to the distance to habitable buildings.

6.2.2 Ecological Impact Assessment

The assessment will follow on from the initial study, which included a site visit (see Chapter 3 above) conducted during the scoping phase, and will address any key issues raised by interested and affected parties. The study will comprise a desktop study of all available and relevant literature.

However, a detailed survey of the site will be undertaken to determine the possibility of there being listed threatened or protected ecosystems and species on the proposed project site. If any of these are found, the Environmental Management Plan will include recommended measures to remove or otherwise protect plant species found on the site that are afforded protection under the National Environmental Management: Biodiversity Act, Nature and Environmental Conservation Ordinance (No 10 of 1974) and the Forest Act during construction.

This specialist study will therefore include but will not be limited to:

1. A detailed description of the ecological (fauna and flora) environment within and immediately surrounding the footprint of the proposed development and will consider terrestrial fauna and flora. Fauna include mammals, reptiles, amphibians, and insects but not avifauna as these will be the subject of a separate specialist. This aspect of the report will specifically include the identification of:
 - Areas of high biodiversity;
 - The presence of species of special concern, including sensitive, endemic and protected species;
 - Habitat associations and conservation status of the identified fauna and flora;
 - The presence of areas sensitive to invasion by alien species; and
 - The presence of conservation areas and sensitive habitats where disturbance should be avoided or minimised.
2. Review relevant legislation, policies, guidelines and standards, including the Eastern Cape Protected Area Expansion Strategy and the fine scale conservation plan for the Baviaanskloof;
3. An assessment of the potential direct and indirect impacts resulting from the proposed development (including the wind turbines, associated infrastructure, e.g. access roads), both on the footprint and the immediate surrounding area during construction and operation;
4. A detailed description of appropriate mitigation measures that can be adopted to reduce negative impacts for each phase of the project, where required; and
5. Checklists of faunal groups identified in the region to date, highlighting sensitive species and their possible areas of distribution.
6. Specific questions that the ecological assessment must address are as follows:
 - The extent to which biodiversity in the greater planning domain (including current and proposed protected areas or the broader catchment) will be impacted if the development is authorised. It is recognised that a number of planning domains exist and the specialist will be required to select the most appropriate planning domain, motivate that selection, and make an assessment in terms of this;
 - The significance of loss of habitat and habitat fragmentation must be assessed in terms of general biodiversity and in terms of key terrestrial species identified during public consultation (e.g. Leopard, ghost frog, Elandsberg dwarf chameleon, and Smith's dwarf chameleon);
 - Conduct a literature review of the impact of noise on the above-mentioned species (or similar) with the objective of estimating the significance that increased noise during construction and/or operation will have on these species, either in terms of reducing the size of their habitat by more than the physical footprint of the development, or discouraging

them to traverse the site (i.e. contribute to habitat fragmentation by more than the physical footprint of the development);

- Comment on the impact of fencing (if any) on fragmentation of each of these species and on biodiversity in general;
- Comment on whether, in terms of impacts on terrestrial ecology (such as the occurrence of threatened species on the site), the application should be authorised or not; and
- Overlay identified vegetation types on a contour map, as per the comment from DEDEAT on the correlation between altitude topography and vegetation type; and
- Discuss the relevance of fire in the ecological processes of Kouga Grassy Sandstone Fynbos and the implications (if any) to this project.

6.2.3 Noise Impact Assessment

The objective of the noise impact assessment will be to:

1. Identify all potential noise sensitive sites that could be impacted upon by activities relating to the construction and operation of the proposed wind energy facility.
2. Identify all noise sources relating to the activities of the facility during the construction and operation phases that could potentially result in a noise impact at the identified noise sensitive sites.
3. Determine the sound emission, operating cycle and nature of the sound emission from each of the identified noise sources.
4. Calculate the combined sound power level due to the sound emissions of the individual noise sources.
5. Calculate the expected rating level of sound at the identified noise sensitive sites from the combined sound power level emanating from identified noise sources.
6. Display the rating level of sound emitted by the noise sources in the form of noise contours superimposed on the map of the study area.
7. Determine the existing ambient levels of noise at identified noise sensitive sites by conducting representative sound measurements.
8. Determine the acceptable rating level for noise at the identified noise sensitive sites.
9. Calculate the noise impact at identified noise sensitive sites.
10. Assess the noise impact at identified noise sensitive sites in terms of:-
 - SANS 101 SANS 10103 for "The measurement and rating of environmental noise with respect to land use, health, annoyance and to speech communication".
 - Noise Control Regulations.
 - World Health Organisation - Guidelines for Community Noise.
 - World Bank - Environmental Guidelines.
11. Investigate alternative noise mitigation procedures, if required, in collaboration with the design engineers of the facility and estimate the impact of noise upon implementation of such procedures.
12. Prepare and submit a full environmental noise impact report containing detailed procedures and findings of the investigation including recommended noise mitigation procedures, if relevant.

6.2.4 Heritage, Archaeological and Paleontological Impact Assessment

As part of the Environmental Impact Assessment (EIA) for the proposed facility, it is necessary to undertake a phase one heritage (archaeological, historical and paleontological) survey.

A heritage and archaeological impact assessment will therefore be conducted, the primary objective of which is to determine whether there are any indications that the proposed site is of archaeological significance. This will be a phase 1 assessment and will be largely desk-top although a site visit will be required to enable the specialist the opportunity to look for significant artefacts on the surface of the site. It is not expected that a more detailed Phase 2 assessment will be required but this remains to be confirmed.

The terms of reference for the Phase 1 heritage and archaeological study will be to:

1. Determine the likelihood of heritage or archaeological remains of significance on the proposed site within the study area;
2. Identify and map (where applicable) the location of any significant heritage or archaeological remains;
3. Assess the sensitivity and significance of heritage and archaeological remains in the site; and
4. Identify mitigatory measures to protect and maintain any valuable heritage and archaeological sites and remains that may exist within the proposed site.

In addition, a paleontological impact assessment will be conducted, the primary objective of which is to determine whether there are any indications that the proposed site is of paleontological significance.

This will be a phase 1 assessment and will be largely desk-top although a site visit will be required to enable the specialist the opportunity to look for significant artefacts/fossils on the surface of the site. It is not expected that a more detailed Phase 2 assessment will be required but this remains to be confirmed. The terms of reference for the Phase 1 paleontological study will be to:

1. Provide a summary of the relevant legislation;
2. Conduct a site inspection as required by national legislation;
3. Determine the likelihood of paleontological remains of significance in the proposed site;
4. Identify and map (where applicable) the location of any significant paleontological remains;
5. Assess the sensitivity and significance of paleontological remains in the site;
6. Assess the significance of direct and cumulative impacts of the proposed development and viable alternatives on paleontological resources; and
7. Identify mitigatory measures to protect and maintain any valuable paleontological sites and remains that may exist within the proposed site.
8. Prepare and submit any permit applications to the relevant authorities

6.2.5 Avifauna Assessment

An avifauna specialist study will be conducted. The assessment will include:

1. A desk-top review of existing literature to seek:
 - Previous means of predicting bird mortality (and other impacts) of wind turbines affecting birds in groups similar to those in the study area;
 - Accounts of mortality at wind turbines; and
 - Information on the status of bird groups most likely to be affected.
2. A site visit to identify species of special concern and assess the likely impacts of the construction and operational phases on the avifauna of the site;
3. Surveys will be conducted on the study area in line with recommended guidelines in this regard. These will be refined for the study area;
4. Conduct a review of international literature and experience relating to operational wind farms; including state of the art plants around the world;
5. Contextualize the literature and experience and relate it to the regional scenario and local avifauna;
6. Map sensitive areas in and around the proposed project site(s);
7. Describe the affected environment and determine the status quo in terms of avifauna;
8. Indicate how an avifaunal resource or community will be affected by the proposed project;
9. Discuss gaps in the baseline data with respect to avifauna and relevant habitats;
10. List and describe the expected impacts;
11. Assess and evaluate the anticipated impacts; and;

12. Make recommendations for relevant mitigation measures which will allow the reduction of negative impacts and the maximization of the benefits associated with any identified positive impacts.

Pre-construction monitoring of avifauna has been conducted during the course of the scoping study. This report includes identification of birds that are potentially vulnerable if the development proceeds, including the occurrence of Verreaux's, Crowned, and Martial Eagles on the site, which are ranked as the second, sixth and 30th most sensitive bird species in South Africa to the potential impacts of wind energy facilities (Retief et al. 2012, as reported in Jenkins & du Plessis, August 2014).

In addition to the terms of reference recorded above, it is proposed that the further assessment of avifauna impacts during the impact assessment phase should include:

1. Conduct a literature review of the impact of noise on sensitive avifaunal species in the area, with the objective of estimating the significance that increased noise during construction and/or operation will have on these species, either in terms of reducing the size of their habitat by more than the physical footprint of the development, or discouraging them to traverse the site (i.e. contribute to habitat fragmentation by more than the physical footprint of the development);
2. Provide specific comment on the issues raised by the Elands River conservancy regarding avifauna, including the species identified in the vicinity of the site and their vulnerability to turbines, wires of utility structures, and power lines;
3. Collect additional site specific data for Verreaux's, and Martial Eagles, to recognised international good practice standards, in order to perform collision risk modelling with a reasonable degree of confidence (including comment on how extreme weather conditions may affect collision risks);
4. List and describe the expected impacts on sensitive species, including potential impacts from:
 - Wind turbine generators during operation, including collision risk and habitat fragmentation;
 - Construction activities, with specific reference to identified eagle breeding sites; and
 - Overhead power lines; and
5. Recommend practical management and/or mitigation measures.

6.2.6 Bat Impact Assessment

A bat impact assessment specialist study will be conducted. This study will investigate the following issues:

- The likelihood and significance of impacts with regards to bat (Chiroptera) fauna, in relation to the proposed wind energy facility;
- Identification and mapping (where applicable) of any significant bat habitats;
- Assessment of the sensitivity and significance of the site with regards to bat (Chiroptera) fauna;
- Assessment of the significance of direct and cumulative impacts (including foraging impacts, roost impacts and migration impacts to a certain extent) of the proposed development and viable alternatives; and
- Identification of mitigatory measures to protect and maintain any bat habitats.

As for the avifauna assessment, a specialist determined baseline monitoring programme needs to be conducted during the EIA process and beyond. The applicability of locally developed monitoring regimes to the study will be assessed and refined for implementation.

6.2.7 Agriculture Impact Assessment

The agricultural Impact Assessment must adhere to the requirements described under point 4 of Section C of the National Development of Agriculture, Forestry and Fisheries document: *Guidelines for the evaluation and review of applications pertaining to wind farming on agricultural land*, September 2010.

These terms of reference are also mindful of additional assessment criteria required by the Western Cape Provincial Department of Agriculture.

An agricultural specialist study will be conducted; the key issues that will be investigated are the following:

- The extent and quality of arable land (less than 12% slope);
- The extent and quality of existing crops;
- The extent and quality of commercially unused land;
- The availability of irrigation water;
- The condition of the veld and other natural vegetation;
- The percentage of usable land that will be utilised during construction; and
- The percentage of usable land that will be utilised after construction.

Specifically, the following will be investigated:

1. Status Quo of Soils
 - Erosion Hazards - The study will identify any visible erosion hazards and record the apparent reasons therefore. It will also identify and describe any environmental hazards other than erosion.
 - Slope - Identify any areas with a slope greater than 12%.
 - Current and previous land usage - Evaluate the ratio between virgin arable land, currently cultivated crops, fallow and abandoned fields.
 - Infrastructure and Access - Note and record where improved infrastructure and access could impact negatively on the natural environment.
 - Extension Services - Note and report on incidence of industry, provincial and municipal extension and support services.
2. Water Resources
 - Surface Water - Note and record any visible water resources.
 - Groundwater - Identify and note any evidence of the presence of groundwater – springs, eyes, seepage, green patches etc.
3. Vegetation
 - Grasses, Decorative and Medicinal Veld Plants - The presence of any important or interesting medicinal or other indigenous plants will be noted. A general assessment of veld condition and condition of livestock will be made.

6.2.8 Socio-economic Impact Assessment

The project will result in national, regional and local economic benefits. It could also provide support for infrastructural development and, at a local level, will provide job opportunities and benefits arising from the multiplier effects associated with these. However, projects such as this are also likely to produce a range of negative impacts, which should be identified and avoided or mitigated as far as possible.

The primary objectives of this study will be:

- To provide a detailed description of the socio-economic environment in and around the project area. This should include an assessment of eco-tourism activities and how these may be impacted on by a change in the visual character of the area;
- To provide empirical socio-economic data to be used as a baseline for future monitoring.
- To analyse the potential impacts of the proposed project.
- To provide guidelines for limiting or mitigating negative impacts and optimising benefits of the proposed project.
- Estimate the job creation potential of the proposed development, both at a local (within 50 km of the site) and regional (provincial) scale, during construction and operation
- Assess the significance of this job creation potential in terms of the local and regional economy;
- Assess the potential impact on job creation potential for eco-tourism ventures.

6.3 Impact Rating Methodology

The assessment of impacts will be based on the professional judgement of specialists at SRK Consulting, fieldwork, and desk-top analysis. The significance of potential impacts that may result from the proposed development will be determined in order to assist the Department Environmental Affairs (DEA) in making a decision.

The significance of an impact is defined as a combination of the consequence of the impact occurring and the probability that the impact will occur. The criteria used to determine impact consequences are presented in Table 6-1 below.

Table 6-1: Criteria used to determine the Consequence of the Impact

Rating	Definition of Rating	Score
A. Extent– the area over which the impact will be experienced		
None		0
Local	Confined to project or study area or part thereof (e.g. site)	1
Regional	The region, which may be defined in various ways, e.g. cadastral, catchment, topographic	2
(Inter) national	Nationally or beyond	3
B. Intensity– the magnitude of the impact in relation to the sensitivity of the receiving environment		
None		0
Low	Site-specific and wider natural and/or social functions and processes are negligibly altered	1
Medium	Site-specific and wider natural and/or social functions and processes continue albeit in a modified way	2
High	Site-specific and wider natural and/or social functions or processes are severely altered	3
C. Duration– the time frame for which the impact will be experienced		
None		0
Short-term	Up to 2 years	1
Medium-term	2 to 15 years	2
Long-term	More than 15 years	3

The combined score of these three criteria corresponds to a Consequence Rating, as follows:

Table 6-2: Method used to determine the Consequence Score

Combined Score	0 – 2	3 – 4	5	6	7	8 – 9

(A+B+C)						
Consequence Rating	Not significant	Very low	Low	Medium	High	Very high

Once the consequence has been derived, the probability of the impact occurring will be considered using the probability classifications presented in Table 6-3.

Table 6-3: Probability Classification

Probability– the likelihood of the impact occurring	
Improbable	< 40% chance of occurring
Possible	40% - 70% chance of occurring
Probable	> 70% - 90% chance of occurring
Definite	> 90% chance of occurring

The overall significance of impacts will be determined by considering consequence and probability using the rating system prescribed in the table below.

Table 6-4: Impact Significance Ratings

Significance Rating	Possible Impact Combinations		
	Consequence		Probability
Insignificant	Very Low	&	Improbable
	Very Low	&	Possible
Very Low	Very Low	&	Probable
	Very Low	&	Definite
	Low	&	Improbable
	Low	&	Possible
Low	Low	&	Probable
	Low	&	Definite
	Medium	&	Improbable
	Medium	&	Possible
Medium	Medium	&	Probable
	Medium	&	Definite
	High	&	Improbable
	High	&	Possible
High	High	&	Probable
	High	&	Definite
	Very High	&	Improbable
	Very High	&	Possible
Very High	Very High	&	Probable
	Very High	&	Definite

Finally, the impacts will also be considered in terms of their status (positive or negative impact) and the confidence in the ascribed impact significance rating. The system for considering impact status and confidence (in assessment) is laid out in the table below.

Table 6-5: Impact status and confidence classification

Status of impact	
Indication whether the impact is adverse (negative) or beneficial (positive).	+ ve (positive – a 'benefit')
	– ve (negative – a 'cost')
Confidence of assessment	
The degree of confidence in predictions based on available information, SRK's judgment and/or specialist knowledge.	Low
	Medium
	High

The impact significance rating should be considered by authorities in their decision-making process based on the implications of ratings ascribed below:

- **Insignificant:** the potential impact is negligible and will not have an influence on the decision regarding the proposed activity/development.
- **Very Low:** the potential impact is very small and should not have any meaningful influence on the decision regarding the proposed activity/development.
- **Low:** the potential impact may not have any meaningful influence on the decision regarding the proposed activity/development.
- **Medium:** the potential impact should influence the decision regarding the proposed activity/development.
- **High:** the potential impact will affect the decision regarding the proposed activity/development.
- **Very High:** The proposed activity should only be approved under special circumstances.

Practicable mitigation measures will be recommended and impacts will be rated in the prescribed way both with and without the assumed effective implementation of mitigation measures. Mitigation measures will be classified as either:

- **Essential:** must be implemented and are non-negotiable; or
- **Optional:** must be shown to have been considered and sound reasons provided by the proponent, if not implemented.

6.4 PPP for the EIA Phase

The primary aims for the public participation process include the following:

- Meaningful and timeous participation of IAPs;
- Promoting transparency and an understanding of the proposed project and its potential environmental (social and biophysical) impacts;
- Accountability for information used for decision-making;
- Serving as a structure for liaison and communication with IAPs;
- Assisting in identifying potential environmental (socio-economic and biophysical) impacts associated with the proposed development; and
- Inclusivity (the needs, interests and values of IAPs must be considered in the decision-making process).

6.4.1 Advertising

The availability of the Draft EIR will be advertised in newspapers in the predominant languages (English and Afrikaans) of the area. IAPs registered on the project database will be notified of the availability of this report by email or letter.

6.4.2 Identification of and Consultation with Key Stakeholders

IAPs and Key Stakeholders have been identified during the Scoping phase of the project. The identification and engagement if necessary, of IAPs and Key Stakeholders will continue through into the EIA phase of the project as the public participation process is a continuous process that runs throughout the duration of an environmental investigation.

6.4.3 IAP Database

All IAP information (including contact details), together with dates and details of consultations and a record of all issues raised is recorded within a comprehensive database of IAPs. This database will be updated on an on-going basis throughout the project, and will act as a record of the communication/ involvement process.

6.4.4 Public Review of the Draft Environmental Impact Assessment Report

Consultation with IAPs is considered to be critical to the success of any EIA process. Therefore, one-on-one consultation, focus group meetings and public meetings with IAPs will be undertaken. The aim of this process will be to provide IAPs with details regarding the process and to obtain further comments regarding the proposed project. All of the above will be notified of the Draft EIR availability and dates and venues for the required public meetings. Minutes of all meetings held will be compiled and forwarded to all attendees. These minutes will also be included in the EIA Report. This consultation process will be on-going throughout the process. Consultation with IAPs will take place at two levels: public meetings for general IAPs who require an overview of the project; and focus group meetings for those who require more in-depth information and intensive interaction.

6.4.5 Public Meetings

No public meetings are proposed during the EIA phase of this project.

6.4.6 Focus Group Meetings

The purpose of the Focus Group Meetings is to allow key stakeholders with specific issues to air their views and to facilitate the interaction of the key stakeholders and the project team. The meetings will allow for smaller groups of IAPs and/or representatives of larger interest groups or organisations who wish to play an active role in the process an opportunity for consultation.

6.4.7 Key Stakeholder Workshop

Key stakeholders will be invited by letter to attend a Key Stakeholder Workshop. The purpose is to workshop the proposed project with identified key role-players who operate at a strategic level. It is acknowledged that there are several key stakeholders and interest groups who are expected to take a keen interest in the proposed project, and it is considered to be an appropriate approach to engage these stakeholders in order to avoid potential challenges against the process at a later stage. The primary aims of the Key Stakeholder Workshop will be to:

- Disseminate/transfer information on the proposed project to stakeholders (including the findings of the environmental studies);
- Answer questions regarding the project and the EIA process;
- Address issues and concerns raised by the key stakeholders;
- Achieve a common understanding and consensus on the issues relating to the proposed project; and
- Receive input regarding the public participation process and the proposed project.

A Record of Meeting of the key stakeholder workshop will be compiled and distributed to the attendees. These proceedings will also be included in the Final EIR.

6.4.8 Issues & Response Trail

All issues, comments and concerns raised during the public participation process of the EIA process will be compiled into a Comments & Response table and included in the Final EIR.

6.5 Consideration by the Competent Authority for Environmental Authorisation and Appeals Process

Once the EIR has been finalised it will be submitted to the competent authority for review and consideration for authorisation. The authority will grant authorisation, refuse authorisation or request further detail or information to clarify areas of concern. Should authorisation be granted, the decision will carry Conditions of Approval, to which the proponent is obliged to adhere.

The competent authority's decision will be advertised in the newspapers mentioned above and registered IAPs will be informed within seven days of receipt of the Record of Decision. Once the public have been notified of the Record of Decision - anyone wishing to appeal the decision must lodge a notice of intention to appeal with the MEC within 20 days of the notification, and the appeal must be submitted, in a form prescribed by the competent authority, within 30 days of lodging the notice of appeal.

6.6 Programme of Activities

The key activities and the provisional timetable required to achieve the objectives of the Environmental Impact Assessment study are summarised in Table 6-6 below.

Table 6-6: Impact status and confidence classification

Stage / Activity	Target Dates	
	Start	End
Submission of Final Scoping Report and Plan of Study for EIA to DEA	-	20 March 2015
DEA approval of Plan of Study for EIA (potentially including recommendations)	23 March 2015	07 May 2015
Conduct Specialist Studies and Compile Draft EIR	23 March 2015	08 May 2015
Issue Draft EIR for Public Comment	-	22 May 2015
Public Comment Period for Draft EIR	22 May 2015	01 July 2015
Submit Final EIR to DEA for a decision	-	08 July 2015

7 The Way Forward

The public participation process so far has given IAPs the opportunity to assist with identification of issues and potential impacts. The Final Scoping Report (this report) has incorporated comments received from IAPs, and will be submitted to DEA for a decision on the proposed plan of study for EIA

IAPs wishing to provide further comment on this report can still do so by sending comments, within 14 days of the publication of this report, directly to DEA as outlined below. It is important to note that the regulations require an IAP to provide SRK Consulting with a copy of any comments submitted directly to the competent authority.

The Executive Summary of this Final EIR has been distributed to registered IAPs. Printed copies of this report will be available for public review at:

- Uitenhage Public Subscription Library (Caledon Street, Uitenhage)
- Kirkwood Public Library (Jefferson Ave, Kirkwood).

The report can also be accessed as an electronic copy on SRK Consulting's webpage via the 'Public Documents' link <http://www.srk.co.za/en/page/za-public-documents>

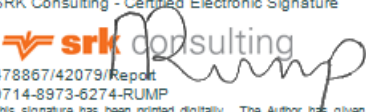
Written comment on this Final EIR should be sent by **17h00 on 07 April 2015** to:

Mr Vincent Chauke
 Department of Economic Affairs
 Private Bag X447, Pretoria, 0001
 Environment House, 473 Steve Biko Road, Arcadia
 Email: vchauke@environment.gov.za
 Reference Number: 14/12/16/3/3/2/464

A copy of the comments must be forwarded to:

SRK Consulting
 PO Box 21842, Port Elizabeth, 6000
 Email: portelizabeth@srk.co.za
 Fax: (041) 509 4850

Prepared by:

SRK Consulting - Certified Electronic Signature

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Nicola Rump CEAPSA

Senior Environmental Scientist

Reviewed by:

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Rob Gardiner Pr Sci Nat

Partner, Principal Environmental Scientist

All data used as source material plus the text, tables, figures, and attachments of this document have been reviewed and prepared in accordance with generally accepted professional engineering and environmental practices.

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Appendices

Appendix A: EIA Application Form and EAP Declaration of Interest

Appendix B: Newspaper Advertisements

Appendix C: Background Information Document

Appendix D: Onsite Poster

Appendix E: Register of IAPs

Appendix F: Copies of IAP Correspondence

Appendix G: Site Maps & Design Drawings

SRK Report Distribution Record

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D Govender	Eastern Cape Department of Economic Development Environmental Affairs and Tourism	2	20 March 2015	R Gardiner
B Geach	Eastern Cape Parks and Tourism Agency	3	20 March 2015	R Gardiner
L Ngoqo	Sundays River Municipality	4	20 March 2015	R Gardiner
N Dweni	Department of Water & Sanitation	5	20 March 2015	R Gardiner
SAHRIS	Eastern Cape Provincial Heritage Resources Authority (ECPHRA)	Electronic	20 March 2015	R Gardiner
T Nokoyo	Department of Agriculture, Forestry and Fisheries (DAFF)	6	20 March 2015	R Gardiner
The Librarian	Uitenhage Library	7	20 March 2015	R Gardiner
The Librarian	Kirkwood Library	8	20 March 2015	R Gardiner
C Arnold	Rushmere Noach Inc	Electronic	20 March 2015	R Gardiner
H Newcombe	Afri-Coast Energy	Electronic	20 March 2015	R Gardiner
-	SRK Port Elizabeth Library	9	20 March 2015	R Gardiner

Approval Signature:

SRK Consulting - Qualified Electronic Signature

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