

KLEINZEE SOLAR PV FACILITY ANIMAL SPECIES COMPLIANCE STATEMENT



savannah
environmental

PRODUCED FOR SAVANNAH ENVIRONMENTAL

ON BEHALF OF ENERGY TEAM (PTY) LTD



Simon.Todd@3foxes.co.za

February 2023

KLEINZEE SOLAR PV FACILITY

ANIMAL SPECIES COMPLIANCE STATEMENT

EXECUTIVE SUMMARY

Energy Team (Pty) Ltd is proposing the development of a solar photovoltaic (PV) facility with a contracted capacity of up to 200 MW on a site located approximately 20km west of the town of Komaggas, and 24km southeast of Kleinzee. The solar PV development will be known as the Kleinzee Solar PV Facility and would be located within Focus Area 8 of the Renewable Energy Development Zones (REDZ), which is known as the Springbok REDZ, and within the Northern Corridor of the Strategic Transmission Corridors. Savannah Environmental are conducting the required Basic Assessment process and 3Foxes Biodiversity Solutions has been appointed on behalf of Energy Team (Pty) Ltd to provide an Animal Species Compliance Statement for the development.

The DFFE Screening Tool identified the site as having medium sensitivity due to the possible presence of Sensitive Species 32 and *Brinckiella mauerbergerorum*. The desktop study indicates that several other fauna SCC are known from the broad area and would potentially be present within the affected area. The Kleinzee Solar PV footprint lies entirely within the Namaqualand Strandveld vegetation type, with few notable features present. The habitat within the footprint is typical for the area and consists of low succulent-dominated shrubland on gently undulating plains with occasional low dunes and harder flats. The field sampling and desktop analysis indicates that none of the fauna SCC listed by the Screening Tool or that potentially occur in the area are likely to be present within the affected area on account of a lack of suitable habitat. The affected area is therefore considered to be low sensitivity from an Animal Species Theme perspective.

This Animal Species Theme Compliance Statement therefore finds that the footprint of the Kleinzee Solar PV Facility is restricted to low sensitivity areas with no observed terrestrial animal species of conservation concern present, and as such, there are no reasons to oppose the Kleinzee Solar PV Facility.



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

DETAILS OF THE SPECIALIST, DECLARATION OF INTEREST AND UNDERTAKING UNDER OATH

	(For official use only)
File Reference Number:	
NEAS Reference Number:	DEA/EIA/
Date Received:	

Application for authorisation in terms of the National Environmental Management Act, Act No. 107 of 1998, as amended and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended (the Regulations)

PROJECT TITLE

Kleinzee Solar PV Project

Kindly note the following:

1. This form must always be used for applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting where this Department is the Competent Authority.
2. This form is current as of 01 September 2018. It is the responsibility of the Applicant / Environmental Assessment Practitioner (EAP) to ascertain whether subsequent versions of the form have been published or produced by the Competent Authority. The latest available Departmental templates are available at <https://www.environment.gov.za/documents/forms>.
3. A copy of this form containing original signatures must be appended to all Draft and Final Reports submitted to the department for consideration.
4. All documentation delivered to the physical address contained in this form must be delivered during the official Departmental Officer Hours which is visible on the Departmental gate.
5. All EIA related documents (includes application forms, reports or any EIA related submissions) that are faxed; emailed; delivered to Security or placed in the Departmental Tender Box will not be accepted, only hardcopy submissions are accepted.

Departmental Details

Postal address:

Department of Environmental Affairs
Attention: Chief Director: Integrated Environmental Authorisations
Private Bag X447
Pretoria
0001

Physical address:

Department of Environmental Affairs
Attention: Chief Director: Integrated Environmental Authorisations
Environment House
473 Steve Biko Road
Arcadia

Queries must be directed to the Directorate: Coordination, Strategic Planning and Support at:
Email: EIAAdmin@environment.gov.za

Energy Team (PTY) LTD

Kleinzee Solar PV Facility Animal Species Compliance Statement
Revision No. 1

Prepared by: 3Foxes Biodiversity Solutions

Date: February 2023

Page ii

1. SPECIALIST INFORMATION

Specialist Company Name:	3Foxes Biodiversity Solutions			
B-BBEE	Contribution level (indicate 1 to 8 or non-compliant)	4	Percentage Procurement recognition	100%
Specialist name:	Simon Todd			
Specialist Qualifications:	BSc. (Zool. & Bot.), BSc Hons (Zool.), MSc (Cons. Biol.)			
Professional affiliation/registration:	SACNASP 400425/11			
Physical address:	23 De Villiers Road, Kommetjie 7975			
Postal address:	23 De Villiers Road, Kommetjie			
Postal code:	7975	Cell:	082 3326502	
Telephone:		Fax:		
E-mail:	Simon.Todd@3foxes.co.za			

2. DECLARATION BY THE SPECIALIST

I, Simon Todd, declare that –

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- all the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.



Signature of the Specialist

3Foxes Biodiversity Solutions

Name of Company:

12 February 2022

Date:

3. UNDERTAKING UNDER OATH/ AFFIRMATION

I, Simon Todd, swear under oath / affirm that all the information submitted or to be submitted for the purposes of this application is true and correct.



Signature of the Specialist

3Foxes Biodiversity Solutions

Name of Company

12 February 2022

Date

Signature of the Commissioner of Oaths

Date

SHORT CV/SUMMARY OF EXPERTISE – SIMON TODD

 <p>3Foxes Biodiversity Solutions ECOLOGICAL SPECIALIST SERVICES Assessment/Management/Research</p>	<p>Simon Todd Pr.Sci.Nat Director & Principle Scientist C: 082 3326502 Simon.Todd@3foxes.co.za</p> <p>23 De Villiers Road Kommetjie 7975</p>	<p>Ecological Solutions for People & the Environment</p>
--	--	--

Simon Todd is Director and principal scientist at 3Foxes Biodiversity Solutions and has over 20 years of experience in biodiversity measurement, management and assessment. He has provided specialist ecological input on more than 200 different developments distributed widely across the country, but with a focus on the three Cape provinces. This includes input on the Wind and Solar SEA (REDZ) as well as the Eskom Grid Infrastructure (EGI) SEA and Karoo Shale Gas SEA. He is on the National Vegetation Map Committee as representative of the Nama and Succulent Karoo Biomes. Simon Todd is a recognised ecological expert and is a past chairman and current deputy chair of the Arid-Zone Ecology Forum. He is registered with the South African Council for Natural Scientific Professions (No. 400425/11).

Skills & Primary Competencies

- Research & description of ecological patterns & processes in Nama Karoo, Succulent Karoo, Thicket, Arid Grassland, Fynbos and Savannah Ecosystems.
- Ecological Impacts of land use on biodiversity
- Vegetation surveys & degradation assessment & mapping
- Long-term vegetation monitoring
- Faunal surveys & assessment.
- GIS & remote sensing

Tertiary Education:

- 1992-1994 – BSc (Botany & Zoology), University of Cape Town
- 1995 – BSc Hons, Cum Laude (Zoology) University of Natal
- 1996-1997- MSc, Cum Laude (Conservation Biology) University of Cape Town

Employment History

- 2009 – Present – Sole Proprietor of Simon Todd Consulting, providing specialist ecological services for development and research.

- 2007 Present – Senior Scientist (Associate) – Plant Conservation Unit, Department of Botany, University of Cape Town.
- 2004-2007 – Senior Scientist (Contract) – Plant Conservation Unit, Department of Botany, University of Cape Town
- 2000-2004 – Specialist Scientist (Contract) - South African National Biodiversity Institute
- 1997 – 1999 – Research Scientist (Contract) – South African National Biodiversity Institute

A selection of recent work is as follows:

Strategic Environmental Assessments

Co-Author. Chapter 7 - Biodiversity & Ecosystems - Shale Gas SEA. CSIR 2016.

Co-Author. Chapter 1 Scenarios and Activities – Shale Gas SEA. CSIR 2016.

Co-Author – Ecological Chapter – Wind and Solar SEA. CSIR 2014.

Co-Author – Ecological Chapter – Eskom Grid Infrastructure SEA. CSIR 2015.

Contributor – Ecological & Conservation components to SKA SEA. CSIR 2017.

Relevant Studies Related to the Current Project Area

- Zonnequa WEF. Fauna & Flora Assessment. Savannah Environmental 2018.
- Komas WEF. Fauna & Flora Assessment. Savannah Environmental 2018
- Kap Vley Wind Energy Facility near Kleinzee. Fauna and Flora Assessment. CSIR, 2018.
- Gromis WEF. Fauna and Flora Assessment. CSIR, 2020
- Komas WEF. Fauna and Flora Assessment. CSIR, 2020
- Eskom Kleinzee 300MW WEF. Fauna Assessment. Savannah Environmental, 2012.
- Project Blue Wind and Solar Energy Facility, Near Kleinzee. Fauna and Flora Assessment. Savannah Environmental, 2012.
- G7 Richtersveld Wind Farm. Fauna and Flora Assessment. ERM, 2011.

Kleinzee (Pty) Ltd
KLEINZEE SOLAR PV FACILITY
Animal Species Compliance Statement

Contents

EXECUTIVE SUMMARY	I
1. SPECIALIST INFORMATION.....	III
2. DECLARATION BY THE SPECIALIST	III
3. UNDERTAKING UNDER OATH/ AFFIRMATION	IV
SHORT CV/SUMMARY OF EXPERTISE – SIMON TODD	V
1. INTRODUCTION	1
1.1 Scope and Objectives	1
1.2 DFFE Screening Tool - Animal Species Theme Results	2
2. RELEVANT ASPECTS OF THE DEVELOPMENT	3
3. ASSESSMENT METHODOLOGY	4
3.1 Site Visit.....	4
3.2 Data Sourcing and Review.....	5
4. ASSUMPTIONS AND LIMITATIONS	6
5. LEGAL REQUIREMENT AND GUIDELINES	6
5.1 National Permitting.....	6
5.2 Provincial Permitting	6
6. DESCRIPTION OF THE RECEIVING ENVIRONMENT	7
7. PROPOSED MITIGATION ACTIONS.....	8
7.1 Cumulative Impacts	9
8. COMPARATIVE ASSESSMENT OF ALTERNATIVES	9
8.1 No-Go Alternative	9

9. CONCLUSIONS 9
9.1 Impact Statement..... 10

10. REFERENCES 0

ANNEX 1. LIST OF MAMMALS 1

ANNEX 2. LIST OF REPTILES 3

ANNEX 3. LIST OF AMPHIBIANS 5

List of Figures

Figure 1. Animal Species Theme Sensitivity Map for the Kleinzee PV Facility site and surrounds.	3
Figure 2. Satellite image showing the layout of the proposed Kleinzee PV Facility and grid connection.	4
Figure 3. . Figure showing the search track (red line) that was walked across the Kleinzee Solar PV Facility footprint area.	5
Figure 4. Typical vegetation on gently undulating sandy plains which dominate the Kleinzee Solar PV Facility, representative of the Namaqualand Strandveld vegetation type.	8

KLEINZEE SOLAR PV PROJECT

Animal Species Compliance Statement

1. INTRODUCTION

Energy Team (Pty) Ltd is proposing the development of a solar photovoltaic (PV) facility with a contracted capacity of up to 200 MW on a site located approximately 20km west of the town of Komaggas, and 24km southeast of Kleinzee. The solar PV development will be known as the Kleinzee Solar PV Facility and would be located within Focus Area 8 of the Renewable Energy Development Zones (REDZ), which is known as the Springbok REDZ, and within the Northern Corridor of the Strategic Transmission Corridors. Savannah Environmental are conducting the required Basic Assessment process and 3Foxes Biodiversity Solutions has been appointed on behalf of Energy Team (Pty) Ltd to provide an Animal Species Compliance Statement for the development.

As part of the required studies for the required BA application for environmental authorization, 3Foxes Biodiversity Solutions has been appointed to provide terrestrial ecological input for the development application. The DFFE Screening Tool indicates that the site has medium sensitivity due to the potential presence of the Sensitive Species 32 and *Brinckiella mauerbergerorum*. within the project site (Please see relevant Site Verification Report). However, the site verification indicates that there is no suitable habitat for either species within the PV development footprint indicating that the site can be considered low sensitivity in terms of this species. The desktop study also indicates that while there are several other fauna SCC known from the area, it is unlikely that any of these fauna of concern are present within the affected area. Consequently, an Animal Species Compliance Statement is the recommended level of study for the BA process. To these ends, this Animal Species Compliance Statement for the Kleinzee Solar PV Project, addresses the potential impacts of the project on fauna species and their associated habitats and must be included in the BA for the development and any mitigation and monitoring measures as identified, must be incorporated into the EMPr for the development.

1.1 Scope and Objectives

In terms of the GN 1150 30 October 2020, Procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(A) and (h) and 44 of the National Environmental Management Act, 1998, when applying for environmental authorization, the Terrestrial Animal Species Compliance Statement should include the following details:

- An applicant intending to undertake an activity identified in the scope of this protocol on a site identified by the screening tool as being of “medium sensitivity” for terrestrial animal species must submit either a Terrestrial Animal Species Specialist Assessment Report or a Terrestrial Animal Species Compliance Statement, depending on the outcome of a site inspection undertaken in accordance with paragraph 4.
- The compliance statement must be prepared by a SACNASP registered specialist under one of the two fields of practice (Zoological Science or Ecological Science).
- The compliance statement must:
 - be applicable within the study area;
 - confirm that the study area is of “low” sensitivity for terrestrial plant species; and
 - indicate whether or not the proposed development will have any impact on SCC.

- The compliance statement must contain, as a minimum, the following information:
 - contact details and relevant experience as well as the SACNASP registration number of the specialist preparing the compliance statement including a curriculum vitae;
 - a signed statement of independence by the specialist;
 - a statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;
 - a description of the methodology used to undertake the site survey and prepare the compliance statement, including equipment and modelling used where relevant;
 - where required, proposed impact management actions and outcomes or any monitoring requirements for inclusion in the EMPr;
 - a description of the assumptions made and any uncertainties or gaps in knowledge or data;
 - the mean density of observations/ number of samples sites per unit area; and
 - any conditions to which the compliance statement is subjected.
- A signed copy of the Terrestrial Animal Species Compliance Statement must be appended to the Basic Assessment Report or the Environmental Impact Assessment Report.

1.2 DFFE Screening Tool - Animal Species Theme Results

The DFFE Screening Tool identified the entire site as having a medium animal sensitivity theme due to the potential presence of the Black Harrier, which is not dealt with here as well as Sensitive Species 32 and the orthopteran *Brinckiella mauerbergerorum*. Refer to Table 1 and Figure 1 below for the Animal Theme results.

In terms of the site verification, the presence of the Sensitive Species 32 can definitively be excluded from the site as this species shows a particular preference for rocky terrain, which is not present within or near the site. As such, this species is considered absent from the site and its surrounds and the site is considered low sensitivity for this species. In terms of the Sandveld Winter Katydid *Brinckiella mauerbergerorum*, the presence or absence of this species on the site is less definitive, but based on the amount of time spent on site and in the area which amounts to several weeks across different seasons and years and the failure to detect this species on the site, it is concluded that this species is absent from the site. As such, the site is considered low sensitivity for this species. Since no other fauna of concern were observed on the site, the Kleinzee Solar PV Facility site is considered low sensitivity for fauna generally and in terms of the regulations, a faunal compliance statement would be the appropriate level of study for the Basic Assessment.

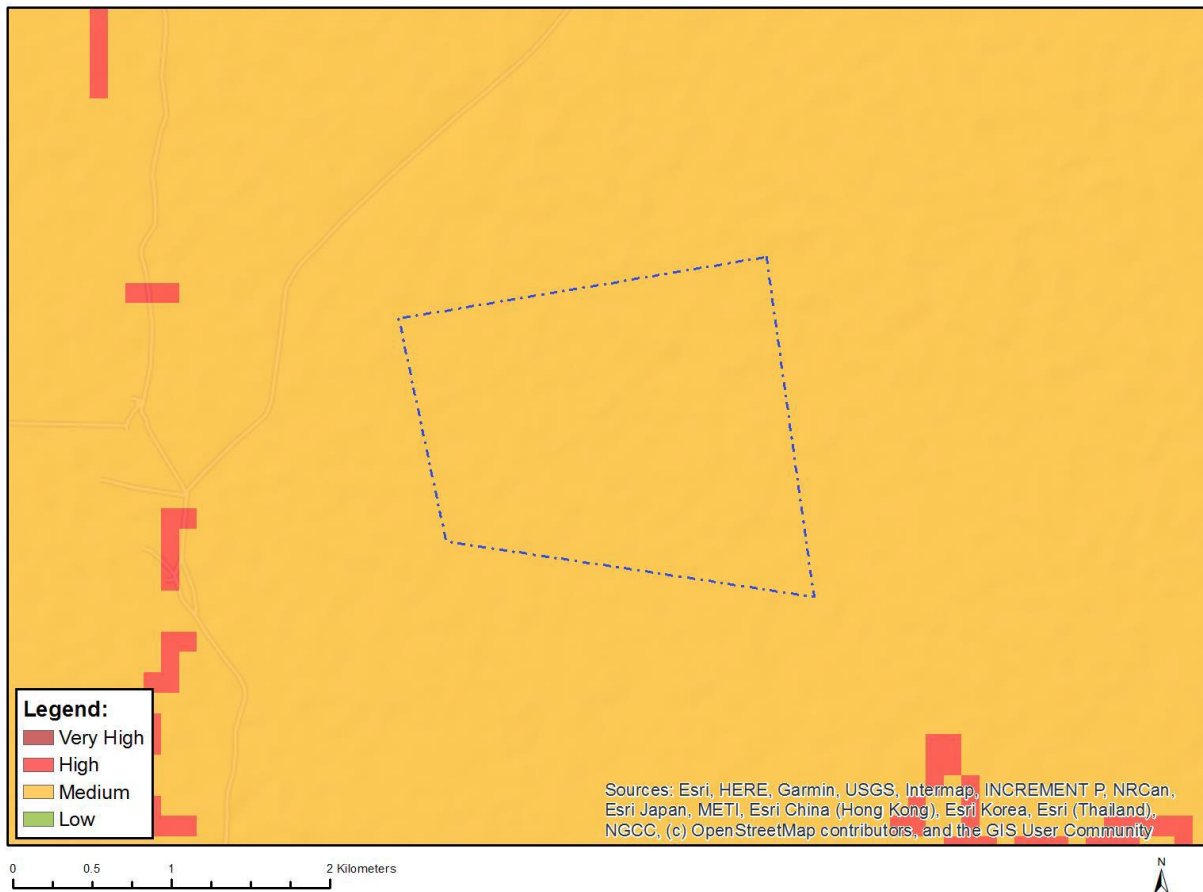


Figure 1. Animal Species Theme Sensitivity Map for the Kleinzee PV Facility site and surrounds.

Table 1. Animal Species Theme Features for the Kleinzee PV Facility site.

Sensitivity	Feature(s)
Medium	<i>Aves-Circus maurus</i>
Medium	Sensitive species 32
Medium	<i>Invertebrate-Brinckiella mauerbergerorum</i>

2. RELEVANT ASPECTS OF THE DEVELOPMENT

The Kleinzee Solar PV Facility site is located Brickell approximately 20km west of the town of Komaggas, and 24km southeast of Kleinzee, within the Nama Khoi Local Municipality and the Namakwa District Municipality, Northern Cape. The infrastructure associated with the 200 MW solar PV facility will include:

- Solar PV array comprising PV modules and mounting structures
- Inverters and transformers
- Low voltage cabling between the PV modules to the inverters
- 33kV cabling between the project components and the facility substation

- 132kV onsite facility substation
- 132kV power line to connect to the grid at Zonnequa Collector Substation within a 300m wide and approximately 8.2 km long corridor.
- Battery Energy Storage System (BESS)
- Site offices and maintenance buildings, including workshop areas for maintenance and storage
- Laydown areas
- Site access and internal roads.

The layout of the Kleinzee PV Project is illustrated in Figure 2 below.

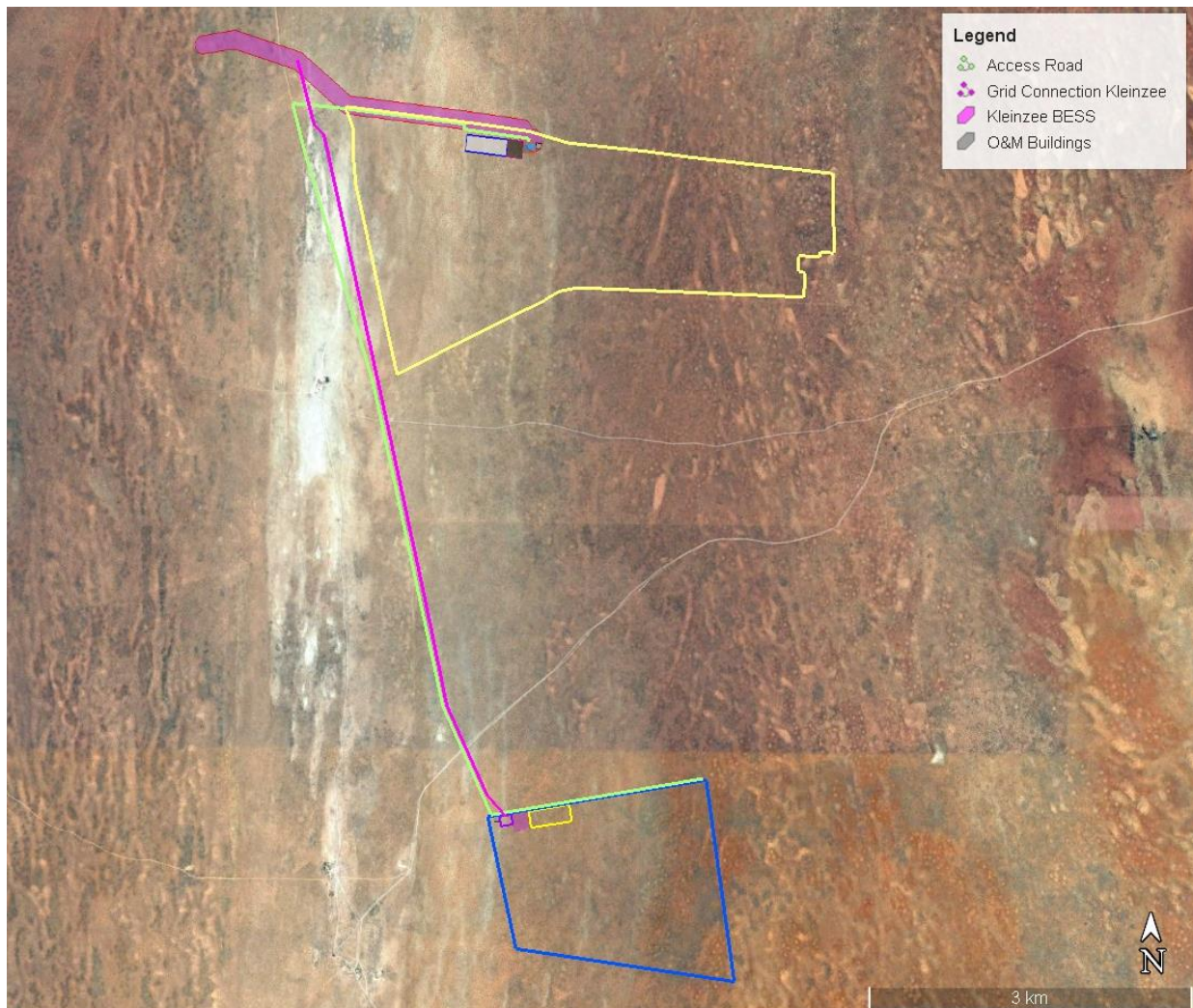


Figure 2. Satellite image showing the layout of the proposed Kleinzee PV Facility (in blue) and associated grid connection.

3. ASSESSMENT METHODOLOGY

3.1 Site Visit

The site was sampled twice for the current assessment. An initial field assessment took place on the 19th of November 2021 and then a follow-up more extensive field assessment took place from 21-23 September

2022. The initial field assessment was after the typical wet season and the conditions were relatively dry. During the second field assessment, conditions were considered near-optimal for the field assessment with the vegetation in a green and growing and a high level of faunal activity. In terms of actual sampling, transects were walked across the PV footprint area, amounting to a sampling track within the development footprint of 14 km (**Figure 3**).

In addition to the above sampling, the site has been sampled numerous times in the past from 2017 till the present for the Zonnequa Wind Farm development which is on the same property as the current development and includes the site within its area. Sampling for that development included camera trapping across the site as well as extensive vegetation surveys to characterise the vegetation of the site and wider area.

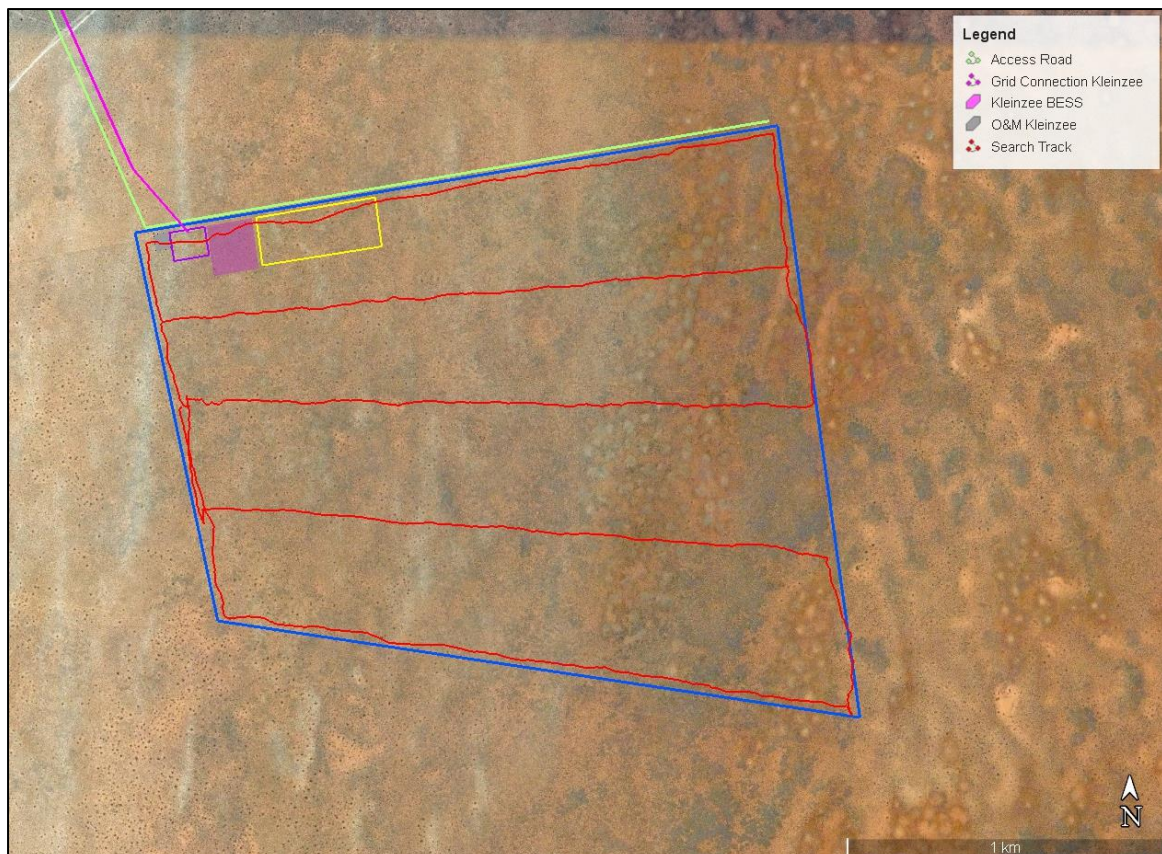


Figure 3. . Figure showing the search track (red line) that was walked across the Kleinzee Solar PV Facility footprint area.

3.2 Data Sourcing and Review

Data sources from the literature consulted and used where necessary in the study includes the following:

- The following web-based sources were searched for faunal records from the broad area:
- Virtual Museum ReptileMap, MammalMap and FrogMap databases https://vmus.adu.org.za/vm_projects.php
- iNaturalist citizen science site <https://www.inaturalist.org/>
- Lists of mammals, reptiles and amphibians which are likely to occur at the site were derived based on distribution records from the literature and the ADU databases (ReptileMap, Frogmap and MammalMap) <http://vmus.adu.org.za>.

- Literature consulted includes Branch (1988) and Alexander and Marais (2007) for reptiles, Du Preez and Carruthers (2009) for amphibians, EWT & SANBI (2016) and Skinner and Chimimba (2005) for mammals.
- The faunal species considered likely to occur at the site are based on species which are known to occur in the broad geographical area, as well as an assessment of the availability and quality of suitable habitat at the site.
- The conservation status of mammals is based on the IUCN Red List Categories (EWT/SANBI 2016), while reptiles are based on the South African Reptile Conservation Assessment (Bates et al. 2013) and amphibians on Minter et al. (2004) as well as the IUCN (2022).

4. ASSUMPTIONS AND LIMITATIONS

A number of limitations and assumptions are inherent in faunal studies generally and with the assessment of rare fauna. These include the following:

- It is not possible to confirm the absence of a species with 100% certainty. A species may be absent from an area during sampling but may move through the area occasionally or seasonally. This effect is however to a large degree mitigated through the use of the camera traps at the site which provide an effective characterisation of the medium sized and larger fauna of the site.
- Some species are rare or difficult to locate and it may be very difficult to confirm either the absence or presence of such species without long-term studies.
- The presence of such species are assessed in the current study based on observations of such species from the wider area in the various publicly available databases and citizen science websites (Virtual Museum & iNaturalist), as well as the habitat suitability, quality and condition as observed in the field.

5. LEGAL REQUIREMENT AND GUIDELINES

5.1 National Permitting

Threatened Or Protected Species (TOPS) permits for the carrying out of restricted activities in terms of the National Environmental Management: Biodiversity Act 2004 (No. 10 of 2004) may be required. However, TOPS permits are submitted to either the national minister or the provincial minister. In terms of the legislation, the relevant issuing authority for the current project would be the office of the MEC of the province

The most recent lists of TOPS species and associated legislation is available in the National Environmental Management: Biodiversity Act, 2004 (ACT NO. 10 of 2004), Threatened or Protected Species Regulations Notice 255 of 2015. Any endangered (VU, EN, CR) species under this list are also subject to the TOPS regulations. However, practically, there should not be a need to interfere with TOPS regulated species for the current project.

5.2 Provincial Permitting

The Northern Cape Nature Conservation Act, 2009 provides lists of protected fauna that should not be harmed without a permit. Usually, important faunal features within the development footprint can be avoided. However, sometimes it is not possible to avoid burrows of protected species and it is necessary to trap and translocate the affected species. In such cases, a permit is also required from DENC for the capture and

translocation of such protected species. Captured individuals of species should not be relocated to other areas, but released on the same property as they were captured.

6. DESCRIPTION OF THE RECEIVING ENVIRONMENT

The Kleinzee PV area falls entirely within the Namaqualand Strandveld vegetation type. Within the PV development area, the vegetation consists of a mix of woody and succulent shrubs species with a ground layer of annuals, forbs and geophytes that is conspicuous in the wet season. There are few notable features within the development footprint and the site is considered relatively homogenous.

In terms of the fauna that are known from the wider area and potentially occur at the site, the potential diversity is considered to be moderate and numbers approximately 40 mammals, 45 reptiles and about seven frogs and toads (See Appendix 1-3). Mammals observed directly or through camera trapping include Steenbok, Cape Hare, Cape Fox, Bat-eared fox, Striped Polecat, Suricate, Cape Porcupine, Common Duiker, Honey Badger, Small Spotted Genet, Grey Mongoose, Caracal, Yellow Mongoose and African Wild Cat. Reptiles and amphibians observed on the site or in the immediate environment include Angulate Tortoise, Giant Desert Lizard, Common Giant Ground Gecko, Knox's Desert Lizard, Common Sand Lizard, Cape Skink, Coastal Dwarf Legless Skink, Namaqua Sand Lizard, Pink Blind Legless Skink, Dwarf Beaked Snake and Many-horned Adder and Namaqua Rain Frog.

In terms of the two terrestrial fauna species identified by the Screening Tool, Sensitive Species 32 can be confirmed not present with a high degree of confidence as this reptile species has a strong association and preference for rocky terrain, which is not present within or near the site. As such, this species is considered absent from the site and its surrounds and the site is considered low sensitivity for this species. In terms of the Strandveld Winter Katydid *Brinckiella mauerbergerorum*, the presence or absence of this species on the site is less definitive, but based on the amount of time spent on site and in the area which amounts to several weeks across different seasons and years and the failure to detect this species on the site, it is concluded that this species is absent from the site. As such, the site is considered low sensitivity for this species.

Apart from the species identified by the Screening Tool, four red-listed mammal SCC are known from the wider area. This includes the Leopard *Panthera pardus* (Vulnerable), Litledale's Whistling Rat *Parotomys littedalei* (Near Threatened), African Clawless Otter *Aonyx capensis* (Near Threatened) and Grants' Golden Mole *Eremitalpa granti grant* (Vulnerable). The Leopard and Otter can be definitively considered absent from the site as these species are associated with rugged terrain and the coastline/freshwater ecosystems respectively and would not occur within the site. The distinctive burrows made by Litledale's Whistling Rat were not observed within the site and the substrate is considered generally too soft for this species. Grants' Golden Mole is usually restricted to within 10km of the coastline and as the site is more than 16km from the coast, it is unlikely that this species is present. Furthermore, Grants' Golden Mole prefers the soft unconsolidated sands that occur closer to the coast and the habitat within the site is considered unsuitable for this species. As such, none of the mammal SCC that occur in the area are likely to be present within the site. The Desert Rain Frog *Breviceps macrops* occurs in Strandveld vegetation up to 10 km from the coastline and is listed as Vulnerable. As with Grants' Golden Mole, the site is considered too far from the coastline for this species and it is considered highly unlikely that it is present within the development footprint.



Figure 4. Typical vegetation on gently undulating sandy plains which dominate the Kleinzee Solar PV Facility, representative of the Namaqualand Strandveld vegetation type.

7. PROPOSED MITIGATION ACTIONS

The following avoidance and mitigation measures should be included in the EMP for the Kleinzee Solar PV Facility in order to avoid, reduce and manage impacts on fauna and associated habitats:

- All vehicles should adhere to a low-speed limit on site. Heavy vehicles should be restricted to 30km/h and light vehicles to 40km/h.
- Driving to the from the site between sunset and sunrise should be minimised and restricted to essential vehicles only.
- All laydown areas, construction sites etc with waste disposal bins, should be provided with lockable bins that are tamper proof by fauna.
- Search and rescue for reptiles and other vulnerable species during construction, before areas of intact vegetation are cleared. Such search and rescue should be conducted by relevant experts with experience in search and rescue of the faunal groups concerned.
- Limiting access to the site and ensuring that construction staff and machinery remain within the demarcated construction areas during the construction phase. Environmental induction for all staff and contractors on-site.
- No excavated holes or trenches should be left open for extended periods as fauna may fall in become trapped.
- The design should ensure that there is no electrical fencing around substations (and associated battery facilities) or other features within 30cm of the ground as tortoises become stuck against such

fences and are electrocuted to death. Alternatively, a guard wire set at 20cm can be used to keep larger tortoises away from the fence.

The following monitoring and management actions should be included in the EMPr:

- A log should be kept detailing all fauna-related incidences or mortalities that occur on site, including roadkill, electrocutions etc. during construction and operation. These should be reviewed annually and used to inform operational management and mitigation measures.
- There should be on-going maintenance and monitoring of the perimeter fences of the PV areas to ensure that there is not sand build up or vegetation build-up that brings the electrified strands closer to the ground than the recommended 30cm. Should some fauna burrow under the fence, such burrow access-points can be allowed to remain provided that the fauna accessing the facility are not causing problems inside the facility or would be endangered themselves.

7.1 Cumulative Impacts

Cumulative impacts associated with the Kleinzee Solar PV Facility are assessed in the Terrestrial Biodiversity Assessment and are not assessed in detail here. From a faunal species and associated habitat perspective, the Kleinzee Solar PV Facility would have very low impact on fauna SCC and the broader area has been little impacted by renewable energy development to date. As a result, the contribution of the Kleinzee Solar PV Facility to cumulative impact on fauna is considered acceptable.

8. COMPARATIVE ASSESSMENT OF ALTERNATIVES

There are no alternatives to be considered with regards to the PV facility.

8.1 No-Go Alternative

Under the no-go alternative, the current land use consisting of extensive livestock grazing would continue. When applied correctly, such livestock grazing is considered to be largely compatible with long-term biodiversity conservation, although in practice there are some negative effects associated with such land use such as predator control and negative impacts on habitat availability for the larger ungulates that would historically have utilised the area. Under the current circumstances, the no-go alternative is considered to represent a low long-term negative impact on the environment, but has less impact than the loss of habitat resulting from the construction of the PV facility.

9. CONCLUSIONS

- This compliance statement is applicable to the Kleinzee Solar PV Facility development with specific reference to the layout as provided for the assessment.
- Although the DFFE Screening Tool identified the site as having medium sensitivity due to the possible presence of the Sensitive Species 32 and *Brinckiella mauerbergerorum*, the field assessment indicates that neither species is likely present within the site.
- A desktop analysis indicates that there are several other fauna of concern that are confirmed present in the wider area. However, interrogation of the available information and the observed features of the PV footprint area indicates that none of these species are likely to occur within the affected area.

- No fauna species of concern, were observed within the site despite extensive walked sampling within the site as well as previous camera trapping in the area, confirming the low sensitivity of the project footprint.
- Given the above results, the site is therefore considered low sensitivity from an Animal Species Theme perspective.

9.1 Impact Statement

The footprint of the Kleinzee Solar PV Facility is restricted to low sensitivity areas with no observed faunal species of conservation concern present or likely to be present. As such, from a faunal species perspective there are no reasons to oppose the Kleinzee Solar PV Facility.

10. REFERENCES

- Alexander, G. & Marais, J. 2007. A Guide to the Reptiles of Southern Africa. Struik Nature, Cape Town.
- Branch W.R. 1998. Field guide to snakes and other reptiles of southern Africa. Struik, Cape Town.
- Bates, M.F., Branch, W.R., Bauer, A.M., Burger, M., Marais, J., Alexander, G.J. & de Villiers, M. S. 2013. Atlas and Red List of the Reptiles of South Africa, Lesotho and Swaziland. Strelitzia 32. SANBI, Pretoria.
- Department of Environmental Affairs and Tourism, 2007. National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004): Publication of lists of Critically Endangered, Endangered, Vulnerable and Protected Species. Government Gazette, Republic of South Africa.
- Du Preez, L. & Carruthers, V. 2009. A Complete Guide to the Frogs of Southern Africa. Struik Nature., Cape Town.
- Minter LR, Burger M, Harrison JA, Braack HH, Bishop PJ & Kloepfer D (eds). 2004. Atlas and Red Data book of the frogs of South Africa, Lesotho and Swaziland. SI/MAB Series no. 9. Smithsonian Institution, Washington, D.C.
- Mucina L. & Rutherford M.C. (eds) 2006. The Vegetation of South Africa, Lesotho and Swaziland. Strelitzia 19. South African National Biodiversity Institute, Pretoria.
- Skinner, J.D. & Chimimba, C.T. 2005. The mammals of the Southern African Subregion. Cambridge University Press, Cambridge.

Annex 1. List of Mammals

List of Mammals known from the broad area around the Kleinzee Solar PV Facility site, based on the MammalMap Database (<http://vmus.adu.org.za>), with species confirmed present at the site indicated in **bold**.

Family	Genus	Species	Common name	Red list category
<i>Bathyergidae</i>	<i>Bathyergus</i>	<i>janetta</i>	Namaqua Dune Mole-rat	Least Concern
<i>Bathyergidae</i>	<i>Bathyergus</i>	<i>suillus</i>	Cape Dune Mole-rat	Least Concern
<i>Bathyergidae</i>	<i>Cryptomys</i>	<i>hottentotus</i>	Southern African Mole-rat	Least Concern
<i>Bovidae</i>	<i>Antidorcas</i>	<i>marsupialis</i>	Springbok	Least Concern
<i>Bovidae</i>	<i>Oreotragus</i>	<i>oreotragus</i>	Klipspringer	Least Concern
<i>Bovidae</i>	<i>Raphicerus</i>	<i>campestris</i>	Steenbok	Least Concern
<i>Bovidae</i>	<i>Sylvicapra</i>	<i>grimmia</i>	Bush Duiker	Least Concern
<i>Canidae</i>	<i>Canis</i>	<i>mesomelas</i>	Black-backed Jackal	Least Concern
<i>Canidae</i>	<i>Otocyon</i>	<i>megalotis</i>	Bat-eared Fox	Least Concern
<i>Canidae</i>	<i>Vulpes</i>	<i>chama</i>	Cape Fox	Least Concern
<i>Cercopithecidae</i>	<i>Papio</i>	<i>ursinus</i>	Chacma Baboon	Least Concern
<i>Felidae</i>	<i>Caracal</i>	<i>caracal</i>	Caracal	Least Concern
<i>Felidae</i>	<i>Felis</i>	<i>silvestris</i>	African Wildcat	Least Concern
<i>Felidae</i>	<i>Panthera</i>	<i>pardus</i>	Leopard	Vulnerable
<i>Herpestidae</i>	<i>Cynictis</i>	<i>penicillata</i>	Yellow Mongoose	Least Concern
<i>Herpestidae</i>	<i>Herpestes</i>	<i>pulverulentus</i>	Cape Gray Mongoose	Least Concern
<i>Herpestidae</i>	<i>Suricata</i>	<i>suricata</i>	Meerkat	Least Concern
<i>Hyaenidae</i>	<i>Proteles</i>	<i>cristata</i>	Aardwolf	Least Concern
<i>Hystriidae</i>	<i>Hystrix</i>	<i>africaeustralis</i>	Cape Porcupine	Least Concern
<i>Leporidae</i>	<i>Lepus</i>	<i>capensis</i>	Cape Hare	Least Concern
<i>Leporidae</i>	<i>Lepus</i>	<i>saxatilis</i>	Scrub Hare	Least Concern
<i>Leporidae</i>	<i>Pronolagus</i>	<i>rupestris</i>	Smith's Red Rock Hare	Least Concern
<i>Macroscelididae</i>	<i>Elephantulus</i>	<i>rupestris</i>	Western Rock Elephant Shrew	Least Concern
<i>Macroscelididae</i>	<i>Macroscelides</i>	<i>proboscideus</i>	Short-eared Elephant Shrew	Least Concern
<i>Muridae</i>	<i>Aethomys</i>	<i>namaquensis</i>	Namaqua Rock Mouse	Least Concern
<i>Muridae</i>	<i>Desmodillus</i>	<i>auricularis</i>	Cape Short-tailed Gerbil	Least Concern
<i>Muridae</i>	<i>Gerbilliscus</i>	<i>paeba</i>	Paeba Hairy-footed Gerbil	Least Concern
<i>Muridae</i>	<i>Otomys</i>	<i>auratus</i>	Southern African Vlei Rat	Least Concern
<i>Muridae</i>	<i>Otomys</i>	<i>unisulcatus</i>	Karoo Bush Rat	Least Concern
<i>Muridae</i>	<i>Parotomys</i>	<i>brantsii</i>	Brants's Whistling Rat	Least Concern
<i>Muridae</i>	<i>Parotomys</i>	<i>littledalei</i>	Littledale's Whistling Rat	Near Threatened
<i>Muridae</i>	<i>Rhodomys</i>	<i>pumilio</i>	Xeric Four-striped Grass Rat	Least Concern
<i>Mustelidae</i>	<i>Aonyx</i>	<i>capensis</i>	African Clawless Otter	Near Threatened
<i>Mustelidae</i>	<i>Ictonyx</i>	<i>striatus</i>	Striped Polecat	Least Concern
<i>Mustelidae</i>	<i>Mellivora</i>	<i>capensis</i>	Honey Badger	Least Concern
<i>Orycteropodidae</i>	<i>Orycteropus</i>	<i>afer</i>	Aardvark	Least Concern
<i>Petromuridae</i>	<i>Petromus</i>	<i>typicus</i>	Dassie Rat	Least Concern
<i>Procaviidae</i>	<i>Procavia</i>	<i>capensis</i>	Rock Hyrax	Least Concern

Sciuridae	Xerus	inauris	South African Ground Squirrel	Least Concern
Soricidae	Crocidura	cyanea	Reddish-gray Musk Shrew	Least Concern
Soricidae	Suncus	varilla	Lesser Dwarf Shrew	Least Concern
Viverridae	Genetta	genetta	Common Genet	Least Concern

Annex 2. List of Reptiles

List of Reptiles known from the vicinity of the Kleinzee PV Facility site, based on records from the ReptileMap database. Conservation status is from Bates *et al.* 2013.

Family	Genus	Species	Subspecies	Common name	Red list category
Agamidae	<i>Agama</i>	<i>atra</i>		Southern Rock Agama	Least Concern
Agamidae	<i>Agama</i>	<i>hispidia</i>		Spiny Ground Agama	Least Concern
Chamaeleonidae	<i>Bradypodion</i>	<i>occidentale</i>		Western Dwarf Chameleon	Least Concern
Chamaeleonidae	<i>Chamaeleo</i>	<i>namaquensis</i>		Namaqua Chameleon	Least Concern
Colubridae	<i>Dipsosa</i>	<i>multimaculata</i>		Dwarf Beaked Snake	Least Concern
Colubridae	<i>Telescopus</i>	<i>beetzii</i>		Beetz's Tiger Snake	Least Concern
Cordylidae	<i>Karusasaurus</i>	<i>polyzonus</i>		Karoo Girdled Lizard	Least Concern
Elapidae	<i>Aspidelaps</i>	<i>lubricus</i>	<i>lubricus</i>	Coral Shield Cobra	Not listed
Elapidae	<i>Naja</i>	<i>nivea</i>		Cape Cobra	Least Concern
Gekkonidae	<i>Chondrodactylus</i>	<i>angulifer</i>	<i>angulifer</i>	Common Giant Ground Gecko	Least Concern
Gekkonidae	<i>Chondrodactylus</i>	<i>bibronii</i>		Bibron's Gecko	Least Concern
Gekkonidae	<i>Goggia</i>	<i>lineata</i>		Northern Striped Pygmy Gecko	Least Concern
Gekkonidae	<i>Pachydactylus</i>	<i>austeni</i>		Austen's Gecko	Least Concern
Gekkonidae	<i>Pachydactylus</i>	<i>barnardi</i>		Barnard's Rough Gecko	Least Concern
Gekkonidae	<i>Pachydactylus</i>	<i>labialis</i>		Western Cape Gecko	Least Concern
Gekkonidae	<i>Pachydactylus</i>	<i>weberi</i>		Weber's Gecko	Least Concern
Gekkonidae	<i>Phelsuma</i>	<i>ocellata</i>		Namaqua Day Gecko	Least Concern
Gekkonidae	<i>Ptenopus</i>	<i>garrulus</i>	<i>maculatus</i>	Spotted Barking Gecko	Least Concern
Gerrhosauridae	<i>Cordylasaurus</i>	<i>subtessellatus</i>		Dwarf Plated Lizard	Least Concern
Gerrhosauridae	<i>Gerrhosaurus</i>	<i>typicus</i>		Karoo Plated Lizard	Least Concern
Lacertidae	<i>Meroles</i>	<i>ctenodactylus</i>		Giant Desert Lizard	Least Concern
Lacertidae	<i>Meroles</i>	<i>knoxii</i>		Knox's Desert Lizard	Least Concern
Lacertidae	<i>Meroles</i>	<i>suborbitalis</i>		Spotted Desert Lizard	Least Concern
Lacertidae	<i>Nucras</i>	<i>tessellata</i>		Western Sandveld Lizard	Least Concern
Lamprophiidae	<i>Lamprophis</i>	<i>guttatus</i>		Spotted House Snake	Least Concern
Lamprophiidae	<i>Prosymna</i>	<i>frontalis</i>		Southwestern Shovel-snout	Least Concern
Lamprophiidae	<i>Psammophis</i>	<i>crucifer</i>		Cross-marked Grass Snake	Least Concern
Lamprophiidae	<i>Psammophis</i>	<i>namibensis</i>		Namib Sand Snake	Least Concern
Lamprophiidae	<i>Psammophis</i>	<i>notostictus</i>		Karoo Sand Snake	Least Concern
Lamprophiidae	<i>Psammophylax</i>	<i>rhombeatus</i>	<i>rhombeatus</i>	Spotted Grass Snake	Least Concern
Lamprophiidae	<i>Pseudaspis</i>	<i>cana</i>		Mole Snake	Least Concern
Scincidae	<i>Acontias</i>	<i>litoralis</i>		Coastal Dwarf Legless Skink	Least Concern
Scincidae	<i>Acontias</i>	<i>tristis</i>		Namaqua Dwarf Legless Skink	Least Concern
Scincidae	<i>Scelotes</i>	<i>caffer</i>		Cape Dwarf Burrowing Skink	Least Concern
Scincidae	<i>Scelotes</i>	<i>sexlineatus</i>		Striped Dwarf Burrowing Skink	Least Concern
Scincidae	<i>Trachylepis</i>	<i>capensis</i>		Cape Skink	Least Concern

<i>Scincidae</i>	<i>Trachylepis</i>	<i>variegata</i>		Variegated Skink	Least Concern
<i>Scincidae</i>	<i>Typhlosaurus</i>	<i>vermis</i>		Pink Blind Legless Skink	Least Concern
<i>Testudinidae</i>	<i>Chersina</i>	<i>angulata</i>		Angulate Tortoise	Least Concern
<i>Testudinidae</i>	<i>Psammobates</i>	<i>tentorius</i>	<i>trimeni</i>	Namaqua Tent Tortoise	Not listed
<i>Viperidae</i>	<i>Bitis</i>	<i>arietans</i>	<i>arietans</i>	Puff Adder	Least Concern

Annex 3. List of Amphibians

List of Amphibians known from the vicinity of the Kleinzee PV Facility site, based on records from the FrogMap database. Conservation status is from Minter et al. 2004.

Family	Genus	Species	Subspecies	Common name	Red list category
<i>Brevicipitidae</i>	<i>Breviceps</i>	<i>macrops</i>		Desert Rain Frog	Vulnerable
<i>Brevicipitidae</i>	<i>Breviceps</i>	<i>namaquensis</i>		Namaqua Rain Frog	Least Concern
<i>Bufo</i>	<i>Vandijkophrynus</i>	<i>gariensis</i>	<i>gariensis</i>	Karoo Toad (subsp. <i>gariensis</i>)	Not listed
<i>Bufo</i>	<i>Vandijkophrynus</i>	<i>robinsoni</i>		Paradise Toad	Least Concern
<i>Pipidae</i>	<i>Xenopus</i>	<i>laevis</i>		Common Platanna	Least Concern
<i>Pyxicephalidae</i>	<i>Amietia</i>	<i>fuscigula</i>		Cape River Frog	Least Concern
<i>Pyxicephalidae</i>	<i>Tomopterna</i>	<i>delalandii</i>		Cape Sand Frog	Least Concern