PROPOSED MAKANAONE HILTON PHOTOVOLTAIC SOLAR ENERGY PROJECT
MAKANA LOCAL MUNICIPALITY
EASTERN CAPE PROVINCE OF SOUTH AFRICA

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AMENDED FINAL ENVIRONMENTAL SCOPING REPORT

Prepared for:	Prepared by:
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EXECUTIVE SUMMARY

Background

Makanaone Hilton (Pty) Limited (the applicant is a subsidiary of parent company Terra Power Solutions (Pty) Limited) is a company based in Grahamstown that is involved in the development of a number of wind and solar energy projects throughout South Africa.

The proposed solar farm is located in the Makana Local Municipality, Cacadu District Municipality, Eastern Cape Province, South Africa. According to Makanaone Hilton (Pty) Ltd available solar data in South Africa shows the Riebeeck East farms to have favourable solar conditions sufficient to support a solar farm. The facility will be located on one property, namely: Hilton Farm. It is situated approximately 22km east of Riebeeck East and 15km west of Grahamstown.

The erection of 150 hectares of solar arrays is proposed. The model and size of the arrays selected will depend on on-going solar measurement, the outcome of the EIA process and on other technical and financial considerations. The facility will have a generating output of ~75MW. Additional infrastructure required to support the solar farm includes: 6 metre wide access roads, underground cabling running adjacent to the roads, a substation and an on-site storage shed. From the substation, the power generated will be fed into the Eskom grid via the 132 kV line traversing the site.

Project motivation

The proposed project will be beneficial for the following reasons:-

- Electricity supply

Over the past few years, South Africa has been adversely impacted by interruptions in the supply of electricity. The creation of a 'decentralised' power generation facility (i.e. not located in the traditionally centralised power producing regions of the Republic of South Africa) next to the town it proposes to supply, will secure a supplementary energy source for the area.

- Green energy

Growing concerns such as climate change and the on-going exploitation of non-renewable resources have prompted increased international pressure on countries to increase their share of renewable energy generation. The South African government has recognized the country's high level of renewable energy potential and has placed targets of 10 000 GWh of renewable energy by 2013.

- Eastern Cape Renewable Energy Strategy

The Eastern Cape Government is exploring alternative energy supply such as wind, solar and hydroelectricity. The province is committed to a minimum of 2% of energy supply from Renewables by 2025.

- Climate change

The electricity generated by the photovoltaic facility will displace some fossil fuel based forms of electricity generation. The photovoltaic facility, 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.

Legal Requirements

The EIA process is guided by regulations made in terms of Chapter 5 of the National Environmental Management Act No. 107 of 1998 (NEMA). The regulations (GNR. 543) 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 02 August 2010, as Government Notice Numbers R.544 to 546, define the activities that require,

either a Basic Assessment (applies to activities with limited environmental impacts (GN.R. 544) or within a prescribed geographical area – province (GN.R. 546)), or a Scoping and Environmental Impact Assessment (applies to activities which are significant in extent and duration (GN.R. 545). The activities triggered by the proposed solar farm development are listed in Table 1 below.

Table 1: Listed activities potentially triggered by the proposed Makanaone Hilton Solar Energy Project

Indicate the number and date of the relevant notice:	Activity No (s) (in terms of the relevant notice) :	Activities triggered:	Describe each listed activity as per project description[1]:
Listing Notice 1 of R544 EIA Regulations dated18 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 solar arrays, step up the voltage to make it compatible with the Eskom grid, and then transfer this power via a power line to Eskom infrastructure.
	(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, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.	The project will involve the construction of roads and electrical cables which may cross drainage lines.
	(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 electrical cables which could trigger this activity.
Listing Notice 2 of R545 EIA Regulations dated18 June 2010	(1)	The construction of facilities or infrastructure for the generation of electricity where the electricity output is 20 megawatts or more.	Establishment of a solar farm for the generation of electricity where the anticipated output of the facility will be 75MW.
	(15)	Physical alteration of undeveloped, vacant or derelict land for residential, retail, commercial, recreational, industrial or institutional use where the total area to be transformed is 20 hectares or more; except where such physical alteration takes place for: (i) linear development activities; or (ii) agriculture or afforestation where activity 16 in this Schedule will apply.	Development of land for the placement of solar arrays. The exact construction phase footprint and operation phase footprint will be specified in the EIR.
Listing Notice 3 of R546 EIA Regulations dated18 June 2010	(4)	The construction of a road wider than 4 metres with a reserve less than 13,5 metres (a) In Eastern Cape, Free State, KwaZulu-Natal, Limpopo, Mpumalanga and Northern Cape provinces: **(i) Outside urban areas, in :** (bb) National Protected Areas Expansion	Access Roads within the site during operation will be 6 meters wide. During the construction phase, these will be larger due to the size of the trucks required to transport the solar arrays

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

		Strategy Focus areas; (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve;	
	(12)	The clearance of an area of 300 square metres or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation. **(a)** Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004; **(b)** Within critical biodiversity areas identified in bioregional plans;	Until such time as groundtruthing occurs it is unknown what area of the proposed development site, which constitutes more than 75% of indigenous vegetation, will be required to be cleared. For this reason listed activities 12, 13 and 14 have been included.
	(13)	The clearance of an area of 1 hectare or more of vegetation where 75% or more of the vegetation cover constitutes indigenous vegetation, except where such vegetation is required for: (1) the undertaking of a process or activity included in the list of waste management activities published in terms of section 19 of the National Environmental Management : Waste Act, 2008 (Act No. 59 of 2008), in which case the activity is regarded to be excluded from this list (2) the undertaking of a linear activity falling below the thresholds mentioned in Listing Notice 1 in terms of GN No. 544 of 2010. (see GNR 546 for specific thresholds) **(a)** Critical biodiversity areas and ecological support areas as identified in systematic biodiversity plans adopted by the competent authority. **(b)** National Protected Area Expansion Strategy Focus areas. **(c)** In Eastern Cape, Free State, KwaZulu-Natal, Limpopo, Mpumalanga, Northern Cape and Western Cape: ii. Outside urban areas, the following: (bb) National Protected Area Expansion Strategy Focus areas; (ff) Areas within10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve;	Until such time as groundtruthing occurs it is unknown what area of the proposed development site, which constitutes more than 75% of indigenous vegetation, will be required to be cleared. For this reason listed activities 12, 13 and 14 have been included. .
	(14)	The clearance of an area of 5 hectares or more of vegetation where 75% or more of the	Until such time as groundtruthing occurs it is unknown what area of the proposed

		vegetation cover constitutes indigenous vegetation, except where such vegetation is required for: (1) purposes of agriculture or afforestation inside areas identified in spatial instruments adopted by the competent authority for agriculture or afforestation purposes (2) the undertaking of a process or activity included in the list of waste management activities published in terms of section 19 of the National Environmental Management : Waste Act, 2008 (Act No. 59 of 2008), in which case the activity is regarded to be excluded from this list (3) the undertaking of a linear activity falling below the thresholds in Notice 544 of 2010. (see GNR 546 for specific thresholds) **(a) In Eastern Cape, Free State, KwaZulu-Natal, Gauteng, Limpopo, Mpumalanga, Northern Cape, Northwest and Western Cape:** i All areas outside urban areas.	development site, which constitutes more than 75% of indigenous vegetation, will be required to be cleared. For this reason listed activities 12, 13 and 14 have been included.
	(16)	The construction of: (ii) 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, excluding where such construction will occur behind the development setback line. (a) In Eastern Cape, Free State, KwaZulu-Natal, Limpopo, Mpumalanga and Northern Cape: ii. Outside urban areas, in: (bb) National Protected Area Expansion Strategy Focus areas; (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (hh) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve;	Part of the property on which the proposed project will be developed is within a National Protected Areas Expansion Strategy (NPAES) Focus Area and a CBA 2.
	(19)	The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre. (a) In Eastern Cape, (ii) **Outside urban areas, in:** (bb) National Protected Area Expansion Strategy Focus areas;	Existing farm roads will be utilised where possible to minimise the project footprint. These roads will need to be upgraded (widened and re-surfaced) to allow access for large trucks transporting solar array components.

		(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (hh) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve;	

Because the proposed development triggers listed activities from GNR.545, it will require a full Scoping and EIA. This process is regulated by Part 3 of Chapter 3 of the 2010 EIA Regulations and described in detail further on in this report. It is important to note that, 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), Aviation Act (Act No 74 of 1962) as amended, White Paper on Energy Policy for South Africa (Energy White Paper), White Paper on Renewable Energy Policy (Renewable Energy White Paper), the Integrated Energy Plan for the Republic of South Africa (March, 2003), and others.

The Environmental Impact Assessment

Coastal & Environmental Services (CES), a well-established specialist environmental consulting firm with offices in Grahamstown, East London, and Port Elizabeth have been appointed by Makanaone Hilton (Pty) Ltd as Environmental Assessment Practitioner (EAP) to conduct the Environmental Impact Assessment (EIA).

The competent authority that must consider and decide on the application for authorisation in respect of the activities listed in Table 1 is the Department of Environmental Affairs (DEA), formerly the Department of Environmental Affairs and Tourism (DEAT), as the Department has recently 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 NEMA (Act No 107 of 1998). The decision is effective for all projects initiated before, and up until, approximately 2015.

The EIA process is divided into two key phases - Scoping and Environmental Impact Assessment. This Environmental Scoping Report (ESR) presents the outcomes of the first phase of the environmental impact assessment process. The Scoping Process has been undertaken to identify and describe:

- The nature of the proposed project;
- The legal, policy and planning context for the proposed project;
- Important biophysical and socio-economic characteristics of the affected environment;
- Potential environmental issues or impacts, so they may be addressed in the EIA phase;
- Feasible alternatives that must be assessed in the EIA phase;
- The Plan of Study (POS) for the EIA phase.

Provision was made in the Scoping Phase for the involvement of Interested and Affected Parties (I&APs) in the forthcoming EIA process.

Project Description

Photovoltaic Technology Description

Photovoltaic (PV) is the fastest growing power technology in the world, utilized for electricity generation in more than 100 countries. It comprises formations of panels, each containing a

number of photovoltaic cells which convert solar radiation into direct current electricity using semiconductors. These cells are constructed by polycrystalline silicon of 245 or 280 watts peak.

Installations may be ground-mounted, and can be integrated with existing land uses such as farming and grazing. Alternatively, smaller scale installations can be built on the roofs or walls of new buildings, or retrofitted during the operational lifespan of existing buildings.

Due to the popularity of photovoltaic as a solar technology, the scale of manufacturing and consequent design improvements have resulted in PV becoming a highly cost effective and reliable technology type. The further net metering and financial incentives, including preferential feed-in tariffs, have further incentivised photovoltaic (PV) installations in many countries.

Unlike some other solar power technologies, Photovoltaic does not utilize water in its operation and can generate its own power to run the facility.

Benefit Overview

- Safe for Construction: The photovoltaic facility has no heavy duty components to be installed during the construction phase of the development, preventing exposure of risks to workers such as fire, explosions and volatile organic emissions associated with thermal fluid-based solar thermal technologies;
- Low Environmental Impact. The Photovoltaic (PV) technology is land-efficient, water-less, with a lower direct project impact and a lowering the environmental risk throughout the project life cycle;
- High Local Content during Construction. The Photovoltaic (PV) technology allows local material and labour supply to comprise a high percentage of the project value;
- Promotes Solar Industry Growth. The Photovoltaic (PV) technology is uncomplicated, reliable, is sustainable and allows automated manufacture, thereby leveraging the strengths of the South African manufacturing sector.
- The surface layer of vegetation is not cleared underneath the facility, allowing for reduced ecological impact.

Typically, the development of the solar farm is divided into various phases:-

- *Pre-feasibility*: *Makanaone Hilton* (Pty) Ltd will conduct surveys to ensure 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, solar resource evaluation from existing data, grid connectivity, environmental impact assessment, logistical and project phasing requirements.
- *Feasibility: Makanaone Hilton* (Pty) Ltd 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 solar resources by on-site measurement, ensuring grid connection is economical and feasible in the timeframes of the project, identifying possible off-takers for the electricity.

The Affected Environment

Climate

Due to the location of the study area at the confluence of several climatic regimes, namely temperate and subtropical, the Eastern Cape Province of South Africa has a complex climate. 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.

There is data available for climatic conditions in Grahamstown, which is close to the study site. The

mean annual temperature is 16.4oC with an average maximum temperature of 20oC and an average minimum temperature of 9oC (Stone et al. 1998). The average annual rainfall for Grahamstown is 681mm and falls in a bimodal pattern with the most rain falling in Autumn and Spring (Stone et al. 1998). Rainfall reliability is poor and long lasting droughts are common (Palmer 2004).

Geology and Topography

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 give rise to the great diversity of vegetation types and habitats found in the region. The mountainous area on the northern border of the Eastern Cape forms part of the Great Escarpment.

Vegetation

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 understorey are of karroid affinities and are often localised endemics.

There are two vegetation classifications pertinent to the area. These are the National vegetation map developed by Mucina and Rutherford and the Subtropical Ecosystem Planning (STEP) Project. A description of the relevant vegetation types are described below.

National Vegetation Map: 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 map 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 as relating to the project: Bhisho Thornveld, Kowie thicket, Suurberg Quartzite Fynbos, Suurberg Shale Fynbos, Albany Broken Veld, Great Fish Norsveld

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).

Pierce and Mader (2006) define the following vegetation types as relating to the project: Zuurberg Grassy Fynbos, Grahamstown Grassland Thicket, Eastern Lower Karoo, Saltaire Karroid Thicket, Fish Noorsveld, Albany Valley Thicket and Inland Thornveld.

Fauna

Amphibians and Reptiles

The Eastern Cape is home to 133 reptile species including 21 snakes, 27 lizards and eight chelonians (tortoises and turtles). The majority of these are found in Mesic Succulent Thicket and riverine habitats.

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).

Conservation and Planning tools

Several conservation and planning tools were consulted for relevancy to the project. These included Important Bird Areas (IBAs), Provincially determined Corridors, Protected Areas Expansion Strategy (PAES), Protected Areas, Terrestrial Systematic Conservation Plan (TSCP) and Wetlands. All of these conservation and planning tools are relevant (some low relevancy, others high relevancy) for the project and will be discussed in more detail in the Ecological Impact Assessments in the EIA phase.

Socio-economic profile: Makana Local Municipality

The proposed Makanaone Hilton Solar Energy Project is to be developed within the Makana Local Municipality (MLM). The proposed facility will be situated approximately 22km east of Riebeeck East and 15km west of Grahamstown, and be located on one farm property, namely: Hilton. The surrounding area is not densely populated. However, it is still highly likely that the development of the project will have direct socio-economic impacts on the municipal area and its population.

The Makana municipal area extends over 4 379 km^2 and is bounded by the cities of Port Elizabeth to the west, and East London to the east. According to the South African Community Survey of 2007 (StatsSA, 2007)[2], the municipality's population declined from an estimation of 75 302 in 2001 to about 70 059 in 2007.

The MLM IDP 2010[3] cites Quantec's numeration of the population in 2007 as 70 706. The area primarily consists of three nodal points namely Grahamstown, Riebeeck East and Alicedale. Grahamstown is the largest of the nodes both economically and in terms of population size (the greater Grahamstown area accounts for approximately 81% of the municipality's population), and serves as the administrative hub. Rhodes University (RU) is a dominant feature in the economic

[2] StatsSA. 2007. Community Survey 2007: Basic Results for the Eastern Cape. Pretoria: Statistics South Africa.

[3] Makana Local Municipality Integrated Development Plan Review 2010/2011

social landscape of the city, and therefore the MLM at large. By contrast, Alicedale is a small town that used to serve as an important national railway juncture in the past, but current economic activity is restricted to tourism primarily in the form of the Bushman Sands Hotel. Lastly, Riebeeck East has traditionally been an agrarian economy, which is still reflected in the current *status quo*. Makana has a population density of 16.1 people per square kilometre, which is high when compared to the district population density of 6.6 people per square kilometre. This indicates a high level of urbanization in the local municipality. Despite the overall plateau in population growth, informal settlement populations increased. This may indicate migration from farms and areas in the Grahamstown periphery to the core, in the search for economic opportunities and improved service provision (MLM IDP 2010:15).

Public Participation Process

During the Scoping Phase a public participation process (PPP) was undertaken to allow Interested and Affected Parties (I&APs) to voice their concerns and raise issues regarding the proposed project.

The key elements of the process included:

- Development and distribution of a Background Information Document (BID);
- Informing I&APs of the proposed development through newspaper advertisements, site notice boards and notification letters,
- A public meeting was held during public review of the DSR. All I&APs were notified of the date, time and venue of the public meeting;

Throughout this process, a register of I&APs has been compiled and maintained, together with a record of their comments and responses from the project proponent and the Environmental Assessment Practitioner.

This Final ESR is now to be submitted to DEA, and all I&APs will be notified of the submission.

Issues and Concerns

An extensive list of the issues identified and raised during the public consultation process, and responses thereto by the EAP, is provided in Appendix C of this report.

Identification of Alternatives

Since the core business area of the project proponent, Makanaone Hilton (Pty) Ltd, is solar farm development for the generation of electricity, the fundamental alternative of a development other than to construct and operate a solar farm is therefore not viable in this case, and will not be considered further in the EIA. Modifications or variations to the design of the solar farm that will facilitate the reduction or minimisation of environmental impacts i.e. incremental alternatives will be investigated, including modifications to the design or layout, technology and operational aspects of the proposed project.

The EIA Phase will also examine the impact of no development (i.e. the “No Go” option). The no-go alternative will be used as a baseline throughout the environmental assessment process against which potential impacts will be compared in an objective manner and will be fully assessed in the EIR.

The Way Forward – EIA Phase

This ESR includes a Plan of Study (PoS) for the EIA phase, which includes Terms of Reference (ToR) for specialist studies as they are currently envisaged and the methodology that will be used to assess impacts and rate their significance. 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 Environmental Impact Report (EIR) and sufficiency thereof.

The following specialist studies are proposed for the EIA Phase of the assessment:-

- Agricultural Impact Assessment
- Ecological Impact Assessment (incorporating flora and fauna)
- Heritage, Archaeological Impact Assessment
- Palaeontological Impact Assessment
- Visual Impact Assessment
- Socio-economic Impact Assessment

The significance of impacts will be assessed based on specialist input using a standardised rating methodology. “Significance” includes the spatial and temporal scales of impacts, the likelihood of impacts occurring, and the severity of impacts or potential benefits.

An EIR will be prepared that will describe the nature of the proposed project and its environmental setting, summarise the results of the specialist studies, and recommend practical and reasonable mitigation measures to avoid, minimise or offset any negative impacts from the development. In this regard the EIA Phase will actively engage and contribute to the planning process so as to mitigate environmental impacts through improved design and layout. The overall objective of the EIR is to provide DEA with sufficient information about the proposed project and its associated environmental and social impacts on which to make an informed decision.

An Environmental Management Programme (EMPr) will be prepared that will provide practical and actionable management, monitoring and institutional measures to be undertaken during the construction, operation and decommissioning of the proposed wind energy facility. Such measures are designed to eliminate adverse environmental and social impacts, offset them, or reduce them to acceptable levels. The public participation process initiated in the Scoping Phase will continue throughout the EIA Phase.

Deliverables of the EIA phase will be the Draft EIR and Draft EMPr. These reports will be released for public review and comment, and will also be presented to I&APs during public meetings, before they are finalised and presented to DEA. An Environmental Authorisation may be granted or rejected by the authority based on the review of these reports. The decision will be advertised, and registered I&APs will also be informed in writing and given the opportunity to appeal the decision.

The relevant national provincial and local authorities will be consulted throughout the remainder of the EIA process.

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LIST OF ABBREVIATIONS

BID:	Background Information Document
CES:	Coastal and Environmental Services
CITES:	Convention on International Trade in Endangered Species
DEA:	Department of Environmental Affairs
DWA	Department of Water Affairs
EAP:	Environmental Assessment Practitioner
EIA:	Environmental Impact Assessment
EIR:	Environmental Impact Report
EMPr:	Environmental Management Programme
ESR:	Environmental Scoping Report
GNR:	Government Notice Regulation
ha:	Hectare
I&APs:	Interested and Affected Parties
IPP:	Independent Power Producer
kV	Kilovolt
Ltd:	Limited
MW:	Mega Watts
NEMA:	National Environmental Management Act 107 of 1998 as amended in 2006
NERSA:	National Energy Regulator of South Africa
PNCO:	Provincial Nature Conservation Ordinance
PoS:	Plan of Study
PPA:	Power Purchase Agreement
PPP:	Public Participation Process
RDB:	Red Data Book
REFIT:	Renewable Energy Feed In Tariff
SSC:	Species of Special Concern
ToR:	Terms of Reference

1 INTRODUCTION

1.1 BACKGROUND TO THE STUDY

Makanaone Hilton (Pty) Ltd plans to develop a 75 MW solar power generation facility situated on 150 hectares of land comprised of one farm located in close proximity to Riebeeck East, Makana Local Municipality, Cacadu District Municipality, Eastern Cape Province, South Africa. This is also a Clean Development Mechanism project and as such will apply to register the project to generate Certified Emission Reductions (CER) in terms of the Kyoto Protocol. Coastal & Environmental Services (CES) have been appointed by Makanaone Hilton (Pty) Ltd as Environmental Assessment Practitioner (EAP) to conduct the EIA.

In accordance with the requirements of the National Environmental Management Act No. 107 of 1998, and relevant Environmental Impact Assessment (EIA) regulations made in terms of this Act (Government Notice No R.543) promulgated in 2010, the proposed project requires a full Scoping and EIA process to be conducted.

Coastal & Environmental Services (CES) have been appointed by Makanaone Hilton (Pty) Ltd as Environmental Assessment Practitioner (EAP) to conduct the EIA process.

1.2 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 triggered by the proposed Makanaone Hilton Solar Energy Project are listed in Table 1-1 below.

Table 1-1: Listed activities triggered by the proposed Makanaone Hilton Photovoltaic Solar Energy Project

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 overleaf) is regulated by Chapter 3 of Part 3 of the EIA regulations and described in detail in Appendix A of this report.

According to GNR546 for the Eastern Cape listed activities are triggered in the proposed development site falls within one or more of the following areas:

i. In an estuary;

ii. Outside urban areas, in:

(aa) A protected area identified in terms of NEMPAA, excluding conservancies;
(bb) National Protected Area Expansion Strategy Focus areas;
(cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;
(dd) Sites or areas identified in terms of an International Convention;
(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;
(ff) Core areas in biosphere reserves;
(gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve;
(hh) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined.

iii. In urban areas:

(ii) Areas zoned for use as public open space;
(jj) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose; seawards of the development setback line or within urban protected areas.

According to the current Makana Municipality SDF [2012] the area falls outside of the Riebeeck East urban edge and is situated approximately 65 km inland from the coast, therefore section i and iii above do not apply.

Section ii criteria were evaluated to see whether any of these items occur within the development site. The following was concluded:

(aa) There are no protected areas within the proposed development site as shown in Figure 1-3 below. The closest protected area is the Aylesbury Nature Reserve situated approximately 4 km from the proposed development site. This activity therefore does not apply to the proposed development.

(bb) Part of the property on which the proposed project will be developed is within a National Protected Areas Expansion Strategy (NPAES) Focus Area (refer to Figure 1.1). There will be no infrastructure development inside the boundaries of the NPAES Focus area. It is possible that it will be necessary to lay underground cables in the NPAES Focus Area, and this listed activity has therefore been included for assessment.

(cc) According to the Environmental Manager Mr Ndumiso Nongwe at the Makana Municipality there is currently no EMF in place for the area. This activity therefore does not apply to the proposed development.

(dd) There are no sites identified in terms of any International Conventions (such as RAMSAR sites) present within the property boundaries of the proposed development site. This activity therefore does not apply to the proposed development.

Figure 1-1: Protected Areas, National Protected Expansion Areas and Important Bird Areas (IBAs) surrounding the project site

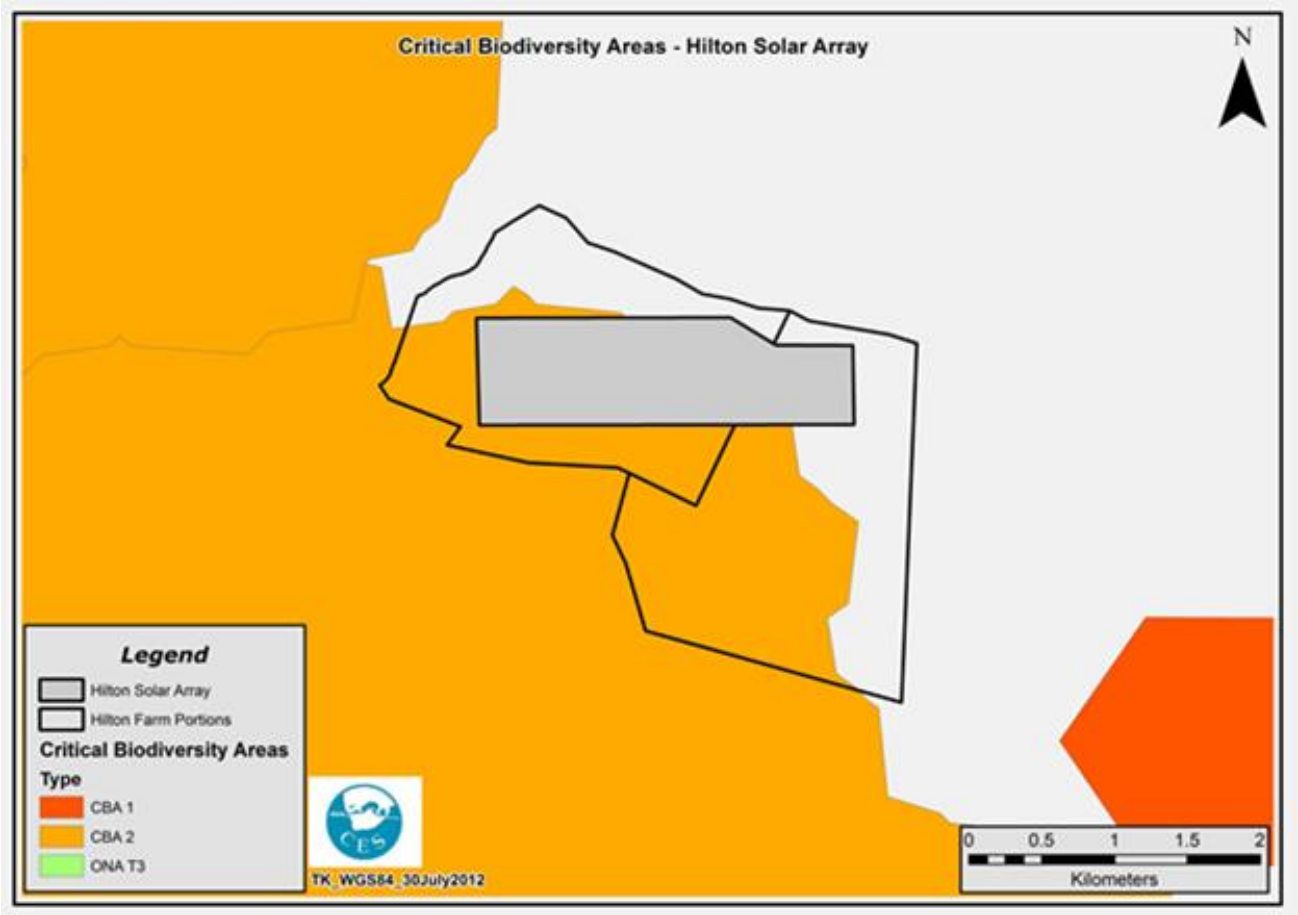


Figure 1-2: Critical Biodiversity Areas (CBA) for the proposed project site.

(ee) Part of the property on which the proposed project will be developed is within a CBA 2 (refer to Figure 1-2). This listed activity has therefore been included for assessment.

(ff) No core areas have been identified within the proposed development site. This activity therefore does not apply to the proposed development.

(gg) The Aylesbury protected area falls inside the 5 km buffer zone and therefore this activity does apply to the proposed development.

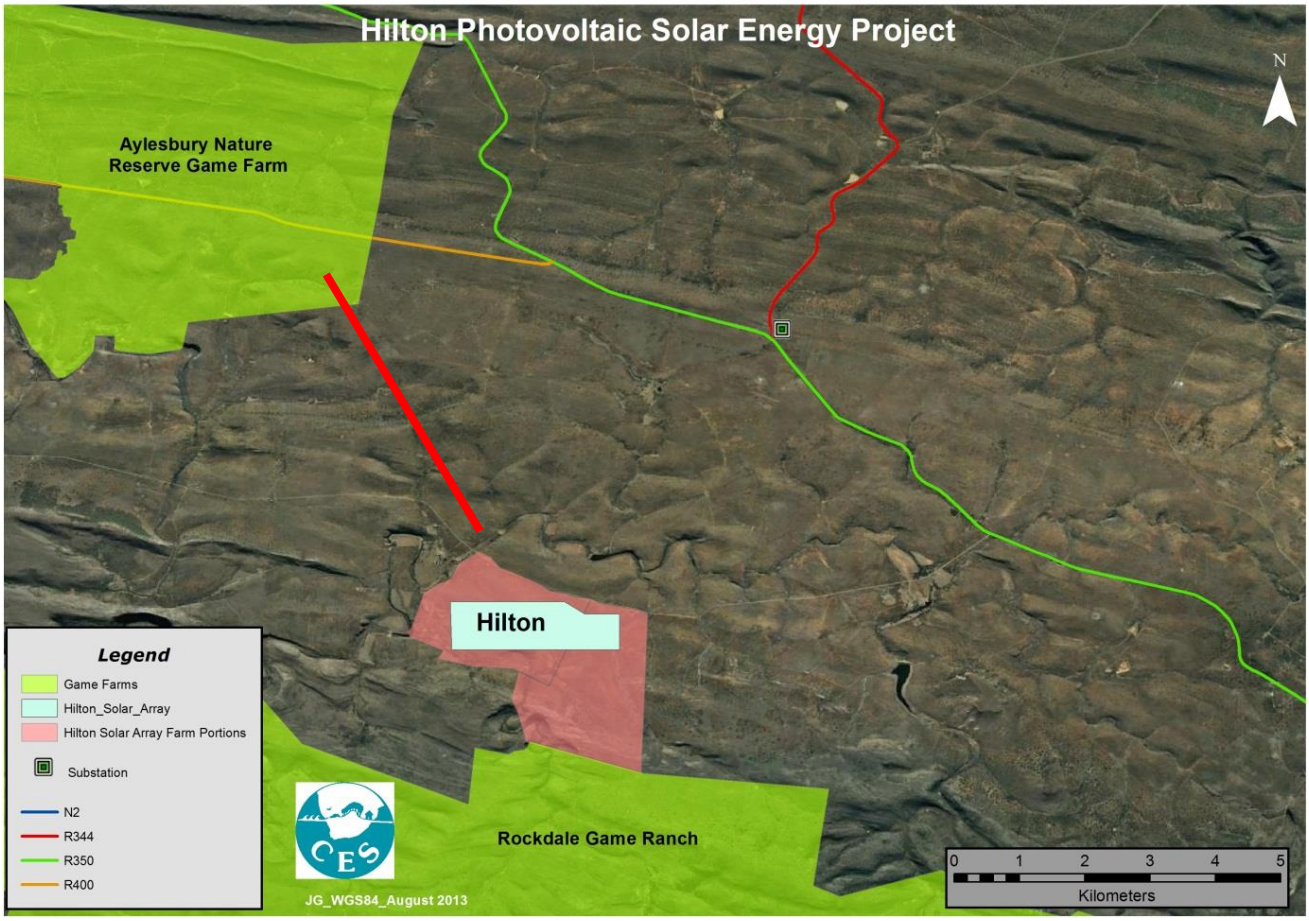


Figure 1-3: Location of the Aylesbury Nature Reserve in respect to the proposed development (the red line indicates 5 km).

(hh) The proposed development site is located approximately 65 km from the coast and therefore this activity does not apply.

The competent authority that must consider and decide on the application for authorisation in respect of the activities listed in Table 1-1 is the Department of Environmental Affairs (DEA), formerly the Department of Environmental Affairs and Tourism (DEAT), as the Department has recently 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.

It is important to note that in addition to the requirements for an authorisation in terms of the NEMA, there may be additional legislative requirements which need to be considered prior to commencing with the activity, for example: the National Heritage Resources Act (Act No 25 of 1999), Aviation Act (Act No 74 of 1962) as amended, White Paper on Energy Policy for South Africa (Energy White Paper), White Paper on Renewable Energy Policy (Renewable Energy White Paper), the Integrated Energy Plan for the Republic of South Africa (March, 2003) etc. These are discussed in detail in Chapter 3 of this report.

It is important to note that in addition to the requirements for an authorisation in terms of the NEMA, there may be additional legislative requirements which 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),

- Aviation Act (Act No 74 of 1962) as amended,
- White Paper on Energy Policy for South Africa (Energy White Paper),
- White Paper on Renewable Energy Policy (Renewable Energy White Paper),
- The Integrated Energy Plan for the Republic of South Africa (March, 2003), and others.

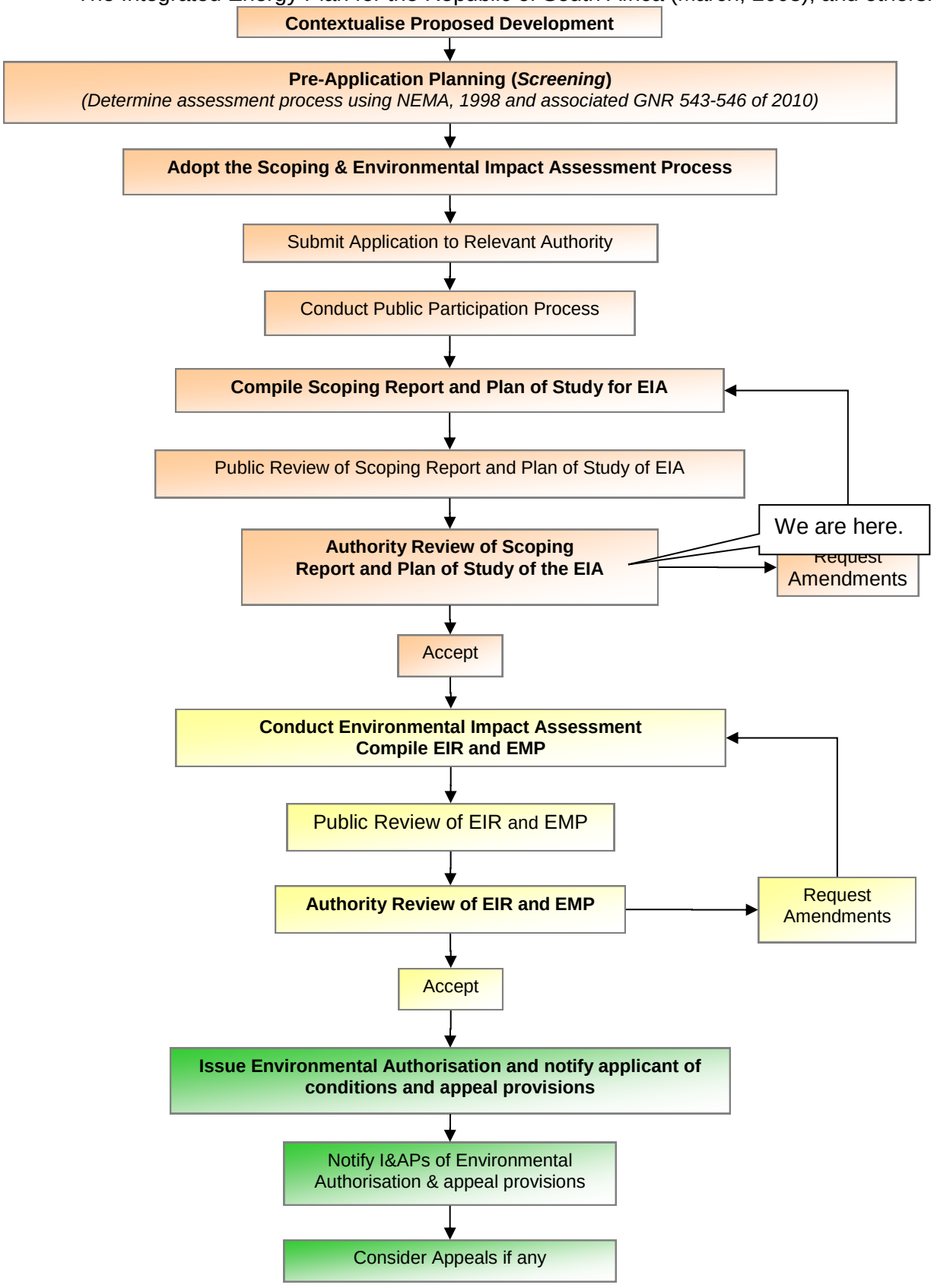


Figure 1-4: The EIA process under current legislation (NEMA 1998)

1.3 PROJECT NEED & DESIRABILITY

In terms of the EIA Regulations (2010), a Scoping Report must contain:

28. (1) A scoping report must contain all the information that is necessary for a proper understanding of the nature of issues identified during scoping, and must include –

(i) a description of the need and desirability of the proposed activity

The proposed project will be beneficial for the following reasons:-

Most of South Africa's energy comes from non-renewable sources like coal, petroleum, natural gas, propane and uranium. It is estimated that only approximately 1% only of the country's electricity is currently generated from renewable energy sources. The energy sector in South Africa alone emits approximately 380 988.41 million tonnes CO_2e of Green House Gases (GHGs) (Eastern Cape Climate Change Conference, 2011).

South Africa's total emissions was estimated to be 461 million tonnes CO_2 equivalent in the year 2000. Approximately 83% of these emissions were associated with energy supply and consumption (380 988.41 million tonnes CO_2e of GHGs), 7% from industrial processes, 8% from agriculture, and 2% from waste. This poses great threat to the environment and livelihoods of citizens.

Eskom currently generates 95% of the electricity used in South Africa with a 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. There is however a political will to change the energy mix to reduce the dependency of the economy on fossil fuels and facilitate the uptake of renewable energy resources.

The first step towards a solution in terms of climate change came in the form of the United Nations Convention on Climate Change 1994 (UNFCCC) and its associated Kyoto Protocol 1997, adopted at the third session of COP 3, where countries agreed to reduce their greenhouse gas emissions to the levels they were at in 1990 by the year 2012. The Protocol was first opened for signature from 16 March 1998 to 15 March 1999 at United Nations Headquarters, New York and by that date the Protocol had received 84 signatures. For the protocol to be ratified at least 55 of the 176 UN countries had to sign the protocol and these had to represent more than 55% of 1990 global carbon dioxide emissions.

So far, there are 141 nations, including South Africa, that have ratified the Protocol (Borchert, 2007). The Kyoto Protocol is very similar in principles to the UNFCCC, but places a heavier burden on developed nations under the principle of "common but differentiated responsibilities" as well asserting binding targets for 37 industrialized countries and the European community for reducing emissions. The Kyoto Protocol also offers supplementary means of meeting targets via the use of three market-based mechanisms, namely emissions trading, clean development mechanisms and joint implementation.

Unfortunately it is unlikely that signing a treaty will stop global warming. Even if all the nations that have signed do achieve their targets it will mean a reduction of only 5.2% below 1990 levels. To stabilize global warming below the 2ºC level this figure would have to be between 50 and 90% (Borchert, 2007). 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. The scenario 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 CO_2 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. Renewable energies need to be pursued vigorously not only to aid in reducing greenhouse gas concentrations but also because coal and other fossil fuels will not always be around, since they are non-renewable. The White Paper on Renewable Energy (2003) lays the foundation for prioritizing the implementation of renewable energy and sets a target, as a policy objective, of ten thousand gigawatt-hours (GWh) of renewable energy contribution to the final energy demand in South Africa by 2013.

According to *Makanaone Hilton*, this project is desirable as it will contribute to government and private sector energy generation targets. Under the IPP Producer Procurement Programme, South Africa will seek to procure the first 3725 MW of renewable capacity by 2016 (1850 MW of on-shore wind) to meet the renewable energy target of 4000 MW by 2014 and 9000 MW by 2030. Fossil fuels supply 90% of South Africa's energy needs with demands on energy supply expected to increase by 3.5% in the next 20 years.

Therefore to summarise:

- Electricity supply

Over the last few years, South Africa has been adversely impacted by interruptions in the supply of electricity. The creation of a 'decentralised' power generation facility (i.e. not located in the traditionally centralised power producing regions of the Republic of South Africa) next to the town it proposes to supply, will secure a supplementary energy source for the area.

- Green energy

Growing concerns such as climate change and the ongoing exploitation of non-renewable resources have prompted increased international pressure on countries to increase their share of renewable energy generation. The South African government has recognized the country's high level of renewable energy potential and has placed targets of 10 000 GWh of renewable energy by 2013.

- Eastern Cape Renewable Energy Strategy

The Eastern Cape Government is exploring alternative energy supply such as wind, solar and hydroelectricity. The province is committed to a minimum of 2% of energy supply from Renewables by 2025.

- Climate change

The electricity generated by the photovoltaic facility will displace some fossil fuel based forms of electricity generation. The photovoltaic facility, 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.

1.4 THE SCOPING REPORT

This report is the first of a number of reports that will be produced in the EIA process (see Figure 1-1 above). The Scoping Report has been produced in accordance with the requirements as stipulated in Section 28 of the EIA regulations (GNR 543), which clearly outlines the content of a Scoping Report, and Sections 54-57 which cover the activities necessary for a successful Public Participation Process (PPP). Section 1.5.1 below provides the detailed structure of this Scoping report and section 1.5.2 that follows outlines the limitations and assumptions under which this report was compiled.

1.4.1 Structure

The structure of the report is as follows:

Chapter 1 - Introduction: Provides background information on the proposed project, a brief description of the EIA process required by NEMA and its associated regulations, and describes the key steps in the EIA process that have been undertaken thus far, and those that will be undertaken in the future. The details and expertise of the Environmental Assessment Practitioner (EAP) who prepared this report are also provided in this Chapter.

Chapter 2 – Project description: Provides a description of the proposed development, the property on which the development is to be undertaken and the location of the development on the property. The technical details of the process to be undertaken are also provided in this Chapter.

Chapter 3 – Relevant Legislation: Identifies all the legislation and guidelines that have been considered in the preparation of this Scoping Report.

Chapter 4 – Description of the affected environment: Provides a brief overview of the bio-physical and socio-economic characteristics of the site and its environs that may be affected by the proposed development compiled largely from published information, but supplemented by information from a site visit.

Chapter 5 – Public Participation Process: Provides details of the public participation process conducted in terms of Regulation 28(a) including:

- The measures undertaken thus far to notify I&APs of the application;
- Proof that notice boards, advertisements and notices notifying potentially I&APs of the application have been displayed, placed or given;
- A list of all persons and organisations that were identified and registered in terms of Regulation 57 as I&APs in relation to the application.

Chapter 6 – Issues identified during Scoping: Provides a description of the key issues that have been identified by the project team and through discussions with I&APs thus far in the Scoping Phase, and these will be assessed in the EIA phase.

Chapter 7 - Manner in which the environment may be affected: The environmental issues and resulting impacts that have been identified in the following phases of project development: planning and design, construction, operation, and decommissioning.

Chapter 8 - Alternatives: Provides a brief discussion of the feasible and reasonable alternatives to the present proposal that have been identified and considered, some of which will be investigated further in the EIA Phase.

Chapter 9 – Conclusions and Recommendations: Sets out the proposed approach to the environmental impact assessment of the proposed project including:

- A description of the scope of work that will be undertaken as part of the EIA phase, including any specialist reports or specialised processes, and the manner in which the described scope of work will be undertaken;
- An indication of the stages at which the competent authority will be consulted;
- A description of the proposed methodology for assessing the environmental issues and alternatives, including the option of not proceeding with the proposed development;
- Particulars of the public participation process that will be conducted during the EIA phase, and;
- Any specific information required by the authority.

Chapter 10 - Plan of Study for the EIA - Sets out the Plan of Study (PoS) for the EIA phase of the assessment

References: Cites any texts referred to during preparation of this report.

Appendices: Containing all supporting information

1.5 ASSUMPTIONS AND LIMITATIONS

This report is based on currently available information and, as a result, the following limitations and assumptions are implicit–

- 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 design specifications for the proposed photovoltaic facility that have not yet been finalised, and which are likely to undergo a number of iterations and refinements before they can be regarded as definitive. A project description based on the final design will be provided in the EIA Phase;
- 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.

1.6 DETAILS AND EXPERTISE OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

In terms of the EIA Regulations (2010), a Scoping Report must contain:

28. (1) A scoping report must contain all the information that is necessary for a proper understanding of the nature of issues identified during scoping, and must include –

(a) details of –

(i) the EAP who prepared the report; and

(ii) the expertise of the EAP to carry out scoping procedure

In fulfilment of the above-mentioned legislative requirement as well as Section 17 of the EIA Regulations (2006) which states that, “an EAP must have expertise in conducting environmental impact assessments, including knowledge of the Act, these Regulations and any guidelines that have relevance to the proposed activity”, provided below are the details of the Environmental Assessment Practitioner (EAP) that prepared this draft scoping report as well as the expertise of the individual members of the study team.

Coastal & Environmental Services (CES), established in 1990, is a specialist environmental consulting company based in Grahamstown, with branches in East London, Port Elizabeth (Eastern Cape Province, South Africa) and Maputo (Mozambique). We believe that a balance between development and environmental protection can be achieved by skilful, considerate and careful planning.

CES has considerable experience in terrestrial, marine and freshwater ecology, the Social Impact Assessment (SIA) process, and state of environment reporting (SOER), Integrated Waste Management Plans (IWMP), Spatial Development Frameworks (SDF), public participation, as well as the management and co-ordination of all aspects of the Environmental Impact Assessment (EIA) and Strategic Environmental Assessment (SEA) processes. CES has been active in all of the above fields, and in so doing have made a positive contribution towards environmental management and sustainable development in the Eastern Cape, South Africa and many other African countries.

1.6.1 Details of the EAP

Coastal and Environmental Services (CES)
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

The Project Team

Provided below are short *curriculum vitae* (CVs) of each of the team members involved in the proposed project EIA to date.

Mr Marc Hardy
(Role: Project Leader)
Marc holds a M.Phil in Environmental Management from Stellenbosch University'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 – mostly relating to Environmental Management Framework's (EMF's) - compliance monitoring and environmental auditing. Marc has, amongst others, been project manager for the Dinokeng EMF (Gauteng), the Milnerton Refinery to Ankerlig Power Station Liquid Fuels Transportation Infrastructure Project, numerous Eskom Transmission and Distribution power line and substation EIA's countrywide, mining EMPR compliance audits, compliance audits for Camden, Grootvlei and Komati Power Stations and the hazardous waste management facility for the Coega Development Corporation (Coega IDZ). 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 like the Gautrain Rapid Rail system and representing the Department on various EMF project steering committees. He is currently managing numerous EIA processes for wind energy developments countrywide, as well as renewable energy and mining projects throughout Africa.

Mr Jadon Schmidt
(Role: Project Manager)
Jadon holds a BSc degree in Geology and Botany, a BSc Honours degree in Botany (both from NMMU) and an MBA from Rhodes University with a core environmental management & sustainability focus. His MBA thesis addressed resource economic issues of marine protected areas. He is currently completing an MSc in estuarine ecology dealing specifically with sea level rise impacts on sediment and vegetation dynamics. Climate change, wetland ecology, renewable energy and resource economics are among his professional interests. Jadon is currently project leader/project manager for several EIAs in the large infrastructure & renewable energy sectors.

Mr Justin Green
(Role: Report Production)
Justin has a BSc. 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.

Dr Chantel Bezuidenhout
(Role: Report Review)
Chantel holds MSc and PhD degrees in Botany (estuarine ecology) and a BSc degree in Botany and Geography from NMMU. Chantel's main focus is estuarine ecology and she has done extensive work on 13 systems from the Orange River Mouth in the Northern Cape to the Mngazi Estuary in the Transkei. As a result she has been involved in a number of ecological reserve determination studies including the Kromme, Seekoei and Olifants systems. Chantel has been an Environmental Consultant for approximately 5 years and as such has been focused on

environmental management and impact assessment. Chantel is well versed in environmental legislation and has been involved in number of environmental impact assessments and management plans in South Africa, Zambia and Madagascar. She is currently employed in the Grahamstown office of CES.

Ms Tarryn Martin

(Role: Ecological Report Production)

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 C_3 and C_4 Panicoid and non-Panicoid grasses within the context of climate change. She has spent time at Rhodes University working as a research assistant and has spent many years working within the corporate tourism industry as a project manager. Her research interests include biodiversity conservation, ecotourism and climate change.

Mr Thomas King

(Role: Mapping)

Thomas holds a BSc degree with specialisation in Zoology from the University of Pretoria and an Honours degree in Biodiversity and Conservation from Rhodes University. As part of his Honours degree, Thomas was trained in Geographical Information Systems (GIS) and Community Based Natural Resource Management (CBNRM) in addition to the required biological sciences courses. His honours thesis investigated the rate at which Subtropical Thicket recovers naturally after heavy grazing by ostriches (*Struthio camelus).*

2 PROJECT DESCRIPTION

In terms of the EIA Regulations (2010), a Scoping Report must contain:

28. (1) A scoping report must contain all the information that is necessary for a proper understanding of the nature of issues identified during scoping, and must include –

(b) a description of the proposed activity

(d) a description of the property on which the activity is to be undertaken and the location of the activity on the property

2.1 LOCATION AND DESCRIPTION OF THE SITE OF THE PROPOSED DEVELOPMENT

The proposed photovoltaic project is to be constructed on a farm along the R400 close to Grahamstown, in the Eastern Cape Province of South Africa (Figure 2-1). Table 2-1 lists the farm and erf involved in the development.

Table 2-1 Farm/Erf number in the Albany Registration Division involved in the proposed development.

FARM/Erf NO.	ZONING	JURISDICTION	AREA (ha)
RE/187	Agriculture	Makana Local Municipality	1871.09
1/189	Agriculture	Makana Local Municipality	327.90
TOTAL EXTENT OF LANDHOLDINGS			2198.99

A more detailed description of the activities associated with the proposed Solar Energy Facility is contained in Section 2.2.

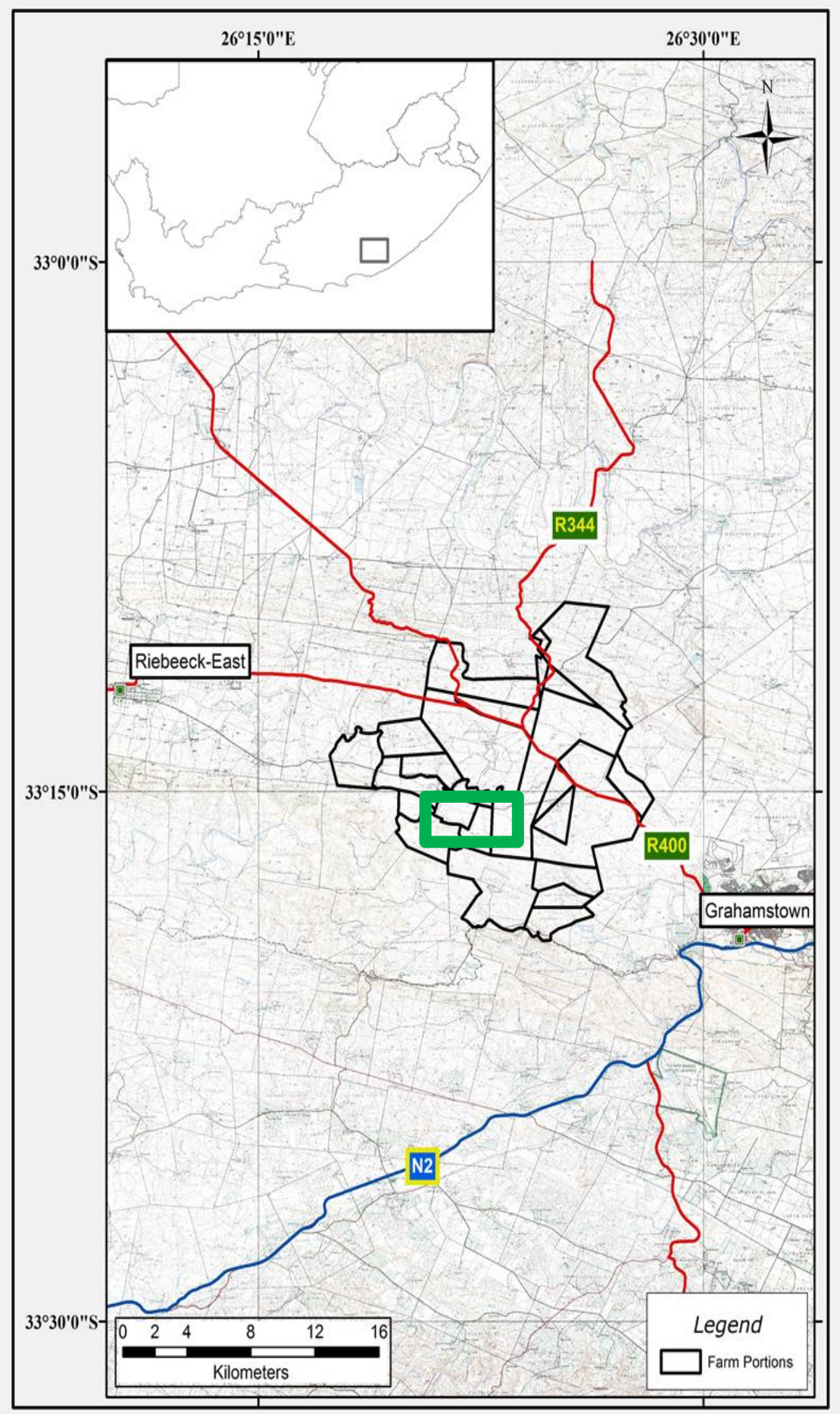


Figure 2-1: Location of the proposed Makanaone Hilton Solar Energy Project.

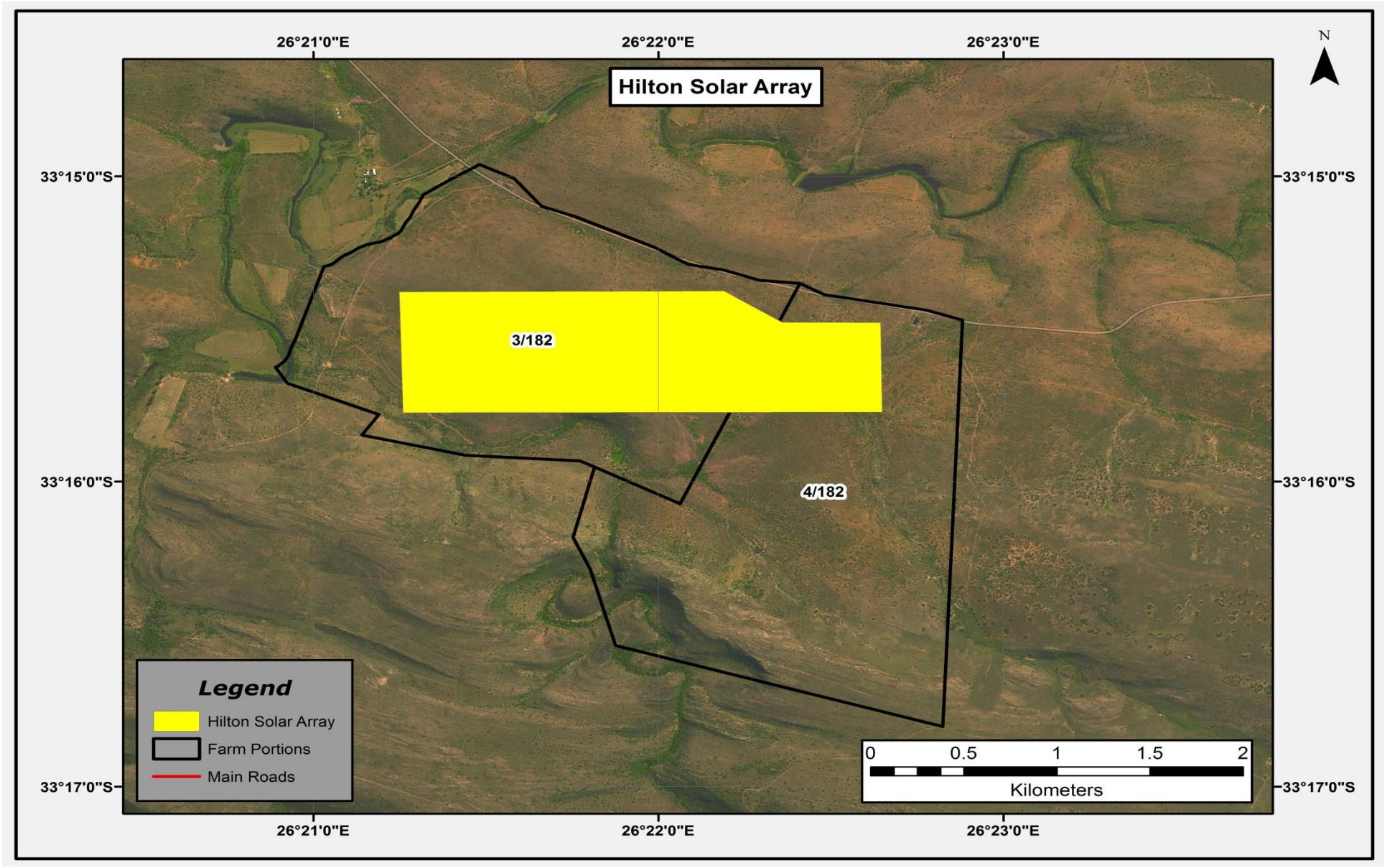


Figure 2-2: Layout of the facility indicating the preliminary position of all infrastructure components.

2.2 DESCRIPTION OF THE PROPOSED MAKANAONE HILTON SOLAR ENERGY FACILITY

The Makanaone Hilton Solar Energy Project proposes to use photovoltaic panels which will harness solar energy. The proposed photovoltaic facility is anticipated to produce up to 75 MW of electricity. The installation is estimated to cover a footprint of approximately 150 hectares.

2.2.1 Photovoltaic Arrays

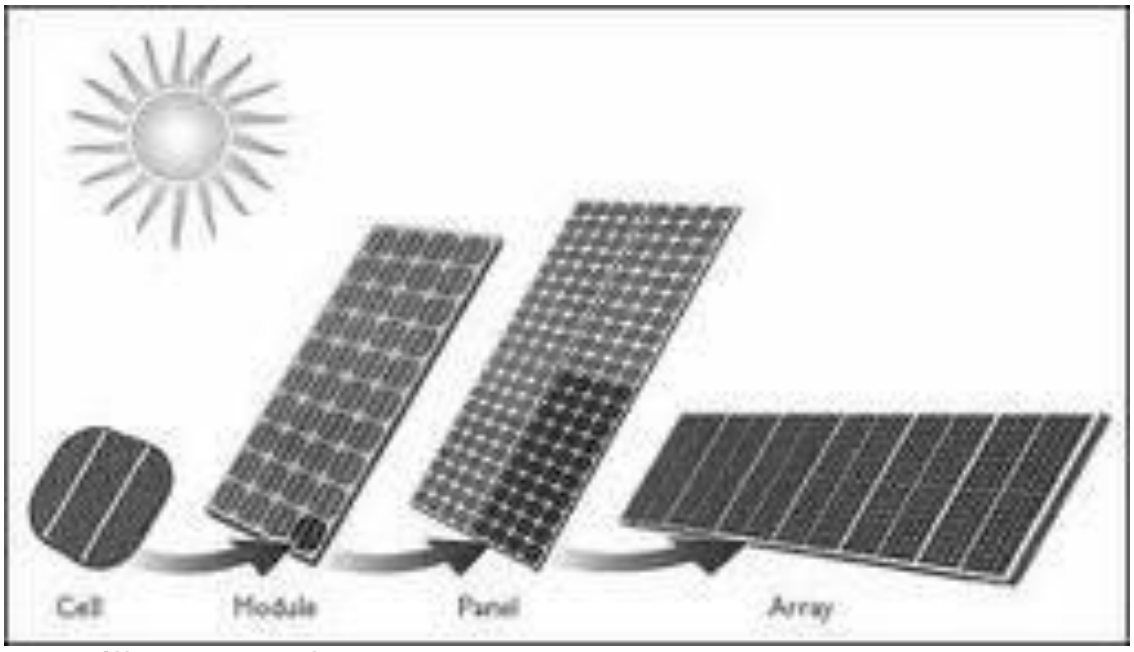


Figure 2-3. Different parts of a PV array.

An individual PV module is made of layers of polycrystalline silicone, which acts as a semi-conductor. When light shines on the cell it creates an electric field across the layers, causing electricity to flow. Higher light intensity will increase the flow of electricity. This charge is discharged *via* the module's transparent conductive front layer and metallic rear layer. The direct current generated within the module is fed into the electrical grid *via* an inverter (Figure 2-4).

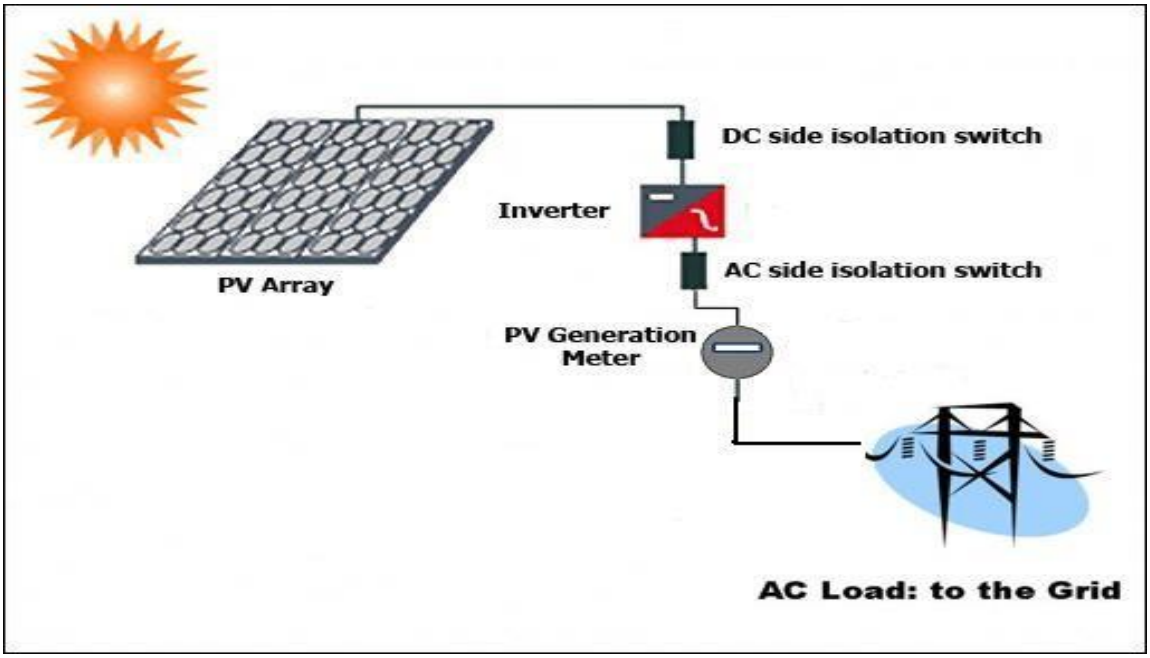


Figure 2-4: Schematic showing solar energy capture and electricity generation.

This thin-film PV module is 1.9m² (0.99m x 1.96m) in size, and comprises four panels. Each module is mounted on a metal supporting structure, no more than 1m off the ground, and has a potential output of 380W. There are a number of options regarding the structures and their anchoring to the ground. Typically this is done by means of a small concrete "foot" at the base of the pole supporting the structure (Figure 2-5 and Figure 2-7).

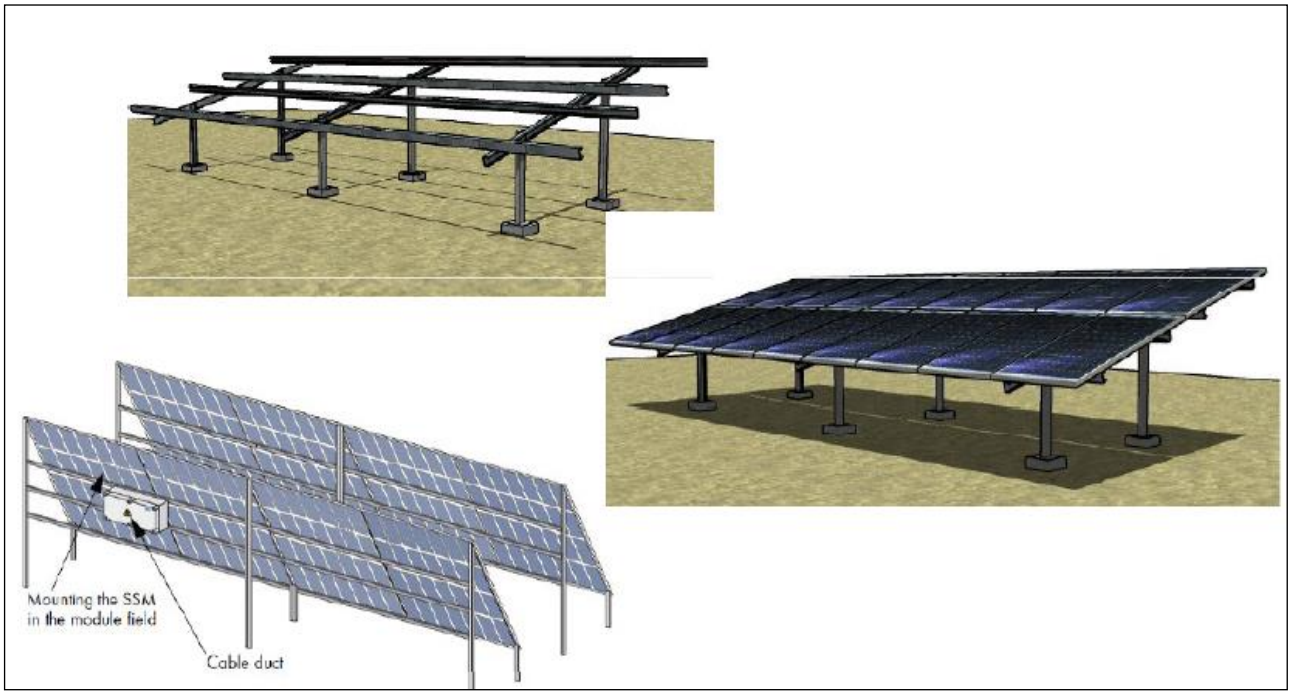


Figure 2-5: Example diagram of the PV array for the proposed development

Modules will be organized into groups of 1 MW (approximately 1.5 ha), with each group connected to a "group station" (a cabin of approximately 2.5 x 4 m containing transformers and inverters) (Figure 2-6).

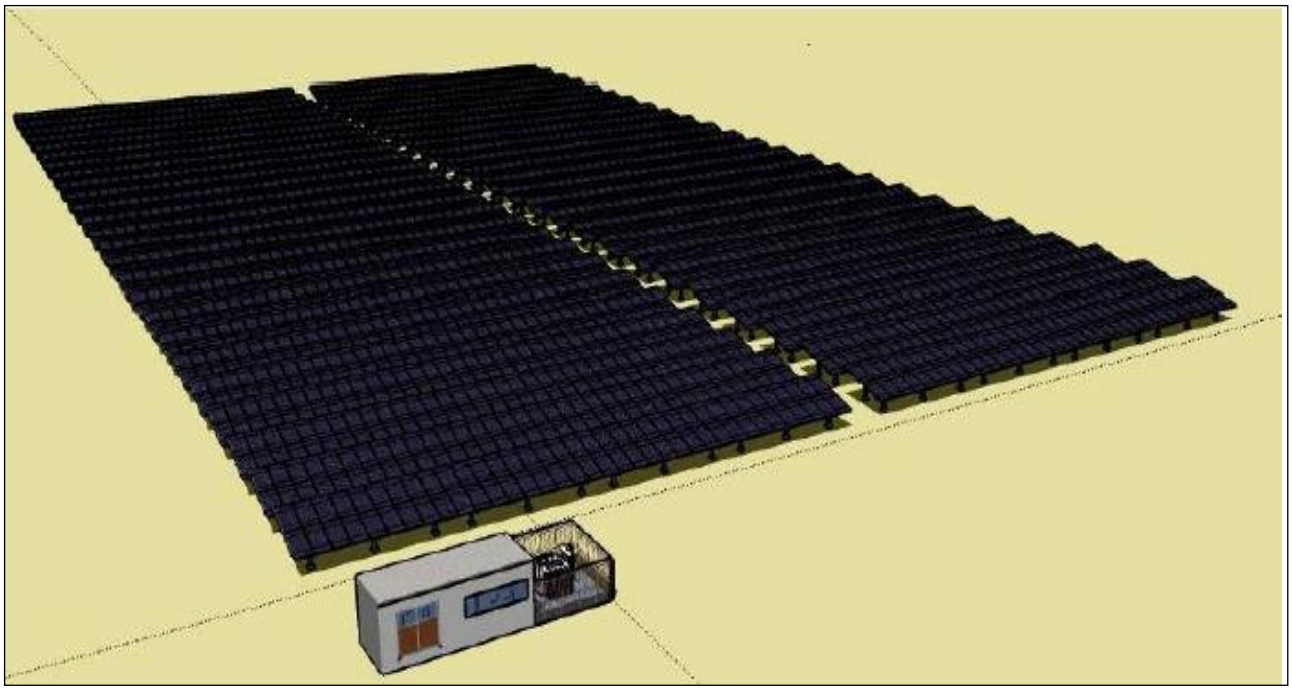


Figure 2-6: A solar array and group station showing the typical layout of the structures

Each “group station” is then connected with a “main station” of approximately the same size, which is connected to the closest substation via an underground power line. In total, the PV installation would have 100 “group stations” and a single “main station” and would cover up to 150 hectares.

It is also proposed that the PV facility be fenced for security reasons. A small control cabin will be built at the entrance to the park.

Figure 2-7: A photovoltaic array in Masdar (United Arab Emirates) showing typical concrete “foot” structures.

Elements:

Arrays
The facility will covering a total area of approximately 120 ha. The total physical footprint will be far less as only the concrete footpiece will touch the ground (Figure 2.3). The shape and size of arrays varies and numbers will vary depending on the end supplier of the technology

Roads
Only access roads to allow for a medium sized delivery truck are required – roads do not need to be constructed as they do for wind facility requirements. Roads will consist of single track gravel roads. The roads will be used as acess to service and maintain structures.

Electrical infrastructure
Solar generated electricity will link up to a group station. There will be a 100 of these group stations with a total footprint of a 1000 m^2 ($10m^2$ per group/station). All eletricity cables will be buried and link the group stations to a single main station onsite ($10m^2$ footprint). From there it will be distributed to the substation to link up with the main electricity grid. There may be overhead cables from group station to main station – this will depend on the grid connection study.

Maintenance facility
There will be a single maintenance facility onsite ($1000m^2$ footprint maximum) that will service as a garage and storage for all vehicles and maintenance equipment. This facility will be used for the Hilton Solar Energy Facility as well as the Brack Kloof, Watt Hill and Table Hill Solar Energy Facilities(should these gain Environmental Authorisation as well), as explained in the Introduction.

2.2.2 Operation phase

The electricity that is generated from the PV modules will have its voltage increased through the onsite transformers. Thereafter the power will be fed to the substation via an underground power line. This will then link to the existing overhead power lines.

It is anticipated that a full-time security, maintenance and control room staff will be required on site. Each component within the solar energy facility will be operational except under circumstances of unfavourable weather conditions or maintenance activities.

Maintenance will consist mostly of panel replacement and electrical infrastructure repairs. Cleaning would be undertaken using a vehicle-based compressor and a wash down with water once or twice annually, as required. Water usage will be minimal (possible water sources must still be investigated). An onsite maintenance facility will be used as a repair base and for storage of maintenance equipment.

Grass and grounds will be maintained on a regular basis.

2.2.3 Decommissioning phase

The PV is expected to have a lifespan of approximately 30 years (with maintenance). The infrastructure would only be decommissioned once it has reached the end of its economic life. If economically feasible, the decommissioning activities would comprise the disassembly and replacement of the individual components with more appropriate technology/infrastructure available at the time. However, if not deemed so, then the facility would be completely decommissioned which would include the following decommissioning activities.

(a) Site preparation
Activities would include confirming the integrity of the access to the site to accommodate the required equipment and the mobilisation of decommissioning equipment.

(b) Disassemble and replace existing components
The components would be disassembled and reused and recycled or disposed of in accordance with regulatory requirements.

2.3 ADDITIONAL PHOTOVOLTAIC AND WIND ENERGY PROJECTS

2.3.1 Makanaone

An additional 3 Scoping Reports have been submitted to the DEA for the construction of following projects:

- Makanaone Brack Kloof Photovoltaic Solar Energy Project
  - DEA Reference Number: 14/12/16/3/3/2/366/

- Makanaone Watt Hill Photovoltaic Solar Energy Project
  - DEA Reference Number: 14/12/16/3/3/2/358/

- Makanaone Table Hill Photovoltaic Solar Energy Project
  - DEA Reference Number: 14/12/16/3/3/2/368/

The location of the afore mentioned projects are in close proximity to the Makanaone Hilton project. As well as the additional 3 solar facilities, an application for the proposed Makanaone Wind Energy Project (DEA Reference Number: 14/12/16/3/3/2/369/) will also be submitted to the DEA. The cumulative effect of the 5 projects can be seen in figure 2-8 on the following page. It is important to note that each project is being submitted individually and not as a single project. The number of projects that will finally receive Environmental Authorisation will be determined by the DEA.

2.3.2 Additional Wind Energy Facilities

There are a number of windfarms that have been proposed in the surrounding areas other than those mentioned in Section 2,3,1.

The following facilities can be found surrounding the Makanaone Hilton Solar Energy Facility:

- Plan 8 Infinite Energy - *Plan 8 Grahamstown Wind Energy Project*
  - Located to the east of Grahamstown
- Innowind – Waainek Wind Farm
  - Located to the west of Grahamstown
- Terra Power Solutions – Cookhouse Wind Energy Project
  - Located to the north-west of Grahamstown
- Terra Power Solutions – Middleton Wind Energy Project
  - Located to the north-west of Grahamstown
- Savannah Environmental – Spitskop Wind Energy Facility
  - Located to the west of Grahamstown

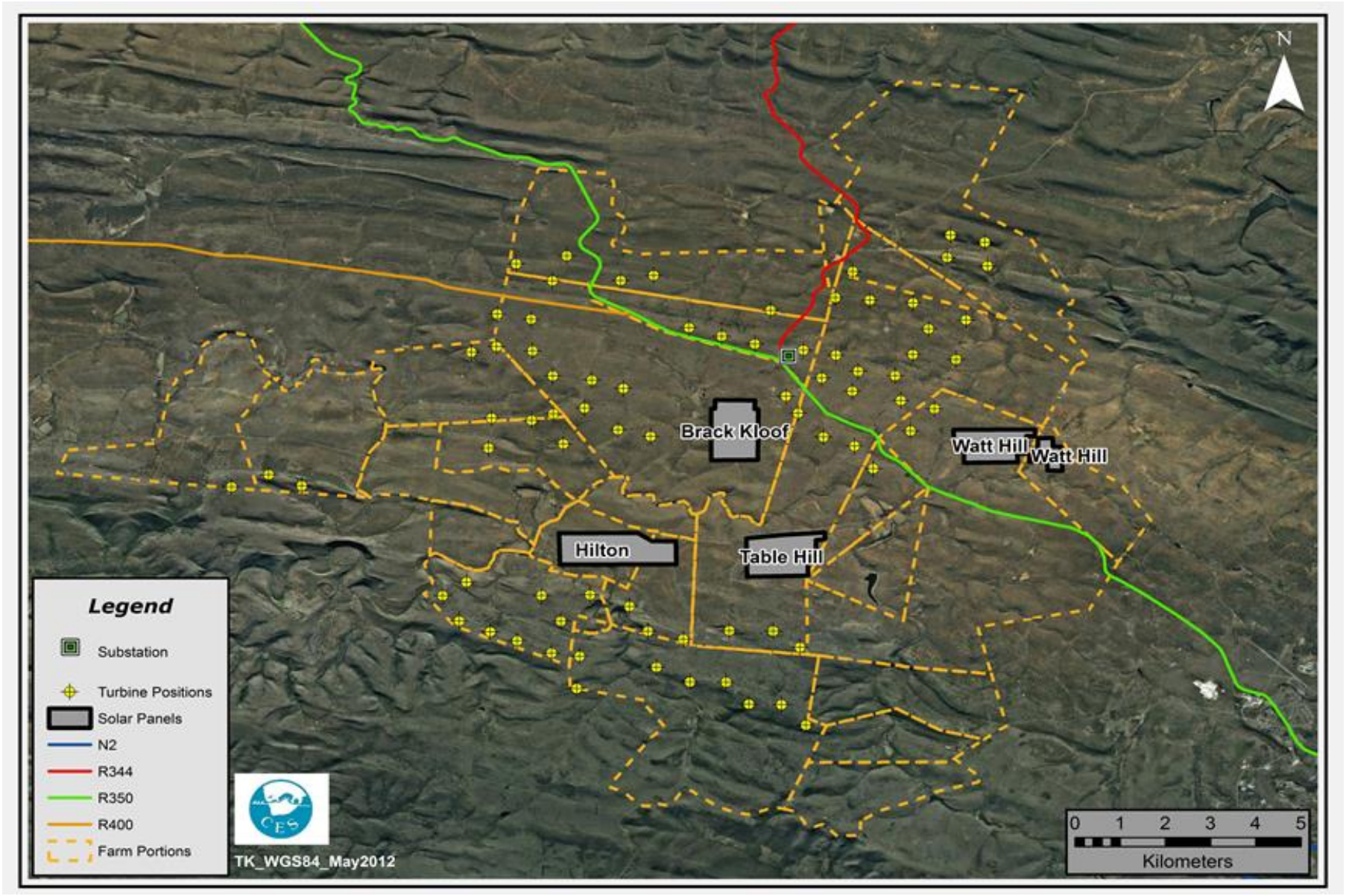


Figure 2-8: Cumulative effect of the four Makanaone Solar Energy Projects and the Makanaone Wind Energy Project.

3 RELEVANT LEGISLATION

According to regulation 28 (1) and (2) of the EIA regulations (2010), *A scoping report must include –*

1(f) an identification of all legislation and guidelines that have been considered in the preparation of the scoping report

(2) In addition, a scoping report must take into account any guidelines applicable to the kind of activity which is the subject of the application.

In line with the above-mentioned legislative requirement, the development of the proposed solar energy project described in Chapter 2 above will be subject to the requirements of a number of laws both international and national. These include:

3.1 INTERNATIONAL

3.1.1 The 1992 United Nations Framework Convention on Climate Change (FCCC)

The FCCC is a framework convention which was adopted at the 1992 Rio Earth Summit. South Africa signed the FCCC in 1993 and ratified it in August 1997 (Glazewski, 2005). The stated purpose of the FCCC 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*", and to thereby prevent human-induced climate change by reducing the production of greenhouse gases defined as, "*those gaseous constituents of the atmosphere both natural and anthropogenic, that absorb and re-emit infrared radiation*".

Relevance to the proposed project:

- The FCCC 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.

3.1.2 The Kyoto Protocol (2002)

The Kyoto Protocol is a protocol to the FCCC 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:

- Although currently the subject of much international debate, 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.

3.2 NATIONAL

3.2.1 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.

3.2.2 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 has been assessed in terms of possible conflicts or compliance with these principles. Section 2 of NEMA contains principles (see Box 1) relevant to the proposed project, and likely to be utilised in the process of decision making by DEA.

BOX 1: NEMA ENVIRONMENTAL MANAGEMENT PRINCIPLES

(2)	Environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably.
(3)	Development must be socially, environmentally and economically sustainable.
(4)(a)	Sustainable development requires the consideration of all relevant factors including the following: i. That the disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied; ii. That pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied; iii. That waste is avoided, or where it cannot be altogether avoided, minimised and re-used or recycled where possible and otherwise disposed of in a responsible manner.
(4)(e)	Responsibility for the environmental health and safety consequences of a policy, programme, project, product, process, service or activity exists throughout its life cycle.
(4)(i)	The social, economic and environmental impacts of activities, including disadvantages and benefits, must be considered, assessed and evaluated, and decisions must be appropriate in the light of such consideration and assessment.
(4)(j)	The right of workers to refuse work that is harmful to human health or the environment and to be informed of dangers must be respected and protected.
(4)(p)	The costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment.
(4)(r)	Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure.

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.

3.2.3 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 (see Box 2). 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:

d) 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;
- 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.

BOX 2: MANAGEMENT AND CONSERVATION OF SOUTH AFRICA'S BIODIVERSITY WITHIN THE FRAMEWORK OF NEMA

CHAPTER 4	
	Provides for the protection of species that are threatened or in need of national protection to ensure their survival in the wild; o to give effect to the Republic's obligations under international agreements regulating international trade in specimens of endangered species; and o ensure that the commercial utilization of biodiversity is managed in an ecologically sustainable way.
CHAPTER 5 (Part 2)	
Section 73	A person who is the owner of land on which a listed invasive species occurs must: a) notify any relevant competent authority, in writing, of the listed invasive species occurring on that land; b) take steps to control and eradicate the listed invasive species and to prevent it from spreading; and c) take all required steps to prevent or minimise harm to biodiversity.
Section 75	• Control and eradication of a listed invasive species must be carried out by means of methods that are appropriate for the species concerned and the environment in which it occurs. • Any action taken to control and eradicate a listed invasive species must be executed with caution and in a manner that may cause the least possible harm to biodiversity and damage to the environment. • The methods employed to control and eradicate a listed invasive species must also be directed at the offspring, propagating material and re-growth of such invasive species in order to prevent such species from producing offspring, forming seed, regenerating or re-establishing itself in any manner.

3.2.4 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 relevant authority to perform any of the above-listed activities.

3.2.5 National Heritage Resources Act (25 of 1999)

The protection of archaeological and palaeontological resources is the responsibility of a provincial heritage resources authority and all archaeological objects, palaeontological material and meteorites are the property of the State. "*Any person who discovers archaeological or palaeontological objects or material or a meteorite in the course of development must immediately report the find to the responsible heritage resources authority, or to the nearest local authority offices or museum, which must immediately notify such heritage resources authority*".

Relevance to the proposed project:

- An archaeological 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 palaeontological 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.

3.2.6 Atmospheric Pollution Prevention Act 45 of 1965

This Act is currently the central legislation for the prevention of air pollution. Part IV deals with dust control – "*Whenever dust originating on any land in a dust controlled area is causing a nuisance to persons residing or present in the vicinity of that land, the owner or occupier may be required to take the prescribed steps or adopt the "best practicable means" for the abatement of the dust*".
This Act applied until the more recent National Environmental Management: Air Quality Act (see section 3.2.7 below) came into force.

Relevance to the proposed project:

- The "best practicable means" for the abatement of dust during construction if approved have to be taken.
- All appliances used for preventing or reducing to a minimum the escape into the atmosphere of noxious or offensive gases have to be properly operated and maintained and the best practice means for achieving this implemented.

3.2.7 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.

3.2.8 The White Paper on Energy Policy for South Africa (Energy White Paper)

The White Paper on the Energy Policy for South Africa (Energy White Paper) is an overarching document which sets out the government's official policy on the supply and consumption of energy for the next decade. One of the main goals of the White Paper is to create energy security by diversifying the energy supply and energy carriers. Currently, much of South Africa's energy is derived from extremely expensive imported fuels and coal-powered energy generation, which could be threatened by climate change response measures of developed countries (refer to section 3.1 above). The White Paper points out that, South Africa has abundant energy sources and it stresses that, "*all possible energy carriers should be taped to ensure economic growth and development*". Many of the sectors contributing to the Gross Domestic Product (GDP) are practically driven by these energy carriers. In fact, according to Glazwesky (2005), industry as a whole consumes approximately 40% of the total electricity generated, making it the chief energy source for South Africa's economic growth and development.

In addition to the above the Energy White Paper notes that there is currently insufficient renewable energy data and lack of transparency in publicly sharing the data. Information on renewable energy system applications, system standards, installation and performance guides, technical and economic characteristics, and identifying human training capacity is essential as the government commits to a healthier environment as part of their agenda. The position of the Energy White Paper on renewable energy is based on the integrated resource planning principle of, "*ensuring that an equitable level of national resources is invested in renewable technologies, given their potential and compared to investments in other energy supply options*", and this has subsequently been elaborated by the White Paper on Renewable Energy (see section 3.2.9 that follows).

Relevance to the proposed project:

- The proposed Solar Farm project is a direct consequence of the Government's White Paper on Energy Policy and the requirements therein to improve energy security of supply through diversification, as well as the demonstration and introduction of cleaner energy technologies and

the promotion of competition and empowerment in the electricity market.

3.2.9 The White Paper on Renewable Energy Policy (Renewable Energy White Paper)

The White Paper on the Renewable Energy Policy (Renewable Energy White Paper) complements the White Paper on Energy Policy discussed in section 3.2.8 above, by pledging "*Government Support for the development, demonstration and implementation of renewable energy sources for both small and large scale applications*". It sets out the policy principles, goals and objectives to achieve, "*An energy economy in which modern renewable energy increases its share of energy consumed and provides affordable access to energy throughout South Africa, thus contributing to sustainable development and environmental conservation*". The Department of Minerals and Energy (DME) (now the Department of Energy) embarked on an Integrated Energy Plan (IEP) to develop the renewable energy resources, while taking safety, health and the environment into consideration. The government set a target of, "*10 000 GWh (0.8Mtoe) renewable energy contribution to final energy consumption by 2013, to be produced mainly from biomass, wind, solar and small-scale hydro*". Four strategic areas that needed to be addressed to create the appropriate enabling environment for the promotion of renewable energy were identified. These included:

- Financial instruments;
- Legal instruments;
- Technology development, and;
- Awareness raising, capacity building and education.

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

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

3.2.11 Electricity Regulation on New Generation Capacity (Government Gazette No 32378 of 5 August 2009)

On 5 August 2009 the government of the Republic of South Africa promulgated the Electricity Regulations on New Generation Capacity (Government Gazette No 32378) which were made by the Department of Energy in terms of the Electricity Regulation Act 2006 (see 3.2.11 above), and are applicable to:- (a) all types of generation technology including renewable generation and co-generation technology (i.e. landfill gas, small hydro (less than 10 MW), wind and concentrated solar power (with storage)) but excluding nuclear power generation technology; (b) base load, mid-merit and peak generation; and (c) take effect from the date of promulgation, unless otherwise indicated.

The objectives of these regulations are:

- The regulation of entry by a buyer and an Independent Power Producer (IPP) into a power purchase agreement;
- The facilitation of fair treatment and the non-discrimination between IPP generators and the buyer;
- The facilitation of the full recovery by the buyer of all costs incurred by it under or in connection with the power purchase agreement and an appropriate return based on the risks assumed by the buyer there under and, for this purpose to ensure the transparency and cost reflectivity in the determination of electricity tariffs;
- The establishment of rules and guidelines that are applicable in the undertaking of an IPP bid programme and the procurement of an IPP for purposes of new generation capacity;
- The provision of a framework for the reimbursement by the regulator, of costs incurred by the buyer and the system operator in the power purchase agreement, and;
- The regulation of the framework of approving the IPP bid programme, the procurement process, the RFP Process, and the relevant agreements to be concluded.

The Guidelines describe the basic structure of the REFIT programme, including the roles of various parties in the programme, namely National Energy Regulator of South Africa (NERSA), Eskom and renewable energy generators. Pursuant to the Guidelines, Eskom's "Single Buyer Office" is to be appointed as the Renewable Energy Purchasing Agency (REPA), the exclusive buyer of power under the REFIT programme. Generators participating in the REFIT scheme are required to sell power generated by renewable technologies to Eskom as the REPA under a Power Purchase Agreement, and are entitled to receive regulated tariffs, based on the particular generation technology. NERSA is tasked with the administration of the REFIT programme, including setting the tariffs and verifying that generation is genuinely from renewable energy sources.

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. This Regulation states that NERSA is to, "*develop rules related to the criteria for the selection of "renewable energy IPPs… that qualify for a licence"* and sets out a list of matters that the criteria prescribed by NERSA should take account of. These include:

- Compliance with the integrated resource plan and the preferred technologies;
- Acceptance by the IPP of a standardised power purchase agreement;
- Preference for a plant location that contributes to grid stabilisation and mitigates against transmission losses;
- Preference for a plant technology and location that contributes to local economic development;
- Compliance with legislation in respect of the advancement of historically disadvantaged individuals;
- Preference for projects with viable network integration requirements;
- Preference for projects with advanced environmental approvals;
- Preference for projects demonstrating the ability to raise finance;
- Preference for small distributed generators over centralized generators; and
- Preference for generators that can be commissioned in the shortest time.

According to Dewey & LeBouef (August, 2009), it appears, therefore, that successful REFIT projects may not be selected through a conventional bidding process, but instead, applications will be selected on the basis of prescribed criteria. Just what such criteria are, and how they will be applied and weighted is not yet clear, but it is expected that this will be set out in the rules to be developed by NERSA as required by Regulation 7(2)(a).

Relevance to the proposed project:

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

3.2.12 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 (See Box 3). 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 Solar 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 OHSA and mitigate any potential impacts.

BOX 3: HEALTH AND SAFETY OF PERSONS AT WORK ACCORDING TO THE OCCUPATIONAL HEALTH AND SAFETY ACT

8: GENERAL DUTIES OF THE EMPLOYERS TO THEIR EMPLOYEES	
(1)	Every employer shall provide and maintain, as far as is reasonably practicable, a working environment that is safe and without risk to the health of his employees.
(2)	Without derogating from the generality of an employer's duties under subsection (1), the matters to which those duties refer include in particular- a) The provision and maintenance of systems of work, plant and machinery that, as far as is reasonably practicable, are safe and without risks to health; b) Taking such steps as may be reasonably practicable to eliminate or mitigate any hazard or potential hazard to the safety or health of employees, before resorting to personal protective equipment; d) Establishing, as far as is reasonably practicable, what hazards to the health or safety of persons are attached to any work which is performed, any article or substance which is produced, processed, used, handled, stored or transported and any plant or machinery which is used in his business, and he shall, as far as is reasonably practicable, further establish what precautionary measures should be taken with respect to such work, article, substance, plant or machinery in order to protect the health and safety of persons, and he shall provide the necessary means to apply such precautionary measures; e) Providing such information, instructions, training and supervision as may be necessary to ensure, as far as is reasonably practicable, the health and safety at work of his employees; f) As far as is reasonably practicable, not permitting any employee to do any work or to produce, process, use, handle, store or transport any article or substance or to operate any plant or machinery, unless the precautionary measures contemplated in paragraphs (b) and (d), or any other precautionary measures which may be prescribed, have been taken; g) Taking all necessary measures to ensure that tire requirements of this Act are complied with by every person in his employment or on premises under his control where plant or machinery is used; h) Enforcing such measures as may be necessary in the interest of health and safety; i) Ensuring that work is performed and that plant or machinery is used under the general supervision of a person trained to understand the hazards associated with it and who have the authority to ensure that precautionary measures taken by the employer are implemented; and authority as contemplated in Section 37 (1) (b).
14: GENERAL DUTIES OF EMPLOYEES AT WORK **Every employee shall at work:-**	
(a)	Take reasonable care for the health and safety of himself and of other persons who may be affected by his acts or omissions;
(b)	As regards any duty or requirement imposed on his employer or any other person by this Act, cooperate with such employer or person to enable that duty or requirement to be performed or complied with;
(c)	Carry out any lawful order given to him, and obey the health and safety rules and procedures laid down by his employer or by anyone authorized thereto by his employer, in the interest of health or safety;
(d)	If any situation which is unsafe or unhealthy comes to his attention, as soon as practicable report such situation to his employer or to the health and safety representative for his workplace or section thereof, as the case may be, who shall report it to the employer; and
(e)	If he is involved in any incident which may affect his health or which has caused an injury to himself, report such incident to his employer or to anyone authorized thereto by the employer, or to his health and safety representative, as soon as practicable but not later than the end of the particular shift during which the incident occurred, unless the circumstances were such that the reporting of the incident was not possible, in which case he shall report the incident as soon as practicable thereafter.
15: DUTY NOT TO INTERFERE WITH, DAMAGE OR MISUSE THINGS **[S. 15 substituted by S. 3 of Act No. 181 of 1993.]**	
	No person shall intentionally or recklessly interfere with, damage or misuse anything which is provided in the interest of health or safety.

Other relevant legislation

Other legislation that may be relevant to the proposed solar energy project includes:-

National:

- The Telecommunication Act (1966) which has certain requirements with regard to potential impacts on signal reception;
- 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;
- The Conservation of Agricultural Resources Act 43 of 1983 controls and regulates the conservation of agriculture and lists all regulated invasive species;
- The Development Facilitation Act 67 of 1995 provides for development and planning;
- The Environmental Conservation Act 73 of 1989 provides for effective protection, control and utilisation of the environment;
- The Mountain Catchment Areas Act 63 of 1970 provides for catchment conservation;
- The National Water Act 36 of 1998 regulates all matters relating to water including-drainage lines;
- 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; and
- Nature and Environmental Conservation Ordinance (No. 19 of 1974), which lists species of special concern which require permits for removal.

Other national legislation that may be relevant to the proposed Makanaone Hilton Solar Energy Project includes:-

- The **Telecommunications Act (1966)** as amended, which has certain requirements with regard to potential impacts on signal reception.
- 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.

In addition to the above, aside from the environmental authorisation, there are other permits, contracts, licences and authorisations that will need to be obtained by the applicant 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
- National Energy Regulator of South Africa (NERSA): Generation Licence
- Eskom: Connection agreement and Power Purchase Agreement (PPA)

3.3 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. Some of these conditions reflect the requirements of the Makana Local Municipality and, among others, relate to noise levels. In addition, there will be certain requirements related to the health and safety during construction and approval of method statements, particularly for excavation work.

At this stage in the EIA process the above list should not be regarded as definitive or exhaustive, and it is probable that additional legislative requirements will be identified as the process progresses. In this regard, the Terms of Reference for most of the specialist studies will include the need for a review of all relevant legislation pertaining to the proposed development

4 DESCRIPTION OF THE AFFECTED ENVIRONMENT

According to regulation 28 (1) of the EIA regulations (2010), *A scoping report must include –*

(e) a description of the environment that may be affected by the activity and the manner in which activity may be affected by the environment

In line with the above-mentioned legislative requirement, this chapter provides a description of the natural and socio-economic environments that could potentially be impacted by the proposed Hilton Solar Energy Project. The study site occurs between the city of Grahamstown and the town of Riebeeck East in the Eastern Cape Province, South Africa (Section 4.1).

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 Makana region, the area that will be most directly affected by the construction and operation of the proposed Makanaone Hilton Solar Energy Project, is presented in Section 4.2 of this chapter. The profile includes basic demographic data on the municipal area.

4.1. THE BIO-PHYSICAL ENVIRONMENT

4.1.1 Climate

Due to the location of the study area at the confluence of several climatic regimes, namely temperate and subtropical, the Eastern Cape Province of South Africa has a complex climate. 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.

There is data available for climatic conditions in Grahamstown, which is close to the study site. The mean annual temperature is 16.4^{o}C with an average maximum temperature of 20oC and an average minimum temperature of 9^{o}C (Stone et al. 1998). The average annual rainfall for Grahamstown is 681mm and falls in a bimodal pattern with the most rain falling in Autumn and Spring (Stone et al. 1998). Rainfall reliability is poor and long lasting droughts are common (Palmer 2004).

4.1.2 Geology and Topography

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 give rise to the great diversity of vegetation types and habitats found in the region. The mountainous area on the northern border of the Eastern Cape 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 Folded Mountains start between East London and Port Elizabeth and continue westward into the Western Cape. Like KwaZulu-Natal, the Eastern Cape is characterised by a large number of short, deeply incised rivers flowing parallel to each other.

Most of the Eastern Cape rock formations are sedimentary, with rock types such as sandstone, mudstone, limestone, conglomerate and tillite being relatively common (CEN 1997). Grahamstown and Riebeeck East are underlain by folded rocks of the Cape and Karoo supergroups, in the eastern area of the Cape fold Belt (Jacob *et al.* 2004). The Cape Supergroup rocks comprise the Witteberg group whilst those of the Karoo Supergroup comprise Dwyka and Ecca groups (Jacob *et al.* 2004). The Witteberg group mostly consists of thin-bedded reddish-grey silt-stones and interbedded thin beds of sandstone (Rust, 1998). Importantly, a white quartzite forming the Witpoort formation occurs at the top of the group and white quartzite outcrops occur (Rust, 1998).

The Dwyka group of the Karoo Supergroup consist of tillite which is a bluish-black rock when fresh and brownish tan when weathered. (Rust, 1998). The Ecca group, also forming part of the Karoo Supergroup, consists of a succession of dark grey shale units with interbedded sandstone (Rust 1998).

The general topography of the proposed solar energy facility is composed of gently undulating hills.

4.1.3 Vegetation and Floristics

Vegetation

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 understorey are of karroid affinities and are often localised endemics.

There are two vegetation classifications pertinent to the area. These are the National Vegetation Map developed by Mucina and Rutherford and the Subtropical Ecosystem Planning (STEP) Project. Each of these projects and descriptions of the relevant vegetation types are described below.

National Vegetation Map: 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 map 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 (Figure 4-1) from which source these descriptions are derived:

Bhisho Thornveld

This vegetation type occurs in the Eastern Cape Province inland from the coast from Mthatha to North of East London as far as Fort Beaufort and occurring near Grahamstown. Bhisho Thornveld occurs on undulating planes and shallow drainage valleys. It comprises open savannah characterised by small trees of *Acacia natalitia* with a short to medium, dense, sour grassy understory, usually dominated by *Themeda triandra*. A diversity of other woody species may occur,

increasing under conditions of overgrazing. The vegetation type is wide-ranging and fire and grazing are important determinants.

This vegetation type is listed at **Least Threatened** by Mucina and Rutherford (2006). The conservation target is 25%, with only 0.2% statutorily conserved and 2% privately conserved. 20% has been transformed, mainly for cultivation, urban development or plantations.

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 4-2) identifies five vegetation types in this region. *Pierce and Mader (2006)* define the following vegetation types (Figure 4-1) from which source these descriptions are derived:

Grahamstown Grassland Thicket

This vegetation type is a matrix of thicket clumps and grassland. Thicket clumps are typical of Albany Thicket, and contain taaibos (*Rhus pallens*), katdoring (*Scutia myrtina*), kiepersol (*Cussonia spicata*) and poison peach (*Diospyros dicrophylla*). The grassland matrix has many fynbos elements (*Erica* sp and *Restio triticeus*) as well as numerous species of rare localised endemic species, such as the genus *Brachystelma*. Grahamstown Grassland Thicket is listed as **Currently Not Vulnerable** by STEP.

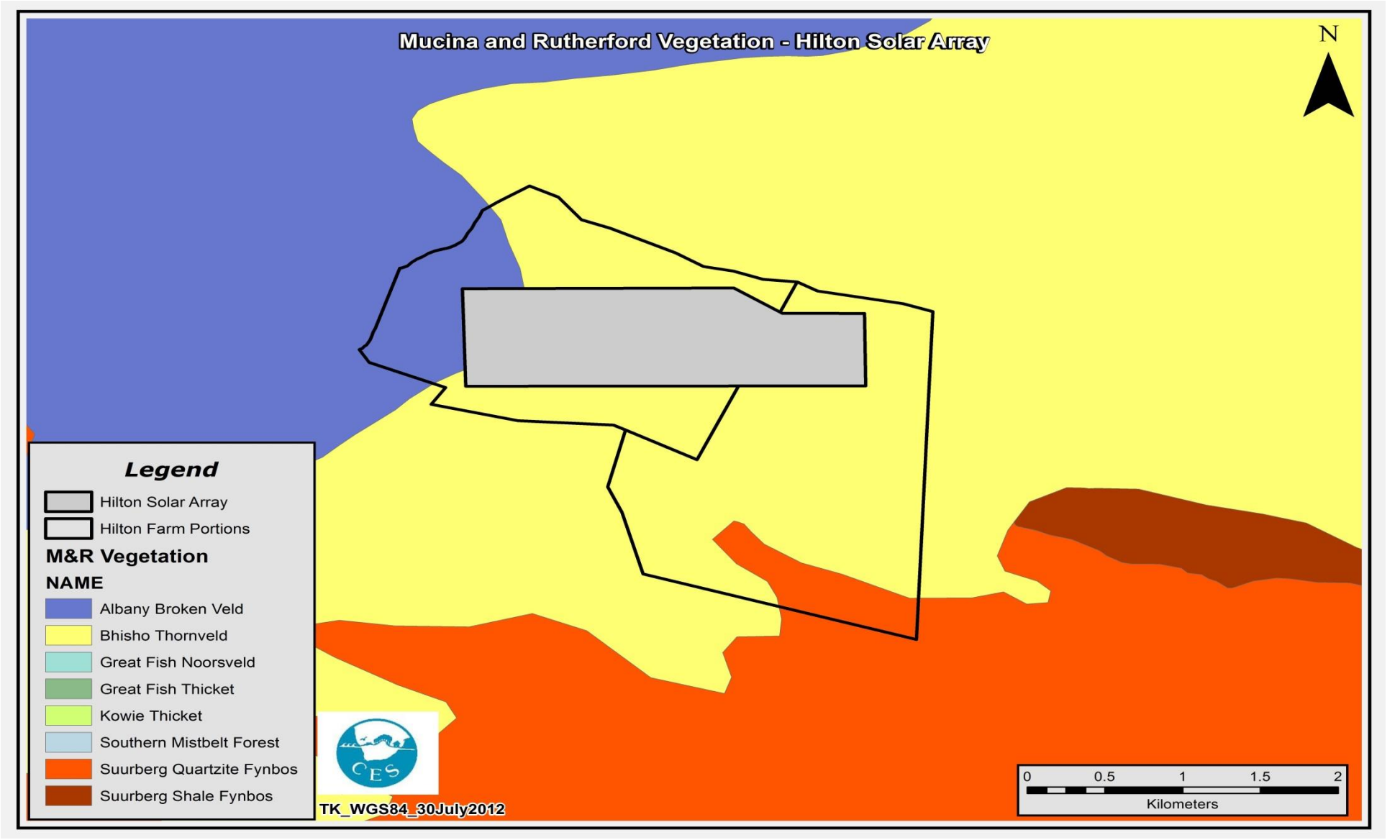


Figure 4-1: Mucina and Rutherford vegetation map of the study area

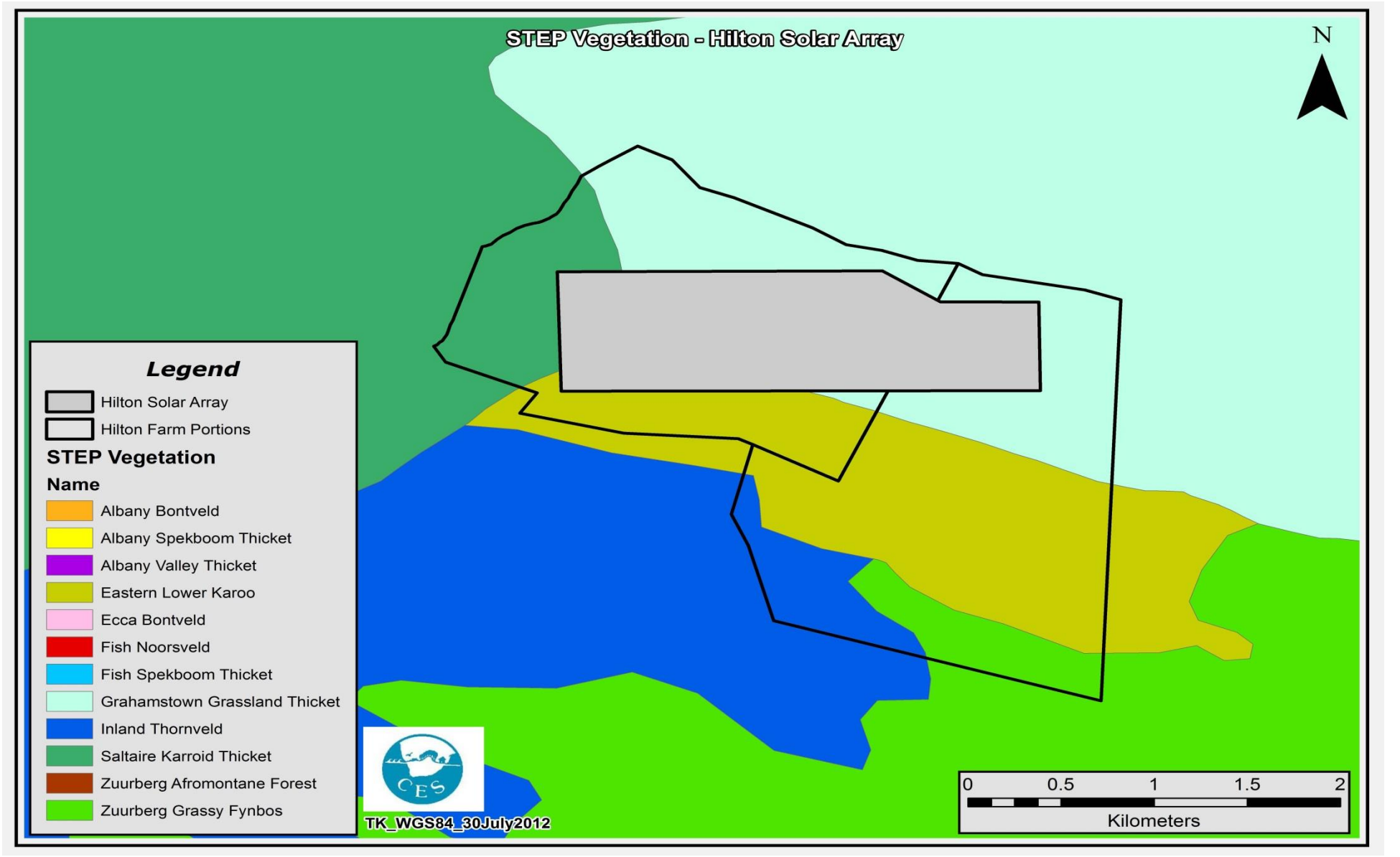


Figure 4-2: STEP vegetation map of the study area

4.1.4 Floristics

Grahamstown and Riebeeck East fall within the Albany Centre of Floristic Endemism; also known as the Albany Hotspot (Figure 4-3). This is an important centre for plant taxa, and, according to van Wyk and Smith (2001), contains approximately 4000 vascular plant species with approximately 15% either endemic or near-endemic (Victor and Dold, 2003). This area was delimited as the, '*region bounded in the west by the upper reaches of the Sundays and Great Fish River basins, in the east by the Indian Ocean, in the south by the Gamtoos–Groot River basin, and in the north by the Kei River basin*' (Victor & Dold, 2003).

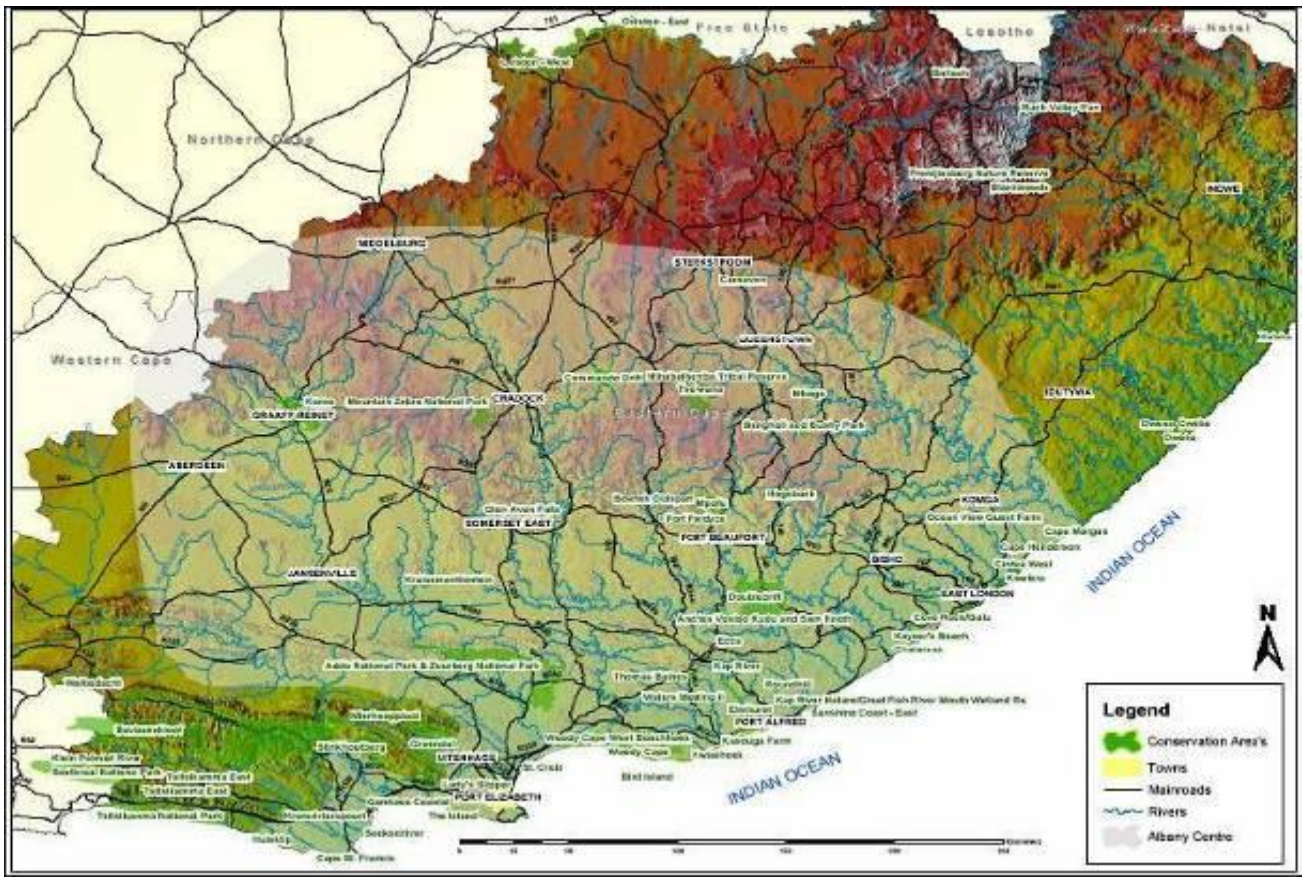


Figure 4-3: The Albany Centre of Endemism, also known as the 'Albany Hotspot', has long been recognised as an important centre of plant species diversity and endemism (From van Wyk and Smith 2001).

Potential Species of Special Concern (PSSC)

Potential Species of Special Concern (PSSC) 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. If any of these species are found to occur on site, they are given the status of Confirmed Species of Special Concern (CSSC). Such a list will be produced in the EIA stage of the proposed development. The list of PSSC includes an estimated 450 species that are listed individually by the IUCN red data list, the South African National Biodiversity Institute (SANBI), the Forests Act and the Provincial Nature Conservation Ordinance (PNCO) 16 of 1974. In addition, the PNCO lists eight plant families and six plant genera that are afforded blanket protection throughout the province.

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 (Table 4-1). A list of species that are likely to be found in the area and are classified as critically endangered on the South African Red List are included in Table 4-2. Critically endangered species are species that are facing an extremely high risk of extinction. The list is not complete as many species and taxa require

additional study. The taxa with many data deficient species include specifically the Mesembranthemaceae family, as well as members of the Amaryllidaceae (Amaryllids), Iridaceae (Irises), Orchidaceae (Orchids) and Apocynaceae (Lianas), as well as members of the genus *Aloe*. A complete list of Potential Species of Special Concern is included in Appendix E.

Table 4-1: Summary of the status of the Potential Species of Special Concern occurring in the proposed Makanaone Hilton Solar Energy Facility area.

Status	Number of Species
IUCN Red Data List (international)	
Critically Endangered (CR)	2
Data Deficient (DD)	2
LR	2
Near Threatened (NT)	2
Vulnerable (VU)	2
CITES	
Appendix I	0
Appendix II	77
SANBI Red Data List (South African)	
Critically Endangered (CR)	4
Endangered (EN)	6
Threatened	1
Rare	7
Declining	15
Vulnerable (VU)	8
Near Threatened (NT)	12
Data Deficient – insufficient information (DDD)	1
Data Deficient – Taxonomically Problematic (DDT)	10
Not Evaluated (NE)	131
Least Concern (LC)	1208
PNCO (Eastern Cape)	
Schedule 3	4
Schedule 4	266
Protected Tree Species List (South African)	6

Table 4-2: Plant species likely to occur in the Riebeeck East area that are critically Endangered (CR) on the South African Red Data List (Source: SIBIS 2012).

Scientific Name	Red Data List
Amphithalea ericifolia subsp. erecta	Critically Endangered (CR)
Encephalartos latifrons	Critically Endangered (CR)
Searsia albomarginata	Critically Endangered (CR)
Isoetes wormaldii	Critically Endangered (CR)

4.1.5 Fauna

Amphibians and Reptiles

Over one hundred species of reptiles and amphibians occur on the Eastern and Southern Cape Coastal Belt (Branch, 1998). Most are generalists, and represent the transition from temperate to tropical fauna, some montane forms occur in the Cape Fold Mountains (Branch 1998).

The Eastern Cape is home to 133 reptile species including 21 snakes, 27 lizards and eight chelonians (tortoises and turtles) (Plate 4-1). The majority of these are found in Mesic Succulent Thicket and riverine habitats. Table 4-2 provides an indication of the threatened and endemic

reptile species with distribution ranges that include the Grahamstown and Riebeeck East area. Table 4-2 lists species of frogs that are endemic or of conservation concern, and occur in the Grahamstown/ Riebeeck East region.

Plate 4-1: An Angulate tortoise (*Chersina angulata*) found in the Grahamstown and Riebeeck East area.

Table 4-3: Threatened and endemic reptiles likely to occur in the Grahamstown and Riebeeck East region (Source: Branch, 1998)

Latin name	Common Name	IUCN Conservation Status
Acontias meleagris orientalis	Golden legless skink	Eastern Cape endemic
Afroedura karroica	Inland rock gecko	Eastern Cape Endemic
Afroedura tembulica	Queenstown rock gecko	Eastern Cape Endemic
Bradypodion ventrali	Southern Dwarf Chameleon	Eastern Cape Endemic
Dasypeltis scabra	Common or Rhombic Egg Eater	LC
Goggia essexi	Essex's Dwarf Leaf-toed Gecko	Eastern Cape Endemic (LC)
Tropidosaura Montana subp. *rangeri*	Common mountain lizard	Eastern Cape Endemic

Amphibians are well represented in sub-Saharan Africa, from which approximately 600 species have been recorded. A relatively rich amphibian fauna occurs in the Eastern Cape, where a total of 32 species and sub-species occur. This represents almost a third of the species known from South Africa. Knowledge of amphibian species diversity in the Grahamstown/Riebeeck East region is limited and based on collections housed in national and provincial museums. It is estimated that as many as 17 species may occur. Table 4-3 lists species of frogs that are endemic or of conservation concern, and occur in the Riebeeck East region.

Table 4-4: Threatened and endemic frogs likely to occur in the Grahamstown and Riebeeck East area (Source: CSIR, 2004)

Latin name	Common name	IUCN Conservation Status
Anhydrophryne rattrayi	Hogsback frog	Endangered (Eastern Cape endemic)
Bufo amatolicus	Amatola toad	Endangered (Eastern Cape endemic)
Bufo pardalis	Leopard toad	Eastern Cape endemic
Xenopus laevis	African Clawed Frog	Least Concern

4.1.6 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). A number of inland species are found in this region e.g. Acacia pied barbet, common Ostrich, Cape Penduline Tit, Southern Black Korhaan and Blue Cranes. The greatest abundance of birds is found in Valley Thickets and in the Aloe flowering season with Sunbirds being extremely conspicuous.

Mountain ridges have the species of the fynbos biome e.g. Cape Sugarbirds. In the forests and on grassland slopes, Knysna Turaco, Narina Trogons, Dark-backed Weavers, Canaries and African Goshawks are some of the birds found. Many birds occur in the bushveld, savanna, bush clumps and thicket areas. Table 4-4 lists threatened bird species likely to occur in the Grahamstown/Riebeeck East area and surrounding region. The closest IBA is 31km from the study site.

Table 4-5: Threatened bird species likely to be encountered in Grahamstown and Riebeeck East Area and surrounds (Source: SABIF, 2012).

Common name	Latin name	IUCN Conservation status
The Blue Crane	Anthropoides paradiseus	Vulnerable
Grey Crowned Crane	Balearica regulorum	Endangered
Black Harrier	Circus maurus	Vulnerable
European Roller	Coracias garrulus	Near-Threatened
Denham's Bustard	Neotis denhami	Near-Threatened
Ludwigs Bustard	Neotis ludwigii	Endangered
Maccoa Duck	Oxyura maccoa	Near-Threatened
Martial Eagle	Polemaetus bellicosus	Near-Threatened
Secretary Bird	Sagittarius serpentarius	Vulnerable
Crowned Eagle	Stephanoaetus coronatus	Near-Threatened

4.1.7 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, such as Grahamstown and Riebeeck East, this percentage is greatly reduced, with the vast majority of mammals present being small or medium-sized. Except where reintroduced into protected areas, lions, black wildebeest, red hartebeest, buffalo, black rhinoceros, elephant, hippopotamus and reedbuck are absent. Cheetah and hunting dog are no longer found in the area and leopard and honey badger are rare (Skead, 1974). Distribution maps suggest that the antelope that are abundant are bushbuck, duiker, steenbok and kudu. Blesbok, bontebok and gemsbok have been reintroduced on some farms.

Of the cat species, the lynx (caracal) and black-footed cat are found. Jackal are also found as is the aardwolf, but it is not abundant.

Vervet monkeys are common and baboons are found in appropriate sites in kloofs and valleys. Rock dassies, genet and mongoose species are also common and aardvark occur in the region but are not abundant. Multiple rodent species are found in the area and include rats and mice, the cane rat, springhare and porcupine.. Table 4-5 lists large and medium sized mammals on the IUCN Red Data List that occur in the Eastern Cape Province and which may be present on site.

Table 4-6: Threatened large to medium-sized mammals in the Eastern Cape Province (Source: Smithers, 1986)

Common name	Latin name	IUCN Conservation Status
Wild dog	*Lycaon pictus*	Endangered
Brown Hyaena	*Hyaena brunnea*	Rare
Aardwolf	*Proteles cristatus*	Rare
Black-footed cat	*Felis nigripes*	Rare
Serval	*Felis serval*	Rare
Leopard	*Panthera pardus*	Rare
Blue Duiker	*Philantomba monticola*	Rare
Honey Badger	*Mellivora capensis*	Vulnerable
African Wild Cat	*Felis lybica*	Vulnerable
Aardvark	*Orcteropus afer*	Vulnerable
Cape Mountain Zebra	*Equus zebra*	Vulnerable
Black Rhinoceros	*Diceros bicornis*	Vulnerable
Oribi	*Ourebia ourebi*	Vulnerable
Pangolin	*Manis temminckii*	Vulnerable
Small-spotted cat	*Felis nigripes nigripes*	Rare

4.1.8 Conservation and 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 scoping stage of a development. They allow for the fine-tuning of plans and solar layouts with a view to reducing potential environmental impacts at the planning stage of the development. The tools used are outlined in Table 4.6 below.

Table 4-7: Conservation and planning tools considered for the proposed project

Tool	Motivation	Relevancy	Notes
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.	Irrelevant. The study site does not occur in any IBAs.(Figure 4-4)	
Protected Areas Expansion Strategy	The objective of the PAES is to form an overarching strategic framework for a protected area network that 'conserves a comprehensive, representative and adequate sample of biodiversity and maintains key ecological processes across the landscape and seascape.'	Relevant, Part of the property on which the proposed project will be developed is within a National Protected Areas Expansion Strategy (NPAES) Focus Area (refer to Figure 4.4). There will be no infrastructure	This will be discussed in more detail in the Ecological Impact Assessment to be carried out in the EIA phase.

	The areas earmarked by this study should be protected.	development inside the boundaries of the NPAES Focus area. It is possible that it will be necessary to lay cables in the NPAES Focus Area, and this listed activity has therefore been included for assessment. (Figure 4-4).	
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 Aylesbury protected area is located approximately 4 km from the proposed development site (Figure 4-5).	This will be discussed in more detail in the Ecological Impact Assessment to be carried out in the EIA phase.
Wetlands	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. There are numerous small watercourses at the project site. (Figure 4-6).	Wetlands will be discussed in more detail in the EIA phase.
Critical Biodiversity Areas (CBA's)	Critical Biodiversity Areas (CBAs), as defined by SANBI, are regions that are critical for the conservation of biodiversity and the maintenance of ecosystem functioning. These areas should remain in a natural state as far as possible.	Relevant, part of the property on which the proposed project will be developed is within a CBA 2 (Figure 4-7).	CBAs will be discussed in more detail in the Ecological Impact Assessment in the EIA phase of the development.
STEP	The Subtropical Thicket Ecosystem Planning Project maps vegetation and assigns each of these a conservation criterion. It is very important in determining sensitivity.	Irrelevant. The project site does not occur in any sensitive conservation areas. (Figure 4-8)	

The implications of the project on these conservation planning objectives, and the implications these hold for the project, will be subject to further discussion and assessment during the EIA phase. The intention of the Scoping phase will be to secure as much relevant comment and direction from associated government agencies and line function departments to place the project within the appropriate contexts and prescriptions of these tools.

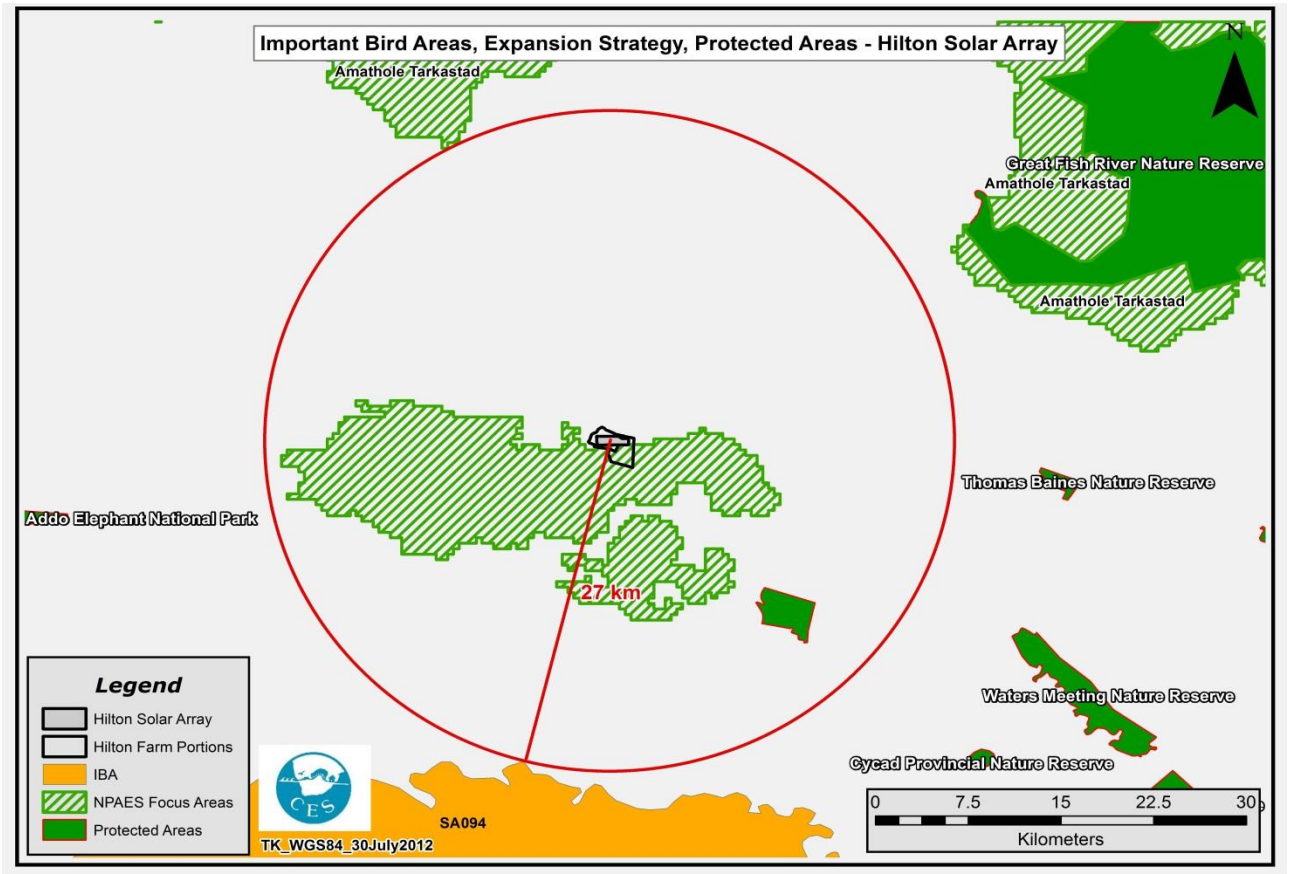


Figure 4-4: Protected Areas, National Protected Expansion Areas and Important Bird Areas (IBAs) surrounding the project site

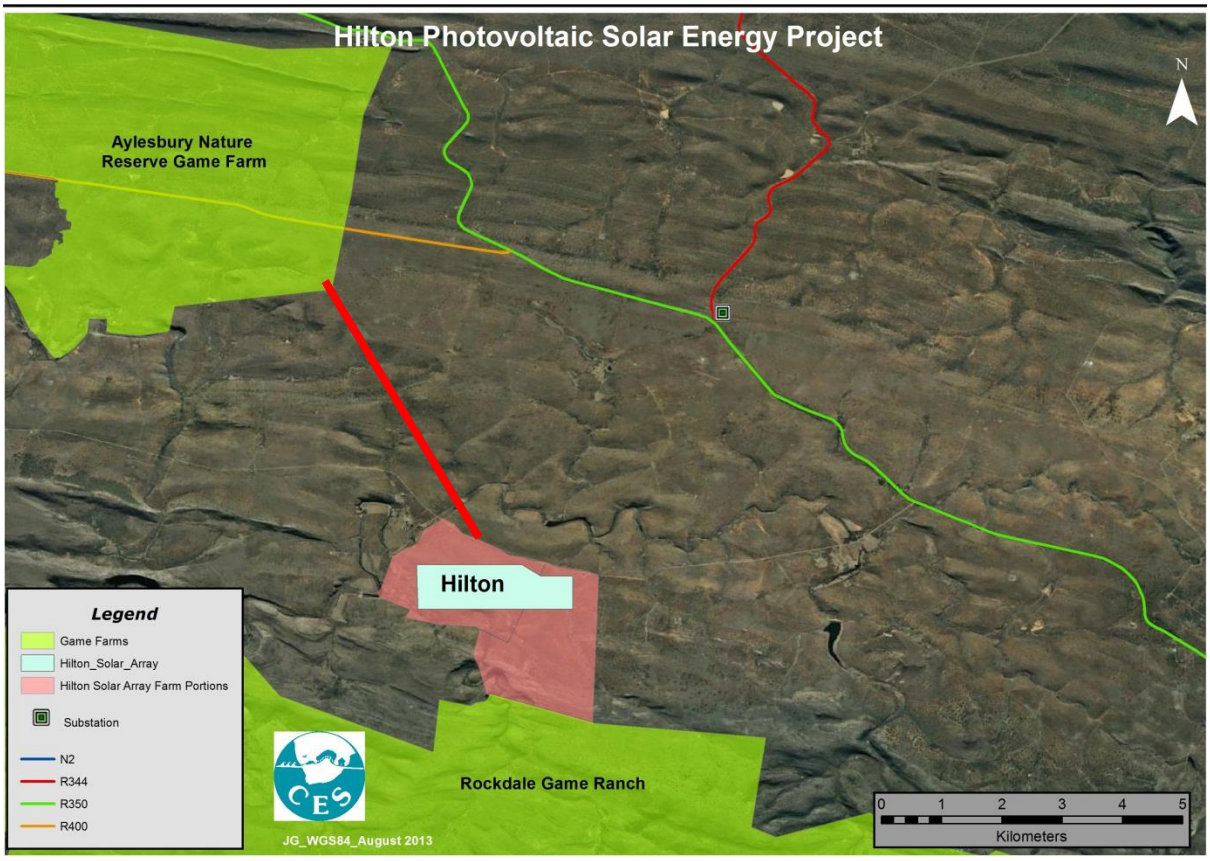


Figure 4-5: Aylesbury Nature Reserve Game Farm with relation to the Hilton Solar Energy Project.

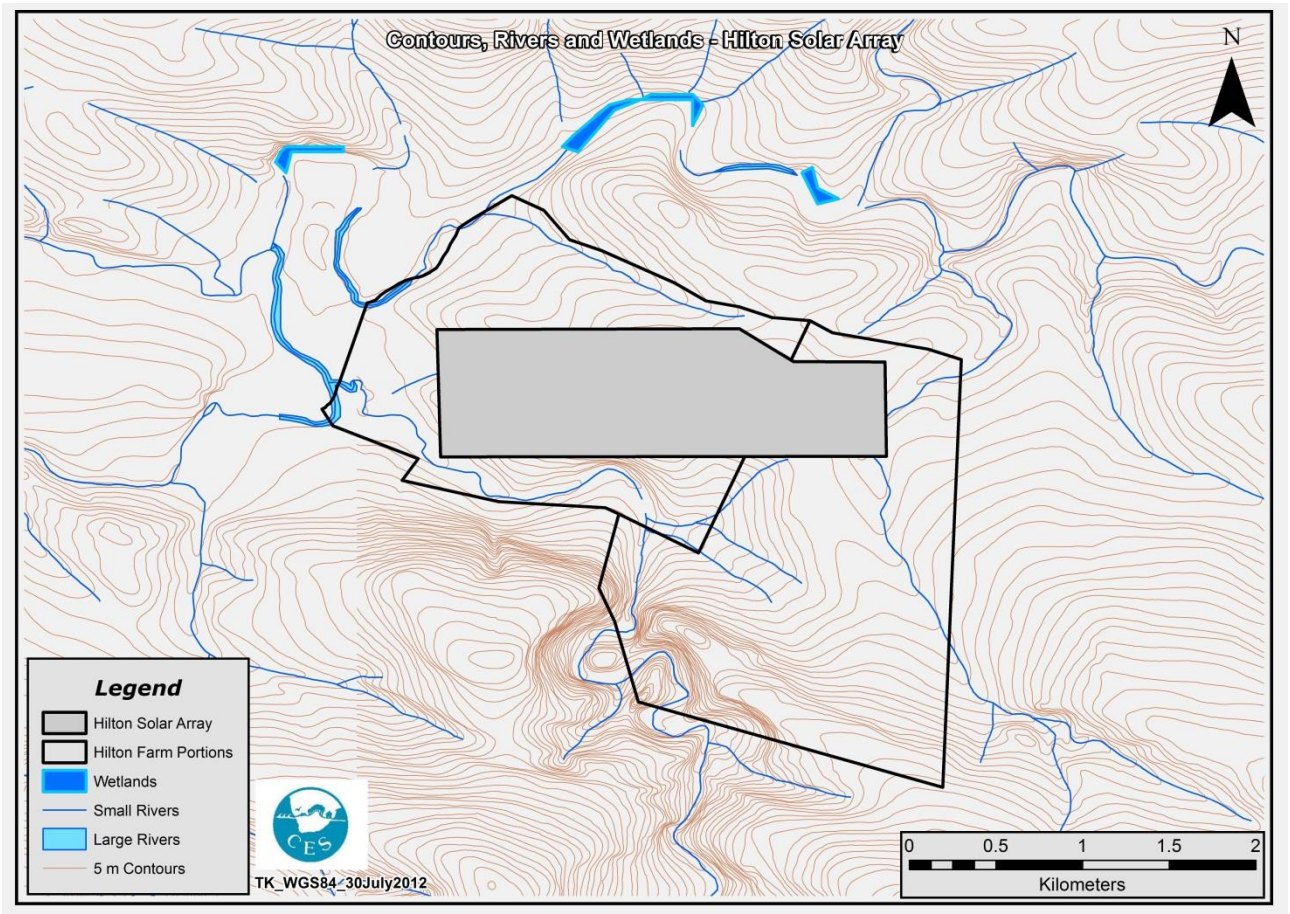


Figure 4-6: Wetlands surrounding the proposed project site

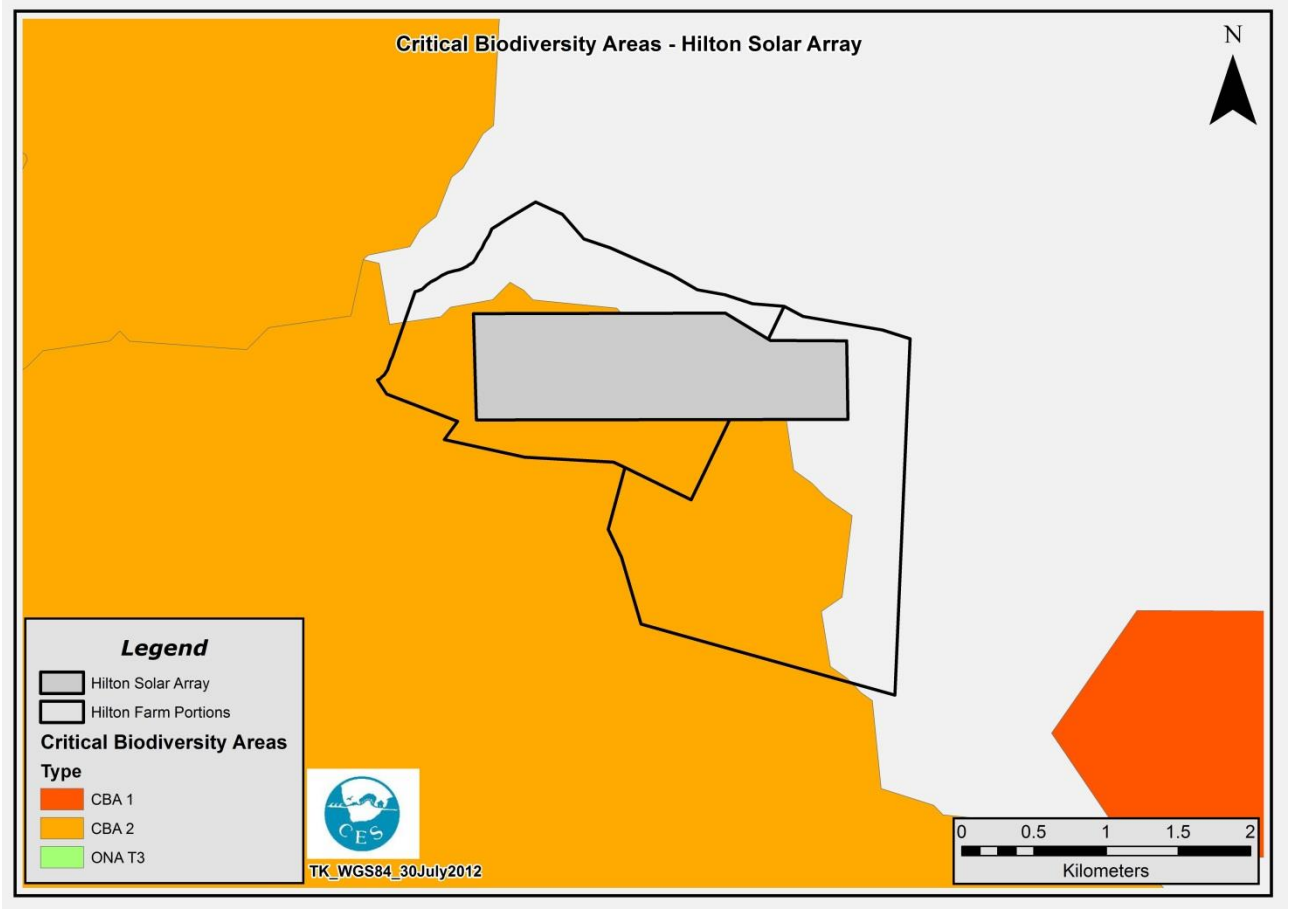


Figure 4-7: Critical Biodiversity Areas (CBA) for the proposed project site.

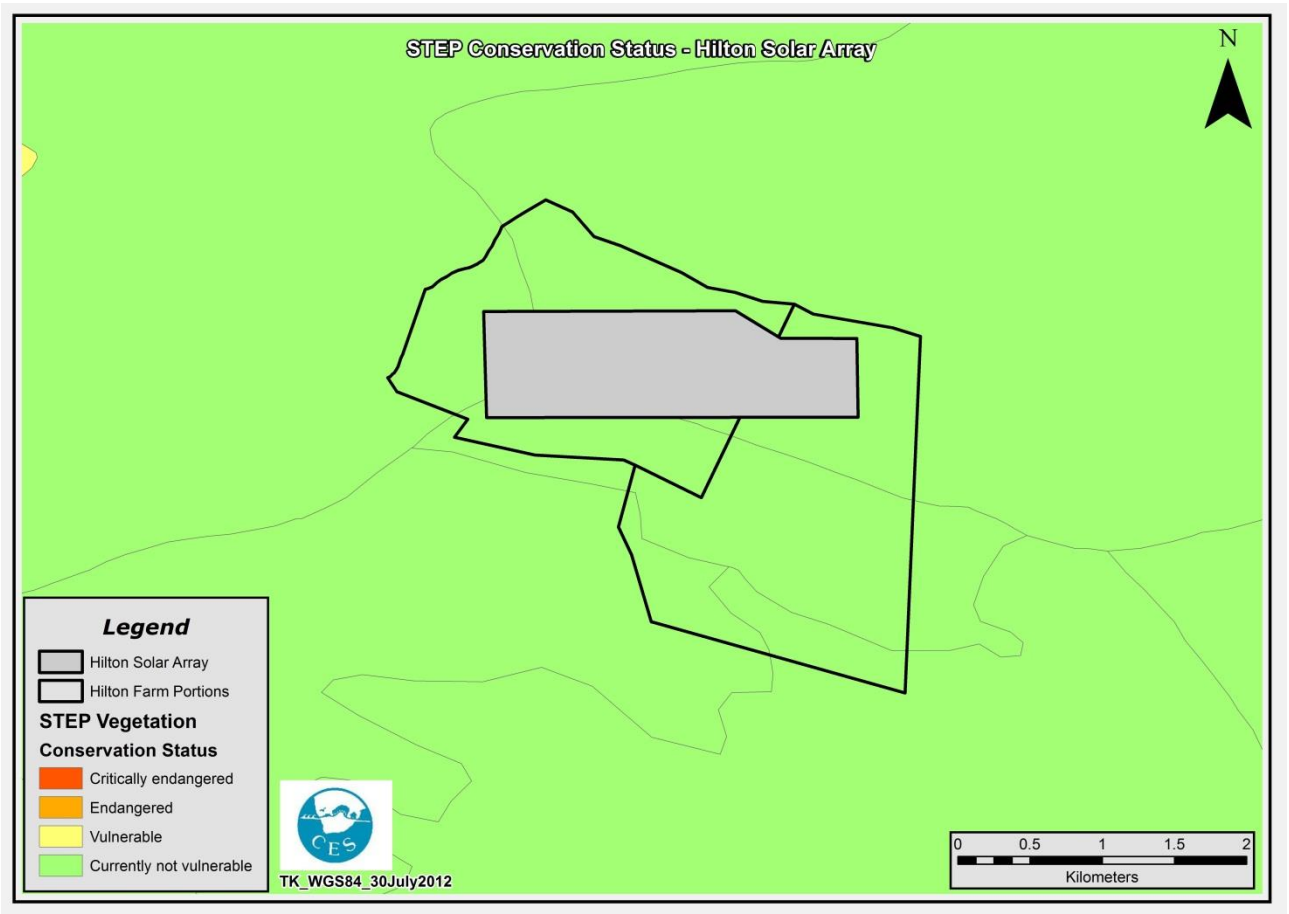
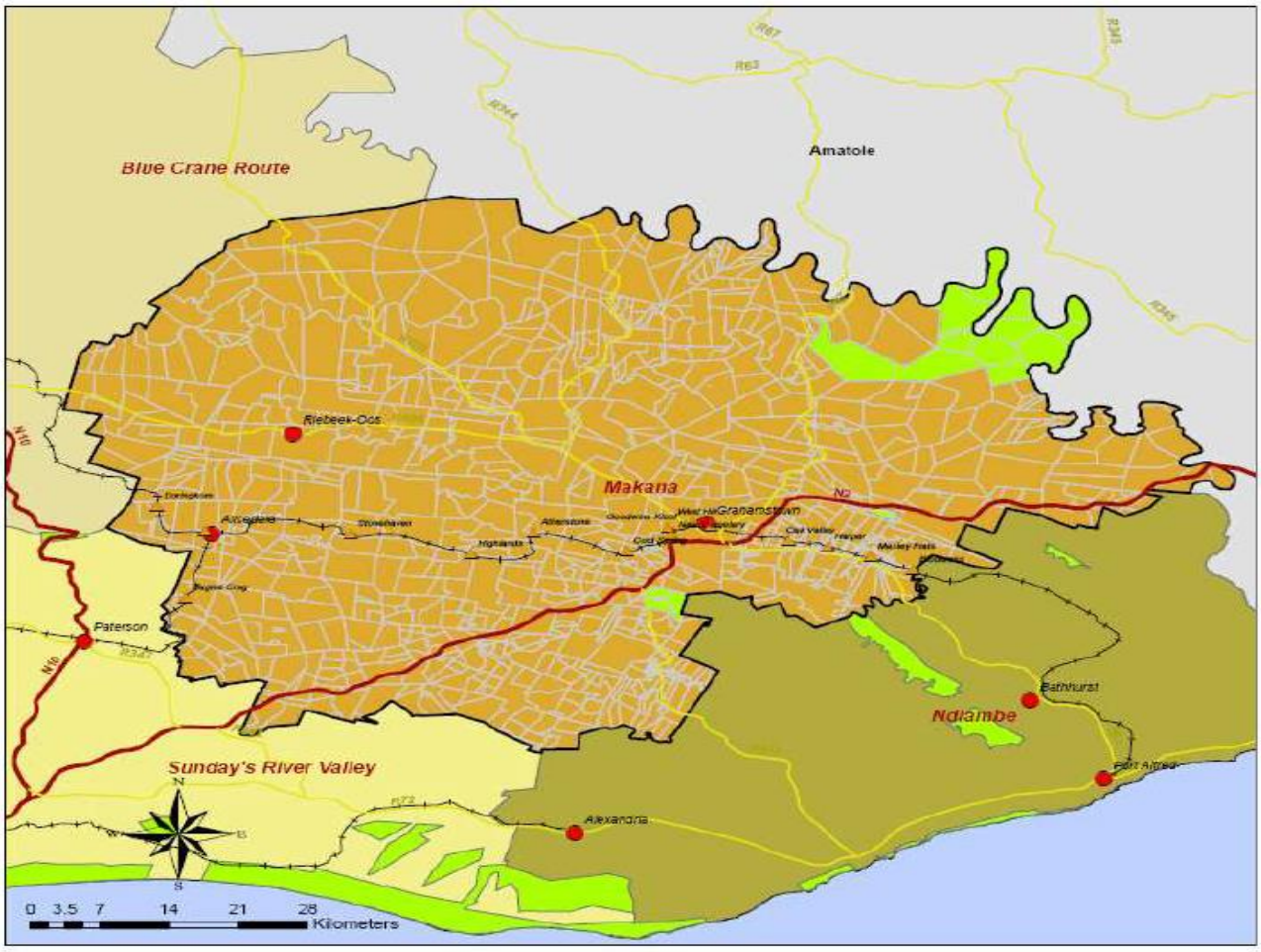


Figure 4-8: STEP conservation status of study site

4.2. SOCIO-ECONOMIC PROFILE OF MAKANA LOCAL MUNICIPALITY

The aim of this section is to describe the socio-economic conditions of the potentially affected areas. A brief discussion of the socio-economic setting of the Eastern Cape Province is provided in order to contextualize that of the Cacadu District, and the Makana Local Municipality.



	Makana Local Municipality
	Nature Reserves
	Towns

Figure 4-9: An indication of the locality of Makana Local Municipality.

4.2.1 The Eastern Cape Province

The Eastern Cape Province is the second largest province in South Africa, covering approximately 169 580 square kilometres, or 13.9% of South Africa's total land area. With more than six million people, the Eastern Cape has the third largest provincial population. It is also one of the poorest provinces in the country, with a largely rural composition and a significant backlog in basic service provision.

The economy of the Eastern Cape has grown faster than the national economy over the past few years, although this has been off a low base. Economic growth has been led by the manufacturing sector, which accounts for over 16% of the total value of the province's production of goods and services, and 20% of employment (Eastern Cape Economy – CDC, 2004). According to the Eastern Cape Development Corporation (ECDC), the manufacturing sector grew by 21% in real terms from 1998 to 2001, compared to 9% for South Africa as a whole. The province's manufacturing sector is well integrated into the world economy. Table 4-7 indicates the sectoral production and employment in the Eastern Cape. These sectors have been identified as areas of opportunity by the ECDC. The other important areas of the Eastern Cape's economy are agriculture, textiles, clothing and leather, wool processing, timber and transport, and tourism. It is clear from Table 4-7, that the manufacturing sector is the largest contributor and employer in the Eastern Cape Province. This sector is also highly reliant on electricity and will therefore be affected by electricity availability.

Table 4-8: Sectoral production and employment in the Eastern Cape economy

Production sector **(source: StatsSA)**	**Value of output (Rm)**	**% of total EC output**	**No. of Employees**	**% of total**
Agriculture, hunting, forestry, fishing	2 063	3.6	70 470	13.2
Mining & quarrying	57	0.1	7 154	1.4
Manufacturing	14 783	25.8	97 035	18.1
Electricity, gas & water supply	874	1.7	5 598	1.0
Construction	1 892	3.3	43,635	8.1
Wholesale, retail trade & accommodation	9 339	16.3	83 818	15.7
Transport, storage & communication	5,501	9.6	32 851	6.1
Financial, insurance, real estate & business services	7 048	12.3	35 181	6.6
Community, social & personal services	15 643	27.3	159 453	29.8
Total:	**57 300**	**100.0**	**535 195**	**100.0**

4.2.2 Cacadu District Municipality

Cacadu District is the largest of the district municipalities in the Eastern Cape and wholly surrounds Nelson Mandela Bay. The Cacadu District Municipality includes nine local municipalities, of which the Makana Local Municipality is one. The proposed solar energy facility is to be developed in Makana. It is likely that the proposed development will have direct and indirect socio-economic impacts on the municipal area and its population. Accordingly the discussion that follows provides a brief socio-economic profile of the local municipal area.

4.2.3 Makana Local Municipality

The proposed Makanaone Hilton Solar Energy Project is to be developed within the Makana Local Municipality (MLM). The proposed facility will be situated approximately 22km east of Riebeeck East and 15km west of Grahamstown, and be located on a single property, namely: Hilton. The surrounding area is not densely populated. However, it is still highly likely that the development of the project will have direct socio-economic impacts on the municipal area and its population.

The Makana municipal area extends over 4 379 km^2 and is bounded by the cities of Port Elizabeth to the west, and East London to the east. According to the South African Community Survey of 2007 (StatsSA, 2007)[4], the municipality's population declined from an estimation of 75 302 in 2001 to about 70 059 in 2007. The MLM IDP 2010[5] cites Quantec's numeration of the population in 2007 as 70 706. The area primarily consists of three nodal points namely Grahamstown, Riebeeck East and Alicedale. Grahamstown is the largest of the nodes both economically and in terms of population size (the greater Grahamstown area accounts for approximately 81% of the municipality's population), and serves as the administrative hub. Rhodes University (RU) is a dominant feature in the economic social landscape of the city, and therefore the MLM at large. By contrast, Alicedale is a small town that used to serve as an important national railway juncture in the past, but current economic activity is restricted to tourism primarily in the form of the Bushman Sands Hotel. Lastly, Riebeeck East has traditionally been an agrarian economy, which is still reflected in the current status quo.

Makana has a population density of 16.1 people per square kilometre, which is high when compared to the district population density of 6.6 people per square kilometre. This indicates a high level of urbanization in the local municipality. Despite the overall plateau in population growth, informal settlement populations increased. This may indicate migration from farms and areas in the Grahamstown periphery to the core, in the search for economic opportunities and improved service provision (MLM IDP 2010:15).

According to the South African Census of 2001 (which provides the most accurate data to date), in terms of age distributions, 68% of the MLM's total population are estimated to be between the ages of 15 and 64. This is the segment of the population that is considered to be the working age group. This relatively large percentage indicates that the solar farm will be developed in areas in which the majority of people are within the working age population, and hence employment opportunities in the area will be needed. The 15-34 age group constitutes 38.8% of the total population; this is partly a result of the fact that Makana municipality hosts a range of education facilities, which attract people within the 15-34 age group. The implication of this relatively young population is that there is a high demand for the creation of employment opportunities. Few local employment opportunities, together with the relatively large young age population groups can also explain the population decline in the municipal area, as youth may be searching for work in different municipal areas. The solar farm will undoubtedly provide an economic boost to the area, which can potentially be expanded through the operation of the multiplier effect. Various employment opportunities will be created during the construction phase of the development, meeting the need for employment in these areas, albeit temporarily.

[4] StatsSA. 2007. Community Survey 2007: Basic Results for the Eastern Cape. Pretoria: Statistics South Africa.

[5] Makana Local Municipality Integrated Development Plan Review 2010/2011

Education levels have a direct impact on economic development and the quality of life enjoyed by residents of an area. This is because it influences the skills profile and thus the employability of a population. Education affects the potential that workers have, their productivity, and also income levels. Education is therefore linked to the economic development of an area. In terms of education, the 2001 census indicates that both municipal areas seem to have a significant percentage of residents who have no schooling.

For example, when considering the MLM, approximately 7% have no schooling, which is below the provincial level of 9.4% and the district level of 12.3%. The 2001 census indicates that 13% of the population have some primary school education; however, the MLM IDP indicates that 36.1% of the population were educated at a primary school level in 2007. The 2001 census notes that 5.4% received some secondary school education, and 19% a Grade 12 education. A significantly low 6% of the population of this municipality have a higher education. These figures are illustrated in the table below.

Table 4-9: Educational status of the MLM

CATEGORY	MLM (%)
No schooling	7.3
Some primary	13.0
Complete primary	5.4
Some secondary	19.0
Std 10/Grade 12	**10.3**
Higher	6.3
Unspecified/not applicable	38.8
TOTAL	**100 (%)**

As per the 2001 data, employment rates are low. For example, it is estimated that about 51% of the economically active population of the MLM is employed. More detailed figures are provided in the MLM IDP (2010), according to which, of the 70 706 people recorded as living in Makana in 2007:

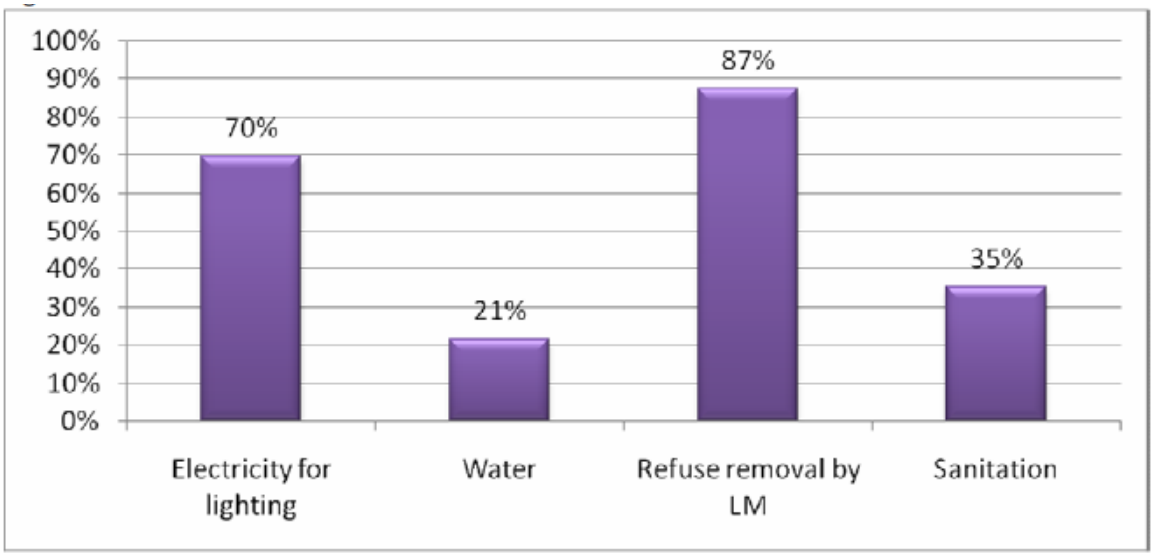
- 13801 (or 32.1%) were employed, which is similar to the provincial level but lower than the district level.
- 14 753 (or 34.3%) were unemployed, which is much higher than the provincial and district levels
- 14 496 (or 33.7%) were not economically active, which is lower than the provincial and district levels.
- 27 656 were not classified as they fall outside the bands of the working age population

This data again reinforces the need to create not only employment nodes in the area, but in so doing, to keep the educated youth in the municipal areas to stimulate the economic sectors of the larger districts. The solar farm will supply electricity and indirectly produce, or support, new economic nodes.

In order to consider the possible socio-economic impacts of the proposed solar farm, it is necessary to describe the area's general standard of living. A good indicator for 'buying power' (and hence standard of living) is household income. **23%** of households in Makana subsist on an income below the poverty line (of R800 a month or R9 600 a year), while **18%** and **29%** of district and provincial households respectively face a similar plight. The Makana municipality has a higher percentage of people in the high income brackets than the Eastern Cape which means that on average, household incomes in Makana approximate to **R8 417.63** per month. This places Makana among the higher income ranges in the Eastern Cape (MLM IDP 2010:19).

Quality of life can also be assessed in terms of access to basic services, such as water supply, refuse collection and disposal, electricity and sanitation. Provision of these services is low, in line with provincial and district standards, and indicated in the table below.

Table 4-10: Access to basic services



Source: MLM IDP 2010

Finally, the specific employment sectors predominant in the municipality should be considered in order to assess the likely impact of the solar farm project on employment sectors and in relation to the local economy. The dominant activities in Makana include tourism (events such as the national arts festival support temporary employment, rather than permanent employment), Community Services- (in the form of Rhodes University and the schools situated within Makana), and Trade and Agriculture (which can be cyclical and seasonal in nature). As is illustrated in the table below, the 2001 statistics indicate that, of all the employment sectors identified within the municipality, those related to community services, agricultural work, wholesale and retail are the most predominant.

The solar farm will definitely stimulate the construction sector of the region, which is a notable but not dominant employment provider. In addition, as the, the solar farm will add value to the significant wholesale and retail sectors in the area in terms of stimulating this sector and providing additional employment opportunities for the region, as well as providing for electricity security in the area.

Table 4-11: Employment Sectors of the MLM

CATEGORY	MLM (%)
Community services	**50.9**
Agricultural-related work	**17.7**
Wholesale, retail	**12.8**
Construction	5.2
Manufacturing	4.5
Business services	5.9
Transport, communication	2.3
Mining, quarrying	0.1
Elec,gas,water etc.	0.6
TOTAL	**100 (%)**

Synthesis

From the above discussion, it is evident that households in the Makana Municipality are on average better off than those in the rest of the Cacadu district and the Eastern Cape – however, this must be understood within the context of widespread and significant poverty. In comparison to the Eastern Cape Province, the municipality has a higher percentage of people with Matric level education, and a lower level of people without any form of education. Poverty levels are also lower in Makana than in the rest of the district and the province, but remain notable. Makana has a significant unemployment rate, which is higher than that at the provincial level. It is apparent that the local economy is currently not generating enough employment opportunities; the development of a solar farm is likely to support the stimulation of the local economy, and to provide both direct and indirect employment, and economic, opportunities to the residents of the municipality. Given the availability of relatively highly educated, but unemployed people of working age within the Makana local municipality, much of the labour requirements of the proposed solar farm should be able to be adequately met locally.

Table 4-12: Synthesis of socio-economic profile of Makana Local Municipality

Variable	Description
Population	70 706
Population Density	16.1 persons per square kilometre
Age Profile	38.9% of population are in the 15-34 age bracket
Education	6% have no schooling 22% have matric or higher
Employment	34% unemployed
Monthly household income	Average weighted household income: R8 417.63 23% of households live below poverty line of R800 per month

Source: MLM IDP 2010

5 PUBLIC PARTICIPATION

In terms of the EIA Regulations (2010), a Scoping Report must contain:

28. (1) A scoping report must contain all the information that is necessary for a proper understanding of the nature of issues identified during scoping, and must include –

(h) details of the public participation process conducted in terms of regulation **27** (a), including
(i) the steps that were taken to notify potentially interested and affected parties of the application;
(ii) proof that notice boards, advertisements and notices notifying potentially interested and affected parties of the application have been displayed, placed or given;
(iii) a list of all persons or organisations that were identified and registered in terms of regulation **55**as interested and affected parties in relation to the application; and
(iv)a summary of the issues raised by interested and affected parties, the date of receipt of and the response of the EAP to those issues;

(k) copies of the minutes of any meetings held by the EAP with interested and affected parties and other role players which record the views of the participants; and

(l) Any responses by the EAP to those representations and comments and views

5.1 NOTIFICATION OF INTERESTED AND AFFECTED PARTIES

Please note that all proof of Public notification: images and photographs are attached in Appendices.

5.1.1 Background information document

A four-page Background Information Document (BID) that provided basic information on the proposed project, the EIA process and contact details for registration as an I&AP was prepared. The BID was sent to all persons responding to the inception advertising, and organisations identified as potential I&APs identified in previous EIA processes conducted in the area by CES. The BID is reproduced in Appendix C-1.

5.1.2 Newspaper advertisement

An inception advertisement was placed in one Provincial Newspaper the Eastern Province (EP) Herald on 18 May 2012, and in one local Newspaper (Grocotts Mail) on 18 May 2012, in order to:

- Advise readers of the intention to undertake an EIA for the proposed Makanaone Hilton Solar Energy Project, and;
- Inform them of the dates, times and venues for public meetings (see section 5.2 below), and;
- Invite them to register as I&APs.

A period of four weeks (18 May – 18 June 2012) was allowed for registration of I&APs after the advertisement appeared. A copy of the advertisement is included in Appendix C-3.

A second advertisement was placed in the EP Herald and the Grocott's Mail on 14 September 2012 and 14 September 2012, respectively in order to:-

- Advise I&APs of the release of the Draft Scoping Report for the proposed Plan 8 Grahamstown Wind Energy Project; and

- Inform them of where they can access the Draft Scoping Report for review (see section 5.3 below).

A period of 40 days (14 November 2012 – 5 November 2012) was allowed for public review of the Draft Scoping Report by I&APs after the advertisement appeared. A copy of the advertisement(s) is included in Appendix C-3.

5.1.3 On-site notice

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, four 800 X 600mm single sided Corex notice board were placed on-site. The on-site notices are clearly visible from the road and will remain *in situ* for the duration of the EIA process (unless they are removed or damaged).

See Appendix C-4.

5.1.4 Stakeholder identification and notification

In addition to the above notification, certain stakeholders were identified based on their potential interest in the project. These organisations were contacted either *via* e-mail or directly for comment and were sent a Letter of Notification and a Background Information Document (BID).

See Appendix C-1.

5.2 SURROUNDING AND AFFECTED LANDOWNERS

Landowners were sent an initial letter of introduction to the project and a background information document. These documents included the contact details of the EAP in order for the landowners to register themselves and/or submit their comments on the proposed development.

See Appendix C-5.

5.3 PUBLIC MEETINGS

A public meeting was held on **Tuesday 25th September 2012 at 18h00 at the Highlander conference room, Grahamstown.** The findings of the DSR were presented to attendees, followed by a general discussion. The register of attendees of the public meeting is shown in Appendix C-7 and minutes of the meeting (Appendix C-8).

5.4 PUBLIC REVIEW OF THE DRAFT SCOPING REPORT

In line with the second advertisements mentioned in section 5.1.2 above, copies of which are provided in Appendix C-3, a hard copy of the Draft Scoping Report was placed the Grahamstown Public Library.

An electronic copy of the Draft Scoping report was also displayed on the EAP's website - www.cesnet.co.za - via the Public Documents link.

All comments received (see Section 5.5 below) following the review period were considered and necessary changes made to the Draft Scoping Report before submitting this – the Final Scoping Report - to the competent authority.

5.5 REGISTRATION OF INTERESTED AND AFFECTED PARTIES AND COMMENTS DATABASE

A register of I&APs to date has been compiled, containing all available contact details of those who responded to the advertisement(s) and/or registered as I&APs, or attended the public meeting (Appendix C-7).

A record of all comments received, together with a note of the responses given, was also maintained (Appendix C-6).

The issues and concerns raised during the Scoping Phase during the preparation of this Final Scoping Report are discussed in Chapter 8 that follows.

5.6 REGISTERED I&APS

Other than I&APs initially identified, any person requesting to be registered as an I&AP was included into the I&AP database.

See Appendix C-7.

5.7 AMMENDMENT OF THE FINAL SCOPING REPORT

The Department of Environmental Affairs (DEA) issued a rejection and request for additional information on the Final Scoping Report for the proposed Makanaone Hilton PV plant (Appendix E-1).

The additional information requested was then included in the amended Final Scoping Report and sent out for a second round of public review. All IAP's registered for the project were informed of the release of the amended report and given a period of 14 days from the 19th of August to the 2nd of September 2013 to comment on the amended report.

Included in the amended report is a list of the responses from CES to the DEA with regard to the additional information. The response can be found in Appendix E-2.

5.7.1 Additional meetings with farmers and farm workers

As requested by DEA, an attempt was made by CES to contact all neighbours and land owners affected by the proposed project to inform all workers and residents of the farms of the solar and wind facilities.

The comments of the meetings can be found in Appendix C-8, with an explanation of attempts found in Appendix C-9.

6 ISSUES IDENTIFIED DURING SCOPING

According to regulation 28 (1) of the EIA regulations (2010), *A scoping report must include –*
1(g) a description of the environmental issues and potential impacts, including cumulative impacts that have been identified

The main issues and concerns raised to date included but are not limited to the following:-

Issue	Question/statement
Visual pollution to game lodges	The proposed development takes place and surrounds many game farms and nature reserves. This will affect the number of visitors to their properties resulting in loss of income.
Socio-economic: Ecotourism	The construction of a substantial Solar farm on the hills surrounding game farms and private nature reserves will impact negatively on all eco tourism and hunting concerns in the vicinity. There are potential negative impacts on surrounding game reserves that rely on pristine environment for a satisfactory experience for their clients.
Visual Intrusion + Land value impacts	A development of a Solar farm on this particular site, no matter how attractive it may be to the Developer and the Landowners will adversely impact upon other legitimate land-owners in that the visual pollution will be considerable and will in all probability make it more difficult if not impossible to sell eco tourism and safari operations on its property and will most certainly reduce the value of its considerable investment in land.

Many concerns were raised, including but not limited to the following: project description, motivation, benefits, public participation process, ecological functioning of the area, socio-economic benefits.

Please refer to Appendix C-6 for a full record of all issues and concerns, and responses to them. Included in this appendix are the copies of the correspondence received from I&APs who raised concerns.

In addition, issues raised during the public meeting are provided in Appendix C-8 as meeting minutes.

7 MANNER IN WHICH THE ENVIRONMENT MAY BE AFFECTED

In terms of the EIA Regulations (2010), a Scoping Report must contain:

28. (1) A scoping report must contain all the information that is necessary for a proper understanding of the nature of issues identified during scoping, and must include –

(g) a description of environmental issues and potential impacts, including cumulative impacts that have been identified.

7.1 POSSIBLE ENVIRONMENTAL ISSUES & IMPACTS

Tables 7-1, 7-2, 7-3 and 7-4 list the environmental issues and resulting impacts that have been identified in 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 (see Conclusions & Recommendations). 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. All will however be assessed during the EIA phase.

Table 7-1: Issues and impacts identified in the planning and design phase of the proposed development.

PLANNING AND DESIGN PHASE			
Issue	**Impact**	**Nature**	**Description of Impact**
Planning and Environmental Legal and Policy compliance	Direct	Potentially Negative/ Positive	• The planning and design of the PV should take into account, and comply with all relevant environmental legislation and policy, e.g.: o Local and District Spatial Development Frameworks. o Eastern Cape Biodiversity Conservation Plan (ECBCP). o Makana Municipality Municipal Open Space System. o Makana Municipality by-laws
Landscape & visual	Direct/ Indirect/ Cumulative	Potentially Negative	• Design and siting of the PV arrays could result in an alteration of the landscape character and sense of place.
Ecology	Direct/ Indirect/ Cumulative	Potentially Negative	• The planned development could result in a permanent physical loss of important habitat and species on the land required for the PV array and all ancillary elements. • There could additionally be habitat severance and fragmentation, particularly from linear elements such as the access tracks.
Cultural heritage & archaeology	Direct/Indirect	Potentially Negative	• The presence of this planned development could indirectly affect the visual appeal of a cultural heritage site, particularly where the visual appeal is an integral aspect of the cultural heritage site.

PLANNING AND DESIGN PHASE			
Issue	**Impact**	**Nature**	**Description of Impact**
Noise	Direct Indirect/ Cumulative	Potentially Negative	• Depending on the planned technology used, noise effects may result from the solar tracking devices, the transformers, etc. associated with the PV array
Stormwater runoff	Direct/ Indirect/ Cumulative	Potentially negative	• Infrastructure should be planned in such a way as to take increased stormwater runoff in consideration. • Increased stormwater can cause major damage in terms of erosion and pollution.
Existing infrastructure	Direct/Indirect	Potentially negative/ positive	• The development could 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.
Socio-economics	Direct/ indirect/ Cumulative	Potentially positive/ negative	The development could have the following socio-economic impacts: • New job creation. • Investment due to the proposed development. • The development could have an effect on the use of the site especially if some of the land is to be taken out of productive use to provide ecological enhancement.
Wetlands, Surface and Groundwater	Direct/ Indirect	Potentially negative	• The placement of photovoltaic on the banks of drainage lines may result in erosion of the banks and disturbance to the riparian vegetation. • Areas of ecological value such as wetlands, within and beyond the site, could be sensitive to any alteration of localised drainage patterns which might arise from the introduction of photovoltaic bases, access tracks and underground cable runs. • The introduction of roads and impermeable areas of hard standing could increase rates of run-off and therefore the risk of localized flooding.
Avifauna	Direct/ Indirect/ Cumulative	Potentially negative	• Particular types of bird species, for example, raptors, divers and geese, could be susceptible to collision with

PLANNING AND DESIGN PHASE			
Issue	**Impact**	**Nature**	**Description of Impact**
			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.
Bulk services	Direct	Potentially negative/positive	• Water and sewage layout should be planned in such a way to incorporate the existing municipal system efficiently.

Table 7-2: Issues and impacts identified in the construction phase of the proposed development.

CONSTRUCTION PHASE			
Issue	**Impact**	**Nature**	**Description of 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 camp, are likely to be the largest sources of risk to faunal and floral communities in the broader region. • The construction of the development could cause disturbance to local wildlife, especially breeding birds.
Cultural heritage & archaeology	Direct/ Indirect	Potentially Negative	• The construction of the development 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 photovoltaic facility components 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 development, for example from the movement of heavy goods vehicles.
Socio-economics	Direct/ Indirect	Potentially positive/ negative	• During construction, the development could have a beneficial local economic effect, supporting companies providing work for construction and haulage contractors, for example. • 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

CONSTRUCTION PHASE			
Issue	**Impact**	**Nature**	**Description of Impact**
			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 photovoltaic 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.
Wetlands, Surface and Groundwater	Direct/ Indirect	Potentially negative	• The construction of the development 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 photovoltaic 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.

Table 7-3: Issues and impacts identified in the operational phase of the proposed development.

OPERATIONAL PHASE			
Issue	**Impact**	**Nature**	**Description of Impact**
Landscape & visual		Potentially negative	• Alteration of the landscape character and sense of place because of the PV panel replacement.
Ecology	Direct/ Indirect/ Cumulative	Potentially negative	• The maintenance of the PV could cause disturbance to local wildlife. • Shading caused by the PV arrays could have negative effects on the growth and sustainability of the flora beneath them.
Stormwater runoff	Direct/ Indirect/ Cumulative	Potentially negative	• Increased stormwater runoff due to increased impervious surfaces (panels) may cause some environmental damage like erosion and pollution.
Noise	Direct/ Indirect	Potentially negative	• The PV array may produce noise from elements such as the transformers, solar tracking devices, etc.
Waste and Hazardous Waste Management	Direct/ Indirect/ Cumulative	Potentially negative	• Unique to photovoltaic (PV) technologies, some high-performance solar cells may contain small amounts of cadmium, selenium, and arsenic, and are only hazardous if the solar cell is broken. Damaged cells would need to be characterised and disposed of at hazardous waste sites.
Maintenance and replacement of equipment	Direct /Indirect/ Cumulative	Potentially negative	• Pollution due to faulty and damaged equipment.
Socio-economic	Direct/ Indirect/ Cumulative	Potentially positive	• Job creation • Investment increase

Table 7-4: Issues and impacts identified in the decommissioning phase of the proposed development.

DECOMMISSIONING PHASE			
Issue	**Impact**	**Nature**	**Description of Impact**
Ecology	Direct/ Indirect	Potentially Negative/ positive	• Decommissioning of the development could cause disturbance to local wildlife, especially breeding birds. • The removal of the PV's could prompt the return of certain species of wildlife that had avoided the area while the PV's were present. This could include larger bird species.
Noise	Direct	Potentially Negative/ Positive	• Adverse noise effects could potentially occur during the decommissioning of the facility, for example from the movement of heavy goods vehicles. • Any noise-related impacts caused by the operation of the facility will cease to be of importance.
Socio-economics	Direct/ Indirect	Potentially positive	• During decommissioning, the development 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 facility has 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 PV 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.
Soils	Direct/ Indirect	Potentially positive	• After the removal of all PV-related structures, the disturbed soils should be revegetated to avoid unnecessary soil erosion.

8 ALTERNATIVES

According to regulation 28 (1) and (3) of the EIA regulations (2010), *A scoping report must include –*

(j) a description of identified potential alternatives to the proposed activity, including advantages and disadvantages that the proposed activity or alternatives may have on the environment and the community that may be affected by the activity

(3) The EAP managing the application must provide the competent authority with detailed, written proof of an investigation as required by section 24(4)(b)(i) of the Act and motivation if no reasonable or feasible alternatives, as contemplated in subregulation (1)(c), exist.

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.

8.1 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.

8.1.1 Alternative development

The core business of the project proponent, Makanaone Hilton (Pty) Limited, is solar energy development for the generation of electricity. As such, the fundamental alternative of a development other than to construct and operate a solar energy facility is therefore not viable in this case, and will not be considered further in the EIA.

8.1.2 Alternative location

The main determining factors for selecting the proposed location were:-

- Solar availability;
- Proximity to a grid connection point;
- Available land.

Preliminary investigations have identified that the proposed project site meets these specific criteria and so different locations for the current project will not be reasonable. The connectivity to the grid is a critical factor to the overall feasibility of the project; therefore alternative locations will not be assessed.

8.1.3 No-Go development

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.

8.2 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.

Layout Alternatives

In the EIA phase, various layouts (siting of solar arrays) will be assessed to determine which one will be ideal from an energy generation point of view with the least impact on fauna, flora and ecological processes and visual impact. An ecological specialist has been appointed to assess the status of the fauna and flora and to determine the conservation status of the proposed development. The following criteria will be considered in determining the final layout: (1) recommendations from the various specialists (2) guidelines from relevant bioregional plans (3) comments from I&APs and other stakeholders (4) site visits and (5) scientific publications (6) the developer following solar data recorded on site.

Technology Alternatives

At present, each PV module is 1.9m² (0.99m x 1.96m) in size, and comprises four panels. Each module is mounted on a metal supporting structure, no more than 1m off the ground, and has a potential output of 380W. There are a number of options regarding the structures and their anchoring to the ground. Each area utilising 1.5ha of solar panels will produce approximately 1MW.

Various technology alternatives (i.e. size, height and type of solar panels) will be presented and assessed in the EIR.

9 CONCLUSIONS AND RECOMMENDATIONS

9.1 ACTIVITY AND POSSIBLE IMPACTS

The proposed activity involves the establishment of a photovoltaic energy installation in the Makana Municipality, to be located on the farm Hilton, along the R400 between Grahamstown and Riebeeck East.

The details of the proposed facility include:

- Construction of a 75 MW photovoltaic installation on approximately 150 ha of land.
- Construction of access roads within the site of the photovoltaic installation
- Construction of infrastructure required for the transmission of the electricity generated on the photovoltaic installation to the closest substation.
- Construction of a maintenance facility.

The nature of the proposed site for the establishment of the facility is suitably placed on land currently used for grazing. However, the establishment of the proposed facility raises various issues relating to visual intrusion on the landscape, and bird and animal impacts as highlighted in tables 6.1-6.4.

It is therefore vital that all possible impacts are evaluated and appropriate mitigation measures and design alternatives be implemented. In addition to this it is vital that the EIA process include engagement with the relevant registered I&APs.

9.2 SPECIALIST STUDIES

Based on the initial scoping exercise, the following specialist studies are deemed necessary as part of the EIA process:

- Agricultural Impact Assessment
- Ecological Impact Assessment (incorporating flora and fauna)
- Heritage, Archaeological Impact Assessment
- Palaeontological Impact Assessment
- Visual Impact Assessment
- Socio-Economic Assessment

9.3 FATAL FLAWS

At this stage no fatal flaws have been identified, and in the EAP's opinion there is no reason why the assessment of the proposed development should not proceed to EIA.

9.4 EIR PHASE

It is recommended that the following form part of the EIA phase:

- Public Participation
- Consultation with I&APs regarding possible significance of impacts and suitable mitigation measures.
- Evaluation of impacts prior to mitigation.
- Compilation of mitigation measures.
- Evaluation of impacts after mitigation.
- Provision of an opinion as to whether or not the activity should be authorised.
- Compilation of an environmental impact statement.
- Compilation of a draft Environmental Management Plan (EMP).

These key issues are to be addressed and assessed in full detail during the EIA report phase.

10 PLAN OF STUDY FOR THE EIA

In terms of the EIA Regulations (2010), a Scoping Report must contain:

28. (1) A scoping report must contain all the information that is necessary for a proper understanding of the nature of issues identified during scoping, and must include –

(n) a plan of study for environmental impact assessment which sets out the proposed approach to the environmental impact assessment of the application, which must include:
(i) a description of the tasks that will be undertaken as part of the environmental impact assessment process, including any specialist reports or specialised processes, and the manner in which such tasks will be undertaken;
(ii) an indication of the stages at which the competent authority will be consulted
(iii) a description of the proposed method of assessing the environmental issues and alternatives, including the option of not proceeding with the activity; and
(iv) particulars of the public participation process that will be conducted during the environmental impact assessment process

In line with the above-mentioned legislative requirement, this Chapter 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.

10.1 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.

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

- **Environmental Management Programme (EMPr):** The EMP 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.

In addition to the above, the **Public Participation Process** commenced during the Scoping Phase is continued, during which I&APs 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 Scoping Report, and as a result of design changes made by the project proponent. I&APs 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 I&APs are included and addressed in the submitted EIR.

10.1.1 Specialist studies

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

- Agricultural Impact Assessment
- Ecological Impact Assessment (incorporating flora and fauna)
- Heritage, Archaeological Impact Assessment
- Palaeontological Impact Assessment
- Visual Impact Assessment
- 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 Section 9.1.2 that follows. Specialists will also be required to address issues raised by I&AP's in their reports.

Agriculture Impact Assessment

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.

Ecological Impact Assessment

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

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 during construction.

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

- 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. 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.

- Review relevant legislation, policies, guidelines and standards.
- An assessment of the potential direct and indirect impacts resulting from the proposed development (including solar panels, associated infrastructure e.g. access road), both on the footprint and the immediate surrounding area during construction and operation;
- A detailed description of appropriate mitigation measures that can be adopted to reduce negative impacts for each phase of the project, where required; and

Checklists of faunal groups identified in the region to date, highlighting sensitive species and their possible areas of distribution

Heritage/Archaeological Impact Assessment

The National Heritage Resources Act 25 of 1999 (NHR) requires that *"…any development or other activity which will change the character of a site exceeding 5 000m², or the rezoning or change of land use of a site exceeding 10 000 m², requires an archaeological impact assessment*"

An 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 archaeological study will be to:

- Determine the likelihood of archaeological remains of significance in the proposed site;
- Identify and map (where applicable) the location of any significant archaeological remains;
- Assess the sensitivity and significance of archaeological remains in the site; and

Palaeontological Impact Assessment

A palaeontological impact assessment will be conducted, the primary objective of which is to determine whether there are any indications that the proposed site is of palaeontological 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 palaeontological study will be to:

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

Visual Impact Assessment

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

1. Conduct a site reconnaissance visit and photographic survey of the proposed project site.
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
    - 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.
4. Preparation of a draft Visual Baseline/Sensitivity report
    - Assessing visual sensitivity criteria such as extent of visibility, the sites inherent sensitivity, visual sensitivity of the receptor's, visual absorption capacity of the area and visual intrusion on the character of the area
    - Prepare photomontages of the proposed development
    - Conduct shadow flickering modelling

- 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)
- Establish mitigation measures/recommendations with regards to minimizing visual risk areas

Socio-Economic Impact Assessment

The specific Terms of Reference for the Socio - Economic Impact Assessment will include:-

- Review of all relevant literature e.g. Visual and Agricultural Impact Assessments, Grahamstown/Riebeeck East IDP, Tourism Sector Plan, Benchmark studies, etc.
- Visit the Makanaone Hilton Solar site.
- Review the Grahamstown/Riebeeck East IDP and assess the economic impact of the solar energy project on all sectors of the economy within the LM area in terms of:
    - Contribution to economic growth in the region (Direct and Indirect) – Gross Domestic Product per Region (GDPR);
    - Impact on regional development (business and other) ;
    - Impact on productivity and production (sales, etc.) of existing firms in the region;
    - Impact on infrastructure and resources in the region;
    - Improved competitiveness of the region.
- Assess the impact of the solar energy project on tourism growth in the study area.
- Conduct an initial socio-economic needs analysis of the identified areas in collaboration with Makanaone Hilton (Pty) Ltd and local authorities which will also include:
    - Impact on employment;
    - Impact on income;
    - Impact on social lives of local communities;
    - Impact on social upliftment;
    - The analysis should also identify the key industries which operate within the identified areas and identify if possible LED projects that will stimulate the economy.
- Assess as far as possible the potential impact of the Makanaone Hilton solar energy project on property prices in the study area.
- Assess the economic impact of the Makanaone Hilton solar energy project on inward investment i.e. will it encourage or discourage investment to the study area.
- Assess the costs and benefits of the Makanaone Hilton solar energy project to the local economy.

10.1.2 Methodology for assessing the significance of impacts

Specialists are required to provide the reports in a specific layout and structure, so that a uniform specialist report volume can be produced. To ensure a direct comparison between various specialist studies, standard rating scales have been defined for assessing and quantifying the identified impacts. This is necessary since impacts have a number of parameters that need to be assessed.

Five factors need to be considered when assessing the significance of impacts, namely:

1. Relationship of the impact to **temporal** scales - the temporal scale defines the significance of the impact at various time scales, as an indication of the duration of the impact.
2. Relationship of the impact to **spatial** scales - the spatial scale defines the physical extent of the impact.
3. The severity of the impact - the **severity/beneficial** scale is used in order to scientifically evaluate how severe negative impacts would be, or how beneficial positive impacts would be on a particular affected system (for ecological impacts) or a particular affected party.

The severity of impacts can be evaluated with and without mitigation in order to demonstrate how serious the impact is when nothing is done about it. The word 'mitigation' means not just 'compensation', but also the ideas of containment and remedy. For beneficial impacts, optimization means anything that can enhance the benefits. However, mitigation or optimization must be practical, technically feasible and economically viable.

4. The **likelihood** of the impact occurring - the likelihood of impacts taking place as a result of project actions differs between potential impacts. There is no doubt that some impacts would occur (e.g. loss of vegetation), but other impacts are not as likely to occur (e.g. vehicle accident), and may or may not result from the proposed development. Although some impacts may have a severe effect, the likelihood of them occurring may affect their overall significance.

Each criterion is ranked with scores assigned as presented in the table below to determine the overall **significance** of an activity. The criterion is then considered in two categories, viz. effect of the activity and the likelihood of the impact. The total scores recorded for the effect and likelihood are then read off the matrix presented in the table below, to determine the overall significance of the impact. The overall significance is either negative or positive.

Table 10-1: Ranking of Evaluation Criteria

EFFECT	**Temporal scale**		
	Short term	Less than 5 years	
	Medium term	Between 5 and 20 years	
	Long term	Between 20 and 40 years (a generation) and from a human perspective almost permanent.	
	Permanent	Over 40 years and resulting in a permanent and lasting change that will always be there	
	Spatial Scale		
	Localised	At localised scale and a few hectares in extent	
	Study area	The proposed site and its immediate environs	
	Regional	District and Provincial level	
	National	Country	
	International	Internationally	
	*	**Severity**	**Benefit**
	Slight / Slight Beneficial	Slight impacts on the affected system(s) or party(ies).	Slightly beneficial to the affected system(s) or party(ies).
	Moderate / Moderate Beneficial	Moderate impacts on the affected system(s) or party (ies).	An impact of real benefit to the affected system(s) or party(ies).
	Severe / Beneficial	Severe impacts on the affected system(s) or party(ies).	A substantial benefit to the affected system(s) or party(ies).
	Very Severe / Very Beneficial	Very severe change to the affected system(s) or party (ies).	A very substantial benefit to the affected system(s) or party(ies).
LIKELIHOOD	**Likelihood**		
	Unlikely	The likelihood of these impacts occurring is slight	
	May Occur	The likelihood of these impacts occurring is possible	
	Probable	The likelihood of these impacts occurring is probable	
	Definite	The likelihood is that this impact will definitely occur	

Table 10-2: Ranking matrix to provide an Environmental Significance

Environmental Significance	
LOW	An acceptable impact which for which mitigation is desirable but not essential; The impact by itself is insufficient even in combination with other low impacts to prevent the development. These impacts will result in either positive or negative medium to short term effects on the social and/or natural environment.
MODERATE	An important impact which requires mitigation. The impact is insufficient by itself to prevent the implementation of the project but which in conjunction with other impacts may prevent its implementation. These impacts will usually result in either positive or negative medium to long term effects on the social and/or natural environment.
HIGH	A serious impact which, if not mitigated, may prevent the implementation of the project. These impacts would be considered by society as constituting a major and usually long term change to the (natural and/or social) environment and result in severe effects or beneficial effects.
VERY HIGH	A very serious impact which may be sufficient by itself to prevent the implementation of the project. The impact may result in permanent change. Very often these impacts are unmitigable and usually result in very severe effects, or very beneficial effects.

The ***environmental significance*** scale is an attempt to evaluate the importance of a particular impact. This evaluation needs to be undertaken in the relevant context, as an impact can either be ecological or social, or both. The evaluation of the significance of an impact relies heavily on the values of the person making the judgment. For this reason, impacts of especially a social nature need to reflect the values of the affected society.

Cumulative Impacts

Cumulative Impacts affect the significance ranking of an impact because it considers the impact in terms of both on-site and off-site sources. For example, the noise generated by an activity (on-site) may result in a value which is within the World Bank Noise Standards for residential areas. Activities in the surrounding area may also create noise, resulting in levels also within the World Bank Standards. If both on-site and off-site activities take place simultaneously, the total noise level at the specified receptor may exceed the World Bank Standards. For this reason it is important to consider impacts in terms of their cumulative nature.

Seasonality

Although seasonality is not considered in the ranking of the significance, if may influence the evaluation during various times of year. As seasonality will only influence certain impacts, it will only be considered for these, with management measures being imposed accordingly (i.e. dust suppression measures being implemented during the dry season).

Prioritising

The evaluation of the impacts, as described above is used to prioritise which impacts require mitigation measures. Negative impacts that are ranked as being of "**VERY HIGH**" and "**HIGH**" significance will be investigated further to determine how the impact can be minimised or what alternative activities or mitigation measures can be implemented. These impacts may also assist decision makers i.e. lots of **HIGH** negative impacts may bring about a negative decision. For impacts identified as having a negative impact of "**MODERATE**" significance, it is standard practice to investigate alternate activities and/or mitigation measures. The most effective and practical mitigations measures will then be proposed. For impacts ranked as "**LOW**" significance, no investigations or alternatives will be considered. Possible management measures will be investigated to ensure that the impacts remain of low significance.

10.1.3 Environmental Impact Report

The results of the Specialist Studies given above will inform the preparation of the EIR. In addition, the EIR will gather any comments received from I&AP's and determine whether it is necessary to increase the scope of work or amend the ToR.

The EIR will also examine the option of not proceeding with the proposed development – the so-called "No Go" option.

Proposed structure of EIR

To avoid the EIR being excessively long and cumbersome, whilst meeting the content requirements specified in the NEMA EIA regulations, the final report will be divided into a number of volumes indicated in Table 10-3.

10.2 PUBLIC PARTICIPATION PROCESS FOR THE EIA PHASE

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

- Meaningful and timeous participation of I&APs;
- 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 I&APs;
- Assisting in identifying potential environmental (socio-economic and biophysical) impacts associated with the proposed development;
- Inclusivity (the needs, interests and values of I&APs must be considered in the decision-making process); and
- Encouragement of shared responsibility and a sense of ownership.

10.2.1 Advertising

In terms of the EIA Regulations, the availability of the Draft EIR will be advertised within newspapers in the predominant languages (English) of the area. The primary aim of these advertisements will be to ensure that the widest group of I&APs possible is informed of the project. Other advertisements to be placed during the course of the EIA phase of the project will relate to the availability of reports for public review, the advertisement of dates of public meetings, as well as the advertising of the environmental authorisation/decision.

10.2.2 Identification of and consultation with Key Stakeholders

I&APs and Key Stakeholders have been identified during the Scoping phase of the project. The identification and engagement if necessary, of I&APs 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.

10.2.3 I&AP Database

All I&AP 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 I&APs. This database will be updated on an on-going basis throughout the project, and will act as a record of the communication/involvement process.

10.2.4 Public Review of the Draft Environmental Impact Assessment Report

Consultation with I&APs is considered to be critical to the success of any EIA process. Therefore, one-on-one consultation, focus group meetings and public meetings with I&APs will be undertaken.

The aim of this process will be to provide I&APs 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 I&APs will take place at two levels: public meetings for general I&APs who require an overview of the project; and focus group meetings for those who require more in-depth information and intensive interaction.

Public Meetings

The purpose of public meetings is to provide an appropriate format to enable I&APs to raise concerns related to the proposed project. The intention is that I&APs are afforded the opportunity of interacting on a one-on-one basis with technical and planning representatives of Makanaone Hilton (Pty) Ltd as well as the environmental team. I&APs will be encouraged to complete an attendance register and a comment and registration form to assist I&APs in raising concerns and general views on the project.

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 I&APs and/or representatives of larger interest groups or organisations who wish to play an active role in the process an opportunity for consultation.

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.

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

An advertisement indicating the availability of this report for public scrutiny will be placed in the predominant languages of the area within local and national newspapers. I&APs registered on the project database will be notified of the availability of this report by letter.

10.2.5 Issues & Response Trail

All issues, comments and concerns raised during the public participation process of the EIA process will be compiled into an Issues Trail and incorporated and submitted as part of the Final EIR.

10.3 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 I&APs will be informed within seven days of receipt of the Decision. Once the public have been notified of the Environmental Authorisation, anyone wishing to appeal the decision must lodge a notice of intention to appeal with the Minister within 10 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.

Table 10-3: Volumes that will be generated in the EIA phase for the proposed Makanaone Hilton Solar Energy Project

Volume Number	Report	Contents
1	**Scoping Report**	
2	**Environmental Impact Report (EIR)**	This volume will include - **1. Introduction** • Detail of the environmental assessment practitioner who compiled the report • Expertise of the EAP to carry out an environmental impact assessment **2. Description of the Project** • A description of the property on which the activity is to be undertaken • The location of the activity on the property • A description of the types of activities that are proposed for the development. **3. Description of the Affected Environment** • The natural environment • The socio-economic environment • The legal, policy and planning setting **4. The Public Participation Process** • Steps undertaken in order to notify and involve I&APs • Advertisements and media • Meetings held in the PPP • Issues and Comment Trail management **5. Summary of Comments and Response Trail** • Summary of comments and issues raised by I&APs and responses to the issues **6. Summary of Specialist Reports** • Summary of the findings and recommendations of all specialist studies **7. Alternatives Considered** • Description of all alternatives considered in the EIA • Initial screening of alternatives • Description and comparative assessment of all alternatives identified during the EIA **8. The Significance of Potential Environmental Impacts** • The methodology used to determine the significance of environmental impacts • Impacts on the natural environment • Impacts on the socio-economic environment

		• Impacts on the legal, policy and planning setting **9. Environmental Impact Statement** • A summary of the key findings of the EIA • Comparative assessment of the positive and negative implications of the proposed activity and identified alternatives **10. Conclusions** • Opinion as to whether the activity should or should not be authorised. • Any conditions that should be made in respect to any form of authorisation. ***It should be noted that the above is not the exact Table of Contents for the EIA, but is intended to indicate the major topics that will be covered in the report.***
3	**Specialist Studies**	This volume will be a compilation of all the specialist studies undertaken in the EIA, and will include detailed assessments of - • Visual impacts • Heritage impacts • Agricultural impacts • Ecological impacts • Social impacts
4	**Comments and Response Trail**	This volume will include - 1. Lists of persons, organisations and organs of state that were registered as I&APs 2. Comments and Response trail for the Scoping and EIA phases 3. Copies of any representations, objections and comments received from I&APs
5	**Environmental Management Programmes (EMPr)**	Environmental management plans for key activities at the proposed manganese smelter, which will contain the following - **1. Introduction** • The details of the EAP who prepared the EMP • The expertise of the EAP to prepare an EMP **2. Detailed description of the aspects of the activity covered by the EMP's** **3. Mitigation Measures and Actions** • Planning and Design • Pre-construction and construction activities • Operation and undertaking of the activity • Rehabilitation of the environment **4. Responsibilities** • Persons responsible • Time periods for implementation **5. Monitoring Programme**

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APPENDIX A: THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

The Environmental Impact Assessment process comprises two key phases – the Scoping Phase and the Environmental Impact Assessment Phase. These phases are described in detail below.

A1. THE SCOPING PHASE

Scoping is the first step in the EIA process. It allows for all role players – stakeholders and Interested and Affected Parties (I&APs) - to gain a greater understanding of the project by means of a public participation process. Scoping is also critical in as much as it facilitates the early identification of important natural and social issues that will need to be considered later in the process.

The principal objectives of the Scoping Phase are:-

- Describe the nature of the proposed project;
- 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 I&APs 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.

Each of the steps involved in the scoping phase is discussed in detail below.

A1.1. Project description

A description of the components of the proposed project is provided.

A1.2. Preliminary assessment of the project

Baseline data and information on the proposed development is collected, primarily from the project proponent, but also from preliminary site surveys and published literature, and from legislation, guidelines and other regulatory instruments, in order to determine the activities for which approval must be sought from the competent environmental authority.

Information sourced from the project proponent includes the proposed location and layout of the development, and the technology to be adopted. A preliminary assessment of this data and information, in the context of legal requirements and an understanding of the receiving environment, is by way of a preliminary risk assessment or fatal flaw analysis. It enables major risks to the project or to the receiving environment to be identified at an early stage in the EIA process, and informs subsequent decisions about aspects of the development identified as being potentially problematic.

A1.3. Legal context

The legislation relevant to the proposed Project is identified and reviewed.

A1.4. Identification of key bio-physical and socio-economic issues

The key biophysical and socio-economic issues related to the project are identified during the Scoping Phase. Relevant information is drawn from as wide a range of sources as possible, including local authorities, local communities, and specialists.

A1.5. Public Participation Process

A public participation process is an explicit requirement of the NEMA EIA regulations, and must take place throughout the EIA process. The approach to public consultation depends largely on the location of the proposed development, the nature of the project, the sensitivity of the receiving environment, the previous level of exposure of the public to the EIA process, and the level of education of those who will be affected by the proposed development. Among other things, involvement of the public in the EIA process is an opportunity to gather local knowledge from individuals, communities and organisations.

Key stakeholders are identified and notified of the proposed development and the ways in which they can be involved. These stakeholders include:-

- Local and regional authorities;
- Ratepayers associations;
- Ward councillors and representatives;
- Non-governmental Organisations (NGOs) and Community Based Organisations (CBOs); and
- Landowners adjacent and close to the site of the proposed development.

Stakeholders and I&APs are informed of the proposed development by means of:-

- Advertisements in newspapers;
- A background information document (BID);
- Letters to key stakeholders and neighbouring landowners/occupiers; and
- Notice boards placed at the site.

All of the above must include name(s) and contact details - telephone and fax numbers, and e-mail address/es to which stakeholders and I&APs can direct written or verbal comments.

Advertisements are placed in a minimum of one local and one regional newspaper, depending on the nature and extent of the proposed development. Stakeholders and I&APs are encouraged to register by sending their names and contact details to the EAP, whereupon they are sent a copy of the BID, and are thereafter kept informed of and involved in all subsequent stages of the EIA process. The BID is a brief document that provides information on the nature and location of the proposed development, and details of how the EIA process will be undertaken. However, it is unlikely that the final design specifications of some proposed developments are known at this stage, and there may be changes to the information presented in the BID as the project progresses.

In addition, public meetings, open house meetings and/or focus group meetings may be held. In the early stages of the Scoping Phase these meetings provide an opportunity for the Environmental Assessment Practitioner (EAP) to present and discuss the information in the BID, to elicit information from local sources, and to register I&APs. Comment forms provide a further way by which comments may be submitted. In the latter stages meetings provide opportunities to discuss the draft version of the Scoping Report before it is submitted to the competent environmental authority.

A1.6. Identification of alternatives

Possible alternatives to the proposed development must be identified during the Scoping Phase. These may include fundamental alternatives, such as maintaining the current land use, or proposing a development of a different nature to the one proposed by the project proponent. Design alternatives are intended to modify certain design aspects of the proposed project, such as alternative technologies, timing of activities, or the location of infrastructure, so as to minimise negative impacts on the environment. The identification of alternatives must be reasonable and practical.

A1.7. Plan of Study for the EIA Phase

The information and comments received and recorded during the Scoping Phase inform the larger and more comprehensive EIA Phase. This is usually achieved by the development of the Plan of Study (PoS) for the EIA. The PoS defines the actions, steps, and studies that must be undertaken in the EIA Phase.

A1.8. Scoping Reports

The data collected during the baseline data collection and public participation processes must be synthesised in a Scoping Report. In line with NEMA regulations, registered I&APs are entitled to comment, in writing, on all written submissions made to the competent authority by the applicant or the EAP managing an application. Accordingly a Draft Scoping Report is made available for public comment for a minimum period of 40 days. All comments on the draft report must be considered, and necessary changes made to the Draft before it is submitted for review to the competent authority as the final Scoping Report. This report includes the PoS discussed in A1.7 above.

A2. ENVIRONMENTAL IMPACT ASSESSMENT PHASE

The Environmental Impact Assessment (EIA) is a comprehensive evaluation and study phase that addresses all the issues raised in the Scoping Phase. It is a substantial phase that has seven key objectives:-

- Describe the biophysical and socio-economic environment that is likely to be affected by the proposed development.
- Undertake specialist studies to address the key biophysical and socio-economic issues.
- Assess the significance of impacts that may occur from the proposed development.
- Assess the alternatives proposed during the Scoping Phase.
- Provide details of mitigation measures and management recommendations to reduce the significance of impacts.
- Provide a framework for the development of Environmental Management Plans.
- Continue with the public participation process.

A2.1. Specialist Studies

Specialist studies are undertaken to provide a detailed and thorough examination of key issues and environmental impacts. Specialists gather relevant data to identify and assess environmental impacts that might occur on the specific component of the environment that they are studying (for instance waste management, air quality, noise, vegetation, water quality, pollution, waste management). Once completed, these studies are synthesised in, and presented in full as appendices to the Environmental Impact Report (EIR).

A2.2. Public Participation Process

The public participation process (PPP) initiated at the beginning of the Scoping Phase continues into the EIA Phase. Once again the PPP provides a platform from which all I&APs are able to voice their concerns and raise issues regarding the project.

A2.3. Assessment of the Significance of Impacts

It is necessary to determine the significance, or seriousness, of any impacts on the natural or social environment. It is common practice in the EIA Phase to use a significance rating scale that determines the spatial and temporal extent, and the severity and certainty of any impact occurring, including impacts relating to any project alternatives. This allows the overall significance of an impact or benefit to be determined.

The overall intent of undertaking a significance assessment is to provide the competent authority with information on the potential environmental impacts and benefits, thus allowing them to make an informed, balanced and fair decision.

A2.4. Mitigation Measures and Recommendations

Critical to any EIA is the recommendation of practical and reasonable mitigation measures and recommendations. These recommendations relate to the actions that are needed in order to avoid, minimise or offset any negative impacts from the development.

A3.5. Planning Input

An effective EIA process should actively engage and contribute to the project planning process so as to mitigate environmental impacts through improved design and layout.

A3.6. Environmental Impact Report

The above-mentioned tasks are synthesised in an Environmental Impact Report (EIR). This will allow the assessment of the relationship of environmental impacts to project actions, as well as to assess the overall significance of these impacts. The EIR will also provide sufficient information to allow the competent authority to make an informed decision.

A summary report covering key findings is prepared in a manner that is easy to read and understand. Text will be kept short and technical detail to a minimum, while information will be presented in the form of photographs and figures wherever possible.

A4. ENVIRONMENTAL MANAGEMENT PROGRAMMES

Environmental management and action plans based on the findings and recommendations set out in the EIR are prepared. An Environmental Management Programme (EMPr) consists of a set of practical and actionable mitigation, monitoring and institutional measures to be taken into account during construction and operation of the proposed development. The aim is to eliminate adverse environmental and social impacts, offset them, or reduce them to acceptable levels. These plans include: -

- The standards and guidelines that must be achieved in terms of environmental legislation.
- Mitigation measures and environmental specifications that must be implemented at ‘ground level’, that is, during construction and operation.
- Provide guidance through method statements to achieve the environmental specifications.
- Define corrective action that must be taken in the event of non-compliance with the specifications of the EMPs and SMPs.
- Prevent long-term or permanent environmental degradation.

A5. ENVIRONMENTAL AUTHORISATION AND APPEALS PROCESS

On thorough examination of the EIR, the competent authority will issue an Environmental Authorisation or reject the application. Should authorisation be granted, it will carry Conditions of Approval. The proponent is obliged to adhere to these conditions.

I&APs are notified of the decision and have 20 days in which to lodge a notice of intention to appeal the decision, and a further 30 days in which to submit the appeal.

APPENDIX B: DEA ACKNOWLEDGEMENT OF RECEIPT

environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

2012 -07- 25

Private Bag X 447 · PRETORIA · 0001 · Fedsure Building · 315 Pretorius Street · PRETORIA
Tel (+ 27 12) 310 3911 · Fax (+ 2712) 322 2682

NEAS Reference: DEA/EIA/0001278/2012
DEA Reference: 14/12/16/3/3/2/358
Enquiries: Mmatlala Rabothata
Tel: 012 395 1768/1694 **Fax:** 012 320 7539 **E-mail:** mrabothata@environment.gov.za

Mr Marc Hardy
Coastal & Environmental Services
PO Box 934
GRAHAMSTOWN
6140

Fax: 046 622 6564
Tel: 046 622 2364

PER FACSIMILE / MAIL

Dear Mr Hardy

ACKNOWLEDGEMENT OF RECEIPT AND ACCEPTANCE OF NEW APPLICATION FOR ENVIRONMENTAL AUTHORISATION (SCOPING/EIA PROCESS) FOR THE PROPOSED TERRA POWER SOLUTIONS WATT HILL SOLAR ENERGY, MAKANA LOCAL MUNICIPALITY, EASTERN CAPE PROVINCE

The Department confirms having received the application form for environmental authorisation for the abovementioned project on 6 June 2012 and the original signed details of EAP and declaration of interest; project schedule indicating the different phases and landowner's consent forms on 28 June 2012. You have submitted these documents to comply with the Environmental Impact Assessment Regulations, 2010. The Application is accepted

Please include both reference numbers (NEAS Reference and DEA Reference), as listed above, on all documents and correspondence submitted to the Department.

Please note that *one hard copy and one electronic copy (saved on CD/DVD) of draft reports*, and *five hard copies and one electronic copy of final reports* must be submitted to the Department.

In addition, please consider the following during compilation of reports for this application for environmental authorisation:

- All applicable Departmental Guidelines must be considered throughout the application process. These can be downloaded from the Department's website: www.environment.gov.za, Environmental Impact Management button, listed under "EIA Administration": Integrated Environmental Management Information Series link. These include, but are not limited to, the following topics: Scoping, Environmental Impact

Reporting, Stakeholder Engagement, Specialist Studies, Impact Significance, Cumulative Effects Assessments, Alternatives in EIA and Environmental Management Plans.

- Please be advised that in terms of the EIA Regulations and NEMA the investigation of alternatives is mandatory. Alternatives must therefore be identified, investigated to determine if they are feasible and reasonable. It is also mandatory to investigate and assess the option of not proceeding with the proposed activity (the "no-go" option).
- Refer to the attached annexure for specific requirements for the submission of applications for environmental authorisation for solar/wind power generation facilities.
- Should water, solid waste removal, effluent discharge, stormwater management and electricity services be provided by the municipality, you are requested to provide this office with written proof that the municipality has sufficient capacity to provide the necessary services to the proposed development. Confirmation of the availability of services from the service providers must be provided together with the reports to be submitted.
- In the reports to be submitted it must clearly be demonstrated in which way the proposed development will meet the requirements of sustainable development. You must also consider energy efficient technologies and water saving devices and technologies for the proposed development. This could include measures such as the recycling of waste, the use of low voltage or compact fluorescent lights instead of incandescent globes, maximising the use of solar heating, the use of dual flush toilets and low-flow shower heads and taps, the management of storm water, the capture and use of rainwater from gutters and roofs, the use of locally indigenous vegetation during landscaping and the training of staff to implement good housekeeping techniques.
- A detailed and complete EMPr must be submitted with the EIR. This EMPr must not provide recommendations but must indicate actual remediation activities which will be binding on the applicant. Without this EMPr the documents will be regarded as not meeting the requirements and will be returned to the applicant for correction.
- The applicant/EAP is required to inform this Department in writing upon submission of any draft report, of the contact details of the relevant State Departments (that administer laws relating to a matter affecting the environment) to whom copies of the draft report were submitted for comment. Upon receipt of this confirmation, this Department will in accordance with Section 24O (2) & (3) of the National Environmental Management Act, 1998 (Act 107 of 1998) inform the relevant State Departments of the commencement date of the 40 day commenting period, or 60 days in the case of the Department of Water Affairs for waste management activities which also require a licence in terms of the National Water Act, 1998 (Act 36 of 1998).
- Should it be necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999), please submit the necessary application to SAHRA or the relevant provincial heritage agency and submit proof thereof with the Environmental Impact assessment Report. The relevant heritage agency should also be involved during the public participation process and have the opportunity to comment on all the reports to be submitted to this Department.

You are required to submit the final site layout plan together with the Final EIR to the Department. All available biodiversity information must be used in the finalisation of the layout plan. The site layout plan must indicate the following:

- Positions of solar/wind facilities;
- Foundation footprint;
- Permanent laydown area footprint;
- Construction period laydown footprint;

2

- Internal roads indicating width (construction period width and operation period width) and with numbered sections between the other site elements which they serve (to make commenting on sections possible);
- Wetlands, drainage lines, rivers, stream and water crossing of roads and cables indicating the type of bridging structures that will be used;
- The location of Heritage sites;
- Sub-station(s) and/or transformer(s) sites including their entire footprint;
- Cable routes and trench dimensions (where they are not along internal roads);
- Connection routes (including pylon positions) to the distribution/transmission network;
- Cut and fill areas at solar panels/ wind turbines sites along roads and at sub-station/transformer sites indicating the expected volume of each cut and fill;
- Borrow pits;
- Spoil heaps (temporary for topsoil and subsoil and permanently for excess material);
- All existing infrastructure on the site, especially roads;
- Buildings including accommodation;
- All "no-go" areas; and
- A map combining the final layout plan must be superimposed (overlain) on the environmental sensitivity map.

The Environmental Management Programme (EMPr) submitted as part of the application for environmental authorisation must include the following:

- All recommendations and mitigation measures to be recorded in the Final EIR.
- A plant rescue and protection plan which allows for the maximum transplant of conservation important species from areas to be transformed. This plan must be compiled by a vegetation specialist familiar with the site in consultation with the ECO and be implemented prior to commencement of the construction phase.
- An open space management plan to be implemented during the construction and operation of the facility.
- A re-vegetation and habitat rehabilitation plan to be implemented during the construction and operation of the facility including timeframes for restoration which must indicate rehabilitation within the shortest possible time after completion of construction activities to reduce the amount of habitat converted at any one time and to speed up the recovery to natural habitats.
- An alien invasive management plan to be implemented during construction and operation of the facility. The plan must include mitigation measures to reduce the invasion of alien species and ensure that the continuous monitoring and removal of alien species is undertaken.
- A storm water management plan to be implemented during the construction and operation of the facility. The plan must ensure compliance with applicable regulations and prevent off-site migration of contaminated storm water or increased soil erosion. The plan must include the construction of appropriate design measures that allow surface and subsurface movement of water along drainage lines so as not to impede natural surface and subsurface flows. Drainage measures must promote the dissipation of storm water run-off.
- An effective monitoring system to detect any leakage or spillage of all hazardous substances during their transportation, handling, use and storage. This must include precautionary measures to limit the possibility of oil and other toxic liquids from entering the soil or storm water systems.

- An erosion management plan for monitoring and rehabilitating erosion events associated with the facility. Appropriate erosion mitigation must form part of this plan to prevent and reduce the risk of any potential erosion.
- A traffic management plan for the site access roads to ensure that no hazards would results from the increased truck traffic and that traffic flow would not be adversely impacted. This plan must include measures to minimize impacts on local commuters e.g. limiting construction vehicles travelling on public roadways during the morning and late afternoon commute time and avoid using roads through densely populated built-up areas so as not to disturb existing retail and commercial operations.
- An environmental sensitivity map indicating environmental sensitive areas and features identified during the EIA process.
- Measures to protect hydrological features such as streams, rivers, pans, wetlands, dams and their catchments, and other environmental sensitive areas from construction impacts including the direct or indirect spillage of pollutants.

The EAP must, in order to give effect to regulation 56 (2), before submitting the final Environmental Impact Assessment report to the Department give registered interested and affected parties access to, and an opportunity to comment on the report in writing within 21 days.

In terms of regulation 67 of the EIA Regulations, 2010 this application will lapse if the applicant (or the EAP on behalf of the applicant) fails to comply with a requirement in terms of the Regulations for a period of six months after having submitted the application, unless the reasons for failure have been communicated to and accepted by this Department.

You are hereby reminded of Section 24F of the National Environmental Management Act, Act No 107 of 1998, as amended, that no activity may commence prior to an environmental authorisation being granted by the Department.

Yours sincerely

Mr Mark Gordon
Chief Director: Integrated Environmental authorisations
Department of Environmental Affairs
Letter signed by: Ms Mmatlala Rabothata
Designation: Environmental Officer: Integrated Environmental Authorisations
Date: 19/07/2012

CC:	Mr Howard Ramsden	Terra Power Solutions (Pty) Ltd	Tel: 087 808 1501	Fax: N/A
	Mr Leon Els	Eastern Cape DEDEA	Tel: 041 508 5808	Fax: 041 508 5867
	Ms Ntombi Baart	Makana Local Municipality	Tel: 046 603 6131	Fax: N/A

APPENDIX C: PUBLIC PARTICIPATION
APPENDIX C-1: BACKGROUND INFORMATION DOCUMENT

BACKGROUND INFORMATION DOCUMENT & INVITATION TO COMMENT: Construction of a 75 MW Photovoltaic Energy Generating Facility in the region of Riebeeck East, Eastern Cape Province

AIM OF THIS DOCUMENT

The aim of this Background Information Document is to provide stakeholders with information about this project, the process being followed and to provide them with an opportunity to be involved in the forthcoming environmental assessment process by registering as an Interested and Affected Party (IAP).

IAPs are encouraged to raise issues or concerns relevant to the project for consideration in the Scoping Report process that is to be conducted in order to secure the required environmental authorisation.

The final Scoping Report will be submitted to the National Department of Environmental Affairs (Pretoria) for decision making.

To register as an IAP please send your name and contact details to:

Mr Justin Green
P.O. Box 934
Grahamstown, 6140
Tel: (046) 622 2364
Fax: (046) 622 6564

Email: j.green@cesnet.co.za

OR

Mr. Jadon Schmidt

Email: j.schmidt@cesnet.co.za

Your involvement in this process is critical, and will help ensure that all relevant issues are raised and assessed in the Basic Assessment process

PROJECT DESCRIPTION

Terra Power Solutions (Pty) Ltd proposes to develop a photovoltaic (PV – or solar panel) electricity generating facility for the production of ±75 MW of energy on four portions of land in the Riebeeck East Region. The site will include Brack Kloof (120 hectares), Table Hill (120 hectares), Watt Hill (132 hectares) and Hilton (150 hectares)

The proposed sites are located near Riebeeck East; Makana Municipality in the Eastern Cape Province of South Africa (refer to Figures 1 and 2 below).

Coastal and Environmental Services (CES) has been appointed by the applicant to conduct the environmental assessment process.

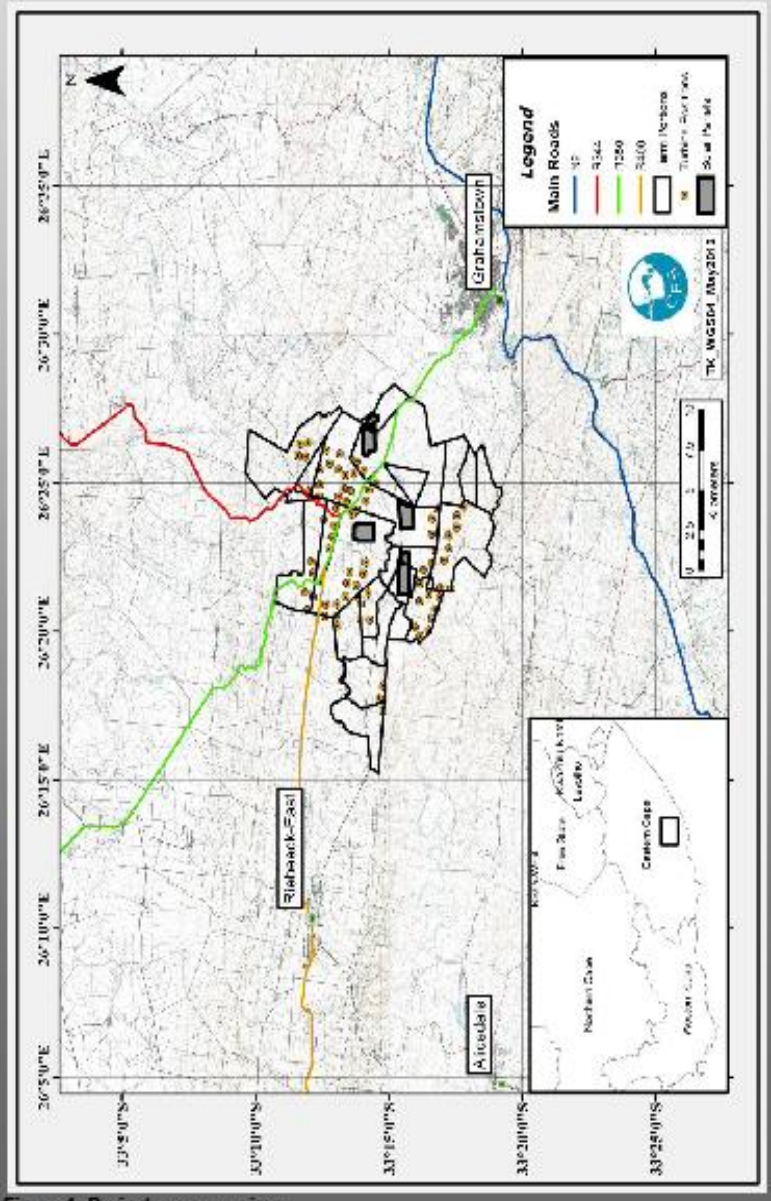

Figure 1: Project area overview

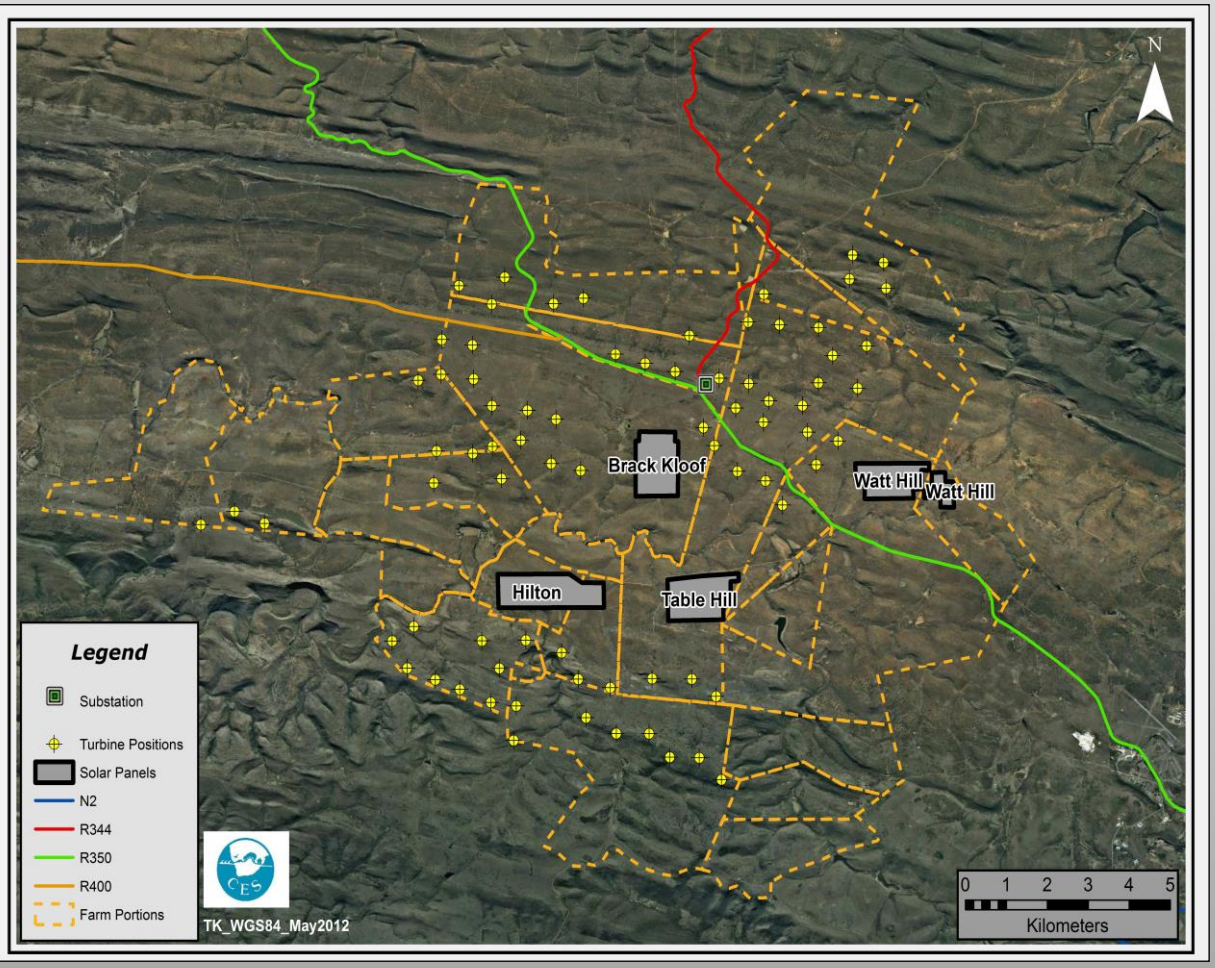

Figure 2: Proposed solar project sites – Brack Kloof, Hilton, Table Hill and Watt Hill

Figure 3: A PV solar panel array similar to that proposed for the project

RELEVANT LEGISLATION

The proposed project requires a Scoping Report to be undertaken in terms of the 2010 EIA Regulations (GNR 543 of 18 June 2010) as the proposed project triggers activities listed in GNR 545, not limited to those as shown in the table below. As a result the applicant is required to undertake a Full Scoping Report as well as an Environmental Impact Assessment (EIA) process.

GNR 544	(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. (11). The construction of: (i) canals; (ii) channels; (iii) bridges; (vi) bulk storm water outlet structures; where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line
GNR 545	(1). The construction of facilities or infrastructure for the generation of electricity where the electricity output is 20 megawatts or more (15). Physical alteration of undeveloped, vacant or derelict land for residential, retail, commercial, recreational, industrial or institutional use where the total area to be transformed is 20 hectares or more;
GNR 546	(4). The construction of road wider than 4 metres with a reserve less than 13,5 metres. (12). The clearance of an area of 300 square metres or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation (14). The clearance of an area of 5 hectares or more of vegetation where 75% or more of the vegetation cover constitutes indigenous vegetation. (19). The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre

POTENTIAL IMPACTS

A number of potential issues will be assessed during the scoping process and these are:

- Loss of indigenous vegetation and habitat for fauna
- Impact on indigenous fauna (e.g. red data species)
- Visual impacts on local game reserves and lodges
- It is not anticipated that any features of heritage or cultural significance are present in the project area

APPROACH TO THE SCOPING PHASE

The Scoping Phase is important for informing the public and relevant authorities about the nature and size of the proposed project. A critical component of the Scoping Phase is the Public Participation Process, in which Interested and Affected Parties (I&APs) are given an opportunity to raise any issues or concerns they may have about the project. The process is outlined in the figure below. The Draft Scoping Report will be made available for review by the public and all registered I&APs will be notified to the availability thereof. This report will set the scope and specialist terms of reference for the EIA Phase.

The Scoping Process

Development Process
↓
Background Information Document (BID) and notification of I&AP's
↓
Undertake Public Meetings
↓
Prepare Draft Scoping Report
↓
Review of Draft Scoping report by I&AP's
↓
Submit Final Scoping Report to Authority
↓
Proceed to EIA Phase

HOW CAN YOU BE INVOLVED?

A Public Participation Process (PPP) is being conducted as part of the Scoping Process. The aim of the PPP is to allow everyone who is interested in, or likely to be affected by, the proposed development to provide input into the process.

I hereby wish to register as an Interested and Affected Party (IAP) for the Terra Power Riebeeck East Solar project EIA process

Name:

_____

Organization:

_____

Postal address:

_____

Email:

_____

Phone #: _____ Fax #:_____

My initial comments, issues or concerns are:

_____

_____

_____

_____

_____

_____

_____

_____

Other individuals, stakeholders, organisations or entities that should be registered are:

Name:

_____

Organization:

_____

Postal address:

_____

Email:

_____

Phone #: _____ Fax #: _____

Please return details to: **Mr Justin Green**: P.O. Box 934, Grahamstown, 6140

Telephone: (046) 622 2364 Fax: (046) 622 6564 Email: j.green@cesnet.co.za or ppp@cesnet.co.za

APPENDIX C-2: EXAMPLE OF THE LETTER SENT TO THE LAND OWNER AND NEIGHBOURS OF THE PROJECT SITE, AND A REGISTERED MAIL SLIP INDICATING ALL INDIVIDUALS NOTIFIED.

COASTAL & ENVIRONMENTAL SERVICES
Environmental Management and Impact Assessment

67 African Street
P O Box 934
Grahamstown 6139
SOUTH AFRICA
Tel: 046 622 2364
Fax: 046 622 6564
Email: info@cesnet.co.za
Website: www.cesnet.co.za

05 June 2012

ATTENTION: OWNERS AND/OR OCCUPIERS OF LAND IMMEDIATELY SURROUNDING OR WITHIN 100m OF TERRA POWER WIND AND SOLAR FARM NEAR GRAHAMSTOWN IN THE EASTERN CAPE

NOTIFICATION OF ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED DEVELOPMENT OF A WIND AND SOLAR ENERGY PROJECT AT RIEBEECK EAST IN THE EASTERN CAPE PROVINCE OF SOUTH AFRICA

In accordance with the requirements of section 54 (2) (b) (vi) of the Environmental Impact Assessment Regulations (2010) made in terms of section 24(5) of the National Environmental Management Act (Act No 107 of 1998) as amended, we are required to, *"give written notice to any organ of state having jurisdiction in respect of any aspect of the activity"*. In accordance with this requirement, please find here-with a letter of notification for an environmental impact assessment being carried out by Coastal and Environmental Services in respect of the above-mentioned project.

Terra Power Solutions (Pty) Ltd - a renewable energy company, plans to develop a wind power generation facility (known as a 'wind farm') 22km East of Riebeeck East, along the R350 located in the Makana Municipality in the Eastern Cape Province of South Africa. The proposed project is planned to host up to 77 turbines, each with a nominal power output ranging between 2-3 Mega Watts (MW). The total potential output of the wind farm would be 140MW. The wind farm will cover an area of approximately 15 900 hectares.

Terra Power Solutions (Pty) Ltd, a renewable energy company, also proposes to develop a photovoltaic (PV – or solar panel) electricity generating facility for the production of ±75 MW of energy on four portions of land in the Riebeeck East Region. The site will include Brack Kloof (120 hectares), Table Hill (120 hectares), Watt Hill (132 hectares) and Hilton (150 hectares).

- Coastal & Environmental Services (CES) of Grahamstown have been appointed by Terra Power Solutions (Pty) Limited, to conduct an environmental impact assessment for the proposed development. The activities that we believe will be triggered by the proposed development are listed in the application and the Background Information Document (BID) that is attached to this letter.
- A public meeting will be held to present the project and to give the public an opportunity to comment on the proposed development. You will be notified of the date, time and venue for the public meeting accordingly.
- CES would highly appreciate it if you could please send us a letter confirming your receipt of this notification. For more information, please feel free to contact Mr. Justin Green at the CES Grahamstown office numbers shown above.

Yours sincerely,

Justin Green
Environmental Consultant

East London: Tel: 043 742 8302 Fax: 043 742 8306 Email: ceselel@cesnet.co.za

Henque 1018 t/a Coastal and Environmental Services • Reg no. CK 1997/061914/23 • Vat No. 4380172835
Members: Dr AM Avis (PhD Rhodes) • Prof RA Lubke (PhD Western Ontario)
Mrs CE Avis (MA Rhodes, CAIB) • Dr AR Carter (PhD Rhodes, CPA USA) • Mr WSJ Rowlston (Bsc Hons CivEng)
Mrs J Gopal (B.Optom, Hons) • Dr KJ Whittington-Jones (PhD Rhodes) • Mr M Gopal • Mrs BK Emslie (B.Comm Accounting Rhodes)

(170)

List of REGISTERED LETTERS
Lys van GEREGISTREERDE BRIEWE
(with an insurance option/met 'n versekeringsopsie)

Full tracking and tracing/Volledige volg en spoor

Post Office

Name and address of sender:
Naam en adres van afsender: CES
67 African Street, Grahamstown, 6139

Enquiries/Navrae
Toll-free number
Tovry nommer
0800 111 502

No	Name and address of addressee Naam en adres van geadresseerde	Insured amount Versekerde bedrag	Insurance fee Versekeringsgeld	Postage Posgeld	Service fee Diensgeld	Affix Track and Trace customer copy Plak Volg-en-Spoor-kliëntekopie
1	Renzo Middleton, Vodacom SA Eastern Region P.O.Box 23504, Greenacres, P.E, 6004					REGISTERED LETTER RD 753 484 962 ZA CUSTOMER COPY
2	Provincial Manager, South African Heritage Resources Agency. P.O.Box 159, East London, 5200					REGISTERED LETTER RD 753 484 945 ZA CUSTOMER COPY
3	MR Tom Smith, Eskom Holdings Ltd. Private Bag X1 Bergvlei Bay 5205					REGISTERED LETTER RD 753 484 931 ZA CUSTOMER COPY
4	Ms M Mabekgana, Department of Energy, Private Bag X59, Pretoria, 0001					REGISTERED LETTER RD 753 484 928 ZA CUSTOMER COPY
5	Ms Lizzie Fourie, Department of Water Affairs P.O. Box 7019, East London, 5200					REGISTERED LETTER RD 753 484 914 ZA CUSTOMER COPY
6	Lizelle Stroh, South African Civil Aviation Authority, Private Bag X73, Halfway House 1685					REGISTERED LETTER RD 753 484 891 ZA CUSTOMER COPY
7	Mrs Annelien Coetzee, Directorate: Land Use & Soil Management, Department of Agriculture Forestry & Fisheries, Private Bag X250 Pretoria, 0001					REGISTERED LETTER RD 753 484 905 ZA CUSTOMER COPY
8	Mr Nkomebekhaya Board, Makana Local Municipality/City Hall, High Street, Grahamstown, 6140					REGISTERED LETTER RD 753 484 874 ZA CUSTOMER COPY
9	Director: Environmental Impact Evaluation, Department of Environmental Affairs, Private Bag X447 Pretoria, 0001					REGISTERED LETTER RD 753 484 888 ZA CUSTOMER COPY
10	Mr D. Louw dor, Department of Economic Development & Environmental Affairs, Private Bag X5001, Greenacres, Port Elizabeth 6057					REGISTERED LETTER RD 753 484 857 ZA CUSTOMER COPY
	Total Totaal	R	R	R	R	

Number of letters posted
Getal briewe gepos 10

Signature of client
Handtekening van kliënt

Signature of accepting officer
Hantekening van aanneembeampte

Date Stamp
GRAHAMSTOWN 6140
Datumstempel

The value of the contents of these letters is as indicated and compensation is not payable for a letter received unconditionally. Compensation is limited to R100,00. No compensation is payable without documentary proof. Optional insurance of up to R2 000,00 is available and applies to domestic registered letters only.

Die waarde van die inhoud van hierdie briewe is soos aangedui en vergoeding sal nie betaal word vir 'n brief wat sonder voorbehoud ontvang word nie. Vergoeding is beperk tot R100,00. Geen vergoeding is sonder dokumentêre bewys betaalbaar nie. Opsionele versekering van tot R2 000,00 is beskikbaar en is slegs op binnelandse geregistreerde briewe van toepassing.

701248

LEBONE LITHO PRINTERS (PTY)LTD.

List of REGISTERED LETTERS
Lys van GEREGISTREERDE BRIEWE

170

(with an insurance option/met 'n versekeringsopsie)

Full tracking and tracing/Volledige volg en spoor

Post Office

Name and address of sender:
Naam en adres van afsender: CES
67 African Street, Grahamstown, 6139

Enquiries/Navrae
Toll-free number
Tovry nommer
0800 111 502

No	Name and address of addressee / Naam en adres van geadresseerde	Insured amount / Versekerde bedrag	Insurance fee / Verseke-ringsgeld	Postage / Posgeld	Service fee / Diensgeld	Affix Track and Trace customer copy / Plak Volg-en-Spoor-kliëntafskrif
1	Jennifer Gon, Wildlife & Environment Society of Southern Africa, P.O. Box 73 Grahamstown 6140					REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 753 484 865 ZA CUSTOMER COPY 301028R
2						
3						
4						
5						
6						
7						
8						
9						
10						
	Total / Totaal	R	R	R	R	

Number of letters posted / Getal briewe gepos: 1

Signature of client / Handtekening van kliënt:

Signature of accepting officer / Hantekening van aanneembeampte:

Date Stamp
GRAHAMSTOWN 1 2012-05-05 6140
Datumstempel

The value of the contents of these letters is as indicated and compensation is not payable for a letter received unconditionally. Compensation is limited to R100,00. No compensation is payable without documentary proof. Optional insurance of up to R2 000,00 is available and applies to domestic registered letters only.

Die waarde van die inhoud van hierdie briewe is soos aangedui en vergoeding sal nie betaal word vir 'n brief wat sonder voorbehoud ontvang word nie. Vergoeding is beperk tot R100,00. Geen vergoeding is sonder dokumentêre bewys betaalbaar nie. Opsionele versekering van tot R2 000,00 is beskikbaar en is slegs op binnelandse geregistreerde briewe van toepassing.

701248

LEBONE LITHO PRINTERS (PTY)LTD.

APPENDIX C-3: COPY OF NEWSPAPER ADVERTISEMENT NOTIFYING I&APS OF THE PROPOSED TERRA POWER SOLUTIONS ENERGY PROJECT (INCEPTION PHASE)

EP HERALD (PROVINCIAL) – 18 MAY 2012

THE GROCOTTS (LOCAL) – 18 MAY 2012

Nyaluza to host historic torch

LOYISO DYONGMAN

Minister for Higher Education and Training Blade Nzimande will be among the VIPs attending celebrations as Makana receives the ANC's Centenary Torch on Sunday.

The torch, visiting ANC regions around the country to mark the organisation's 100th birthday, arrived in Kouga Municipality yesterday, after blazing a trail from the OR Tambo District Municipality.

VIPs attending the ceremony will include Cacadu's ANC regional chairperson Gugile Nkwinti, deputy chairperson Lungile Mxube and secretary Nosisa Siwendu.

Sub-regional chairperson Mncedisi Boma said the torch would come to Nathaniel Nyaluza Secondary School in Fingo village at 9am.

Boma said: "Nyaluza was our first high school within Makana and this is a way of acknowledging their contribution to the community."

From Nyaluza the proceedings will go on to the main venue, BB Zondani Hall in Tantyi. The torch will then go to the Thatha graves.

"Going to the graves, the ANC will be visiting their fallen heroes and heroines that were killed in the 80s during apartheid," Boma said.

"Those include Siphiwo Mazwayi, Rogers Faltein, Vuyo Moleli – who were Umkhonto we Sizwe soldiers – and Mam' uTsili and Mam' uMpande – both ANC activists and many others."

Later in the day Boma said Nzimande would give a memorial lecture, in the name of former ANC president, the late Govan Mbeki. Boma said that a venue for the lecture is yet to be decided.

MARCHING OVER MONEY... Eastcape Midlands College students protest outside the Department of Education district offices this week over their alleged failure to channel loans to pay for tuition and accommodation. The ANCYL has stepped in to mediate between students and the college. Photo: Desiree Schirlinger

ANCYL steps in over loans crisis

LOYISO DYONGMAN AND ZAMATHIYANE NDABA

THE ANC Youth League has stepped in to help resolve a dispute between the Eastcape Midlands College and hundreds of students threatened with expulsion for not paying their fees, following a week of protest action.

Around 300 students first protested outside the Department of Education district offices, in Milner Street, on Tuesday, demanding answers about delays in the payment of their National Students Financial Aid Scheme (NSFAS) loans.

They proceeded to the city hall, where they called on ANC Youth League regional chairperson, Mabhuti Matyumza, to intervene. Matyumza works at the city hall in Makana Municipality's social development portfolio committee.

Students at the college said they had been told they must leave unless they paid their fees and said they should have received the first instalments of loans from the scheme in March.

The source of the anger and confusion was apparently the reply to an email students sent to the NSFAS on Monday urgently requesting their funding. A reply the next day reportedly said the scheme had no knowledge of the alleged unpaid loans.

Matyumza, who is mediating between the students and the college, said negotiations were in progress.

"The school is failing them in addressing financing," Matyumza said.

"This is not going to be something which will be solved in a day. We are moving as swiftly as possible to solve the problem."

Yesterday protests continued at the education department offices, while inside a meeting between college staff, Matyumza and the Makana Youth Forum member, Andile Hoyi, took place.

Teamwork boosts tourism

PHILIPPA BRADBURY

THE Eastern Cape had a strong presence at the annual Tourism Indaba at Durban's Inkosi Albert Luthuli ICC complex last week.

Under the theme "Shaping our future together", the expo offered tourism enterprises, the opportunity to market their products.

The Eastern Cape products were exhibited under the banner of the Adventure Province, surrounding the Eastern Cape Parks and Tourism Agency (ECPTA) stand.

According to the agency's communications and public relations manager, Veliswa Mhlope, this year they intended to package the province's tourism offerings collectively, offering consumers more and strengthening ties between the ECPTA and tourism businesses in the province.

Makana Tourism director Susan Waugh said, "We had a lot of interest shown not only in Grahamstown but within the Eastern Cape.

"It was an extremely positive experience."

Bursary fund honours murdered student

MIKAILA THURGOOD

RHODES University has established a fund in memory of murdered BSc Honours student Leona Fufu. Fufu was killed while hitch-hiking to her Rhodes graduation ceremony last month. To honour her memory, Rhodes has invited staff and students to contribute towards a memorial prize, awarded annually to a student graduating in science with a BSc or BSc (Hons) who has overcome educational hardships.

Dean of Science, Professor Ric Bernard, said preference would be given to a student who had come through the Foundation Programme and who had majored in the mathematical or statistical sciences.

Donations to the fund are through student fees, in Eden Grove or at the main administration building.

COPY OF NEWSPAPER ADVERTISEMENT NOTIFYING I&APS OF THE PROPOSED DRAFT SCOPING REPORT WHEREABOUTS AND THE TIME, DATE AND VENUE FOR THE PUBLIC MEETING AND THE DURATION OF THE REVIEW PERIOD FOR THE MAKANAONE HILTON SOLAR ENERGY PROJECT

THE EP HERALD (Provincial) –14 September 2012


To place an ad phone: 041 504 7174

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Friday September 14, 2012 17

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Email: kca@keevyauctions.co.za

Cacadu DISTRICT MUNICIPALITY

NOTICE

BID NO: 53/2012

STAKEHOLDER NOTICE FOR THE DRAFTING OF CACADU DISTRICT SPATIAL DEVELOPMENT FRAMEWORK 2013 - 2018

TRANSNET

TENDER NUMBER

TRE12-UTH-GSB-4062

TENDER DESCRIPTION: Supply and Erection of Spray Booth for Transnet Rail Engineering, Ports Depot Humerail, Port Elizabeth.

Avoid rush hour!! Book your classified ads during the afternoon on Monday, Tuesday & Wednesday TELEADS 041-504 7174

RHODES UNIVERSITY

Where leaders learn

DIVISION OF INFRASTRUCTURE AND OPERATIONS

HOSPITALITY SERVICES

INVITATION TO TENDER FOR THE SUPPLY OF COMMODITIES AND SERVICES

LIST OF TENDERS

1. Food Services Tender for the supply of all food commodities including disposables, frozen products, fresh produce and city goods
2. Housekeeping Tender for the supply of paper products and refuse bags
3. Window Cleaning services for Rhodes University
4. The Provision and Maintaining of Sanitary Bins
5. Laundry Services
6. Pest Control Services (11 Kitchens and Catering Stores)

A site inspection will be done for the Pest Control Tender on Friday 21 September 2012 at 10h00. This will be the ONLY site inspection. Suppliers interested in participating in this tender must meet Mrs Lombard at Rhodes University, Catering Store, Prince Alfred Road.

Tender applications with specific details about quantity, quality, product and service requirements may be obtained from Rhodes University, Facilities Management Office, 35 South Street, Grahamstown on the following dates:

- Dates: Wednesday 19 September 2012 to Friday 21 September 2012
- Times: 10h00 to 12h00 daily
- Cost: R250 for every tender
- Contact person: Mrs. W. Lombard

ONLY E - mail correspondence will be entered into

✉ E - mail: w.lombard@ru.ac.za

Close of Tenders: Friday 5 October 2012

Kindly note that should the University not be satisfied with any of the tenders submitted, it will not be obliged to make a tender award. Taxed tenders will not be accepted. Also, please note that the University reserves the right to award contracts for a selection of items from any tender submitted.

ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

PROPOSED DEVELOPMENT OF THE

- TERRA POWER SOLUTIONS RIEBEECK EAST WIND ENERGY PROJECT
- TERRA POWER SOLUTIONS BRACK KLOOF SOLAR ENERGY PROJECT
- TERRA POWER SOLUTIONS TABLE HILL SOLAR ENERGY PROJECT
- TERRA POWER SOLUTIONS WATT HILL SOLAR ENERGY PROJECT
- TERRA POWER SOLUTIONS HUTTON SOLAR ENERGY PROJECT

Notice is given in terms of regulation 54(2) as published in the Government Gazette No 543 Environmental Impact Assessment (EIA) regulations of the National Environmental Management Act (Act No. 107 of 1998) to inform interest to undertake an Environmental Impact Assessment, as governed by GN 545.

Terra Power Solutions (Pty) Limited, a renewable energy company, is proposing to construct:

- A Wind Energy Facility to be developed between Rebeeck East and Grahamstown in the Eastern Cape. The proposed project will entail the construction and operation of 77 turbines each generating 2 - 3 Mega Watts (MW) of power with a total generation capacity of up to 140 MW.
- Four Solar Energy Facilities to be developed between Riebeeck East and Grahamstown in the Eastern Cape. The proposed project will entail the construction and operation of 120-150 hectares of solar arrays on separate properties, each with a total generation capacity of up to 75 MW.

All Interested and Affected Parties are hereby notified of the availability of the Draft Scoping Reports for public review and comment. The review period is from the date of this publication until the 3rd of November 2012. Copies of the Draft Environmental Scoping Reports (SR) are available for review and comment at the following locations:

- Grahamstown Public Library
- The CES website (www.cesnet.co.za) – click on the public documents link.

A public meeting will be held at the Highlander in Grahamstown on Tuesday 25 September 2012 at 18:00.

You are invited to register as an Interested and Affected Party (IAAP), please contact: Mr Justin Green, P.O. Box 934, Grahamstown, 6140 Tel: 046-622 2364. Fax: 046-622 6564 Email: j.green@cesnet.co.za.

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041 5047174

Contract Number: SP-AD-0070

South African National Parks invites tenders for Construction of 12 km game fence at Addo Elephant National Park.

It is estimated that tenderers should have a CIDB contractor grading of 3GB or 3SQ or higher. 2GBPE or 2SQPE grading for emerging enterprises who satisfy criteria stated in the Tender Data may submit tender offers.

Preferences are offered to tenderers for Broad-Based Black Economic Empowerment (B-BBEE) Status Level of Contribution.

Tender documents will only be available at the compulsory site clarification meeting.

A non-refundable deposit of R 200-00 payable in cash or bank guaranteed cheque made out in favour of South African National Parks is required on collection of the tender documents.

Queries relating to the issue of the tender documents may be addressed to Mr Gregory Lekoma: Tel: 012 - 426 5260, e-mail: gregory.lekoma@sanparks.org

A compulsory clarification meeting with representatives of the Employer will take place at Matyholweni Entrance Gate of Addo Elephant National Park, on 21 September 2012 at 11:00. This gate is close to the town of Colchester along the N2.

The closing time for receipt of tenders is 11:00 on 17 October 2012. Tenders in sealed envelopes marked clearly with the identification details: "Tender for Contract SP-AD-0070: Construction of 12 km game fence at Addo Elephant National Park" must be deposited in the tender box at the Park Administration Offices, Addo Main Camp, Addo Elephant National Park on or before the stated closing time. Entry to Park Administration Offices is at the gate off the R335.

Telegraphic, telephonic, telex, facsimile, e-mail and late tenders will not be accepted. Tenders may only be submitted on the tender documentation issued.

NOTICE NO. 102 OF 2012, DATED 13 SEPTEMBER 2012

DIVISION OF INFRASTRUCTURE AND OPERATIONS

HOSPITALITY SERVICES

INVITATION TO TENDER FOR THE SUPPLY OF COMMODITIES AND SERVICES

LIST OF TENDERS

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nelson mandela bay MUNICIPALITY

HUMAN SETTLEMENTS

MISCELLANEOUS APPLICATIONS

UITENHAGE

TOWN PLANNING AMENDMENT 8431 : REZONING OF ERF 5507, UITENHAGE (12 MOLTENO STREET) (CF47/05507) (DO)

The Council has received an application for an amendment to the Uitenhage Zoning Scheme by the rezoning of Erf 5507, Uitenhage from Single Residential purposes to General Residential Sub Zone 1 purposes to permit the property to be used as residential units.

Details relating to the proposals are available at the offices of the Human Settlements Directorate, 76 Cuyler Street, Uitenhage during normal office hours. Any person wishing to object to these proposals must submit his objections in writing to the Executive Director : Human Settlements, P O Box 9, Port Elizabeth 6000 on or before 8 October 2012.

Ref. 270

REMOVAL OF RESTRICTIONS

PORT ELIZABETH

Notice is given in terms of Section 3(6) of the Removal of Restrictions Act, 1967 (Act 84 of 1967) that the undermentioned applications have been received and are open to inspection at room 4176, fourth floor, Office for Housing and Local Government : Eastern Cape, Tyamzashe Building, Civic Square, Bhisho, and at the offices of the Nelson Mandela Bay Municipality, second floor, Lillian Diedericks Building, Govan Mbeki Avenue, Port Elizabeth. Any objections, with full reasons therefor, should be lodged in writing with the Municipal Manager, P O Box 116, Port Elizabeth 6000 on or before 8 October 2012, quoting the above act and the objector's erf number.

(1) ERF 1847, DESPATCH (9 WERNICH STREET) (CF47/01847) (PC) (Ref. 259)

Applicant: J W and C S Fourie

Nature of application: Removal of title conditions applicable to Erf 1847, Despatch to permit the property to be rezoned from Residential 1 to Residential Zone 5 purposes.

(2) ERF 1612, WESTERING (38 VAN WYK STREET) (CF27/01612) (LS) (Ref. 262)

Applicant: MH and CR Lewis

Nature of application: Removal of title conditions applicable to Erf 1612, Westering.

(3) ERF 327, FRAMESBY (12 RINA AVENUE) (CF07/00327) (LS) (Ref. 263)

Applicant: Elsa Welgemoed Property Planning, on behalf of MPE Jamneck

Nature of application: Removal of title conditions applicable to Erf 327, Framesby.

Vote 02130135 - 14 September 2012

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GROCOTT'S MAIL (Local) – 14 September 2012

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ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

PROPOSED DEVELOPMENT OF THE

- TERRA POWER SOLUTIONS RIEBEECK EAST WIND ENERGY PROJECT
- TERRA POWER SOLUTIONS BRACK KLOOF SOLAR ENERGY PROJECT
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- TERRA POWER SOLUTIONS WATT HILL SOLAR ENERGY PROJECT
- TERRA POWER SOLUTIONS HILTON SOLAR ENERGY PROJECT

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A public meeting will be held at the Highlander in Grahamstown on Tuesday 25 September 2012 at 18:00.

You are invited to register as an Interested and Affected Party (I&AP), please contact:
Mr Justin Green, P.O. Box 934, Grahamstown, 6140.
Tel: 046-622 2364, Fax: 046 622 6564 Email: j.green@cesnet.co.za

APPENDIX C-4: COPY OF SITE NOTICE TEXT AND PHOTOGRAPHS PLACED AT VARIOUS POINTS NOTIFYING I&APS OF THE PROPOSED ENERGY IPP WIND AND SOLAR ENERGY PROJECT

PROPOSED DEVELOPMENT OF THE RIEBEECK EAST WIND AND SOLAR ENERGY PROJECT IN THE EASTERN CAPE PROVINCE NOTICE OF ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

Notice is given in terms of Regulation 54 of the Environmental Impact Assessment (EIA) Regulations published in Government Notice R543 in Government Gazette No 33306 of 02 August 2010, under Section 24(5) of the National Environmental Management Act 1998 (Act No 107 of 1998), as amended, that a wind and solar energy project is proposed for construction in Riebeeck East in the Makana Municipality in the Eastern Cape Province.

The proposed project will entail the construction and operation of up to 77 turbines each generating a maximum of 2-3MW of power with a total generation capacity of ~ 140MW.

The proposed project will also entail the construction and operation of four solar farms covering 522 hectares, each producing ~ 75 MW each.

In terms of the EIA regulations, the proposed development will require a full scoping and Environmental Impact Assessment (EIA). Terra Power Solutions (Pty) Ltd has appointed Coastal and Environmental Services (CES) to undertake the EIA. The application has been submitted to the Department of Environmental Affairs (DEA).

Coordinates of site centre: 33°14'44.72" S; 26°23'19.38" E

If you have any comments or queries, or if you require further information, please contact Mr. Justin Green at:-
Tel: 046 622 2364; or Fax: 046 622 6564; or
Email: J.green@cesnet.co.za

Plate C4 (1) – Site notice erected on the corner of the R344 and R400 between Grahamstown and Riebeeck East.

Plate C4 (2) – Site notice erected on the corner of the R350 and R400 between Riebeeck East and Bedford.

Plate C4 (3) – Site notice erected on the dirt road linking the R400 and Alicedale.

Plate C4 (4) – Site notice erected on the dirt road linking the Grahamstown and Alicedale.

APPENDIX C-5: REGISTER OF INTERESTED AND AFFECTED PARTIES

Landowner

Name	Association	Email
John White	Hilton Farm	hiltonfarm@telkomsa.net

Surrounding Neighbours

Name	Association	Email
Robert White	Table Hill (South)	watty1@telkomsa.net
Geoff Brown	Brack Kloof	glenambrose@imaginet.co.za
Adrian White	Table Hill Farm (North)	tablefarm@eastcape.net
John Dell	Hounslow	dell@johndelldorpers.co.za
Grant Soul	Aptrac Aviation	grant@aptrac.com
Mark Bristow	Nuritex Inv Pty Ltd	MBristow@randgoldresources.com
Tony Phillips	Slaaikraal Farm	buck@imaginet.co.za
Trevor Hoole	Hounslow	tthoole@gmail.com

AUTHORITIES

National

Name	Association	Email
Mr Briant Noncembu	DEDEA (Amathole)	Briant.Noncembu@deaet.ecape.gov.za
Mr D. Govender	DEDEAT Regional Director	
Andries Struwig	DEDEAT Assistant Director	Andries.struwig@deaet.ecape.gov.za
Jeff Govender	DEDEAT Regional Manager for the Cacadu District	Dayalan.govender@deaet.ecape.gov.za
Carin Swart	DEDEA	Carin.Swart@deaet.ecape.gov.za
Dan Malgas	DAFF Forestry	MalgasM@daff.gov.za
S. Gwen	DAFF Forestry	gwendolines@daff.gov.za
Ms Mashudu Marubini	DAFF Agri - Delegate of the Minister	MashuduMa@daff.gov.za
Ms Thoko Buthelezi	DAFF Agri - AgriLand Liaison	ThokoB@daff.gov.za
M Mathekgana	Dept of Energy	mokgadi.mathekgana@energy.gov.za
Ms Nyiko Nkosi	DEA	nnkosi@environment.gov.za

Makana LM		
Name	**Association**	**Email**
Ntonek Nocweka	Makana Municipality	ntontela@makana.gov.za
Anele Kwayimani	Makana Municipality	anele.kwayimani@webmail.co.za
Xhanli Bokue	Makana Municipality	bokwe@makana.gov.za
Casa Yonela	Makana Municipality	casayo@webmail.co.za
Ndumiso Nongwe	Environment Manager	
Marcelle Booysen	Ward 3 Councillor	marcellebooysen@makana.gov.za

Cacadu DM		
Name	**Association**	**Email**
Howard Sikweza	Cacadu Environment	hsikweza@cacadu.co.za

Key Stakeholders		
Name	**Association**	**Email**
Mariagrazia Galamberti	SAHRA	mgalimberti@sahra.org.za
Xolani Wana	ESKOM	Xolani.Wana@eskom.co.za
Chris Isherwood	SACAA (Aviation Survey Inspector)	isherwoodC@caa.co.za
Lizelle Stroh	SACAA	strohl@caa.co.za
Nana Gouws	SANRAL	GouwsJ@nra.co.za

Registered IAP's		
Name	**Association**	**Email**
Adri Barkhuysen		adriba@telkomsa.net
Andre van der Spuy	AVDS Environmental Consultants	avdspuy@iafrica.com
Andrew De Jager	Terra Power Solutions	andrew@terrapower.co.za
Asanda Sontsele	Eastern Cape Parks and Tourism Agency (ECPTA)	Asanda.Sontsele@ecpta.co.za
B Zomagh		
Bert Maris		bwmaris@gmail.com
Carey Pohl		

Cary Clarke	P.G. Properties	cary@imaginet.co.za
Cathy Braan		cathy@cathybraansps.co.za
Celeste Booth		celeste.booth@ru.ac.za
Chris Pike	Conservation Officer - Hunters and Guides Africa	conservation@huntersandguides.co.za
Chris Pike		Sales@huntersandguides.co.za
Christopher Clarke	Windwatts Turbines	christopher@windwattsturbines.com
D.M. Cuppleditch		
Dale Cunningham		
Debi Brody	P.G. Properties	debi.brody@pamgolding.co.za
E. le Roux		eleroux@albanynet.co.za
Emmanuel Nel		emmanuelnel@yahoo.com
Fiona Semple		
Florian Kroeber	EAB Astrum Energy	florian.kroeber@astrumenergy.com
Glen Elliot		reservemanager@pehotels.co.za
Graeme Mann	Kwandwe	graeme@kwandwe.co.za
Hendrik Odendaal	Kwandwe	hendrik@kwandwe.co.za
Hendrik Reyneke	Mainstream Renewable Power South Africa	hein.reyneke@mainstreamrp.com
Hugh Retief		hughretief@gmail.com
Joe Cloete	Shamwari	
John O'Brien	Shamwari Group	john.obrien@shamwari.com
John Parker	Lukhanyo Game Farm - Mark Bristow	j.parker@geenet.co.za
Julie Barnard	Strategic EDGE Solutions	admin@strategicedge.co.za
Larry McGillewie		larry@albanynet.co.za
Lucy O'Keeffe		lucy@angusgillisfoundation.co.za
M Fleur Way-Jones	Grahamstown Historical Society	f.way-jones@ru.ac.za
Margaret Campton		cramptonmargeret@gmail.com
Michael Mangnall		mike.mangnall@mainstreamrp.com
Nick Fox	Sibuya Game Reserve; Indalo	nickfox@sibuya.co.za
Orgie Crous		
Owen Poultney		opoultney@yahoo.com
P.J.Thompson		ria@rockdale.co.za

Patrick Billson	Buffalo Billson Farming Enterprises Burman Road Property Trust	patrick@billsontrucks.co.za
Philippa King	Altech Communications	pking@alcom.co.za
Phillip Machanick		p.machanick@ru.ac.za
Prof Emeritus Pat Irwin	Grahamstown Historical Society	p.irwin@ru.ac.za
Retief Grobler		gro@cybertrade.co.za
Richard Pearse		reservemanager@pehotels.co.za
Rob Dell	Hounslow Farm	robert@johndelldorpers.co.za
S.J. Joubert	Shamwari Game Reserve	johan.joubert@shamwari.com
Simon White	Mass Build	simon.white@bwhouse.co.za
T. Duda	South-Lik	Southlinkinternational@gmail.com
Warrick Barnard		warrick@rancetimber.co.za
Will Fowlds	Indallo	William@amakhala.co.za

APPENDIX C-6: COMMENTS REPORT (ISSUES AND RESPONSE TRAIL) INCORPORATING COMMENTS RECEIVED SINCE THE START OF THE SCOPING PHASE

NAME	ISSUE	DATE	RESPONSE
1. GENERAL			
Chris Pike and John Parker	The carbon footprint during construction phase	18/06/2012 Email	Brack Kloof: 120 hectares Table Hill: 120 hectares Watt Hill: 132 hectares Hilton: 150 hectares
P.J.Thompson	We object to the proposed erection of Photo Voltaic Facility in this area. Details will follow	13/06/2012 Email	Noted.
Mijjy von Hasseln	How many hectares of the footprint will be affected?	25/09/12 Public Meeting	• 520 hectares for the solar. 3% of the area for wind, 40 hectares. Sites for the turbines are placed on degraded areas. • With solar, due to raised arrays, the land can still be used for grazing.
Mijjy von Hasseln	This is a million rand project. What experience does TPS have in this?	25/09/12 Public Meeting	Our (Terra Power solutions) colleague has had 9 years' experience building them overseas. He is the project manager.
Grant Soule	Trafficking in the area will increase	25/09/12 Public Meeting	Traffic Management Plan will deal with any issues with regards to this.
Grant Soule	To what extent are the projects subsidised?	25/09/12 Public Meeting	**(ADJ)** Not subsidised. Just the tariff for the wind public, 86c. It was R1,20 an hour, this then changed to R1,15 an hour, and after the third round it is now R0.90. 10c will be subsidised **(GS)** And if they change it? **(ADJ)** Stipulated that decommission of turbines will occur **(RC)** We have to show that we will have enough funding to do this.
Glen Elliot	Where does the electricity go?	25/09/12 Public Meeting	It gets pulled to the closest demand. South Africa is currently running at 100% and there is little or no room to service existing generation infrastructure
Graeme Mann (Kwandwe)	What about environmental law? There must be other impacts besides your specialists.	25/09/12 Public Meeting	**(CB)** All impacts get assessed whether specialist assessments are undertaken or not. The EAP is qualified to do this. **(GM)** I disagree. Go to the game farms and get the data here at the game farms in our area.

NAME	ISSUE	DATE	RESPONSE
John White	I appreciate Terra Power having this meeting. When game farms came in, we weren't told of it. Do you know that we have never benefited from game farms. Can you say what we will get from this? If you can compensate us for what we will lose, then we will step back.	25/09/12 Public Meeting	Depends on the number of turbines or solar. 7 – 14 Million rand a year (3-4%)
2. TOURISM AND BUSINESS OPERATIONS			
Patrick Billson	NOT in favour of this project. My farming and eco business is in the Highlands area	27/07/2012 Email	It is likely that some of your clients will find these structures unpleasant, but we have no knowledge of how many may not be bothered by them. It is a matter of people's opinions and perceptions. Without a detailed, nationwide study, this concern cannot be adequately addressed. We regret that this is the case. There is currently no evidence to suggest this due to the fact that there are currently very few solar farms in South Africa. A viewshed analysis will be conducted during the visual specialist study and will show all the areas from which the solar panels will be visible.
3. ECOLOGICAL			
Chris Pike and John Parker	The clearing of thicket in classified areas	18/06/2012 Email	Noted. A terrestrial ecological specialist study will be undertaken during the EIR phase of the project. Areas of concern will be noted by the specialist and will not be impacted by the proposed project.
Chris Pike and John Parker	Damage to riverine areas	18/06/2012 Email	Noted. A terrestrial ecological specialist study will be undertaken during the EIR phase of the project. Areas of concern will be noted by the specialist and will not be impacted by the proposed project
Orgie Crous	Setup will change, when do specialist reports come in? At the end of the project, is another set of projects brought out?	25/09/12 Public Meeting	**(JS)** The final EIA is submitted to the authorities. Micro sitting will occur. **(ADJ)** There will be a 95% probability of the sites
4. SOCIAL			

NAME	ISSUE	DATE	RESPONSE
Phillip Machanick	There are positive impacts such as the social, but what about the positive impact of reducing the carbon footprint?	25/09/12 Public Meeting	Different for the wind and solar projects.
Emmanuel Nel	Not necessary for social? But the Eastern Cape is a special area, will always find issues	25/09/12 Public Meeting	CES has 3 in house specialists. Social impacts will be assessed internally using international literature.
5. SAFETY			
Pieter Grobler	There are mostly older people living there, safety will be affected due to the workers, no control over them, safety of the community will be affected.	25/09/12 Public Meeting	No workers will be housed on site

Further comments can be found in the Meeting Minutes of Appendix C-6-2, C-8 and C-9.

APPENDIX C-6.2: COMMENTS FROM INTERESTED AND AFFECTED PARTIES

DEDEAT – 20 November 2012

Province of the
EASTERN CAPE
ECONOMIC DEVELOPMENT, ENVIRONMENTAL AFFAIRS AND TOURISM
CACADU REGION

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Attention: Mr Justin Green
Organisation: CES
Postal address: P O Box 934, 6139 Grahamstown
Fax: 046 622 6564
Tel: 046 622 2364
E-mail: info@cesnet.co.za

Enquiries: Alan Southwood
Ref: **14/12/16/3/3/2/369; 366; 367; 368; 358**

Attention: Mr Justin Green,

DRAFT SCOPING REPORTS: PROPOSED DEVELOPMENT OF THE TERRA POWER SOLUTIONS RIEBEECK EAST WIND ENERGY PROJECT AND THE TERRA POWER SOLUTIONS BRACK KLOOF, TABLE HILL, WATT HILL AND HILTON PHOTOVOLTAIC SOLAR ENERGY FACILITIES: RIEBEECK EAST: EASTERN CAPE

Your letters dated 13th September 2012 refer.

The Department submits the following comments on the documents:

Terra Power Solutions Riebeeck East Wind Energy Project

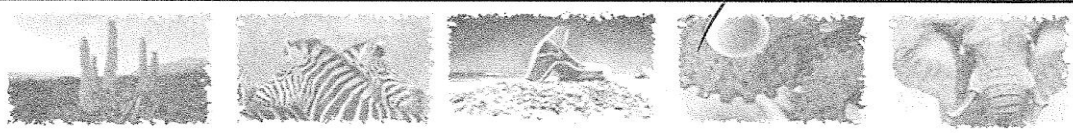
- **Page i: Third Paragraph:** What are the "other technical and financial considerations"? Is the substation linked to the 132 kV line *via* an underground cable?
- **Page iv: Listing Notice 3 (10):** Diesel and other hydrocarbons should not be stored on site.
- **Page vi: Listing Notice 3 (19):** New roads should only be constructed if they absolutely essential for the construction phase. Existing roads should rather be upgraded.
- **Page vi: First Paragraph:** The ToPS Regulations promulgated in terms of the NEM: BA, the National Forest Act and the Nature and Environmental Conservation Ordinance are all applicable as permits are a prerequisite to destroy / remove certain species of plants.
- **Page vii: Civil works: 1. Roads:** Refer to comment on Page vi.
- **Page vii: Civil works: 2. Platforms:** Please provide details on how the areas that will result from the reduction of the size of the platforms will be rehabilitated.
- **Page viii: Civil Works: 5**: More detail on the electrical substation should be provided.
- **Page x**: There is no description of Mammals (particularly bats) or Amphibians.
- **Page x**: **Socio-economic profile**: Are these properties existing commercial farms? Information should be provided on existing zonation and land-use.
- **Page xi**: **Public Participation Process: Third Paragraph:** Where are these "easily accessible locations"?
- **Page xii:** Hydrological and Geomorphological Impact Assessments should be undertaken.
- **Page xiii**: **Table of Contents:** Certain sub-paragraphs are missing, such as under Paragraph 4. Description of the Affected Environment.
- **Page 1: Second Paragraph:** What are the areas of the various properties?

- **Page 115: Appendix C-6: Issues and Responses Trail: 2. Tourism and Business Operations:** Please refer to the comments and queries on these issues in the Final Environmental Impact Assessment Report and Environmental Management Programme: Proposed Development of The Plan 8 Grahamstown Wind Energy Project submitted by this Department.
- **Page 115: Appendix C-6: Issues and Responses Trail: 3. Visual:** This Department is very concerned about the negative visual impact of WTGs. The Visual Specialist Study is thus vital in this assessment process.
- **Page 117: Appendix C-6: Issues and Responses Trail: 8. Temperature:** Please provide written evidence to substantiate your statement.
- **Page 117: Appendix C-6: Issues and Responses Trail: 9. Civil Aviation Authority:** Please provide a copy of this approval.

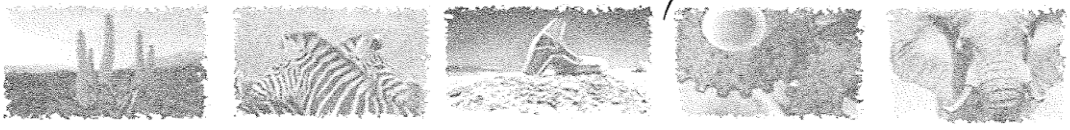
Terra Power Solutions Brack Kloof, Hilton, Table Hill and Watt Hill Photovoltaic Energy Projects

As these DSRs are all very similar, the following comments apply to all of them. Please also consult the comments on the Wind Energy Project where appropriate.

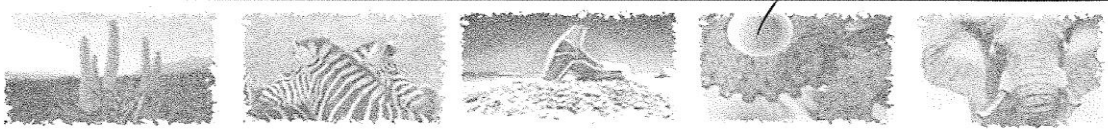
- **Page iv: Third Paragraph:** What are the "other technical and financial considerations"? Is the substation linked to 132 kV line *via* an underground cable? Will existing roads be widened to 6 metres? Will the construction of any new roads be required? New roads should only be constructed if they absolutely essential for the construction phase. Existing roads should rather be upgraded.
- **Page xi: Third Paragraph:** Are the panels not cleaned with water?
- **Page xi: Benefit overview: Second Bullet:** In what context is the technology "land efficient"? The four Solar Energy Projects cover a total of 480 ha.
- **Page xi: Benefit overview: Fifth Bullet:** If the vegetation is higher than the solar panels mounted on the frameworks, will it be trimmed? What will the impact of permanent shade be on the vegetation? If it dies back due to the shade will it not result in a fire hazard or erosion? Is vegetation cleared between solar panels?
- **Page xiii: Fauna:** Other taxa, such as invertebrates and mammals, are not mentioned. A summary of the conservation status of the taxa would be appropriate.
- **Page xiii: Socio-economic profile: First Paragraph**: Are these properties existing commercial farms? Information should be provided on existing zonation and land-use.
- **Page xiv: Public Participation Process: Second Paragraph:** Where are these "easily accessible locations"?
- **Page xiv: Public Participation Process: Fourth Paragraph:** The four issues mentioned in Appendix C5 (Page 97) is not "an extensive list of issues".
- **Page xv:** Hydrological and Geomorphological Impact Assessments should be undertaken.
- **Page xvi:** The paragraph numbers in the Table of Contents do not always correspond to the numbers in the text. For example, on Page 43 where is Paragraph 4.2?
- **Page xviii:** A List of Abbreviations would be appropriate (for example, RE on Page 13).
- **Page 2: First Paragraph:** What is the area of the individual farms? This is required to assess what proportion of the farm the proposed 120 hectare facility will cover.
- **Page 4: Listing Notice 3 (10):** Diesel and other hydrocarbons should not be stored on site.
- **Page 5: Listing Notice 3 (19):** New roads should only be constructed if they are absolutely essential for the construction phase. Existing roads should rather be upgraded.
- **Page 6: First Paragraph:** Mention who the Competent Authority is.



- **Page 6: Third Paragraph:** List the applicable legislation for those not familiar with them. The ToPS Regulations promulgated in terms of the NEM: BA, the National Forest Act and the Nature and Environmental Conservation Ordinance are all applicable as permits are a prerequisite to destroy / remove certain species of plants.
- **Page 9 and 10: 1.5 Scoping Phase:** The content of this paragraph is very superficial. The inclusions of the detail provided in the DSR for the Wind Energy Project would be more appropriate.
- **Page 10: 1.6 Nature and structure of this report:** Refer to comment on Pages 9 and 10.
- **Page 10: 1.6 Nature and structure of this report:** Government Notices contain a number of Regulations. It is thus Regulation 28.
- **Page 14: Figure 2-1:** The Farm Numbers should be included on the map. Where is RE/183 (Brack Kloof)?
- **Page 15: Figure 2-2:** The shape of Rem/183 on this and the map on Page 14 do not seem to be the same?
- **Page 19: Elements: Arrays:** Refer to comments on Page xi.
- **Page 19: Elements: Roads:** Where feasible the roads for the wind and solar facilities should be planned and used jointly.
- **Page 19: Elements: Electrical infrastructure:** The last sentence of this paragraph contradicts what is said in the first Paragraph on Page 18: that these cables will be underground. When will the "grid connection study be undertaken"?
- **Page 19: Operation phase: Third paragraph:** The cleaning described here is contrary to what is stated on Page xi: that the technology is "waterless". How much water will be used; where will it be sourced; is a Water-use Licence required form DWA? There is thus a need for a Hydrological Study. Refer to comment on Page xv.
- **Page 19: Operation phase: Fourth paragraph:** This paragraph is contrary to what is stated on Page xi. Refer to comment on Page xi.
- **Pages 36 to 39: Tables 4-1, 4-2, 4-3, 4-4, 4-5 and 4-6:** Are there any ToPS as promulgated under the NEM: BA Regulations?
- **Page 39: Table 4-7: Protected Areas Expansion Network:** Has the ECP and TA's Protected Area Expansion Area Strategy been consulted?
- **Page 40: Table 4-7: Protected Areas:** Which protected area is 16 km from the study site?
- **Page 40: Table 4-7: Wetlands**: The National Wetlands Inventory should be consulted.
- **Page 40: Table 4-7: CBAs:** The Eastern Cape Biodiversity Conservation Plan should be consulted.
- **Page 41: Figure 4-4:** The names of the Protected Areas should be given.
- **Page 50: 5.3 Registered I&APS**: We suggest the following organizations also be formally informed of this development: EWT, SANPARKS, ECP and TA, DMR (mining rights and applications), Agri ECape, ESKOM, SECSICOM, Provincial Roads Department, WRSA and ECGMA.
- **Page 51**: **Table 6-1: Planning and Environmental; Legal and Policy Compliance:** Consult applicable IDPs.
- **Page 51**: **Table 6-1: Ecology:** New roads should only be constructed if they are absolutely essential for the construction phase. Existing roads should rather be upgraded.
- **Page 52**: **Table 6-1: Wetlands, Surface and Groundwater:** Run-off from solar panels could result in erosion, particularly in heavy rain. The issue of washing panels should be resolved. Refer to comments on Pages xi, xv and 19.
- **Page 53**: **Table 6-1: Avifauna**: If all cables are buried why will birds collide with "overhead wires?



- **Page 53**: **Table 6-1: Bulk services:** Why would they be required? Once the facility is operational there should only be occasional visits from maintenance / repair crews. Chemical toilets and water brought with the crews should be adequate for such visits.
- **Page 56: Waste and Hazardous Waste Management:** Only licensed waste sites should be used.
- **Page 57: Decommissioning Phase**: Include an Issue called Disposal. Where and how will the PV-related structures be disposed of (reused, recycled or dumped)?
- **Page 58: 7.1.1: Alternative development: First Paragraph:** The following statement is made in the Wind Energy DSR: "In terms of renewable energy production – wind is the most appropriate". In your DSRs for the four solar farms on some of the same farms where the wind farm will be located the following statement is made "the fundamental alternative of a development other than to construct and operate a solar energy facility is therefore not viable in this case." Which type of development is the most appropriate and / or viable? It is presumed that provision of wind and solar energy should be integrated project on these properties in such a way they complement each other. Perhaps a single, integrated DSR report should have been drafted for both wind and solar energy. A lot of duplication and the potential conflict between the two technologies would have been avoided (Regulation 14).
- **Page 58: 7.1.1 Alternative development:** Please substantiate the statement "The core business of the proponent ... is renewable energy development for the generation of electricity. As such, the fundamental alternative other than to construct and operate a solar energy facility is not viable" with documentary proof.
- **Page 58: 7.1.2 Alternative location:** This Department is very concerned that environmental parameters were not considered when selecting the proposed site. It would be appropriate to give more detail on how the various parameters listed were used to decide on this particular site.
- **Page 59: 7.2: Incremental alternatives: Layout alternatives:** The Agricultural Specialist must also provide input in this process.
- **Page 74: 7.2 Incremental alternatives:** The operational alternatives must also be covered in EIA.
- **Page 60: 8.1 Activity and possible impacts: Third Paragraph:** Please refer to previous discussions on issues that should be considered.
- **Page 60: 8.2 Specialist Studies:** A Hydrological Assessment must be undertaken. Where will water be sourced? Will the Department of Water Affairs have to be approached for Water-use Licences? DMR should be consulted to ensure that there are no existing mines or applications for prospecting or mining were made. A Traffic Impact Assessment should also be undertaken (refer to comments on Page 63 of the Wind Energy DSR). An assessment of the development on CBAs in the Ecological Impact Assessment should be undertaken.
- **Page 60: Fatal flaws**: The cumulative impact of the solar and wind farms must be considered, both on a site specific, local municipal, district municipal and provincial basis.
- **Page 61: Environmental Impact Report (EIR):** Where are the "easily accessible locations"?
- **Page 62: 9.1.1 Specialist studies:** Five Specialist Studies are mentioned on Page 60 but only three on Page 62? All five should be undertaken. Refer to comments on Page 60.
- **Page 63: Ecological Impact Assessment:** Planning issues should be considered. Plants protected by the National Forest Act or the Nature and Environmental Conservation Ordinance may also be affected. Consultation of SABAP1 and SABAP2 data would most probably provide useful information on birds. The initiation of the baseline monitoring regime for birds and bats should be a prerequisite for an approval of the development.



- **Page 64: 9.1.2 Methodology for assessing significance of impacts: Second Paragraph: Last Sentence:** Are there four or five factors?
- **Page 76: Appendix B:** All the aspects stipulated in DEA's letter dated 19th July 2012 must be considered.
- **Page 94: Appendix C-5:** There are duplicate entries under National (Govender and Marubini).
- **Page 97: Appendix C-6: Issue 2: Tourism and business operations:** This response was quoted verbatim by CES in response to similar queries from I&APS in Issues and Response Trails of a number of renewable energy projects. The Department is concerned that fears of certain I&APs were not addressed satisfactorily. Concerns about property values, visual impact and eco-tourism should thus be addressed more comprehensively.
- **Page 99: Appendix E:** The correct heading of the last column of the table is missing as it is called NA. ToPS species should also be mentioned in this Table.

DAYALAN GOVENDER
REGIONAL MANAGER: ENVIRONMENTAL AFFAIRS: CACADU REGION

DATE: 19/11/2012

DEDEAT – 11 September 2013

Province of the
EASTERN CAPE
ECONOMIC DEVELOPMENT, ENVIRONMENTAL AFFAIRS AND TOURISM
CACADU REGION

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Attention:	Ms Linda Poll-Jonker	Enquiries :	Alan Southwood
Organisation:	Department Environmental Affairs	DEA Ref Nos :	**14/12/16/3/3/2/367; 366; 368; 358**
Postal address:	Private Bag X447 0001 Pretoria	NEAS Ref No :	DEAT/EIA/0001279/2012
Tel:	012 395 1768		
E-mail:	lpoll-jonker@environment.gov.za		

Dear Ms Poll-Jonker,

FINAL AMENDED SCOPING REPORTS: PROPOSED DEVELOPMENT OF THE MAKANAONE BRACK KLOOF (366), TABLE HILL (368), WATT HILL (358) AND HILTON (367) PHOTOVOLTAIC SOLAR ENERGY FACILITIES: RIEBEECK EAST: EASTERN CAPE

The letter dated 3rd September 2013 from Coastal and Environmental Services refers.

This Department submitted detailed comments on the Draft Scoping Reports to CES on 19th November 2012 (copy attached). In their acknowledgement e-mail dated 20th November 2012 they informed the Department that the comments will be incorporated in the Final Scoping Reports. However, they were not included in the Issues and Response Trails of the Final Scoping Reports or Amended Final Scoping Reports.

Copies of the letters sent to CES on 19th November 2012 and to your Department 22nd April 2013 are attached

This Department would thus appreciate it if you would acknowledge receipt of these letters and that they will be considered by your Department during the assessment of the documents.

This Department submits the following comment on the Amended Final Scoping Report.

- **Page 110: Appendix C-6: Comments report (Issues and Response Trail) incorporating comments received since the start of the Scoping Phase: 1. General:**
  - **Grant Soule:** This Department's opinion that a Traffic Impact Assessment is required as a specialist study due to the large quantity of equipment that will have to be transported on public roads if these projects go ahead is supported by this I&P. There have been major disruptions on public roads between Port

Elizabeth and the wind farms in the vicinity of Humansdorp during the transport of components for wind farms over the past few months.

DAYALAN GOVENDER
REGIONAL MANAGER: ENVIRONMENTAL AFFAIRS: CACADU REGION

DATE: 18/09/2013.

APPENDIX C-7: ATTENDANCE REGISTER OF THE PUBLIC MEETING HELD AT THE HIGHLANDER, GRAHAMSTOWN

ATTENDANCE REGISTER

Terra Power Solutions Wind and Solar Energy Project

(Environmental Impact Assessment – Scoping Phase): Public Meeting, Grahamstown.

Highlander Conference Venue - 25 September 2012, 18h00.

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Graeme Mann	PO Box 448, GHT	046-6033400	046-6033401	0834699419	graeme@kwandwe.co.za.
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David Phillips	"	"	"	—	"
Adrian White	P.O Box 1067	0466227883	Same	0766867439	tablefarm@eastcape.net
Elizabeth White	"	"	"	"	"
Andreas De Jager	Tella Power	0711366999	—	071 5661999	Andreas@tellapower.co.za
Grant Sayle	PO Box 275	0827929682	0862639150		grant@aphrai.com.
Larry McGillewie	PO Box 2136 Grahamstown 6140	0625746102 0835641452			larry@albanynet.co.za elerolux@albanynet.co.za

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Maggy von Hasselt	P.O. Box 557	046 6227740	—	0763941432	muonhasseln@gmail.com
Gerhard von Hasselt	"	"	—	0831422922	"
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Emmanuel Nel	PO Box 468	0835607256		0835607256	Emmanuelnel@yahoo.com
Robert WATT	Po Box 52 Hfm.	046-6225172	Sama	0827085772	wattj1@telkomsa.net

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GLEN ELLIOTT	PUMBA P.G.R	"	"		" " " "
Joe Cloete	Shamwari				
Dale Cunningham	WRSA - EC	0836555597			

APPENDIX C-8: MINUTES OF THE PUBLIC MEETING HELD AT THE HIGHLANDER, GRAHAMSTOWN

Coastal & Environmental Services

Grahamstown
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Also in East London and Port Elizabeth
www.cesnet.co.za

Section 1.01 MEETING MINUTES

CLIENT	Terra Power Solutions (Pty) Ltd
DATE	25th September 2012
VENUE	The Highlander
TIME OF MEETING	6:00 pm
MINUTES BY	Justin Green
CIRCULATION DATE	

ATTENDED BY		
NAME	**ASSOCIATION**	**EMAIL ADDRESS**
Mr Jadon Schmidt Dr Chantel Bezuidenhout Mr Justin Green	**CES**	j.schmidt@cesnet.co.za c.bezuidenhout@cesnet.co.za j.green@cesnet.co.za
Rob Cooper Andrew De Jager	**Terra Power Solutions**	
See attached register		

Name	**Question/ Comment**	**Response (Terra Power Solutions and CES)**
Phillip Machanick	There are positive impacts such as the social, but what about the positive impact of reducing the carbon footprint?	(**JS**) Different for the wind and solar projects.
Mijjy von Hasseln	How many hectares of the footprint will be affected?	(**JS**) 520 hectares for the solar. 3% of the area for wind, 40 hectares. Sites for the turbines are placed on degraded areas. (**RC**) With solar, due to raised arrays, the land can still be used for grazing.
Mijjy von Hasseln	Why not place the turbines where the wind mast is?	(**RC**) The wind mast is there to collect wind information. You can't

		determine the wind speed of the whole area, but we can get an idea. (**MvH)** Is the data from the tower used to get funding? (**RC**) The World Bank will look at the project as a whole, not the data.
Pieter Grobler	Some areas are not stressed properly? Why this area? Aware of wind for turbines, electricity and close to Grahamstown. People here are dependent on income from their farms. Why not in woodland areas with no people? Visual pollution will be there for 25 years.	(**JS**) Wind resources, the grid and buy in from land owners.
Pieter Grobler	There are mostly older people living there, safety will be affected due to the workers, no control over them, safety of the community will be affected.	No workers will be housed on site
Phillip Machanick	When the first bridges were built in San Francisco, people didn't want them either, those areas are now the most expensive areas. It's a question of what you are used to.	(**JS**) There is no local literature to rely on, but from international research, people do get used to them. (**CB**) You also have to look at the effects after the impacts have been mitigated. (**GS**) Those are all stationary, you can't compare them.
Grant Soule	You said earlier that the view of the turbines is only 2-3km? (Directed at Jadon)	(**JS**) This depends on wind speeds, the air etc. (**GS**) I will email a list of comments ***Shows a map of all opposed surrounding land owners** (**GS**) These turbines are a civil aviation issue, including the lighting. Will there be local labour from Grahamstown or from PE? (**RC**) Labour from all over south Africa will be used. There will be training of workers as well for maintenance. (**ADJ**) With regards to safety, The movements of the workers will be bussed in and out. This will be regulated. (**JS**) This will be in the Construction Management Plan
Grant Soule	Trafficking in the area will increase	(**JS**) Traffic Management Plan will deal with any issues with regards to this. **(GS**) We can debate this either way, but as long as there will be a visual impact we will be opposed to the project.
Glen Elliot	I realise that the turbines give off no carbon emissions, but what happens when there is no wind?	**(JS**) The grid will supply of which majority is generated by coal fired stations **(GE)** So it won't affect coal production then. Will still have to run the facilities. (**ADJ**) South Africa is currently producing 43 Giga Watts of electricity. We have a shortage of power. We need to reach a target of 90 Giga Watts by 2030, 16 new GW will be provided by renewable energy.
Mijjy von Hasseln	The problem with energy from wind in Germany is	Noted

	to integrate it into the grid.	
Glen Elliot	Where does the electricity go?	**(JS**) It gets pulled to the closest demand. South Africa is currently running at 100% and there is little or no room to service existing generation infrastructure
Graeme Mann	Didn't mention who will run the socio-economic impacts	**(JS**) No Socio-economic impact assessment will be done **(GM**) Can I ask for one to be done? **(JS**) For 15 wind farms, all have been deemed unnecessary as per the approved plan of study from DEA
William Fowlds (Idawu)	We were happy until negative effects; we have been gathering our own information. The image of windfarms is not what they are made out to be. What will the output of the wind farm be?	**(RC)** The output is dependent on Eskom, we would like 140MW. We will have to wait 8 months. **(WF)** How many turbines will be needed? **(RC)** It will be dependent on the turbine models. But generally 333 00 MW hours **(WF)** And the solar farms? **(RC)** I will have to get back to you on the figures.
William Fowlds (Idawu)	I'm not against turbines, just where they are placed.	**(RC)** There are very few areas in South Africa where they can be placed. There will be objections everywhere. We look for the necessary resources and we are trying to do this process responsibly.
William Fowlds (Idawu)	I've been to 6 projects; all say that's where the best area is. Why has a SEA not been completed? You are affecting the community; affecting farmers and making them want to move. We don't want to see these things.	**(RC)** What about the guys in Mpumalanga? They will have to have another coal station. **(CB)** In terms of the SEA whose responsibility is it to ensure on is undertaken for the Eastern Cape area? **(WF)** What is CES's issue? To protect the proponent or the environment?
Joe Cloete (Shamwari)	We are for green energy, but job creation is only short term. A socio-economic assessment will show that it will affect tourism, and therefore shut down game farms. Therefore do the SEA.	**(CB)** There are no true windfarms in RSA, therefore we use international literature to assess these impacts in a SIA. The international literature is contradictory at best therefore it is concluded that an SIA will not add any additional value to the EIA Ultimately the decision of whether or not a SIA should be taken lies with DEA and one if be done if so requested.
Mijjy von Hasseln	This is a million rand project. What experience does TPS have in this?	(**ADJ**) My colleague has had 9 years' experience building them overseas. **(RC)** He is leading the project.
Larry McGillewie (Grahamstown flying school)	I run the training school for new pilots. We often fly below 100 ft. We also help farmers with stock flying.	Noted
Graeme Mann (Kwandwe)	Tourists don't want to see these turbines. We currently employ 500 people who support 2,500	**(RC)** We will make every effort to reduce the visual impact, but must take into account who will be directly affected.

	people, who will lose their jobs. This compared to the 100 people you will employ for 2 years.	**(GM)** We will see them (turbines) from every point for all 77 **(RC)** Photo montages will be done for the EIA **(GM)** You can do it on Google Earth **(JS)** It will be done during the EIA phase as per the NEMA regulations
Graeme Mann (Kwandwe)	What about the two flashing lights on the turbines?	**(ADJ)** We are looking at different methods to illuminate the turbines this will also be addressed in the visual impact assessment.
John White (Hilton Farm)	The turbines overseas, they must have had objections?	**(JS)** International Research shows that the fear of the turbines showed a 4.6% loss in land value **(GS)** Decreases closer to the wind farm **(JS)** The fear decreases after construction and the values actually increase.
Mijjy von Hasseln	The effect on the weather in the area?	**(JS)** Negligible **(MvH)** And the heat from the solars? **(CB)** Photovoltaic cells are designed to absorb sunlight and therefore it is unlikely that temperatures will increase.
Grant Soule	To what extent are the projects subsidised?	**(ADJ)** Not subsidised. Just the tariff for the wind public, 86c. It was R1,20 an hour, this then changed to R1,15 an hour, and after the third round it is now R0.90. 10c will be subsidised **(GS)** And if they change it? **(ADJ)** Stipulated that decommission of turbines will occur **(RC)** We have to show that we will have enough funding to do this.
Rob White (Table Farm)	Not all game farmers, also stock farmers present. Will submit comments on how it will benefit us.	Noted
***Unsure**	Have to utilise property to increase funds. We built a lodge for tourists as well as hunters. People from Johannesburg don't want lights. We are talking about my livelihood. Hunters will not come hunt here! Why not buy the farmers out? People won't buy near wind farms. Why not create area where everyone can survive. This will impact families and property.	Noted
Graeme Mann (Kwandwe)	What about environmental law? There must be other impacts besides your specialists.	**(CB)** All impacts get assessed whether specialist assessments are undertaken or not. The EAP is qualified to do this. **(GM)** I disagree. Go to the game farms and get the data here at the game farms in our area.
Owen Wear*	Farmer and using my land, also a stock farmer	Noted
William Fowlds	Have to have access to scientific information	Noted
John White	I appreciate Terra Power having this meeting. When game farms came in, we weren't told of it. Do	**(ADJ)** Depends on the number of turbines or solar. 7 – 14 Million rand a year (3-4%)

	you know that we have never benefited from game farms. Can you say what we will get from this? If you can compensate us for what we will lose, then we will step back.	**(**)** Put back into the community? Farmers or community?
Graeme Mann (Kwandwe)	I take offense to the self-enriching game farms	**(ADJ)** That is from the council. We did take into consideration Kwandwe during planning
Larry McGillewie (Grahamstown flying school)	Grahamstown is planning on extending to a level 2 airport. Therefore will require a civil aviation specialist.	An application will be made to the CAA
Geoff Brown (Brack Kloof)	This is not an easy decision, can I please ask for the minutes to address.	Noted
Orgie Crous	I've been through this process. Will benefit the community up to 50km. Won't benefit the farmers at all, just the townships. • **Look into red building at Coega**	**(CB)** Noted **(OC)** Is that building for each tower? **(CB)** We will look into that for you.
Orgie Crous	Setup will change, when do specialist reports come in? At the end of the project, is another set of projects brought out?	**(JS)** The final EIA is submitted to the authorities. Micro sitting will occur. **(ADJ)** There will be a 95% probability of the sites
Orgie Crous	Game reserves have shooting ranges. What about miss-shooting? • **Helicopters used for game capture and culling**	This will be addressed in the EIR
Emmanuel Nel	Not necessary for social? But the Eastern Cape is a special area, will always find issues	**(JS)** CES has 3 in house specialists. Social impacts will be assessed internally using international literature.
Warrick Barnard	Can't rely on Government, make us more aware of the process. You have to stick to the correct processes or you will have a lot of angry people.	All the relevant legislation have and will be taken into account.
Meeting Closed		
REQUEST	Mr P. Grobler (Clifton Farm)	• Visual Montage (From farm + roads to Gtown) • Mapping

APPENDIX C-9: MINUTES OF THE PUBLIC MEETING HELD WITH FARM OWNERS AND NEIGHBOURS INFORMING WORKERS OF THE PROPOSED PROJECT

Coastal & Environmental Services

Grahamstown
P. O. Box 934, Grahamstown, 6140
Tel: +27 (46) 622 2364;
Fax: +27 (46) 622 6564
Email: info@cesnet.co.za

Also in East London and Port Elizabeth
www.cesnet.co.za

Section 1.02 MEETING MINUTES

CLIENT	Makanaone
DATE	Sep/Oct 2013
VENUE	Grahamstown
TIME OF MEETING	
MINUTES BY	Lungisa Bosman
CIRCULATION DATE	

ATTENDED BY		
NAME	**ASSOCIATION**	**EMAIL ADDRESS**
See attendance registers		
APOLOGIES		
No apologies were received.		

TEXT	ACTION/RESPONSE
Mr Bosman from CES made a presentation on the EIA process and outlined the purpose of the EIA. The presentation also included project description, EIA process to be followed and informed the representatives on how to communicate with CES. He mentioned that CES has been appointed by Terrapower to do the EIA for the proposed wind and solar farms around Grahamstown. Also that the process that the EIA process is a legal requirement and as part of the process IAPs have to be informed about the project. He made a presentation on both projects. Maps of locations of the different solar farms and wind turbines were presented. After the presentation opportunity was granted to those present to raise questions and concerns.	

TEXT	ACTION/RESPONSE	
Issues raised by	**Where**	**Response**
Meeting with army officials at 6SAI base camp (16 October 2013 9:00 A.M.)		
SSgt Liebenberg: There will be a problem with the height of the turbines when they are doing aerosol training as in most cases the helicopters fly over Watt Hill farm. There is also a safety concern regarding the turbines, as the helicopters flying during training have soldiers hanging from them. There might be collisions with the turbines.	6 SAI BN	Thank you for this information. CAA approval is required for structures of this size, and In this case it will be necessary for the CAA to consult with the SANDF. This will be addressed in the EIA phase of the assessment.
Maj. Ntombana: My issue is regarding security concerns as there might be Electromagnetic Interference (EM) as result of the turbines. This might result loss of signals and serious security concerns for the army.	6 SAI BN	Modern turbines are screened to prevent electromagnetic interference, but the potential for EM with communication systems will be fully investigated during the EIA phase. The study will include discussions with the SANDF on the nature of its communications.
SSgt. Liebenberg: There will be a problem with EM, especially when we are doing electronic detonation exercise.	6 SAI BN	
Maj. Nxitywa: What about the distance of the turbines to the landing strip which sometimes is used by the army?	6 SAI BN	As mentioned above, CAA approval is required for structures of this size, and in this case it will be necessary for the CAA to consult with the SANDF. This will be addressed in the EIA phase of the assessment.
Maj. Ntombana: Can you send us copies of the reports so that we can scrutinise and discuss them? There are also people who we report to that are missing at this meeting and it will be important that they get copies of the report.	6 SAI BN	The reports are available from CES's website - cesnet.co.za the link to Public Documents, Makanaone - as stated in the BID you have received. You can also contact me or the person stated in the BID if you have problems downloading the reports from our website.

Meeting with labours at Strowan Farm (17 September 2013 08:30 A.M.)		
Are we going to get electricity from the projects you mentioned?	Strowan Farm	Electricity will not go directly to houses, but to a substation and from there into Eskom's supply grid.
How many jobs will be available and for how long?	Strowan Farm	At this stage we cannot say how many jobs will be available during both construction and operation. Estimates will be made in the next, more-detailed phase of the assessment.
If we are not going to get electricity how is it going to benefit us?	Strowan Farm	There will be more electricity in Eskom's grid, which will enable Eskom to distribute electricity to more areas that are not served at present.

Meeting with farm labours at Hellspoort Farm (17 September 2013 6:30 A.M.)		
We have kids who are looking for work are there going to be job opportunities for them in the projects?	Hellspoort Farm	Most jobs will be during construction and there will be only a small number of jobs during operation of the projects.

TEXT		ACTION/RESPONSE
We do not have electricity here are we going to get electricity in the process?	Hellspoort Farm	Electricity will not go directly to houses, but to a substation and from there into Eskom's supply grid. This will improve the electricity supply system in the area.
Thynus: We are against the wind and solar farm as our business is game farming and tourism. Tourists do not want to come and see huge turbines in these areas as they are running away from big building in the cities.	Hellspoort Farm	Noted. These issues have been considered in the reports, as there are a number of game farmers that have raised this concern, and they will be investigated in detail in the next phase of the assessment.
Thynus: We will meet and discuss this later and send comments to your office next week.	Hellspoort Farm	Please send the minutes of the meeting and the issues raised at the details given in the BID document we have given you.

Meeting with farm labours at Clifton Farm (17 September 2013 14:00)		
We really need electricity in this place. Is there any hope for us to get electricity in the project?	Clifton Farm	Electricity will not go directly to houses, but to a substation and from there into Eskom's supply grid. This will improve the electricity supply system in the area.
How are we going to know when the project is going to start?	Clifton Farm	All those registered in the EIA process will be informed once a decision has been made about the development. Construction will only start once authorisation has been given by DEA.
Are there going to be long term employment opportunities in the project?	Clifton Farm	Yes: there will be job opportunities but they will be limited to the construction phase and only a small number will be available during the operation phase.

It is important to note that attempts were made to convene meetings on all other neighbouring farms. Most were unsuccessful for the reasons provided by the farmers, which are recorded in the pages following.

Farmer's Name	Farm Number	Cell Number	Landline	Date & time of call	Comment/response	email
NEIGHBOURS						
Christopher Thomas	086-2	0825741762	0466227966	Call 01 & 02 October. He is out of town and does not have workers on farm.	No longer owns the farm. It now belongs to a Mr Mitchel: 046 622 7919	
Thinus Jurgens	086-4	0832463270	0466227689	Meeting held 17 September 2013 @ 6:30 A.M.	COMPLETE	thinus@hellspoort.co.za
Michael Palmer	254-4	0723405152	0466227817	Meeting held 17 September 2013 @ 08:30 A.M.	COMPLETE	palmer@itsnet.co.za
David Pohl	172-1	0822222266	0466227725	01 October 2013 @ 8:15	Spoke to David over the phone and he said he does not have time to meet with CES. Since CES never confirmed coming.	pohlands@imaginet.co.za
Gerhard von Hasseln	554-0	0731422922	0466227740	CES arrived but workers were not available. They were all in the field.	Organised meeting for 08 October @ 12:00	mvonhasseln@gmail.com
Pieter Grobler	132-3 Van der Merwe's Kraal	0832951219	0466227813	Tuesday 14:00 (08/10/2013). Meeting was successful. Only four workers on the farm.	Spoke to Mr Grobler on 01 October 2013 @ 8:25. Confirm meeting for Tuesday.	pieter.reinet@gmail.com
Mark Bristow	662-0 - Nuritex Inv Pty Ltd			No other time could be agreed upon.	Sent email on Tuesday 01/10/2013. Responded saying the proposed date is not suitable.	MBristow@randgoldresources.com
Grant Soule	134-6 - Aptrac Aviation	0829290812	0466223265	Called 01 and 02 October	Since no response sent SMS Tuesday 01/10/2013. Responded saying the meeting is useless as they have been complaining about the wind farm.	grant@aptrac.com
Lee Nortier	252-4 - P J Thompson Pty Ltd	0794905423	0466228161	Called 01October 2013 and sent email to follow up.	Confirmed in an email that there are no workers living on site.	lee@rockdale.co.za
Dale Howarth - Pumba Game Reserve	252-3 - Firglen Farms C C	0832295896	0466032000	Called 01 October 2013.	Does not want to waste his staff's time. They lose money.	

Angus Sholto - Kwandwe Game reserve	131-1 - Kwandwe Game Reserve		0466033400	Can only meet after hours on Tuesday 08 October 2013 as workers are scattered all over the reserve.	Meeting was cancelled at the last day as workers did not have time to meet with CES.	hendrik@kwandwe.co.za
Barry Podesta	134-5 - Aylesby Trust	0737704731		Caled 01 & 02 October 2013	Not available on phone. Left voice message and SMS twice. Responded to SMS via telephone on 04 October at 17:30 to inform CES that he is not willing to let us meet with workers as this will be a waste of time.	barryp@isat.co.za
Lft col Jakes	131-4 - SANDF	0846669902	0314510069	Wednesday 16th October @ 9:00 a.m. Ask for the office of the OC. Meeting was organised and successful.	Spoke to Major Phumzile Nxitywa. He has since referred us to their properties and facilities manager. They will get into contact with us. Major Nxitywa can be contacted on pnxitywa@yahoo.com	pnxitywa@yahoo.com
Makana Municipality	255-0 - Mun Grahamstown	0836955406	0466229186		No workers	anele.kwayimani@webmail.co.za
Mandisa Mondi	258-3 - Transnet Ltd		0115840512		No workers	mandisa.mondi@transnet.net
LANDOWNERS OF DIRECTLY AFFECTED PROPERTIES						
John White	Hilton Farm	0834060170/ 0878020807	0466225895	Completed	Completed	hiltonfarm@telkomsa.net
Adrian White	Table Hill Farm (North)	0766867439	0466227853	Completed	Completed	tablefarm@eastcape.net
Robert White	Table Hill (South)	0827708572	0466223512	Completed	Completed sent a register	watty1@telkomsa.net
Tony Phillips	Kruisfontein	0723405140	0466228917	Not successsful	No time as his workers are busy.	buck@imaginet.co.za
Geoff Brown	Brack Kloof	0822266691	0466362986	Completed	Meeting completed have sent the register	glenambrose@imaginet.co.za

Trevor Hoole	Slaaikraal Farm	0834157721	0466227721	Meeting cancelled at the last moment.	08 October 2013 @ 13:00	tthoole@gmail.com
John Dell	Hounslow	0836528931	0466222381	No response to email and meeting could not be organised.	Is in Australia requested to be sent an email to inform about the meeting.	dell@johndelldorpers.co.za

APPENDIX D: A PHOTOVOLTAIC ARRAY IN MASDAR (FOR ILLLUSTRATION PURPOSES)

APPENDIX E-1: DEA REJECTION AND REQUEST FOR ADDITIONAL INFORMATION ON THE FINAL SCOPING REPORT

environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

Private Bag X 447· PRETORIA · 0001· Fedsure Building · 315 Pretorius Street · PRETORIA
Tel (+ 27 12) 310 3911 · Fax (+ 2712) 322 2682

NEAS Reference: DEA/EIA/0001278/2012
DEA Reference: 14/12/16/3/3/2/358
Enquiries: Linda Poll-Jonker
Telephone: 012-395-1767 **Fax:** 012-320-7539 **E-mail:** lpoll-jonker@environment.gov.za

Mr Marc Hardy
Coastal and Environmental Services
P. O. Box 934
GRAHAMSTOWN
6140

Tel: 046 622 2364
Fax: 046 622 6564

PER FACSIMILE / MAIL

Dear Mr Hardy

REJECTION AND REQUEST FOR ADDITIONAL INFORMATION ON THE FINAL SCOPING REPORT FOR THE PROPOSED WATT HILL PV PLANT NEAR GRAHAMSTOWN, EASTERN CAPE

The Application form dated 17 September 2012 and the Final Scoping Report (FSR) dated March 2013 and received by the Department on 25 March 2013, refer.

The Department has reviewed the FSR. This review brought to light issues that need attention and clarification by you so that an informed decision regarding the abovementioned application can be made. The Department therefore, in terms of sub regulation 30(1)(b) and (c) of the Environmental Impact Assessment Regulations, 2010, rejects the FSR and request the submission of the following additional information:

i. The application form indicates that activities from GN R.546 are being applied for. Please indicate by means of a map and a detailed description, which areas are the triggers for these activities, e.g. indicate which bioregional or biodiversity plan is involved or which critical biodiversity areas are associated with the site for GN R. 546 items 12(b),14 and 19(a).

ii. The listed activities identified in the FSR do not correspond to all the listed activities in the application form dated 17 September 2012 (e.g. GN R. 546 item 13).

iii. Page 63 of the FSR indicates that a bat specialist has been appointed, yet the list of specialist studies does not include a bat impact assessment study. Please include this in the Plan of Study for EIA.

iv. The Terms of Reference for the Palaeontological Impact Assessment was not included in the FSR. Please provide the Department with this information.

v. Appendix C5: Register of I&APs does not indicate the following key stakeholders:
   - Occupiers of land adjacent to the site
   - Ward councilor

   Also provide proof that these key stakeholders have been given written notification of the proposed listed activities associated with this application.

vi. The site visit brought to light that there is a conservancy in the area of the proposed PV plant. Please provide the Department with a map of the conservancy.

vii. The Department requires that a Socio-Economic Study be performed to ascertain the potential impacts of the proposed development on the community. This study must include the impacts of job creation and the availability of the proposed trust fund for community use.

viii. Please ensure that the methodology for the impact assessment in the Plan of Study comply with all the relevant regulatory requirements for impact assessment.

The above requested information must be provided to the Department before a decision can be reached regarding the FSR received.

The applicant is hereby reminded to comply with the requirements of regulation 67 of GN 543 with regard to the time period allowed for complying with the requirements of the regulations, and GN 543(56) with regard to the allowance of a comment period for interested and affected parties on all reports submitted to the competent authority for decision-making. The reports referred to are listed in GN 543, sub regulation 56(3).

The Department awaits the requested information before further processing the abovementioned application.

You are hereby reminded of Section 24F of the National Environmental Management Act, Act No 107 of 1998, as amended, that no activity may commence prior to an environmental authorisation being granted by the Department.

Yours faithfully

Mr Mark Gordon
Chief Director: Integrated Environmental Authorisations
Department of Environmental Affairs
Letter signed by: Mrs Milicent Solomons
Designation: Director: Integrated Environmental Authorisations
Date: 29/04/2013.

Cc:

Mr Leon Els	DEDEA	Tel: 041 508 5808/00	Fax: 041 508 5867
Mr Howard Ramsden	Makanaone (Pty) Ltd	Tel: 087 808 1501	Fax: 083 530 9050

APPENDIX E-2: CES RESPONSE TO REJECTION AND REQUEST FOR ADDITIONAL INFORMATION ON THE FINAL SCOPING REPORT

COASTAL & ENVIRONMENTAL SERVICES
Environmental Management and Impact Assessment

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6 August 2013

Department of Environmental Affairs
Attention: Director: Environmental Impact Evaluation
Private Bag X447
Pretoria
0001

For Attention: Linda Poll-Jonker

REJECTION AND REQUEST FOR ADDITIONAL INFORMATION ON THE FINAL SCOPING REPORT FOR THE PROPOSED HILTON PV PLANT NEAR GRAHAMSTOWN, EASTERN CAPE

In response to the Rejection of the Makanaone Hilton Photovoltaic Solar Energy Project please find our response to the request for additional information below. Please note that this information has also been incorporated into the amended Final Scoping Report, which will be submitted to your office once the review period by registered I&APs have lapsed.

- **DEA Comment:**

i. **The application form indicates that activities from GN R.546 are being applied for. Please indicate by means of a map and a detailed description, which areas are the triggers for these activities, e.g. indicate which bioregional or biodiversity plan is involved or which critical biodiversity areas are associated with the site for GN R.546 items 12(b), 14 and 19(a).**

- **EAP Response:**

The following listed activities incorporated in GNR 546 were included in the application form:

Indicate the number and date of the relevant notice:	**Activity No (s) (in terms of the relevant notice):**	**Describe each listed activity as per project description[1]:**
Listing Notice 3 of R546 EIA Regulations dated 18 June 2010	(4)	The construction of a road wider than 4 metres with a reserve less than 13,5 metres (a) In Eastern Cape, Free State, KwaZulu-Natal, Limpopo, Mpumalanga and Northern Cape provinces: (i) Outside urban areas, in : (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; _____ Access Roads within the site during operation will be 6 meters wide. During the construction phase, these will be

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

		larger due to the size of the trucks required to transport the turbines
Listing Notice 3 of R546 EIA Regulations dated 18 June 2010	(12) (b)	The clearance of an area of 300 square metres or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation An ecological specialist study will establish for certain how much of the existing vegetation is indigenous. Our assumption based on previous experience is that this activity is applicable.
Listing Notice 3 of R546 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, An ecological specialist study will establish for certain how much of the existing vegetation is indigenous. Our assumption based on previous experience is that this activity is applicable.
Listing Notice 3 of R546 EIA Regulations dated 18 June 2010	(19) (a)	The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre. In Eastern Cape, Free State, KwaZulu-Natal, Limpopo, Mpumalanga and Northern Cape provinces: (ii) Outside urban areas, in: (bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve; (ii) Areas on the watercourse side of the development setback line or within 100 metres from the edge of a watercourse where no such setback line has been determined. New roads will be constructed to allow installation and servicing of the facility

The bioregional plan used to identify whether impacts is relevant was the Eastern Cape Biodiversity Conservation Plan (ECBCP). In addition to this and for the sake of completeness Mucina and Rutherford, Subtropical Thicket Ecosystem Project (STEP), Important Bird Areas (IBA), Protected Areas, Focus Areas, Spatial Development Framework (SDF) and the IDP were also consulted.

According to GNR546 for the Eastern Cape listed activities are triggered in the proposed development site falls within one or more of the following areas:

i. In an estuary;

ii. Outside urban areas, in:

(aa) A protected area identified in terms of NEMPAA, excluding conservancies;
(bb) National Protected Area Expansion Strategy Focus areas;
(cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;
(dd) Sites or areas identified in terms of an International Convention;
(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;
(ff) Core areas in biosphere reserves;
(gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve;
(hh) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined.

iii. In urban areas:

(aa) Areas zoned for use as public open space;
(bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose; seawards of the development setback line or within urban protected areas.

According to the current Makana Municipality SDF [2012] the area falls outside of the Riebeeck East urban edge and is situated approximately 65 km inland from the coast, therefore section i and iii above do not apply.

Section ii criteria were evaluated to see whether any of these items occur within the development site. The following was concluded:

(aa) There are no protected areas within the proposed development site as shown in Figure 1 (included on page 38 of the Final Scoping Report) below. The closest protected area is the Aylesbury Nature Reserve situated approximately 4 km from the proposed development site. This activity therefore does not apply to the proposed development.

(bb) Part of the property on which the proposed project will be developed is within a National Protected Areas Expansion Strategy (NPAES) Focus Area (refer to Figure 1). There will be no infrastructure development inside the boundaries of the NPAES Focus area. It is possible that it will be necessary to lay underground cables in the NPAES Focus Area, and this listed activity has therefore been included for assessment.

(cc) According to the Environmental Manager Mr Ndumiso Nongwe at the Makana Municipality there is currently no EMF in place for the area. This activity therefore does not apply to the proposed development.

(dd) There are no sites identified in terms of any International Conventions (such as RAMSAR sites) present within the property boundaries of the proposed development site. This activity therefore does not apply to the proposed development.

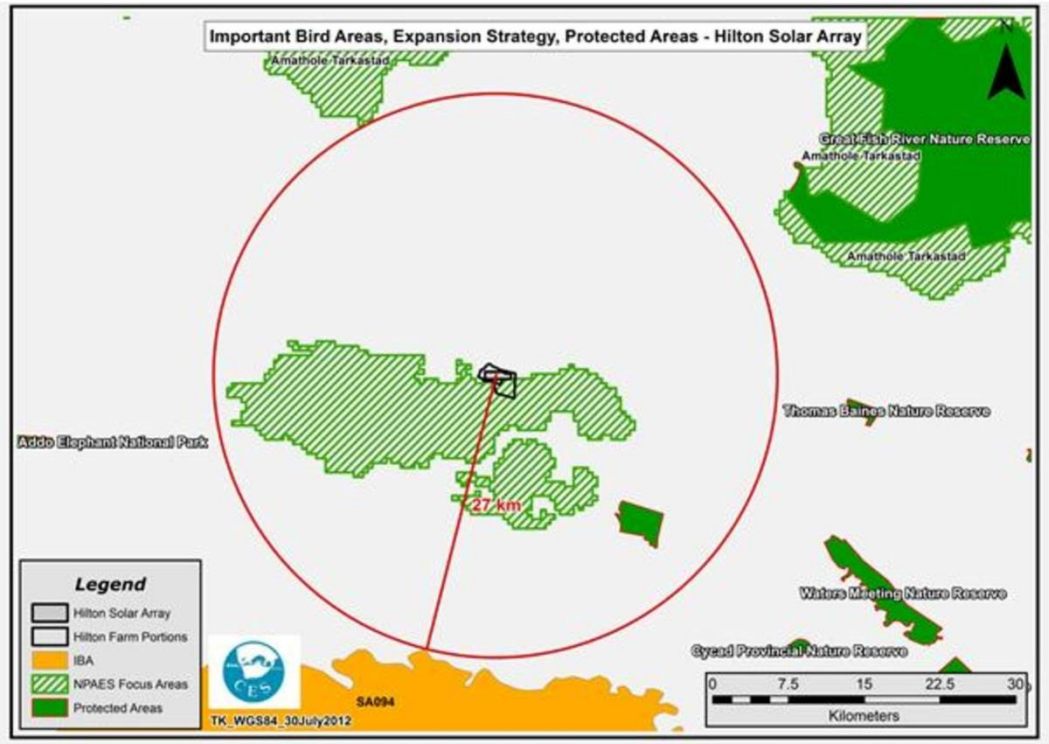


Figure 1: Protected Areas, National Protected Expansion Areas and Important Bird Areas (IBAs) surrounding the project site

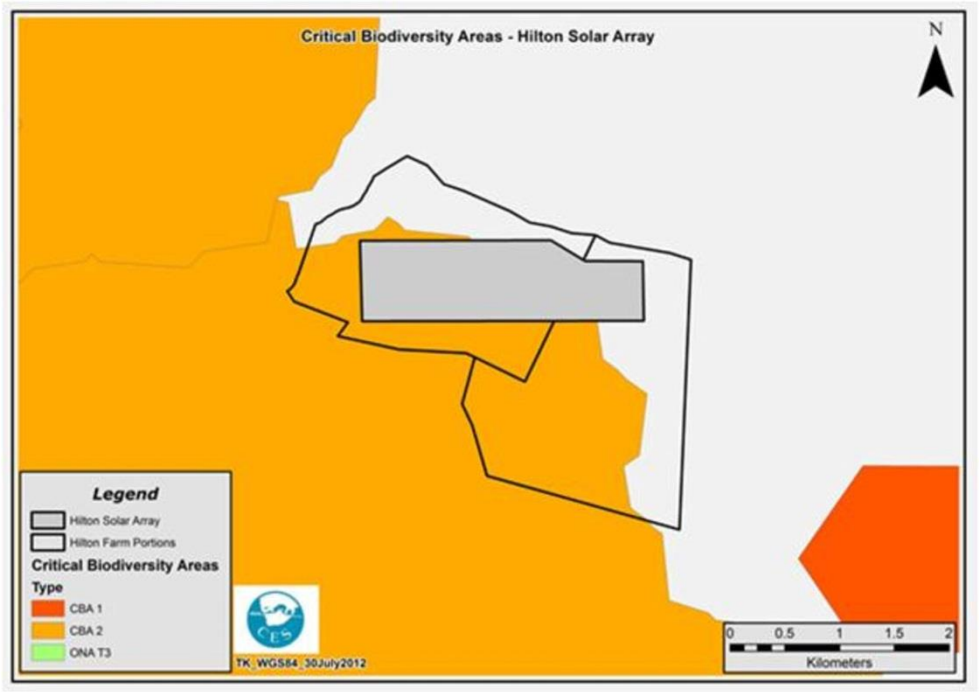


Figure 2: Critical Biodiversity Areas (CBA) for the proposed project site.

(ee) Part of the property on which the proposed project will be developed is within a CBA 2 (refer to Figure 2, included on page 39 of the Final Scoping Report). However, the project layout has been revised so that there will be no infrastructure development inside the boundaries of the CBA 2. It is possible that it will be necessary to lay underground cables in the CBA 2, and this listed activity has therefore been included for assessment.

(ff) No core areas have been identified within the proposed development site. This activity therefore does not apply to the proposed development.

(gg) The Aylesbury protected area falls inside the 5 km buffer zone and therefore this activity does apply to the proposed development.

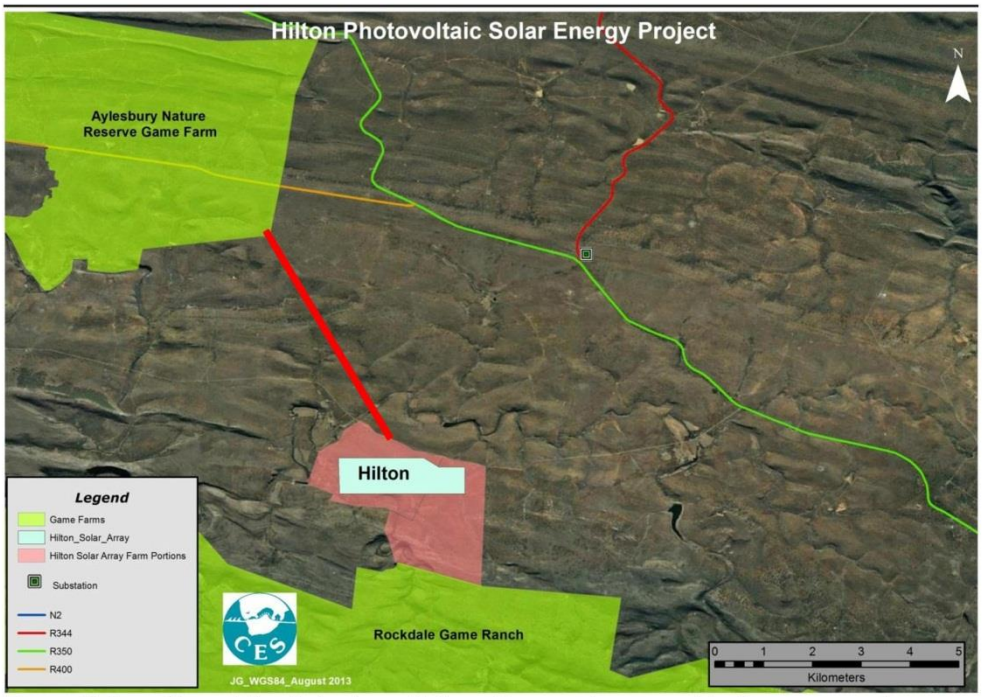


Figure 3: Location of the Aylesbury Nature Reserve in respect to the proposed development (the red line indicates 5 km).

(hh) The proposed development site is located approximately 65 km from the coast and therefore this activity does not apply.

- **DEA Comment:**

ii. The listed activities identified in the FSR do not correspond to all the listed activities in the application form dated 17 September 2012 (e.g. GN R.546 item 13).

- **EAP Response:**

The listed activities in the Scoping Report has been amended to correspond to those in the amended application form (submitted to DEA), these can be found in Chapter 1 Section 2 (page 2) of the Final Scoping Report and has been included below for your convenience.

The following discrepancies were noticed:

Listed Activity	Application	FSR	Comment
Listing Notice 1 of R544 (1)	NO	YES	The application is for the development of a 75 MW and is therefore included under GNR 545. This listed activity does not apply and has therefore been removed from the Final Scoping Report.
Listing Notice 1 of R544 (10)	YES	YES	
Listing Notice 1 of R544 (11)	YES	NO	The project will involve the construction of roads and electrical cables which are likely to cross drainage lines. This listed activity has been included in the FSR
Listing Notice 1 of R544 (18)	NO	YES	The project will involve the construction of roads and electrical cables which could trigger this activity. The application form has been amended and resubmitted to include this activity.
Listing Notice 1 of R544 (23)	NO	YES	The proposed development is approximately 120 ha in size and is therefore included under GNR 545. This activity does not apply and has therefore been removed from the Final Scoping Report.
Listing Notice 1 of R544 (38)	NO	YES	New infrastructure (electrical cabling and substation) will be required for the proposed project and therefore no expansion will be necessary. This listed activity has been removed from the FSR
Listing Notice 2 of R545 (1)	YES	YES	
Listing Notice 2 of R545 (8)	NO	YES	The transmission of electricity will be less than 275kV, therefore this listed activity do not apply and have been removed from the FSR.
Listing Notice 2 of R545 (15)	YES	YES	
Listing Notice 3 of R546 (4)	YES	YES	
Listing Notice 3 of R546 (10)	NO	YES	During the construction of the proposed solar facility fuel will be required to be stored on site, however this will not exceed 30m^3 and therefore this listed activity does not apply and has subsequently been removed from the FSR.
Listing Notice 3 of R546 (12)	YES	YES	
Listing Notice 3 of R546 (13)	NO	YES	Until such time as ground truthing occurs it is unknown what area of the proposed development site, which constitutes more than 75% of indigenous vegetation, will be required to be cleared. For this reason listed activities 12, 13 and 14 have been included. This listed activity was omitted from the application form and therefore the application form has been amended and resubmitted.
Listing Notice 3 of R546 (14)	YES	YES	
Listing Notice 3 of	NO	NO	Part of the property on which the proposed

R546 (16)			project will be developed is within a CBA 2. However, the project layout has been revised so that there will be no infrastructure development inside the boundaries of the CBA 2. It is possible that it will be necessary to lay underground cables in the CBA 2, and this listed activity has therefore been included for assessment in the amended application form.
Listing Notice 3 of R546 (19)	YES	YES	

- **DEA Comment:**

iii. **Page 63 of the FSR indicates that a bat specialist has been appointed, yet the list of specialist studies does not include a bat specialist assessment study. Please include this in the Plan of Study for EIA.**

- **EAP Response:**

Please note that this was an error within the Final Scoping Report (FSR). No bat specialist assessment will be conducted for the proposed project and therefore all mention of this has been removed.

An example of a PV Facility has been included below. PV Facilities are stationary and therefore do not impact on bats as is the case with the rotating blades from wind farms. It is therefore not anticipated that a bat specialist study will be required for the proposed project.

- **DEA Comment:**

iv. **The Terms of Reference for the Palaeontological Impact Assessment was not included in the FSR. Please provide the Department with this information.**

- **EAP Response**:

Palaeontological Impact Assessment

A palaeontological impact assessment will be conducted, the primary objective of which is to determine whether there are any indications that the proposed site is of palaeontological 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 palaeontological study will be to:

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

This has been included in the Plan of Study for the EIA and is included in Chapter 10, Section 10.1.1 (page 64) of the FSR.

- **DEA Comment:**

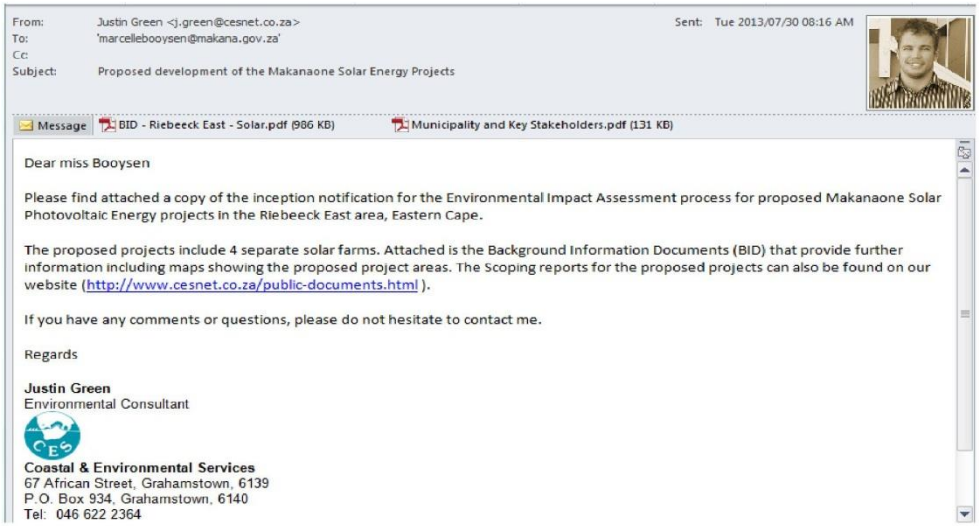
v. **Appendix C5: Register of I&APs does not indicate the following key stakeholders:**
   - **Occupiers of land adjacent to the site**
   - **Ward Councillor**

- **EAP Response:**

Please note that the occupiers of the land adjacent to the site are included and are labelled as Surrounding Neighbours (pg. 106), for your convenience it has been included below as well.

Surrounding Neighbours		
Name	**Association**	**Email**
Robert White	Table Hill (South)	watty1@telkomsa.net
Geoff Brown	Brack Kloof	glenambrose@imaginet.co.za
Adrian White	Table Hill Farm (North)	tablefarm@eastcape.net
John Dell	Hounslow	dell@johndelldorpers.co.za
Grant Soul	Aptrac Aviation	grant@aptrac.com
Mark Bristow	Nuritex Inv Pty Ltd	MBristow@randgoldresources.com

The Ward Councilor, Ms. Marcelle Booysen (Ward 3) was notified of the proposed development on the 30th of July 2013 (proof of notification is included below).



From: Justin Green <j.green@cesnet.co.za> Sent: Tue 2013/07/30 08:16 AM
To: 'marcellebooysen@makana.gov.za'
Cc:
Subject: Proposed development of the Makanaone Solar Energy Projects

Message | BID - Riebeeck East - Solar.pdf (986 KB) | Municipality and Key Stakeholders.pdf (131 KB)

Dear miss Booysen

Please find attached a copy of the inception notification for the Environmental Impact Assessment process for proposed Makanaone Solar Photovoltaic Energy projects in the Riebeeck East area, Eastern Cape.

The proposed projects include 4 separate solar farms. Attached is the Background Information Documents (BID) that provide further information including maps showing the proposed project areas. The Scoping reports for the proposed projects can also be found on our website (http://www.cesnet.co.za/public-documents.html).

If you have any comments or questions, please do not hesitate to contact me.

Regards

Justin Green
Environmental Consultant

Coastal & Environmental Services
67 African Street, Grahamstown, 6139
P.O. Box 934, Grahamstown, 6140
Tel: 046 622 2364

- **DEA Comment:**

Also provide proof that these key stakeholders have been given written notification of the proposed listed activities associated with this application.

- **EAP Response:**

Stakeholders were notified of the listed activities in the BID that was distributed during the initiation period of the project. In addition to this the listed activities were also included in the Draft Scoping Report within the Executive summary as well as in Chapter 1, page 2.

Included in this document is a copy of the BID (Appendix B), and proof that this was sent to various stakeholders (Appendix A). The listed activities in the Final Scoping Report are available on page 2.

Based on issue ii raised above, the application form have been amended and resubmitted to the authorities for approval. All registered I&APs will be informed of the amended application and listed activities therein.

- **DEA Request:**

vi. **The site visit brought to light that there is a conservancy in the area of the proposed PV plant. Please provide the Department with a map of the conservancy.**

- **EAP Response:**

As can be seen from the Figure 3, and as discussed under issue one above, the Makanaone Hilton Solar Photovoltaic Energy Project falls inside the 5 km buffer zone around the Aylesbury protected area as specified in the EIA Regulations (**Listed activity GNR. 546, Section 13 (c) ii (ff)**). Figure 3 shows the location of this protected area in relation to the site and has been incorporated into the Final Scoping Report in Chapter 1, page 6.

- **DEA Request:**

vii. **The Department requires that a Socio-Economic Study be performed to ascertain the potential impacts of the proposed development on the community. This study must include of job creation and the availability of the proposed trust fund for the community use.**

- **EAP Response:**

Please note that this has been included in the FSR in the Plan of Study (Chapter 10, page 71). Please find it included below for your convenience.

Socio-Economic Impact Assessment

The specific Terms of Reference for the Socio - Economic Impact Assessment will include:-

- Review of all relevant literature e.g. Visual and Agricultural Impact Assessments, Grahamstown/Riebeeck East IDP, Tourism Sector Plan, Benchmark studies, etc.
- Visit the Makanaone Hilton Solar site.
- Review the Grahamstown/Riebeeck East IDP and assess the economic impact of the solar energy project on all sectors of the economy within the LM area in terms of:
    - Contribution to economic growth in the region (Direct and Indirect) – Gross Domestic Product per Region (GDPR);
    - Impact on regional development (business and other) ;
    - Impact on productivity and production (sales, etc.) of existing farms in the region;
    - Impact on infrastructure and resources in the region;
    - Improved competitiveness of the region.
- Assess the impact of the solar energy project on tourism growth in the study area.
- Conduct an initial socio-economic needs analysis of the identified areas in collaboration with Makanaone Hilton (Pty) Ltd and local authorities which will also include:
    - Impact on employment;
    - Impact on income;
    - Impact on social lives of local communities;
    - Impact on social upliftment;
    - The analysis should also identify the key industries which operate within the identified areas and identify if possible LED projects that will stimulate the economy.
- Assess as far as possible the potential impact of the Makanaone Hilton solar energy project on property prices in the study area.
- Assess the economic impact of the Makanaone Hilton solar energy project on inward investment i.e. will it encourage or discourage investment to the study area.
- Assess the costs and benefits of the Makanaone Hilton solar energy project to the local economy.

- **DEA Request:**

viii. **Please ensure that the methodology for the impact assessment in the Plan of Study comply with all the relevant regulatory requirements for the impact assessment.**

- **EAP Response:**

According to Section 31(2)(l) of the NEMA regulations an assessment of each identified potentially significant impact, must include:

(i) cumulative impacts;
(ii) the nature of the impact;
(iii) the extent and duration of the impact;
(iv) the probability of the impact occurring;
(v) the degree to which the impact can be reversed;
(vi) the degree to which the impact may cause irreplaceable loss of resources; and
(vii) the degree to which the impact can be mitigated;

Included below is the CES rating scale, please note that all aspects included above have been incorporated into the methodology.

METHODOLOGY FOR ASSESSING THE SIGNIFICANCE OF IMPACTS

Specialists are required to provide the reports in a specific layout and structure, so that a uniform specialist report volume can be produced. To ensure a direct comparison between various specialist studies, standard rating scales have been defined for assessing and quantifying the identified impacts. This is necessary since impacts have a number of parameters that need to be assessed.

Five factors need to be considered when assessing the significance of impacts, namely:

1. Relationship of the impact to **temporal** scales - the temporal scale defines the significance of the impact at various time scales, as an indication of the duration of the impact.
2. Relationship of the impact to **spatial** scales - the spatial scale defines the physical extent of the impact.
3. The severity of the impact - the **severity/beneficial** scale is used in order to scientifically evaluate how severe negative impacts would be, or how beneficial positive impacts would be on a particular affected system (for ecological impacts) or a particular affected party.

   The severity of impacts can be evaluated with and without mitigation in order to demonstrate how serious the impact is when nothing is done about it. The word 'mitigation' means not just 'compensation', but also the ideas of containment and remedy. For beneficial impacts, optimization means anything that can enhance the benefits. However, mitigation or optimization must be practical, technically feasible and economically viable.
4. The **likelihood** of the impact occurring - the likelihood of impacts taking place as a result of project actions differs between potential impacts. There is no doubt that some impacts would occur (e.g. loss of vegetation), but other impacts are not as likely to occur (e.g. vehicle accident), and may or may not result from the proposed development. Although some impacts may have a severe effect, the likelihood of them occurring may affect their overall significance.

Each criterion is ranked with scores assigned as presented in the table below to determine the overall **significance** of an activity. The criterion is then considered in two categories, viz. effect of the activity and the likelihood of the impact. The total scores recorded for the effect and likelihood are then read off the matrix presented in the table below, to determine the overall significance of the impact. The overall significance is either negative or positive.

Ranking of Evaluation Criteria

EFFECT	**Temporal scale**		
	Short term	Less than 5 years	
	Medium term	Between 5 and 20 years	
	Long term	Between 20 and 40 years (a generation) and from a human perspective almost permanent.	
	Permanent	Over 40 years and resulting in a permanent and lasting change that will always be there	
	Spatial Scale		
	Localised	At localised scale and a few hectares in extent	
	Study area	The proposed site and its immediate environs	
	Regional	District and Provincial level	
	National	Country	
	International	Internationally	
	*	**Severity**	**Benefit**
	Slight / Slight Beneficial	Slight impacts on the affected system(s) or party(ies).	Slightly beneficial to the affected system(s) or party(ies).
	Moderate / Moderate Beneficial	Moderate impacts on the affected system(s) or party (ies).	An impact of real benefit to the affected system(s) or party(ies).
	Severe / Beneficial	Severe impacts on the affected system(s) or party(ies).	A substantial benefit to the affected system(s) or party(ies).
	Very Severe / Very Beneficial	Very severe change to the affected system(s) or party (ies).	A very substantial benefit to the affected system(s) or party(ies).
LIKELIHOOD	**Likelihood**		
	Unlikely	The likelihood of these impacts occurring is slight	
	May Occur	The likelihood of these impacts occurring is possible	
	Probable	The likelihood of these impacts occurring is probable	
	Definite	The likelihood is that this impact will definitely occur	

Ranking matrix to provide an Environmental Significance

Environmental Significance	
LOW	An acceptable impact which for which mitigation is desirable but nc essential; The impact by itself is insufficient even in combination wit other low impacts to prevent the development. These impacts will result in either positive or negative medium to short term effects on the social and/or natural environment.
MODERATE	An important impact which requires mitigation. The impact is insufficier by itself to prevent the implementation of the project but which i conjunction with other impacts may prevent its implementation These impacts will usually result in either positive or negative medium to long term effects on the social and/or natural environment
HIGH	A serious impact which, if not mitigated, may prevent the implementation of the project. These impacts would be considered by society as constituting a majc and usually long term change to the (natural and/or social) environmen and result in severe effects or beneficial effects.
VERY HIGH	A very serious impact which may be sufficient by itself to prevent the implementation of the project. The impact may result in permanent change. Very often these impacts are unmitigable and usually result in very severe effects, or very beneficial effects

The ***environmental significance*** scale is an attempt to evaluate the importance of a particular impact. This evaluation needs to be undertaken in the relevant context, as an impact can either be ecological or social, or both. The evaluation of the significance of an impact relies heavily on the values of the person making the judgment. For this reason, impacts of especially a social nature need to reflect the values of the affected society.

Cumulative Impacts

Cumulative Impacts affect the significance ranking of an impact because it considers the impact in terms of both on-site and off-site sources. For example, the noise generated by an activity (on-site) may result in a value which is within the World Bank Noise Standards for residential areas. Activities in the surrounding area may also create noise, resulting in levels also within the World Bank Standards. If both on-site and off-site activities take place simultaneously, the total noise level at the specified receptor may exceed the World Bank Standards. For this reason it is important to consider impacts in terms of their cumulative nature.

Seasonality

Although seasonality is not considered in the ranking of the significance, if may influence the evaluation during various times of year. As seasonality will only influence certain impacts, it will only be considered for these, with management measures being imposed accordingly (i.e. dust suppression measures being implemented during the dry season).

Prioritising

The evaluation of the impacts, as described above is used to prioritise which impacts require mitigation measures. Negative impacts that are ranked as being of "**VERY HIGH**" and "**HIGH**" significance will be investigated further to determine how the impact can be minimised or what alternative activities or mitigation measures can be implemented. These impacts may also assist decision makers i.e. lots of **HIGH** negative impacts may bring about a negative decision. For impacts identified as having a negative impact of "**MODERATE**"

significance, it is standard practice to investigate alternate activities and/or mitigation measures. The most effective and practical mitigations measures will then be proposed. For impacts ranked as "**LOW**" significance, no investigations or alternatives will be considered. Possible management measures will be investigated to ensure that the impacts remain of low significance.

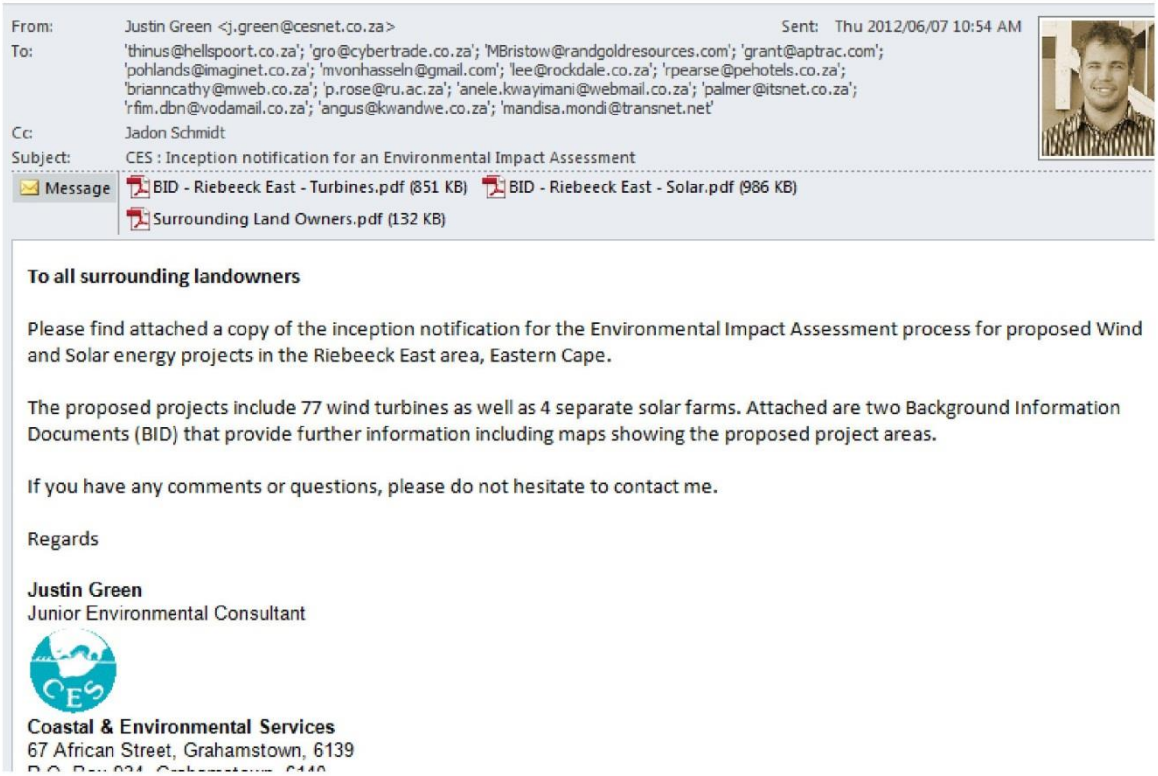
I hope that the above responses to the received comments meet the needs of the Environmental Officer. If you have any further questions or comments please do not hesitate to contact us at the numbers below.

Justin Green

Environmental Consultant

Tel: 046-622 2364
Fax: 046-622 6564
Email: j.green@cesnet.co.za

APPENDIX A - Notification to Surrounding Land Owners



From: Justin Green <j.green@cesnet.co.za> Sent: Thu 2012/06/07 10:54 AM

To: 'thinus@hellspoort.co.za'; 'gro@cybertrade.co.za'; 'MBristow@randgoldresources.com'; 'grant@aptrac.com'; 'pohlands@imaginet.co.za'; 'mvonhasseln@gmail.com'; 'lee@rockdale.co.za'; 'rpearse@pehotels.co.za'; 'briancathy@mweb.co.za'; 'p.rose@ru.ac.za'; 'anele.kwayimani@webmail.co.za'; 'palmer@itsnet.co.za'; 'rfim.dbn@vodamail.co.za'; 'angus@kwandwe.co.za'; 'mandisa.mondi@transnet.net'

Cc: Jadon Schmidt

Subject: CES : Inception notification for an Environmental Impact Assessment

Message | BID - Riebeeck East - Turbines.pdf (851 KB) | BID - Riebeeck East - Solar.pdf (986 KB) | Surrounding Land Owners.pdf (132 KB)

To all surrounding landowners

Please find attached a copy of the inception notification for the Environmental Impact Assessment process for proposed Wind and Solar energy projects in the Riebeeck East area, Eastern Cape.

The proposed projects include 77 wind turbines as well as 4 separate solar farms. Attached are two Background Information Documents (BID) that provide further information including maps showing the proposed project areas.

If you have any comments or questions, please do not hesitate to contact me.

Regards

Justin Green
Junior Environmental Consultant

Coastal & Environmental Services
67 African Street, Grahamstown, 6139

From: Justin Green <j.green@cesnet.co.za> Sent: Fri 2012/09/14 10:03 AM

To: 'angus@kwandwe.co.za'; 'barryp@isat.co.za'; 'briancathy@mweb.co.za'; 'pohlands@imaginet.co.za'; 'mvonhasseln@gmail.com'; 'grant@aptrac.com'; 'lee@rockdale.co.za'; 'rfim.dbn@vodamail.co.za'; 'anele.kwayimani@webmail.co.za'; 'mandisa.mondi@transnet.net'; 'MBristow@randgoldresources.com'; 'palmer@itsnet.co.za'; 'p.rose@ru.ac.za'; 'gro@cybertrade.co.za'; 'rpearse@pehotels.co.za'; 'thinus@hellspoort.co.za'

Cc:

Subject: Release of Terra Power Solutions Draft Scoping Reports for Public Reveiw and Comment

Message | Release of DSR - Surrounding Landowners.pdf (239 KB)

Dear Surrounding Landowners

TERRA POWER SOLUTIONS WIND AND SOLAR ENERGY PROJECTS: RELEASE OF DRAFT SCOPING REPORT FOR PUBLIC REVIEW AND COMMENT

Please be advised the draft Scoping Report for this project has been released and is available for public review until the **3rd of November 2012**. A hard copy of the report can be viewed at the Grahamstown Public Library. The report is also available for download from the CES website: http://www.cesnet.co.za/public-documents.html

There will be a public meeting on the 25th of September 2012 at the Highlander in Grahamstown starting at 6pm. There will be a 20 to 30 minute presentation, followed by an opportunity to ask questions, comment, or raise concerns.

Please find attached a full release notification letter.

Feel free to contact me if there are any queries, and please submit comments to myself.

Yours sincerely,

Justin Green
Junior Environmental Consultant

APPENDIX B – Basic Information Document (BID)

BACKGROUND INFORMATION DOCUMENT & INVITATION TO COMMENT: Construction of a 75 MW Photovoltaic Energy Generating Facility in the region of Riebeeck East, Eastern Cape Province

AIM OF THIS DOCUMENT

The aim of this Background Information Document is to provide stakeholders with information about this project, the process being followed and to provide them with an opportunity to be involved in the forthcoming environmental assessment process by registering as an Interested and Affected Party (IAP).

IAPs are encouraged to raise issues or concerns relevant to the project for consideration in the Scoping Report process that is to be conducted in order to secure the required environmental authorisation.

The final Scoping Report will be submitted to the National Department of Environmental Affairs (Pretoria) for decision making.

To register as an IAP please send your name and contact details to:

Mr Justin Green
P.O. Box 934
Grahamstown, 6140
Tel: (046) 622 2364
Fax: (046) 622 6564

Email: j.green@cesnet.co.za

OR

Mr. Jadon Schmidt

Email: j.schmidt@cesnet.co.za

Your involvement in this process is critical, and will help ensure that all relevant issues are raised and assessed in the Basic Assessment process

PROJECT DESCRIPTION

Terra Power Solutions (Pty) Ltd proposes to develop a photovoltaic (PV – or solar panel) electricity generating facility for the production of ±75 MW of energy on four portions of land in the Riebeeck East Region. The site will include Brack Kloof (120 hectares), Table Hill (120 hectares), Watt Hill (132 hectares) and Hilton (150 hectares)

The proposed sites are located near Riebeeck East; Makana Municipality in the Eastern Cape Province of South Africa (refer to Figures 1 and 2 below).

Coastal and Environmental Services (CES) has been appointed by the applicant to conduct the environmental assessment process.

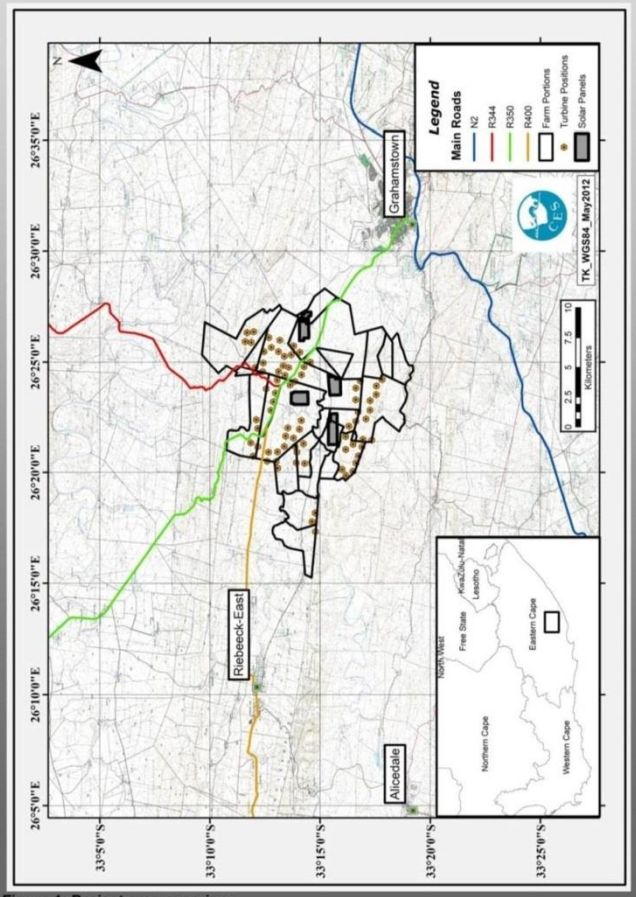


Figure 1: Project area overview

RELEVANT LEGISLATION

The proposed project requires a Scoping Report to be undertaken in terms of the 2010 EIA Regulations (GNR 543 of 18 June 2010) as the proposed project triggers activities listed in GNR 545, not limited to those as shown in the table below. As a result the applicant is required to undertake a Full Scoping Report as well as an Environmental Impact Assessment (EIA) process.

GNR 544	(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. (11). The construction of: (i) canals; (ii) channels; (iii) bridges; (vi) bulk storm water outlet structures; where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line
GNR 545	(1). The construction of facilities or infrastructure for the generation of electricity where the electricity output is 20 megawatts or more (11). Physical alteration of undeveloped, vacant or derelict land for residential, retail, commercial, recreational, industrial or institutional use where the total area to be transformed is 20 hectares or more;
GNR 546	(4). The construction of road wider than 4 metres with a reserve less than 13,5 metres. (12). The clearance of an area of 300 square metres or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation (14). The clearance of an area of 5 hectares or more of vegetation where 75% or more of the vegetation cover constitutes indigenous vegetation. (19). The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre

POTENTIAL IMPACTS

A number of potential issues will be assessed during the scoping process and these are:

- Loss of indigenous vegetation and habitat for fauna
- Impact on indigenous fauna (e.g. red data species)
- Visual impacts on local game reserves and lodges
- It is not anticipated that any features of heritage or cultural significance are present in the project area

APPROACH TO THE SCOPING PHASE

The Scoping Phase is important for informing the public and relevant authorities about the nature and size of the proposed project. A critical component of the Scoping Phase is the Public Participation Process, in which Interested and Affected Parties (I&APs) are given an opportunity to raise any issues or concerns they may have about the project. The process is outlined in the figure below. The Draft Scoping Report will be made available for review by the public and all registered I&APs will be notified to the availability thereof. This report will set the scope and specialist terms of reference for the EIA Phase.

The Scoping Process

Development Process
↓
Background Information Document (BID) and notification of I&AP's
↓
Undertake Public Meetings
↓
Prepare Draft Scoping Report
↓
Review of Draft Scoping report by I&AP's
↓
Submit Final Scoping Report to Authority
↓
Proceed to EIA Phase

HOW CAN YOU BE INVOLVED?

A Public Participation Process (PPP) is being conducted as part of the Scoping Process. The aim of the PPP is to allow everyone who is interested in, or likely to be affected by, the proposed development to provide input into the process.

The Public Participation Process will include:

- Advertisements in local newspapers;
- Notice Boards on site and an electronic notice will be placed at the CDC;
- Circulation of the BID (this document) to all IAPs identified;
- Draft BAR comment period and public meeting in the Coega area; and

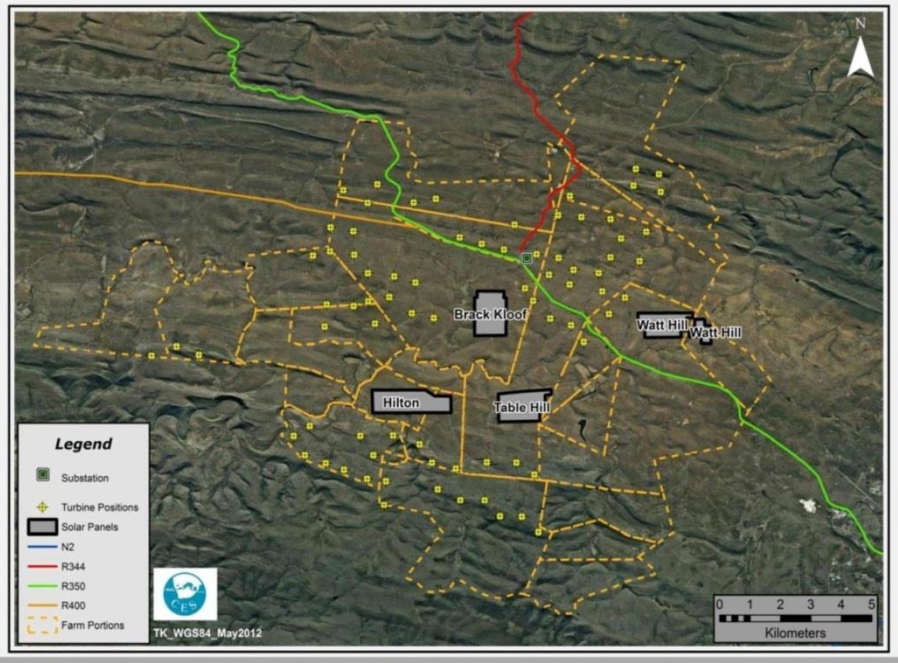


Figure 2: Proposed solar project sites – Brack Kloof, Hilton, Table Hill and Watt Hill

Figure 3: A PV solar panel array similar to that proposed for the project

I wish to confirm being notified for this process and to be registered as an Interested and Affected Party (IAP) for the Terra Power Riebeeck East Photo Voltaic Facility EIA process

Name: _____

Organization: _____

Postal address: _____

Email: _____

Phone #: _____ Fax #: _____

My initial comments, issues or concerns are:

_____

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Other potential IAPs for the project may be:

Name: _____

Organization: _____

Postal address: _____

Email: _____

Phone #: _____ Fax #: _____

Please return details to: **Mr Justin Green**: P.O. Box 934, Grahamstown, 6140

Telephone: (046) 622 2364 Fax: (046) 622 6564 Email: j.green@cesnet.co.za

APPENDIX F: SPECIES LIST OF POTENTIAL SPECIES OF SPECIAL CONCERN THAT COULD POSSIBLY OCCUR AT THE STUDY SITE (SIBIS, 2012)

Genus and Species	IUCN	CITES	**Red Data List**	PNCO	NA
Acacia baileyana	NA	NA	NE	NA	NA
Acacia cyclops	NA	NA	NE	NA	NA
Acacia fimbriata	NA	NA	NE	NA	NA
Acacia karroo	NA	NA	NE	NA	NA
Acacia longifolia	NA	NA	NE	NA	NA
Acacia mearnsii	NA	NA	NE	NA	NA
Acacia saligna	NA	NA	NE	NA	NA
Acanthospermum glabratum	NA	NA	NE	NA	NA
Achyranthes aspera var. aspera	NA	NA	NE	NA	NA
Achyranthes aspera var. sicula	NA	NA	NE	NA	NA
Acokanthera oppositifolia	NA	NA	LC	Schedule 4	NA
Acrolophia capensis	NA	II	LC	NA	NA
Acrolophia cochlearis	NA	II	LC	NA	NA
Adenium multiflorum	NA	NA	LC	Schedule 4	NA
Agathosma bicornuta	NA	NA	EN	NA	NA
Agathosma sp.	NA	NA	Critically rare	NA	NA
Aloe micracantha	NA	NA	NT	NA	NA
Aloe striata subsp. karasbergensis	NA	NA	VU	NA	NA
Alsophila capensis	NA	NA	Declining	NA	NA
Alternanthera pungens	NA	NA	NE	NA	NA
Amaranthus hybridus subsp. hybridus var. hybridus	NA	NA	NE	NA	NA
Ammocharis coranica	NA	NA	LC	Schedule 4	NA
Anacampseros filamentosa subsp. filamentosa	NA	II	LC	Schedule 4	NA
Anagallis arvensis subsp. arvensis	NA	NA	NE	NA	NA
Anisotoma cordifolia	NA	NA	LC	Schedule 4	NA
Apium graveolens	NA	NA	NE	NA	NA
Apodolirion macowanii	NA	NA	VU	Schedule 4	NA
Aptenia cordifolia	NA	NA	LC	Schedule 4	NA
Aptenia cordifolia	NA	NA	LC	NA	NA
Aptenia haeckeliana	NA	NA	LC	Schedule 4	NA
Aptenia haeckeliana	NA	NA	LC	NA	NA
Argemone ochroleuca subsp. ochroleuca	NA	NA	NE	NA	NA
Argyrolobium trifoliatum	NA	NA	Threatened	NA	NA
Aristea abyssinica	NA	NA	LC	Schedule 4	NA
Aristea abyssinica	NA	NA	LC	NA	NA
Aristea anceps	NA	NA	LC	Schedule 4	NA
Aristea anceps	NA	NA	LC	NA	NA
Aristea dichotoma	NA	NA	LC	Schedule 4	NA
Aristea dichotoma	NA	NA	LC	NA	NA
Aristea pusilla	NA	NA	LC	Schedule 4	NA

Aristea pusilla	NA	NA	LC	NA	NA
Arundo donax	NA	NA	NE	NA	NA
Asclepias albens	NA	NA	LC	Schedule 4	NA
Asclepias crispa var. crispa	NA	NA	LC	Schedule 4	NA
Asclepias dregeana var. dregeana	NA	NA	NA	Schedule 4	NA
Asclepias expansa	NA	NA	LC	Schedule 4	NA
Aspalathus argyrophanes	NA	NA	Rare	NA	NA
Aspalathus gerrardii	NA	NA	VU	NA	NA
Asparagus stipulaceus	NA	NA	NT	NA	NA
Aspidoglossum carinatum	NA	NA	LC	Schedule 4	NA
Aspidonepsis diploglossa	NA	NA	NA	Schedule 4	NA
Aster squamatus	NA	NA	NE	NA	NA
Atriplex lindleyi subsp. inflata	NA	NA	NE	NA	NA
Atriplex littoralis	NA	NA	NE	NA	NA
Bidens pilosa	NA	NA	NE	NA	NA
Bobartia gracilis	NA	NA	LC	Schedule 4	NA
Bobartia gracilis	NA	NA	LC	NA	NA
Bobartia orientalis subsp. orientalis	NA	NA	Rare	Schedule 4	NA
Bobartia orientalis subsp. orientalis	NA	NA	Rare	NA	NA
Bonatea speciosa var. antennifera	NA	II	LC	NA	NA
Bonatea speciosa var. antennifera	NA	II	LC	NA	NA
Boophone disticha	NA	NA	Declining	Schedule 4	NA
Brachycorythis macowaniana	NA	II	LC	NA	NA
Brachycorythis macowaniana	NA	II	LC	NA	NA
Brachystelma comptum	NA	NA	VU	Schedule 4	NA
Brachystelma macropetalum	NA	NA	LC	Schedule 4	NA
Brachystelma minimum	NA	NA	Rare	Schedule 4	NA
Brachystelma rubellum	NA	NA	LC	Schedule 4	NA
Brachystelma schizoglossoides	NA	NA	LC	Schedule 4	NA
Briza maxima	NA	NA	NE	NA	NA
Briza minor	NA	NA	NE	NA	NA
Bromus catharticus	NA	NA	NE	NA	NA
Brownleea coerulea	NA	II	LC	NA	NA
Brownleea coerulea	NA	II	LC	NA	NA
Brownleea parviflora	NA	II	LC	NA	NA
Brownleea parviflora	NA	II	LC	NA	NA
Brunsvigia grandiflora	NA	NA	LC	Schedule 4	NA
Brunsvigia gregaria	NA	NA	LC	Schedule 4	NA
Callistemon rigidus	NA	NA	NE	NA	NA
Calopsis paniculata	NA	NA	NE	NA	NA
Capsella bursa-pastoris	NA	NA	NE	NA	NA
Carissa bispinosa	NA	NA	LC	Schedule 4	NA
Carpobrotus edulis subsp. edulis	NA	NA	LC	Schedule 4	NA
Carpobrotus edulis subsp. edulis	NA	NA	LC	NA	NA
Cassytha filiformis	NA	NA	NE	NA	NA
Centaurea cyanus	NA	NA	NE	NA	NA

Centaurea melitensis	NA	NA	NE	NA	NA
Ceratandra grandiflora	NA	II	LC	NA	NA
Ceratandra grandiflora	NA	II	LC	NA	NA
Ceropegia ampliata var. ampliata	NA	NA	LC	Schedule 4	NA
Ceropegia bowkeri subsp. sororia	NA	NA	LC	Schedule 4	NA
Ceropegia carnosa	NA	NA	LC	Schedule 4	NA
Ceropegia stapeliiformis subsp. stapeliiformis	NA	NA	LC	Schedule 4	NA
Chasmanthe aethiopica	NA	NA	LC	Schedule 4	NA
Chasmanthe aethiopica	NA	NA	LC	NA	NA
Chenopodium carinatum	NA	NA	NE	NA	NA
Chenopodium glaucum	NA	NA	NE	NA	NA
Chenopodium murale var. murale	NA	NA	NE	NA	NA
Chenopodium pumilio	NA	NA	NE	NA	NA
Chenopodium schraderianum	NA	NA	NE	NA	NA
Cirsium vulgare	NA	NA	NE	NA	NA
Clivia nobilis	NA	NA	VU	Schedule 4	NA
Conyza bonariensis	NA	NA	NE	NA	NA
Coronopus didymus	NA	NA	NE	NA	NA
Corpuscularia taylori	NA	NA	LC	Schedule 4	NA
Corpuscularia taylori	NA	NA	LC	NA	NA
Cotyledon adscendens	NA	NA	EN	NA	NA
Crassula perfoliata var. coccinea	NA	NA	LC	Schedule 4	NA
Crassula perfoliata var. minor	NA	NA	LC	Schedule 4	NA
Crassula rupestris subsp. commutata	NA	NA	Rare	NA	NA
Crassula vaillantii	NA	NA	NE	NA	NA
Crinum campanulatum	VU	NA	NT	Schedule 4	NA
Crinum macowanii	NA	NA	Declining	Schedule 4	NA
Crinum macowanii subsp. confusum	NA	NA	Declining	Schedule 4	NA
Curtisia dentata	NA	NA	NT	NA	NA
Cuscuta campestris	NA	NA	NE	NA	NA
Cyathea capensis var. capensis	NA	II	NA	NA	Protected Tree List
Cymbopogon pospischilii	NA	NA	NE	NA	NA
Cynanchum ellipticum	NA	NA	LC	Schedule 4	NA
Cyrtanthus clavatus	NA	NA	DDT	Schedule 4	NA
Cyrtanthus obliquus	NA	NA	Declining	Schedule 4	NA
Cyrtanthus parviflorus	NA	NA	NA	Schedule 4	NA
Cyrtanthus smithiae	NA	NA	LC	Schedule 4	NA
Cyrtanthus sp.	NA	NA	NA	Schedule 4	NA
Cyrtorchis arcuata subsp. arcuata	NA	II	LC	NA	NA
Cyrtorchis arcuata subsp. arcuata	NA	II	LC	NA	NA
Datura stramonium	NA	NA	NE	NA	NA
Delosperma affine	NA	NA	LC	Schedule 4	NA
Delosperma affine	NA	NA	LC	NA	NA
Delosperma cooperi	NA	NA	LC	Schedule 4	NA
Delosperma cooperi	NA	NA	LC	NA	NA
Delosperma ecklonis	NA	NA	LC	Schedule 4	NA

Delosperma ecklonis	NA	NA	LC	NA	NA
Delosperma frutescens	NA	NA	LC	Schedule 4	NA
Delosperma frutescens	NA	NA	LC	NA	NA
Delosperma hollandii	NA	NA	LC	Schedule 4	NA
Delosperma hollandii	NA	NA	LC	NA	NA
Delosperma multiflorum	NA	NA	LC	Schedule 4	NA
Delosperma multiflorum	NA	NA	LC	NA	NA
Delosperma sp.	NA	NA	NA	Schedule 4	NA
Diascia cuneata	NA	NA	LC	Schedule 4	NA
Diascia sp.	NA	NA	NA	Schedule 4	NA
Dicerothamnus rhinocerotis	NA	NA	NE	NA	NA
Dietes iridioides	NA	NA	LC	Schedule 4	NA
Dietes iridioides	NA	NA	LC	NA	NA
Digitaria sanguinalis	NA	NA	NE	NA	NA
Dioscorea elephantipes	NA	NA	Declining	NA	NA
Dioscorea sylvatica var. sylvatica	NA	NA	NE	NA	NA
Disa bracteata	NA	II	LC	NA	NA
Disa bracteata	NA	II	LC	NA	NA
Disa brevicornis	NA	II	LC	NA	NA
Disa brevicornis	NA	II	LC	NA	NA
Disa caulescens	NA	II	LC	NA	NA
Disa caulescens	NA	II	LC	NA	NA
Disa lugens var. lugens	NA	II	EN	NA	NA
Disa lugens var. lugens	NA	II	EN	NA	NA
Disa patula var. patula	NA	II	LC	NA	NA
Disa patula var. patula	NA	II	LC	NA	NA
Disa polygonoides	NA	II	LC	NA	NA
Disa polygonoides	NA	II	LC	NA	NA
Disa porrecta	NA	II	LC	NA	NA
Disa porrecta	NA	II	LC	NA	NA
Disa racemosa	NA	II	LC	NA	NA
Disa racemosa	NA	II	LC	NA	NA
Disa sagittalis	NA	II	LC	NA	NA
Disa sagittalis	NA	II	LC	NA	NA
Disperis capensis var. capensis	NA	II	LC	NA	NA
Disperis capensis var. capensis	NA	II	LC	NA	NA
Disperis lindleyana	NA	II	LC	NA	NA
Disperis lindleyana	NA	II	LC	NA	NA
Drimia altissima	NA	NA	Declining	NA	NA
Drosanthemum fourcadei	NA	NA	LC	Schedule 4	NA
Drosanthemum fourcadei	NA	NA	LC	NA	NA
Drosanthemum hispidum	NA	NA	LC	Schedule 4	NA
Drosanthemum hispidum	NA	NA	LC	NA	NA
Drosanthemum lique	NA	NA	LC	Schedule 4	NA
Drosanthemum lique	NA	NA	LC	NA	NA
Drosanthemum sp.	NA	NA	NA	Schedule 4	NA

Einadia nutans subsp. nutans	NA	NA	NE	NA	NA
Elaeodendron croceum	NA	NA	Declining	NA	NA
Encephalartos caffer	NT	II	NT	Schedule 3	NA
Encephalartos latifrons	CR	II	CR	Schedule 3	NA
Encephalartos longifolius	NT	II	NT	Schedule 3	NA
Encephalartos trispinosus	VU	II	VU	Schedule 3	NA
Erica caffra var. auricularis	NA	NA	NA	Schedule 4	NA
Erica caffra var. caffra	NA	NA	LC	Schedule 4	NA
Erica cerinthoides var. barbertona	NA	NA	LC	Schedule 4	NA
Erica cerinthoides var. cerinthoides	NA	NA	LC	Schedule 4	NA
Erica chamissonis var. chamissonis	NA	NA	LC	Schedule 4	NA
Erica chamissonis var. polyantha	NA	NA	LC	Schedule 4	NA
Erica curviflora var. curviflora	NA	NA	NE	Schedule 4	NA
Erica cyathiformis var. cyathiformis	NA	NA	LC	Schedule 4	NA
Erica demissa var. demissa	NA	NA	LC	Schedule 4	NA
Erica glumiflora	NA	NA	LC	Schedule 4	NA
Erica harveyana	NA	NA	LC	Schedule 4	NA
Erica hispidula var. hispidula	NA	NA	LC	Schedule 4	NA
Erica nemorosa	NA	NA	LC	Schedule 4	NA
Erica pectinifolia var. pectinifolia	NA	NA	LC	Schedule 4	NA
Erica scabriuscula	NA	NA	LC	Schedule 4	NA
Erica sparsa var. sparsa	NA	NA	LC	Schedule 4	NA
Erica subdivaricata	NA	NA	LC	Schedule 4	NA
Erica varderi	NA	NA	DDT	Schedule 4	NA
Erodium cicutarium	NA	NA	NE	NA	NA
Erodium moschatum	NA	NA	NE	NA	NA
Eucomis comosa var. comosa	NA	NA	NE	NA	NA
Eugenia zeyheri	DD	NA	LC	NA	NA
Eulophia aculeata subsp. aculeata	NA	II	LC	NA	NA
Eulophia aculeata subsp. aculeata	NA	II	LC	NA	NA
Eulophia ensata	NA	II	LC	NA	NA
Eulophia ensata	NA	II	LC	NA	NA
Eulophia foliosa	NA	II	LC	NA	NA
Eulophia foliosa	NA	II	LC	NA	NA
Eulophia hians var. hians	NA	II	LC	NA	NA
Eulophia hians var. hians	NA	II	LC	NA	NA
Eulophia macowanii	NA	II	LC	NA	NA
Eulophia macowanii	NA	II	LC	NA	NA
Eulophia parviflora	NA	II	LC	NA	NA
Eulophia parviflora	NA	II	LC	NA	NA
Eulophia streptopetala	NA	II	LC	NA	NA
Eulophia streptopetala	NA	II	LC	NA	NA
Eulophia tuberculata	NA	II	LC	NA	NA
Eulophia tuberculata	NA	II	LC	NA	NA
Eulophia zeyheri	NA	II	LC	NA	NA
Eulophia zeyheri	NA	II	LC	NA	NA

Euphorbia bubalina	NA	II	LC	NA	NA
Euphorbia bupleurifolia	NA	II	Declining	Schedule 4	NA
Euphorbia caerulescens	NA	II	LC	NA	NA
Euphorbia esculenta	NA	II	LC	NA	NA
Euphorbia fimbriata	NA	II	LC	NA	NA
Euphorbia flanaganii	NA	II	LC	NA	NA
Euphorbia grandialata	NA	II	Rare	NA	NA
Euphorbia inconstantia	NA	II	LC	NA	NA
Euphorbia inermis var. inermis	NA	II	LC	NA	NA
Euphorbia mauritanica var. corallothamnus	NA	II	NA	NA	NA
Euphorbia mauritanica var. mauritanica	NA	II	LC	NA	NA
Euphorbia meloformis subsp. meloformis forma falsa	NA	II	NE	Schedule 4	NA
Euphorbia micracantha	NA	II	LC	NA	NA
Euphorbia obesa subsp. Obesa	NA	II	EN	Schedule 4	NA
Euphorbia ornithopus	NA	II	LC	NA	NA
Euphorbia pentagona	NA	II	LC	NA	NA
Euphorbia polygona	NA	II	LC	NA	NA
Euphorbia pugniformis	NA	II	LC	NA	NA
Euphorbia rectirama	NA	II	LC	NA	NA
Euphorbia rhombifolia	NA	II	LC	NA	NA
Euphorbia serrata	NA	NA	NE	NA	NA
Euphorbia silenifolia	NA	II	LC	NA	NA
Euphorbia stellata	NA	II	LC	NA	NA
Euphorbia tetragona	NA	II	LC	NA	NA
Euphorbia triangularis	NA	II	LC	NA	NA
Fallopia convolvulus	NA	NA	NE	NA	NA
Faucaria felina	NA	NA	LC	Schedule 4	NA
Faucaria felina	NA	NA	LC	NA	NA
Ficinia sp.	NA	NA	Rare	NA	NA
Fockea capensis	NA	NA	LC	Schedule 4	NA
Freesia corymbosa	NA	NA	LC	Schedule 4	NA
Freesia corymbosa	NA	NA	LC	NA	NA
Galinsoga parviflora	NA	NA	NE	NA	NA
Gladiolus huttonii	NA	NA	VU	Schedule 4	NA
Gladiolus huttonii	NA	NA	VU	NA	NA
Gladiolus mortonius	NA	NA	LC	Schedule 4	NA
Gladiolus mortonius	NA	NA	LC	NA	NA
Gladiolus ochroleucus	NA	NA	LC	Schedule 4	NA
Gladiolus ochroleucus	NA	NA	LC	NA	NA
Gladiolus permeabilis subsp. edulis	NA	NA	LC	Schedule 4	NA
Gladiolus permeabilis subsp. edulis	NA	NA	LC	NA	NA
Gladiolus permeabilis subsp. permeabilis	NA	NA	LC	Schedule 4	NA
Gladiolus permeabilis subsp. permeabilis	NA	NA	LC	NA	NA
Gladiolus sp.	NA	NA	NA	Schedule 4	NA
Gladiolus wilsonii	NA	NA	LC	Schedule 4	NA
Gladiolus wilsonii	NA	NA	LC	NA	NA

Glottiphyllum longum	NA	NA	LC	Schedule 4	NA
Glottiphyllum longum	NA	NA	LC	NA	NA
Glottiphyllum sp.	NA	NA	NA	Schedule 4	NA
Gnaphalium declinatum	NA	NA	NT	NA	NA
Gomphocarpus cancellatus	NA	NA	LC	Schedule 4	NA
Gomphocarpus physocarpus	NA	NA	LC	Schedule 4	NA
Gunnera perpensa	NA	NA	Declining	NA	NA
Habenaria arenaria	NA	II	LC	NA	NA
Habenaria arenaria	NA	II	LC	NA	NA
Habenaria dregeana	NA	II	LC	NA	NA
Habenaria dregeana	NA	II	LC	NA	NA
Habenaria falcicornis subsp. falcicornis	NA	II	LC	NA	NA
Habenaria falcicornis subsp. falcicornis	NA	II	LC	NA	NA
Haemanthus albiflos	NA	NA	LC	Schedule 4	NA
Haemanthus coccineus	NA	NA	LC	Schedule 4	NA
Hakea drupacea	NA	NA	NE	NA	NA
Hakea drupacea	NA	NA	NE	NA	NA
Hakea sericea	NA	NA	NE	NA	NA
Hakea sericea	NA	NA	NE	NA	NA
Halleria lucida	NA	NA	LC	Schedule 4	NA
Haworthia altilinea	NA	NA	NE	NA	NA
Haworthia angustifolia var. angustifolia	NA	NA	DDT	NA	NA
Haworthia coarctata var. adelaidensis	NA	NA	DDT	NA	NA
Haworthia cymbiformis var. incurvula	NA	NA	DDT	NA	NA
Helichrysum foetidum var. foetidum	NA	NA	NE	NA	NA
Helichrysum odoratissimum var. odoratissimum	NA	NA	NE	NA	NA
Heliotropium curassavicum	NA	NA	NE	NA	NA
Hesperantha candida	NA	NA	LC	Schedule 4	NA
Hesperantha candida	NA	NA	LC	NA	NA
Hesperantha radiata	NA	NA	LC	Schedule 4	NA
Hesperantha radiata	NA	NA	LC	NA	NA
Holothrix brevipetala	NA	II	LC	NA	NA
Holothrix brevipetala	NA	II	LC	NA	NA
Holothrix burchellii	NA	II	LC	NA	NA
Holothrix burchellii	NA	II	LC	NA	NA
Holothrix cernua	NA	II	LC	NA	NA
Holothrix cernua	NA	II	LC	NA	NA
Holothrix exilis	NA	II	LC	NA	NA
Holothrix exilis	NA	II	LC	NA	NA
Holothrix macowaniana	NA	II	DDD	NA	NA
Holothrix macowaniana	NA	II	DDD	NA	NA
Holothrix parviflora	NA	II	LC	NA	NA
Holothrix parviflora	NA	II	LC	NA	NA
Huernia thuretii var. thuretii	NA	NA	NE	Schedule 4	NA
Hypochaeris glabra	NA	NA	NE	NA	NA
Hypochaeris microcephala var. albiflora	NA	NA	NE	NA	NA

Hypochaeris radicata	NA	NA	NE	NA	NA
Hypoxis hemerocallidea	NA	NA	Declining	NA	NA
Hypoxis villosa var. obliqua	NA	NA	NE	NA	NA
Ilex mitis var. mitis	NA	NA	Declining	NA	NA
Indigofera porrecta var. porrecta	NA	NA	NE	NA	NA
Isoetes wormaldii	CR	NA	CR	NA	NA
Lagurus ovatus	NA	NA	NE	NA	NA
Lampranthus scaber	NA	NA	EN	Schedule 4	NA
Lampranthus scaber	NA	NA	EN	NA	NA
Lampranthus sp.	NA	NA	NA	Schedule 4	NA
Lampranthus spectabilis	NA	NA	LC	Schedule 4	NA
Lampranthus spectabilis	NA	NA	LC	NA	NA
Lavatera trimestris	NA	NA	NE	NA	NA
Leucadendron salignum	NA	NA	LC	NA	NA
Leucadendron spissifolium subsp. phillipsii	NA	NA	LC	NA	NA
Leucospermum cordifolium	NA	NA	NT	NA	NA
Leucospermum cordifolium	NA	NA	NT	NA	NA
Leucospermum cuneiforme	NA	NA	LC	NA	NA
Liparis remota	NA	II	LC	NA	NA
Liparis remota	NA	II	LC	NA	NA
Lolium perenne	NA	NA	NE	NA	NA
Lotononis alpina subsp. multiflora	NA	NA	DDT	NA	NA
Loxostylis alata	NA	NA	Declining	NA	NA
Malva parviflora var. parviflora	NA	NA	NE	NA	NA
Mantisalca salmantica	NA	NA	NE	NA	NA
Medicago laciniata var. laciniata	NA	NA	NE	NA	NA
Melia azedarach	NA	NA	NE	NA	NA
Melilotus indicus	NA	NA	NE	NA	NA
Mesembryanthemum aitonis	NA	NA	LC	Schedule 4	NA
Mesembryanthemum aitonis	NA	NA	LC	NA	NA
Mesembryanthemum splendens subsp. splendens	NA	NA	NA	Schedule 4	NA
Mestoklema albanicum	NA	NA	NT	Schedule 4	NA
Mestoklema albanicum	NA	NA	NT	Schedule 4	NA
Mestoklema albanicum	NA	NA	NT	NA	NA
Mestoklema tuberosum	NA	NA	LC	Schedule 4	NA
Mestoklema tuberosum	NA	NA	LC	NA	NA
Metalasia pulcherrima forma pulcherrima	NA	NA	NT	NA	NA
Moraea britteniae	NA	NA	LC	Schedule 4	NA
Moraea britteniae	NA	NA	LC	NA	NA
Moraea elliotii	NA	NA	LC	Schedule 4	NA
Moraea elliotii	NA	NA	LC	NA	NA
Moraea pallida	NA	NA	LC	Schedule 4	NA
Moraea pallida	NA	NA	LC	NA	NA
Moraea polystachya	NA	NA	LC	Schedule 4	NA
Moraea polystachya	NA	NA	LC	NA	NA
Moraea spathulata	NA	NA	LC	Schedule 4	NA

Moraea spathulata	NA	NA	LC	NA	NA
Moraea tricuspidata	NA	NA	LC	Schedule 4	NA
Moraea tricuspidata	NA	NA	LC	NA	NA
Myriophyllum aquaticum	NA	NA	NE	NA	NA
Mystacidium capense	NA	II	LC	NA	NA
Mystacidium capense	NA	II	LC	NA	NA
Nerine filifolia	NA	NA	NA	Schedule 4	NA
Ocotea bullata	NA	NA	EN	NA	Protected Tree Species List
Oenothera biennis	NA	NA	NE	NA	NA
Oenothera grandiflora	NA	NA	NE	NA	NA
Oenothera indecora	NA	NA	NE	NA	NA
Oenothera parodiana subsp. parodiana	NA	NA	NE	NA	NA
Oenothera stricta subsp. stricta	NA	NA	NE	NA	NA
Oldenburgia grandis	LR/nt	NA	LC	NA	NA
Oldenburgia grandis	NA	NA	LC	NA	NA
Opuntia aurantiaca	NA	NA	NE	NA	NA
Opuntia ficus-indica	NA	NA	NE	NA	NA
Opuntia stricta	NA	NA	NE	NA	NA
Orbea verrucosa	NA	NA	LC	Schedule 4	NA
Ornithogalum fimbrimarginatum	NA	NA	NE	NA	NA
Ornithogalum tenuifolium subsp. tenuifolium	NA	NA	NE	NA	NA
Otholobium prodiens	NA	NA	NE	NA	NA
Oxalis corniculata	NA	NA	NE	NA	NA
Pachycarpus grandiflorus subsp. grandiflorus	NA	NA	LC	Schedule 4	NA
Pachypodium bispinosum	NA	II	LC	Schedule 4	NA
Pachypodium succulentum	NA	II	LC	Schedule 4	NA
Paraserianthes lophantha subsp. lophantha	NA	NA	NE	NA	NA
Paspalum dilatatum	NA	NA	NE	NA	NA
Passiflora coerulea	NA	NA	NE	NA	NA
Pelargonium reniforme subsp. reniforme	NA	NA	NE	NA	NA
Pelargonium reniforme subsp. velutinum	NA	NA	NE	NA	NA
Pennisetum clandestinum	NA	NA	NE	NA	NA
Pennisetum setaceum	NA	NA	NE	NA	NA
Phyllobolus splendens subsp. splendens	NA	NA	LC	Schedule 4	NA
Phyllobolus splendens subsp. splendens	NA	NA	LC	NA	NA
Phytolacca dioica	NA	NA	NE	NA	NA
Piaranthus geminatus var. foetidus	NA	NA	LC	Schedule 4	NA
Picris echioides	NA	NA	NE	NA	NA
Poa annua	NA	NA	NE	NA	NA
Podalyria velutina	NA	NA	NT	NA	NA
Podocarpus falcatus	NA	NA	LC	NA	Protected Tree Species List
Podocarpus latifolius	LR/Ic	NA	LC	NA	Protected Tree Species

					List
Polygonum aviculare	NA	NA	NE	NA	NA
Polypogon monspeliensis	NA	NA	NE	NA	NA
Polystachya ottoniana	NA	II	LC	NA	NA
Polystachya ottoniana	NA	II	LC	NA	NA
Prionium serratum	NA	NA	Declining	NA	NA
Protea aurea subsp. aurea	NA	NA	LC	NA	NA
Protea cynaroides	NA	NA	LC	NA	NA
Protea eximia	NA	NA	LC	NA	NA
Protea foliosa	NA	NA	LC	NA	NA
Protea laurifolia	NA	NA	LC	NA	NA
Protea neriifolia	NA	NA	LC	NA	NA
Protea repens	NA	NA	LC	NA	NA
Psilocaulon articulatum	NA	NA	LC	Schedule 4	NA
Psilocaulon articulatum	NA	NA	LC	NA	NA
Psoralea oreophila	NA	NA	Rare	NA	NA
Psoralea repens	NA	NA	NT	NA	NA
Rapanea melanophloeos	NA	NA	Declining	NA	NA
Raphionacme hirsuta	NA	NA	LC	Schedule 4	NA
Raphionacme zeyheri	NA	NA	LC	Schedule 4	NA
Rhoicissus tridentata subsp. cuneifolia	NA	NA	NE	NA	NA
Rhoicissus tridentata subsp. tridentata	NA	NA	NE	NA	NA
Richardia brasiliensis	NA	NA	NE	NA	NA
Richardia humistrata	NA	NA	NE	NA	NA
Ricinus communis var. communis	NA	NA	NE	NA	NA
Romulea autumnalis	NA	NA	LC	Schedule 4	NA
Romulea autumnalis	NA	NA	LC	NA	NA
Romulea longipes	NA	NA	LC	Schedule 4	NA
Romulea longipes	NA	NA	LC	NA	NA
Rumex brownii	NA	NA	NE	NA	NA
Rumex crispus	NA	NA	NE	NA	NA
Ruschia hamata	NA	NA	LC	Schedule 4	NA
Ruschia hamata	NA	NA	LC	NA	NA
Ruschia lineolata	NA	NA	LC	Schedule 4	NA
Ruschia lineolata	NA	NA	LC	NA	NA
Ruschia parviflora	NA	NA	DDT	Schedule 4	NA
Ruschia parviflora	NA	NA	DDT	NA	NA
Ruschia parvifolia	NA	NA	DDT	Schedule 4	NA
Ruschia sp.	NA	NA	NA	Schedule 4	NA
Ruschia staminodiosa	NA	NA	LC	Schedule 4	NA
Ruschia staminodiosa	NA	NA	LC	NA	NA
Ruschia vulvaria	NA	NA	NA	Schedule 4	NA
Salsola kali	NA	NA	NE	NA	NA
Sarcostemma viminale subsp. viminale	NA	NA	NA	Schedule 4	NA
Satyrium acuminatum	NA	II	LC	NA	NA
Satyrium acuminatum	NA	II	LC	NA	NA

Satyrium ligulatum	NA	II	LC	NA	NA
Satyrium ligulatum	NA	II	LC	NA	NA
Satyrium longicauda var. longicauda	NA	II	LC	NA	NA
Satyrium longicauda var. longicauda	NA	II	LC	NA	NA
Satyrium membranaceum	NA	II	LC	NA	NA
Satyrium membranaceum	NA	II	LC	NA	NA
Satyrium parviflorum	NA	II	LC	NA	NA
Satyrium parviflorum	NA	II	LC	NA	NA
Satyrium sphaerocarpum	NA	II	LC	NA	NA
Satyrium sphaerocarpum	NA	II	LC	NA	NA
Schkuhria pinnata	NA	NA	NE	NA	NA
Schoenoplectus tabernaemontani	NA	NA	NE	NA	NA
Schotia latifolia Jacq. x S. afra (L.) Thunb. form A	NA	NA	NE	NA	NA
Searsia albomarginata	NA	NA	CR	NA	NA
Searsia lucida forma lucida	NA	NA	NE	NA	NA
Secamone alpini	NA	NA	LC	Schedule 4	NA
Selago burchellii	NA	NA	VU	NA	NA
Senecio glutinarius	NA	NA	DDT	NA	NA
Senna septemtrionalis	NA	NA	NE	NA	NA
Sesbania punicea	NA	NA	NE	NA	NA
Sideroxylon inerme subsp. inerme	NA	NA	LC	NA	Protected Tree Species List
Silene burchellii var. angustifolia	NA	NA	NE	NA	NA
Silene gallica	NA	NA	NE	NA	NA
Silybum marianum	NA	NA	NE	NA	NA
Sisyranthus imberbis	NA	NA	LC	Schedule 4	NA
Solanum mauritianum	NA	NA	NE	NA	NA
Solanum nigrum	NA	NA	NE	NA	NA
Solanum rigescens	NA	NA	NE	NA	NA
Solanum sisymbriifolium	NA	NA	NE	NA	NA
Sonchus asper subsp. asper	NA	NA	NE	NA	NA
Sonchus oleraceus	NA	NA	NE	NA	NA
Sphalmanthus sp.	NA	NA	NA	Schedule 4	NA
Stapelia grandiflora var. conformis	NA	NA	LC	Schedule 4	NA
Stapelia grandiflora var. grandiflora	NA	NA	LC	Schedule 4	NA
Stapelia hirsuta var. baylissii	NA	NA	LC	Schedule 4	NA
Stellaria media	NA	NA	NE	NA	NA
Streptocarpus meyeri	NA	NA	LC	Schedule 4	NA
Streptocarpus rexii	NA	NA	LC	Schedule 4	NA
Tagetes minuta	NA	NA	NE	NA	NA
Taraxacum officinale	NA	NA	NE	NA	NA
Trichodiadema orientale	NA	NA	DDT	Schedule 4	NA
Tritonia gladiolaris	NA	NA	LC	Schedule 4	NA
Tritonia gladiolaris	NA	NA	LC	NA	NA
Tritonia laxifolia	NA	NA	LC	Schedule 4	NA

Tritonia laxifolia	NA	NA	LC	NA	NA
Tritonia lineata var. lineata	NA	NA	NA	Schedule 4	NA
Tritonia strictifolia	NA	NA	LC	Schedule 4	NA
Tritonia strictifolia	NA	NA	LC	NA	NA
Tritoniopsis caffra	NA	NA	LC	Schedule 4	NA
Tritoniopsis caffra	NA	NA	LC	NA	NA
Urtica urens	NA	NA	NE	NA	NA
Verbena aristigera	NA	NA	NE	NA	NA
Verbena bonariensis	NA	NA	NE	NA	NA
Verbesina encelioides var. encelioides	NA	NA	NE	NA	NA
Vicia hirsuta	NA	NA	NE	NA	NA
Vulpia bromoides	NA	NA	NE	NA	NA
Vulpia myuros	NA	NA	NE	NA	NA
Watsonia knysnana	NA	NA	LC	Schedule 4	NA
Watsonia knysnana	NA	NA	LC	NA	NA
Widdringtonia nodiflora	NA	NA	LC	NA	Protected Tree Species List
Xanthium spinosum	NA	NA	NE	NA	NA
Xysmalobium involucratum	NA	NA	LC	Schedule 4	NA