



**DEVIATION OF THE EXISTING RIETFONTEIN- 33KV  
POWER LINE AT TWO LOCATIONS (KOOPAN AND  
HAKSKEENPAN) NEAR ASKHAM AND RIETFONTEIN IN  
THE NORTHERN CAPE PROVINCE**

Plant Species, Animal Species and Terrestrial Biodiversity Theme  
Compliance Statement

August 2023

Prepared for:



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Today's Impact | Tomorrow's Legacy

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## 1. Document control

### 1.1 Quality and revision record

#### 1.1.1 Quality approval

	Capacity	Name	Signature	Date
<b>Author</b>	Environmental Specialist (MSc Biological Sciences, UCT 2019; SACNASP ref: 130295)	Megan Smith		04/08/2023
<b>Review Specialist</b>	Ecologist (M.Sc Botany) SACNASP Reg. no 400328/11	Elbi Bredenkamp		04/08/2023

This report has been prepared in accordance with Enviroworks Quality Management System.

#### 1.1.2 Revision record

Revision Number	Objective	Change	Date
1	Internal review	General formatting	20/07/2023
2	Client Review	Grammar, Formatting	31/07/2023
3	Client review	Protocol Requirements	04/08/2023

## 2. Specialist details

### 2.1 Details of the specialist

This Botanical, Faunal and Terrestrial Biodiversity Theme Compliance Statement report was prepared and compiled by Megan Smith from Enviroworks. The sections below provide the details of the Specialist and explain their expertise to prepare this assessment.

<b>Business name of Specialist:</b>	Enviroworks
<b>Specialist Name:</b>	Megan Smith
<b>EAPASA membership</b>	2020/2855 (Candidate EAP)
<b>IAIAsa registered:</b>	No. 6459
<b>South African Association of Botanists</b>	No. 20711
<b>SACNASP Registration</b>	130295 (Pr.Nat.Sci) – Ecological Science
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*2.1.1 Expertise of the specialist*

Megan Smith is an Environmental Specialist at Enviroworks. Her qualifications include a M.Sc. in Biological Sciences (UCT) and over three years' experience in the environmental field.

*2.1.2 Statement of independence – specialist*

I, Megan Smith, ID 9412140124080, declare that I:

- am an Environmental Specialist at Enviroworks.
- act as an independent Environmental Consultant.
- have compiled this Botanical, Faunal and Terrestrial Biodiversity Theme Compliance Statement report.
- I do not have or will not have any financial interest in the undertaking of the activity other than remuneration for work as stipulated in the terms of reference.
- remuneration for services by the Proponent in relation to this proposal is not linked to approval by decision-making Authorities responsible for permitting this proposal.
- the consultancy has no interest in secondary or downstream developments as a result of the outcome of this Compliance Statement.
- have no and will not engage in conflicting interests in the undertaking of the Activity.
- undertake to disclose to the Client and the Competent Authority any material, information that have or may have the potential to influence the decision of the Competent Authority required in terms of the Environmental Impact Assessment Regulations 2014, as amended.
- will provide the Client and Competent Authority with access to all information at my disposal, regarding this project, whether favourable or not.

Signature:



Megan Smith

### 3. Introduction

#### 3.1 Project description

Eskom Holdings (SOC Limited) proposes the rerouting of the Rietfontein-Rietfontein 33kV powerline near the Rietfontein Settlement in the Northern Cape Province (Figures 1 and 2). The purpose of rerouting this powerline is to get it out of 2 pans (Hakskeen Pan and Koopan). Currently the Rietfontein 33kV powerline runs through both of these pans. When there is water in the pans the powerline towers are prone to falling over because of the wet clay soil. The wet clay soil then makes it very difficult for maintenance vehicles to reach the fallen structures in order to repair the fallen structures. The result of this is Eskom customers in the area being without electricity for extended periods at a time.

The current powerline configuration consists of bird friendly wood pole structure (D-DT-1870). This is the same configuration that will be used on the two sections where the line will be deviated. The length of the wood pole structures will range from 9 to 13 meters. The poles are planted 2 meters deep in holes drilled by a truck mounted drill. The holes are 300mm in diameter and 2 meters deep. The average distance between structures are 100 meters.

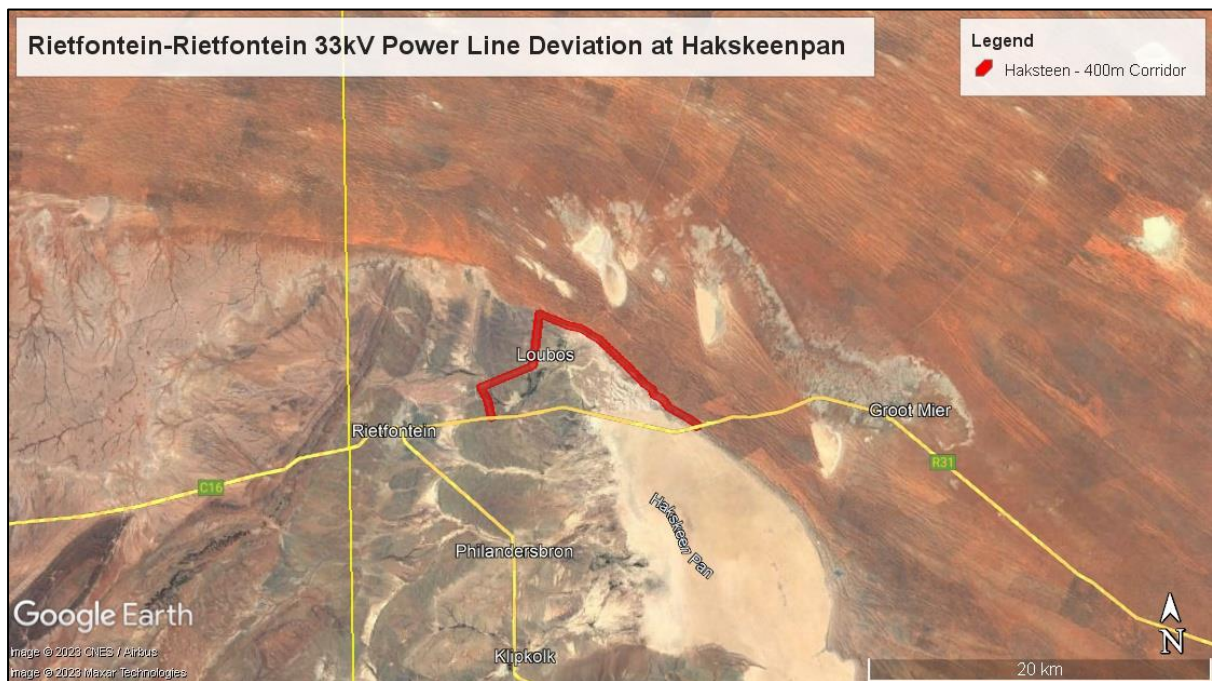


Figure 1: Locality map of the proposed route deviation at Hakskeen Pan (demarcated in red)



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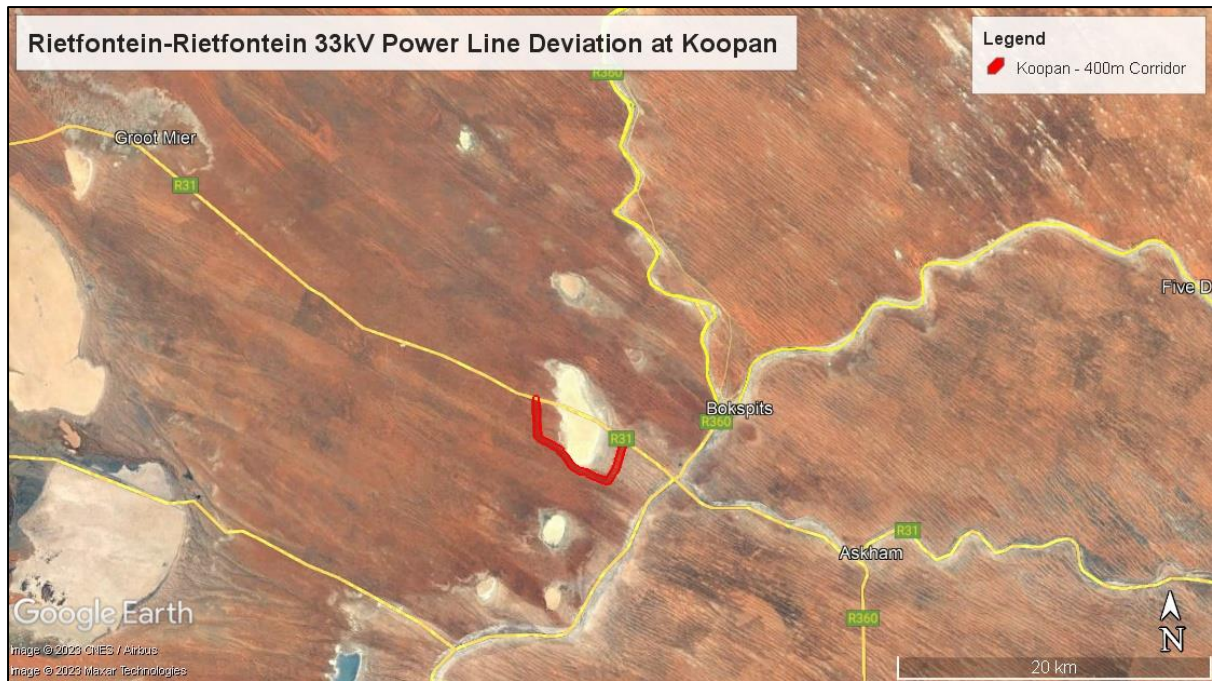


Figure 2 Locality map of the proposed route deviation at Koo Pan (demarcated in red)

### 3.2 Objective

Various environmental legislation in South Africa makes provision for the protection of our natural resources and the functionality of ecological systems to ensure sustainability. Such acts include the National Environmental Management: Biodiversity Act (Act No. 10 of 2004), National Forests Act (Act 84 of 1998), Conservation of Agricultural Resources Act (Act 43 of 1983), National Water Act (Act 36 of 1998), framework legislation such as the NEMA and protocols such as the 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 (Act 107 of 1998) WHEN APPLYING FOR ENVIRONMENTAL AUTHORISATION (GN No. 43110 of 20 March 2020).

The various components of ecological systems are all interrelated and it is therefore important that specialist studies of all such components be conducted prior to the commencement of any proposed project development. Only once the potential impacts and outcomes of proposed developments on the ecological systems of an area are understood, can informed decisions be made regarding the viability of projects to address and achieve the environmental and socio-economic needs of an area.

The proposed development could have potential impacts on the vegetation, fauna, and the surrounding environment. Vegetation will be displaced since the new development footprint will transform much of the surface area. To evaluate the level of acceptability of the impact on the natural environment a Plant Species, Animal Species, and Terrestrial Biodiversity Themes assessment was conducted. This was required to determine the potential presence of ecologically significant habitats and plant/animal species of conservation concern within the proposed project footprint. Proposed mitigation and management measures must also be recommended to attempt to reduce/alleviate the identified potential impacts.

This Compliance Statement included a vegetation and habitat survey to:

- Identify and list significant species encountered on the proposed project footprint and direct surrounds and list any protected and/or Red Data Listed species.
- Determine and discuss the condition and extent of degradation and/or transformation of the vegetation on the proposed project footprint.
- Determine any potential habitats for any protected or threatened faunal species.
- Determine and discuss the ecological sensitivity and significance of the proposed project area.
- Identify, evaluate, and rate the potential impacts of the proposed project on the natural environment.
- Provide recommendations on mitigation and management measures to attempt to reduce/alleviate these identified potential impacts.

### 3.4 Minimum Requirements – Screening Tool

The National Web-based Environmental Screening Tool (<https://screening.environment.gov.za/screeningtool/>) is a geographically based web-enabled application which allows a proponent intending to submit an application

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for Environmental Authorisation in terms of the Environmental Impact Assessment (EIA) Regulations 2014, as amended to screen their proposed site for any environmental sensitivity.

The Screening Tool also provides site-specific EIA process and review information, for example, the Screening Tool may identify if an industrial development zone, minimum information requirement, Environmental Management Framework or bio-regional plan applies to a specific area.

Further to this, the Screening Tool identifies related exclusions and/ or specific requirements including specialist studies applicable to the proposed site and/or development, based on the national sector classification and the environmental sensitivity of the site.

Finally, the Screening Tool allows for the generating of a Screening Report referred to in Regulation 16(1)(v) of the Environmental Impact Assessment Regulations 2014, as amended whereby a Screening Report is required to accompany any application for Environmental Authorisation and as such the tool has been developed in a manner that is user friendly and no specific software or specialised GIS skills are required to operate this system.

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 (Act 107 of 1998) WHEN APPLYING FOR ENVIRONMENTAL AUTHORISATION have been gazetted (GN. R 320 of 20 March 2020). In terms of sections 24(5)(a), (h) and 44 of the National Environmental Management Act (Act 107 of 1998) these procedures prescribe general requirements for undertaking site sensitivity verification and for protocols for the assessment and minimum report content requirements of environmental impacts for environmental themes for activities requiring Environmental Authorisation, as contained in the Schedule therein. When the requirements of a protocol apply, the requirements of Appendix 6 of the Environmental Impact Assessment Regulations, as amended, (EIA Regulations), promulgated under sections 24(5) and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), are replaced by these requirements.

According to the report generated by the National Screening Tool, the following three themes and their protocols will apply to this study:

- *Terrestrial Biodiversity Theme*

PROTOCOL FOR THE SPECIALIST ASSESSMENT AND MINIMUM REPORTING CONTENT REQUIREMENTS FOR ENVIRONMENTAL IMPACTS ON TERRESTRIAL BIODIVERSITY (GN 320, 2020)

- *Plant Species Theme*

PROTOCOL FOR THE SPECIALIST ASSESSMENT AND MINIMUM REPORT CONTENT REQUIREMENTS FOR ENVIRONMENTAL IMPACTS ON TERRESTRIAL PLANT SPECIES (GN 1150, 2020).

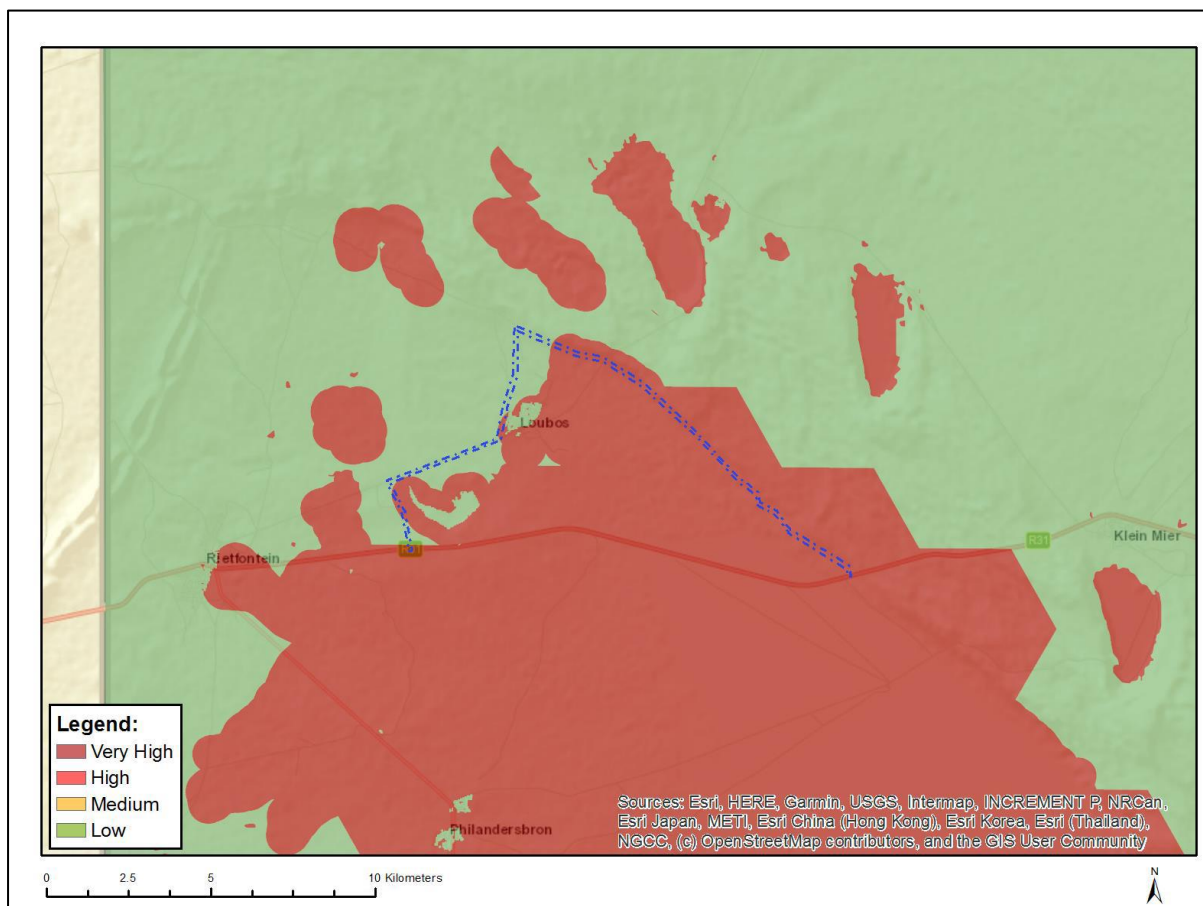
- *Animal Species Theme*

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PROTOCOL FOR THE SPECIALIST ASSESSMENT AND MINIMUM REPORT CONTENT REQUIREMENTS FOR ENVIRONMENTAL IMPACTS ON TERRESTRIAL ANIMAL SPECIES (GN 1150, 2020)

### 3.4.1 Hakskeen Pan Deviation

#### 3.4.1.1 Terrestrial Biodiversity Theme Results



*Figure 3 Terrestrial Biodiversity Theme based on the results from the National Screening Tool Report*

Based on the initial Site Sensitivity Verification (Section 5.4) undertaken by the specialist on **13 June 2023**, the Terrestrial Biodiversity Theme sensitivity was confirmed to be of “Low” rather than “Very High” as identified by the screening tool in Figure 3. The protocols further specify that the content of the assessment and minimum report content requirements on terrestrial biodiversity. The requirements are listed in the table below. The relevant section of this report is linked to each of the protocol’s minimum requirements.

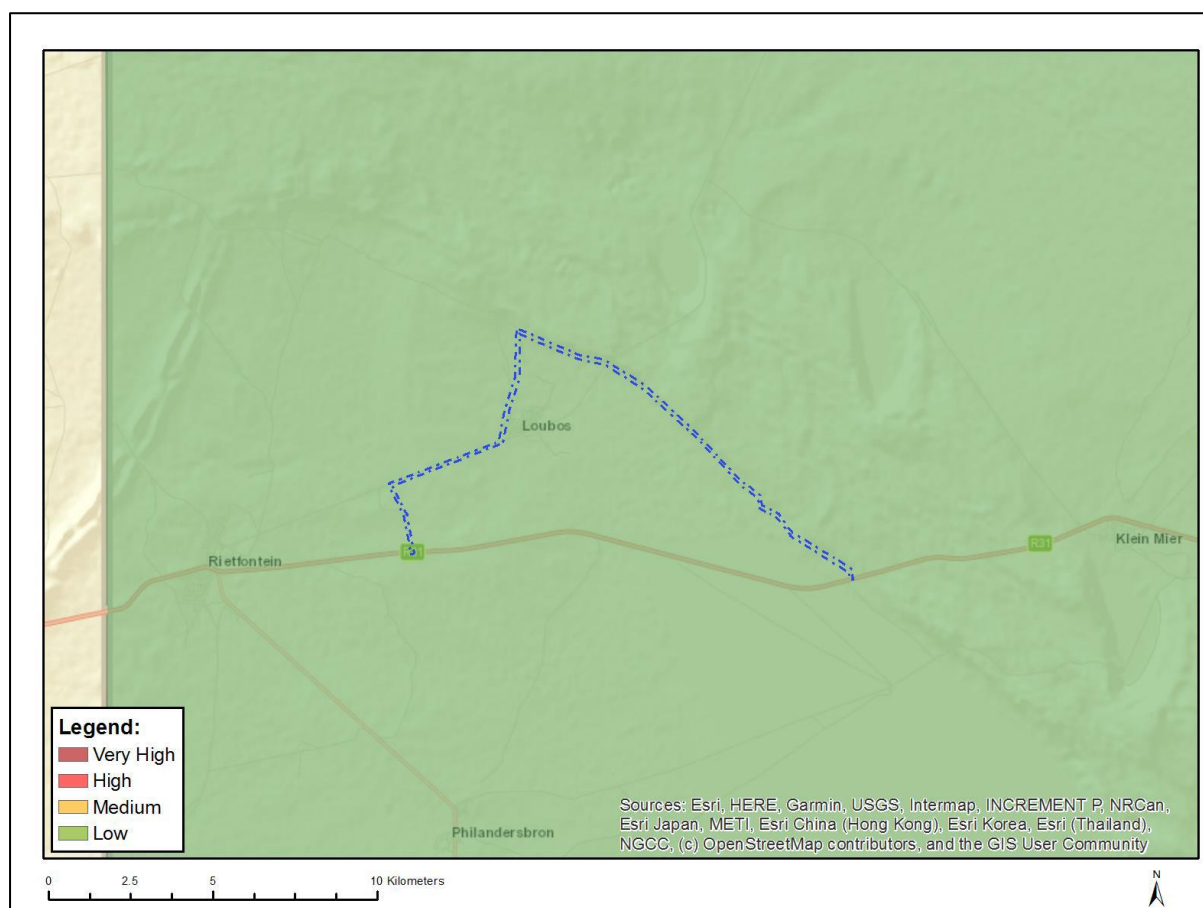
**Table 1 Content cross-reference checklist for specialist assessment and minimum report content requirements for Terrestrial Biodiversity Compliance Statement Report as per GN R 320, with corresponding section names in the report.**

Requirement	Section of this report
contact details and relevant experience as well as the SACNASP registration number of the specialist preparing the assessment including a curriculum vitae;	Details of the specialist and review specialist
a signed statement of independence by the specialist	Statement of independence - 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;	Date and season of site visit
a baseline profile description of biodiversity and ecosystems of the site;	General Vegetation Description; Sensitive Areas

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the methodology used to verify the sensitivities of the terrestrial biodiversity features on the site, including equipment and modelling used, where relevant;	Methodology
in the case of a linear activity, confirmation from the terrestrial biodiversity specialist that, in their opinion, based on the mitigation and remedial measures proposed, the land can be returned to the current state within two years of completion of the construction phase	Site Sensitivity Verification; Ecological Importance
where required, proposed impact management actions and outcomes or any monitoring requirements for inclusion in the EMP	Overall Impact Assessment
a description of the assumptions made and any uncertainties or gaps in knowledge or data; and	Assumptions, uncertainties, and gaps in knowledge
any conditions to which the compliance statement is subjected.	Risk ratings and potential impacts

*3.4.1.2 Plant Species Theme Results*



*Figure 4 Plant Species Theme based on the results from the National Screening Tool Report*

Based on the initial Site Sensitivity Verification (Section 5.4) undertaken by the specialist on **13 June 2023**, the Plant Species Theme sensitivity was confirmed to be of “Low” as identified by the screening tool in Figure 4. The protocols further specify that the content of the assessment and minimum report content requirements on the Plant Species Theme. The requirements are listed in the table below. The relevant section of this report is linked to each of the protocol’s minimum requirements.

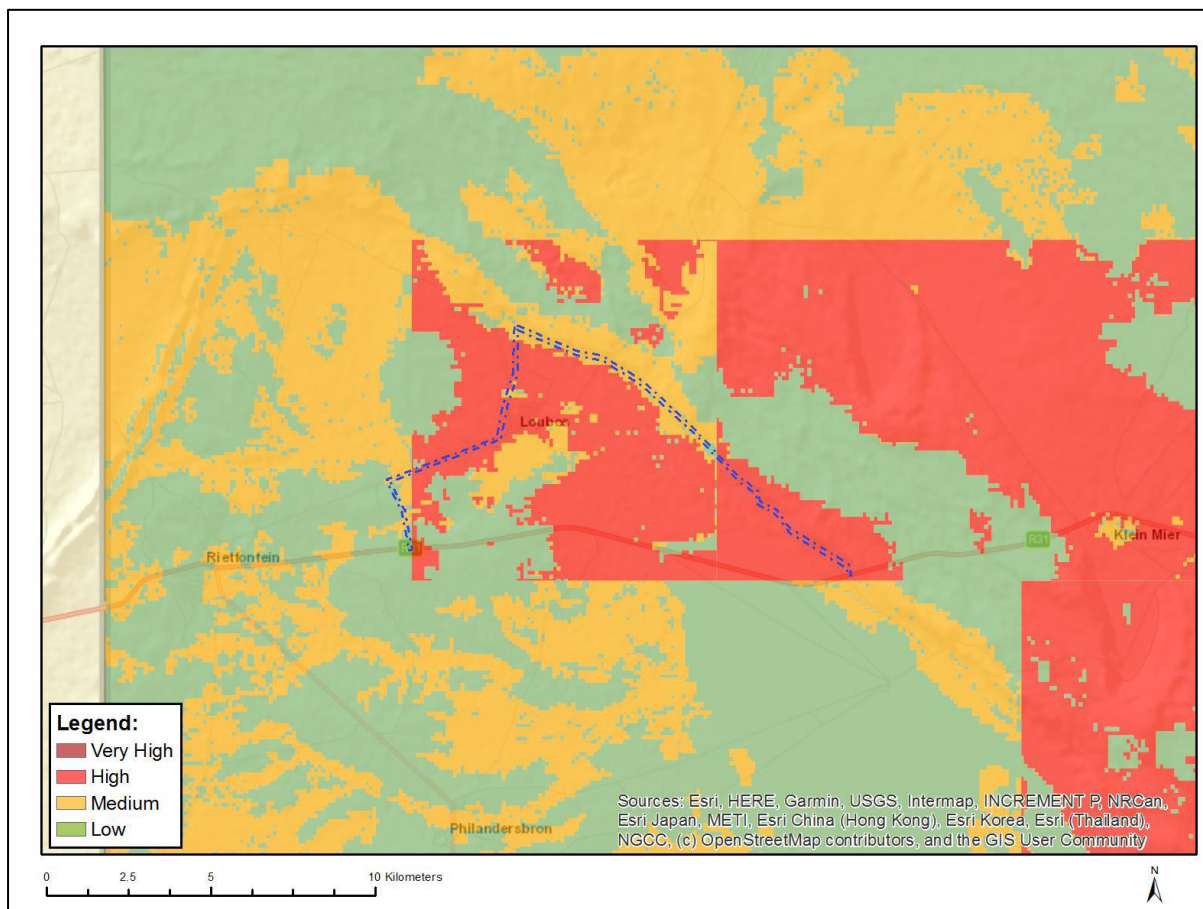
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**Table 2 Content cross-reference checklist for specialist assessment and minimum report content requirements for Plant Species Theme Compliance Statement Report as per GN R 1150, with corresponding section names in the report.**

Requirement	Section of this report
contact details and relevant experience as well as the SACNASP registration number of the specialist preparing the assessment including a curriculum vitae;	Details of the specialist and review specialist
a signed statement of independence by the specialist	Statement of independence - 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;	Date and season of site visit
A description of the methodology used to undertake the site verification and impact assessment and site inspection, including equipment and modelling used, where relevant;	Methodology
A description of the assumptions made and any uncertainties or gaps in knowledge or data as well as a statement of the timing and intensity of site inspection observations	Assumptions, uncertainties, and gaps in knowledge
a description of the mean density of observations/number of samples sites per unit area of site inspection observations	Methodology
Verifiable evidence from the specialists' site inspection including as a minimum: 5.3.4.A.1 A map showing the specialists GPS track in relation to the study area; and 5.4.3.A.2 at least 4 spatially representative sample size descriptions from across the study area that include as a minimum: (a) precise geographical coordinates of the sample site; (b) at least one in situ photograph of the sample site; and (c) a habitat description of the sample site	Methodology and Site Assessment
where required, proposed impact management actions and outcomes or any monitoring requirements for inclusion in the EMP	Overall Impact Assessment
a description of the assumptions made and any uncertainties or gaps in knowledge or data; and	Assumptions, uncertainties, and gaps in knowledge
any conditions to which the compliance statement is subjected.	Risk ratings and potential impacts

During the site verification the proposed development was surveyed, and all species encountered were recorded to detect any species of conservation concern (See Section 5.3.3.2).

3.4.1.3 Animal Species Theme Results



*Figure 5 Animal Species Theme based on the results from the National Screening Tool Report*

Based on the initial Site Sensitivity Verification (Section 5.4) undertaken by the specialist on **13 June 2023**, the Animal Species Theme sensitivity was confirmed to be of “Low” sensitivity rather than “High” as identified by the screening tool in Figure 5. Based on the aforementioned, a compliance statement will be necessary to assess the impacts of the powerline deviation on the Animal Species Theme.

The protocols further specify that the content of minimum report content requirements on terrestrial animal species. The requirements are listed in the table below. The relevant section of this report is linked to each of the protocol’s minimum requirements.

**Table 3 Content cross-reference checklist for specialist assessment and minimum report content requirements for Animal Species Theme Compliance Statement as per GN R 1150, with corresponding section names in the report.**

Requirement	Section of this report
contact details and relevant experience as well as the SACNASP registration number of the specialist preparing the assessment including a curriculum vitae;	Details of the specialist and review specialist
a signed statement of independence by the specialist	Statement of independence - 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;	Date and season of site visit



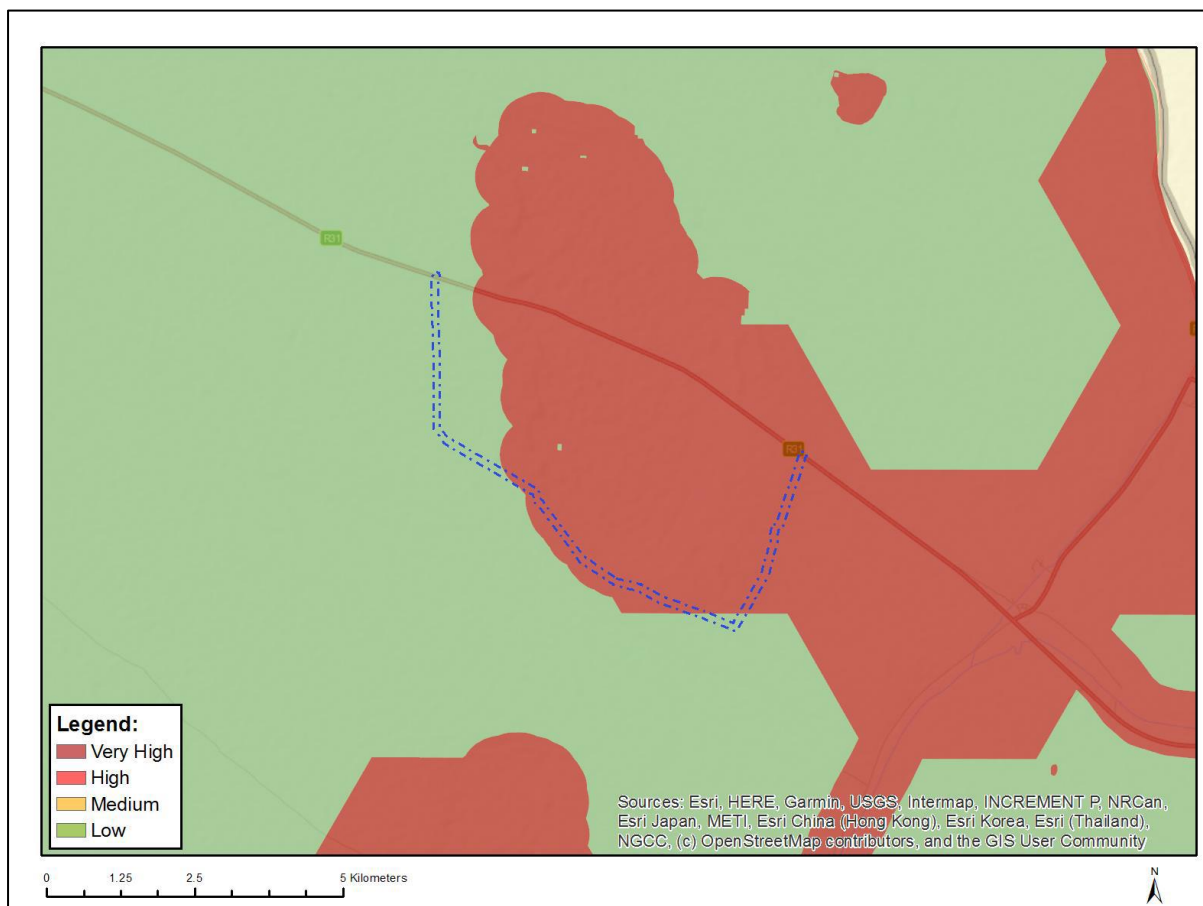
PLANT SPECIES, ANIMAL SPECIES AND TERRESTRIAL BIODIVERSITY THEME COMPLIANCE  
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Requirement	Section of this report
A description of the methodology used to undertake the site verification and impact assessment and site inspection, including equipment and modelling used, where relevant;	Methodology
A description of the assumptions made and any uncertainties or gaps in knowledge or data as well as a statement of the timing and intensity of site inspection observations	Assumptions, uncertainties, and gaps in knowledge
a description of the mean density of observations/number of samples sites per unit area of site inspection observations	Methodology
Verifiable evidence from the specialists' site inspection including as a minimum: 5.3.4.A.1 A map showing the specialists GPS track in relation to the study area; and 5.4.3.A.2 at least 4 spatially representative sample size descriptions from across the study area that include as a minimum: (a) precise geographical coordinates of the sample site; (b) at least one in situ photograph of the sample site; and (c) a habitat description of the sample site	Methodology and Site Assessment
where required, proposed impact management actions and outcomes or any monitoring requirements for inclusion in the EMP	Overall Impact Assessment
a description of the assumptions made and any uncertainties or gaps in knowledge or data; and	Assumptions, uncertainties, and gaps in knowledge
any conditions to which the compliance statement is subjected.	Risk ratings and potential impacts

*Note that the only species triggering the high sensitivity classification in the DFFE Screening Tool for the Animal Species Theme were avian species. Because this assessment excludes avian species, the Animal Species Theme for other terrestrial species has been classified as low for the purpose of this report.*

### 3.4.2 Koo Pan Deviation

#### 3.4.2.1 Terrestrial Biodiversity Theme Results



*Figure 6 Terrestrial Biodiversity Theme based on the results from the National Screening Tool Report*

Based on the initial Site Sensitivity Verification (Section 5.4) undertaken by the specialist on **13 June 2023**, the Terrestrial Biodiversity Theme sensitivity was confirmed to be of “Low” rather than “Very High” as identified by the screening tool in Figure 6. The protocols further specify that the content of the assessment and minimum report content requirements on terrestrial biodiversity. The requirements are listed in the table below. The relevant section of this report is linked to each of the protocol’s minimum requirements.

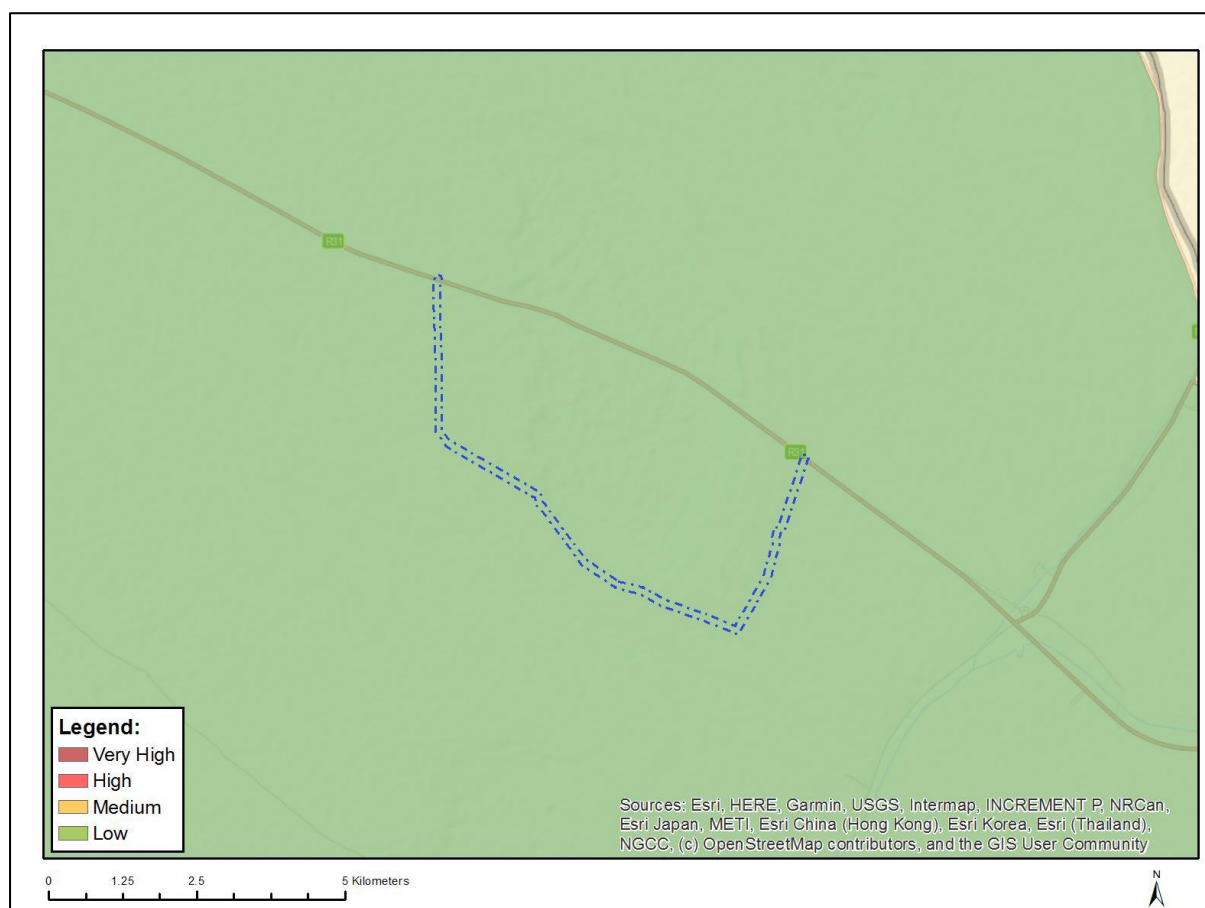
**Table 4 Content cross-reference checklist for specialist assessment and minimum report content requirements for Terrestrial Biodiversity Compliance Statement Report as per GN R 320, with corresponding section names in the report.**

Requirement	Section of this report
contact details and relevant experience as well as the SACNASP registration number of the specialist preparing the assessment including a curriculum vitae;	Details of the specialist and review specialist
a signed statement of independence by the specialist	Statement of independence - 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;	Date and season of site visit
a baseline profile description of biodiversity and ecosystems of the site;	General Vegetation Description; Sensitive Areas

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the methodology used to verify the sensitivities of the terrestrial biodiversity features on the site, including equipment and modelling used, where relevant;	Methodology
in the case of a linear activity, confirmation from the terrestrial biodiversity specialist that, in their opinion, based on the mitigation and remedial measures proposed, the land can be returned to the current state within two years of completion of the construction phase	Site Sensitivity Verification; Ecological Importance
where required, proposed impact management actions and outcomes or any monitoring requirements for inclusion in the EMP	Overall Impact Assessment
a description of the assumptions made and any uncertainties or gaps in knowledge or data; and	Assumptions, uncertainties, and gaps in knowledge
any conditions to which the compliance statement is subjected.	Risk ratings and potential impacts

*3.4.2.2 Plant Species Theme Results*



*Figure 7 Plant Species Theme based on the results from the National Screening Tool Report*

Based on the initial Site Sensitivity Verification (Section 5.4) undertaken by the specialist on **13 June 2023**, the Plant Species Theme sensitivity was confirmed to be of “Low” as identified by the screening tool in Figure 7. The protocols further specify that the content of the assessment and minimum report content requirements on the Plant Species Theme. The requirements are listed in the table below. The relevant section of this report is linked to each of the protocol’s minimum requirements.

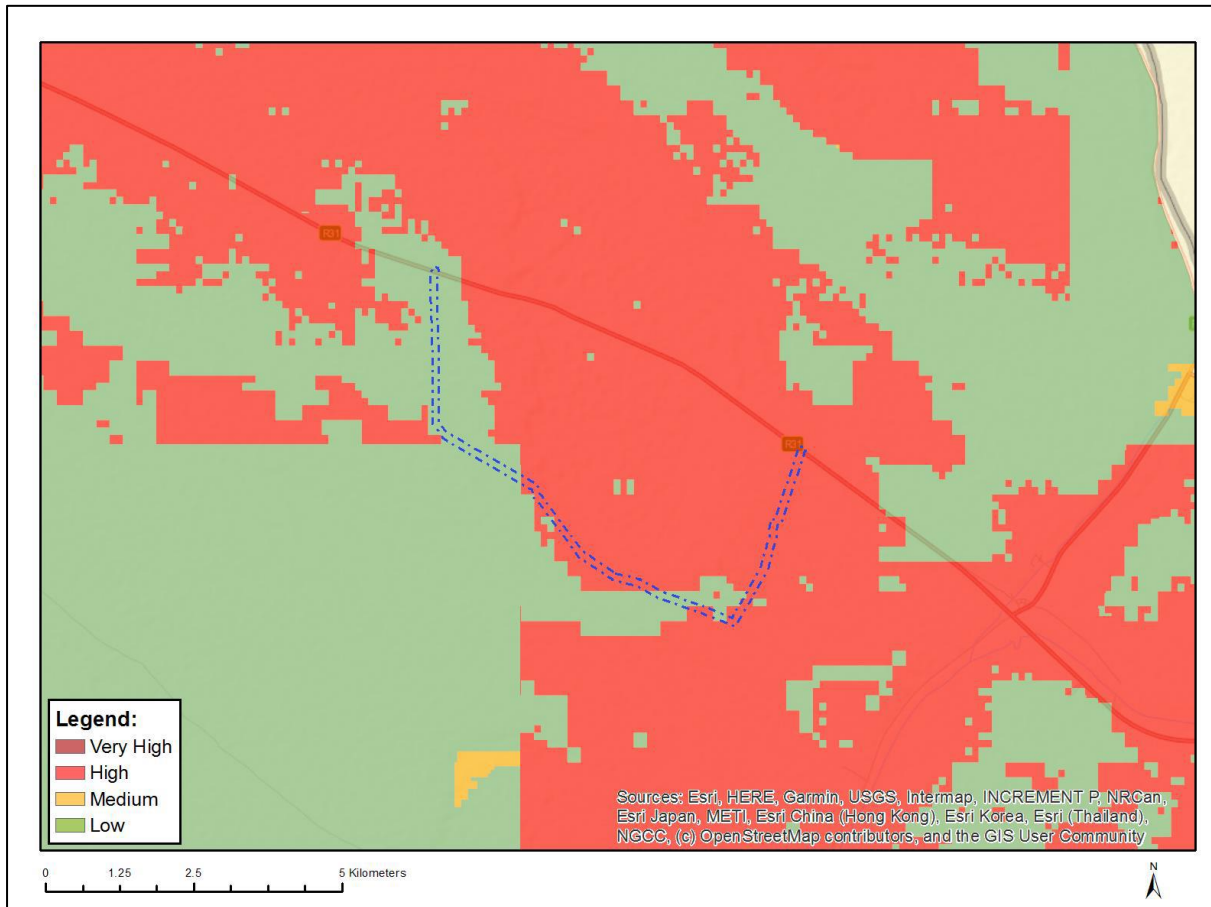
PLANT SPECIES, ANIMAL SPECIES AND TERRESTRIAL BIODIVERSITY THEME COMPLIANCE  
STATEMENT: RIETFONTEIN DEVIATION

**Table 5 Content cross-reference checklist for specialist assessment and minimum report content requirements for Plant Species Theme Compliance Statement Report as per GN R 1150, with corresponding section names in the report.**

Requirement	Section of this report
contact details and relevant experience as well as the SACNASP registration number of the specialist preparing the assessment including a curriculum vitae;	Details of the specialist and review specialist
a signed statement of independence by the specialist	Statement of independence - 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;	Date and season of site visit
A description of the methodology used to undertake the site verification and impact assessment and site inspection, including equipment and modelling used, where relevant;	Methodology
A description of the assumptions made and any uncertainties or gaps in knowledge or data as well as a statement of the timing and intensity of site inspection observations	Assumptions, uncertainties, and gaps in knowledge
a description of the mean density of observations/number of samples sites per unit area of site inspection observations	Methodology
Verifiable evidence from the specialists' site inspection including as a minimum: 5.3.4.A.1 A map showing the specialists GPS track in relation to the study area; and 5.4.3.A.2 at least 4 spatially representative sample size descriptions from across the study area that include as a minimum: (a) precise geographical coordinates of the sample site; (b) at least one in situ photograph of the sample site; and (c) a habitat description of the sample site	Methodology and Site Assessment
where required, proposed impact management actions and outcomes or any monitoring requirements for inclusion in the EMP	Overall Impact Assessment
a description of the assumptions made and any uncertainties or gaps in knowledge or data; and	Assumptions, uncertainties, and gaps in knowledge
any conditions to which the compliance statement is subjected.	Risk ratings and potential impacts

During the site verification the proposed development was surveyed, and all species encountered were recorded to detect any species of conservation concern (See Section 5.3.3.2).

3.4.2.3 Animal Species Theme Results



*Figure 8 Animal Species Theme based on the results from the National Screening Tool Report*

Based on the initial Site Sensitivity Verification (Section 5.4) undertaken by the specialist on **13 June 2023**, the Animal Species Theme sensitivity was confirmed to be of “Low” sensitivity rather than “High” sensitivity as identified by the screening tool in Figure 8. Based on the aforementioned, a compliance statement will be necessary to assess the impacts of the powerline deviation route on the Animal Species Theme.

The protocols further specify that the content of minimum report content requirements on terrestrial animal species. The requirements are listed in the table below. The relevant section of this report is linked to each of the protocol’s minimum requirements.

**Table 6 Content cross-reference checklist for specialist assessment and minimum report content requirements for Animal Species Theme Compliance Statement as per GN R 1150, with corresponding section names in the report.**

Requirement	Section of this report
contact details and relevant experience as well as the SACNASP registration number of the specialist preparing the assessment including a curriculum vitae;	Details of the specialist and review specialist
a signed statement of independence by the specialist	Statement of independence - 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;	Date and season of site visit

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Requirement	Section of this report
A description of the methodology used to undertake the site verification and impact assessment and site inspection, including equipment and modelling used, where relevant;	Methodology
A description of the assumptions made and any uncertainties or gaps in knowledge or data as well as a statement of the timing and intensity of site inspection observations	Assumptions, uncertainties, and gaps in knowledge
a description of the mean density of observations/number of samples sites per unit area of site inspection observations	Methodology
Verifiable evidence from the specialists' site inspection including as a minimum: 5.3.4.A.1 A map showing the specialists GPS track in relation to the study area; and 5.4.3.A.2 at least 4 spatially representative sample size descriptions from across the study area that include as a minimum: (a) precise geographical coordinates of the sample site; (b) at least one in situ photograph of the sample site; and (c) a habitat description of the sample site	Methodology and Site Assessment
where required, proposed impact management actions and outcomes or any monitoring requirements for inclusion in the EMP	Overall Impact Assessment
a description of the assumptions made and any uncertainties or gaps in knowledge or data; and	Assumptions, uncertainties, and gaps in knowledge
any conditions to which the compliance statement is subjected.	Risk ratings and potential impacts

*Note that the only species triggering the high sensitivity classification in the DFFE Screening Tool for the Animal Species Theme were avian species. Because this assessment excludes avian species, the Animal Species Theme for other terrestrial species has been classified as low for the purpose of this report.*

## **4. Methodology**

### **4.1 Land cover, climate, and soils and geology**

- Information related to the land cover of the development was based on the available literature and the latest GIS data available from the Department of Environmental Affairs (Department of Environmental Affairs, 2018).
- Climate data was extracted from available literature and the latest GIS data available.
- Information related to the classified Soils and Geology within the development site was based on available literature and the Environmental Potential Atlases (Department of Environmental Affairs and Tourism and University of Pretoria, 1995).

### **4.2 Botanical, Faunal and Terrestrial Assessment**

#### *4.3.2 Vegetation and Fauna*

- Vegetation types and their conservation status were extracted from the South African National Vegetation Map (Mucina and Rutherford, 2006), the 2018 National Biodiversity Assessment Synthesis Report (South African National Biodiversity Institute (SANBI), 2019) and the National List of Ecosystems that are Threatened and in Need of Protection (GN 2747 of 18 November 2022).
- A brief discussion on the vegetation type in which the study area is situated, using available literature, to place the study in context.
- A broad-scale map was generated of the vegetation and habitat sensitivity of the site using available GIS data and the DFFE Screening Tool.
- A list of endemic taxon species known to occur in the area was investigated before the site visit (Mucina and Rutherford, 2006).
- Sightings from the area and surrounds extracted from the Global Biodiversity Information Facility and iNaturalist ("Global Biodiversity Information Facility," n.d.; "iNaturalist," n.d.), and the IUCN database ("IUCN 2020," n.d.).
- Species and their Red Data Listing and Protected Status, occurring or expected to occur within the area were obtained from:
  - The DFFE Screening Tool,
  - Red List of South African Plants (Nick and Raimondo, 2007; South African National Biodiversity Institute (SANBI), 2016),
  - Northern Cape Critical Biodiverse Areas Map
  - NORTHERN CAPE NATURE CONSERVATION ACT (NO. 9 OF 2009)
  - NOTICE OF THE LIST OF PROTECTED TREE SPECIES UNDER THE NATIONAL FORESTS ACT, 1998 (ACT NO. 84 OF 1998)
  - IUCN ("IUCN 2020," n.d.),

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- National Environmental Management Biodiversity Act, 2004 (Act 10 of 2004): Critically Endangered, Endangered, Vulnerable, and Protected Species List (2007, as amended),
- Virtual databases to determine potential faunal species that may inhabit the site:
  - Atlas of African Lepidoptera
  - Southern African Bird Atlas Project 2
  - Reptile Atlas of Africa
  - Atlas of African Spiders
  - Atlas of African Scorpions
  - Frog Atlas of southern Africa
  - Virtual Museum of African Mammals,
- List of plant and faunal species recorded during the survey. Plants and animals were identified from photographs and specimens taken on-site, and
- Note that avifauna has been excluded from this assessment.

#### 4.3.3 Sensitive areas

The Northern Cape Critical Biodiverse Areas Map (2016) was used to identify Critically Biodiverse Areas (Categories 1 and 2) and Ecological Support Areas (Categories 1 and 2) within the proposed development footprint, the proposed development property, and surrounding areas. The extent of the sensitive areas was mapped using the latest available GIS data.

#### 4.3.4 Site inspection

A site visit took place on **13 June 2023** to the proposed deviation route footprints. The methodology followed during the site visit was based on the Species Assessment Guidelines (2020). The weather conditions were accommodating, where clear visibility facilitated the inspection of the facility and surrounding vegetation.

The entire footprint was surveyed, and care was taken to inspect representative portions of all suspected habitats on site. Photos of each representative site were taken for record purposes. At least four representative sites were sampled in each deviation route, the GPS co-ordinates for the sample sites are as follows:

#### Koo Pan

Site 1	26°55'18.51"S 20°37'27.29"E
Site 2	26°55'37.79"S 20°37'20.24"E
Site 3	26°55'51.43"S 20°37'14.93"E
Site 4	26°56'22.81"S 20°36'42.26"E
Site 5	26°56'13.28"S 20°36'17.37"E
Site 6	26°55'27.27"S 20°35'11.16"E
Site 7	26°55'8.96"S 20°34'45.60"E



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Site 8	26°54'46.43"S 20°35'10.84"E
Site 9	26°54'20.54"S 20°34'45.85"E

Hakskeen Pan

Site 1	26°44'38.44"S 20°11'52.69"E
Site 2	26°44'54.89"S 20°12'3.68"E
Site 3	26°43'24.23"S 20° 5'1.09"E
Site 4	26°42'23.39"S 20° 6'34.23"E
Site 5	26°41'14.89"S 20° 6'42.63"E
Site 6	26°41'42.47"S 20° 7'54.79"E

During the survey, vegetation units and other habitat types were roughly mapped and assessed for their ecological condition. Vegetation units were further surveyed for their dominant and typical component species. Any associations with specific soils, underlying geology, or landforms were noted. The locations of any SCC subpopulations encountered were recorded using a GPS device.

The track sampled for each deviation route is showcased in Figures 9 and 10.

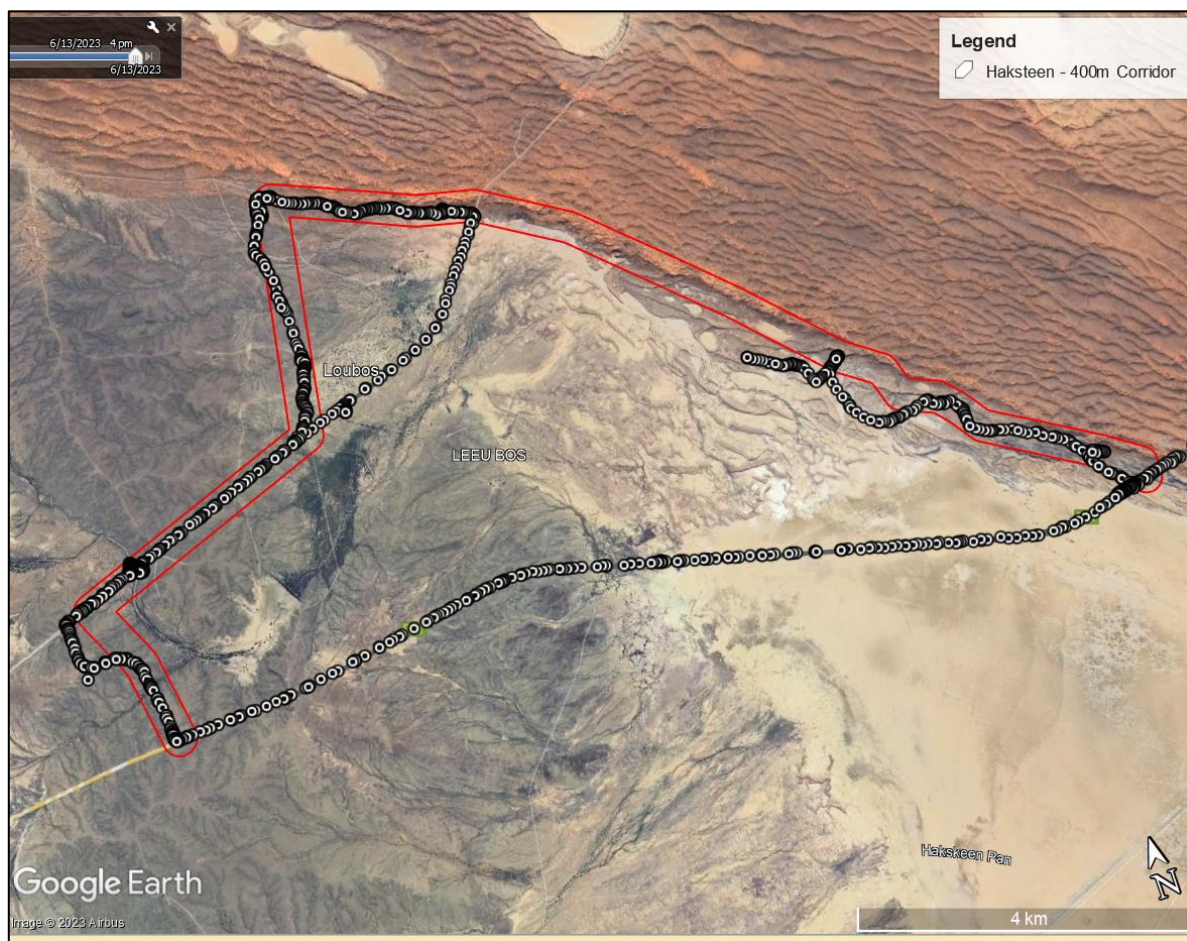


Figure 9 Track sampled for the Hakskeen Pan deviation route (Delineated in red)

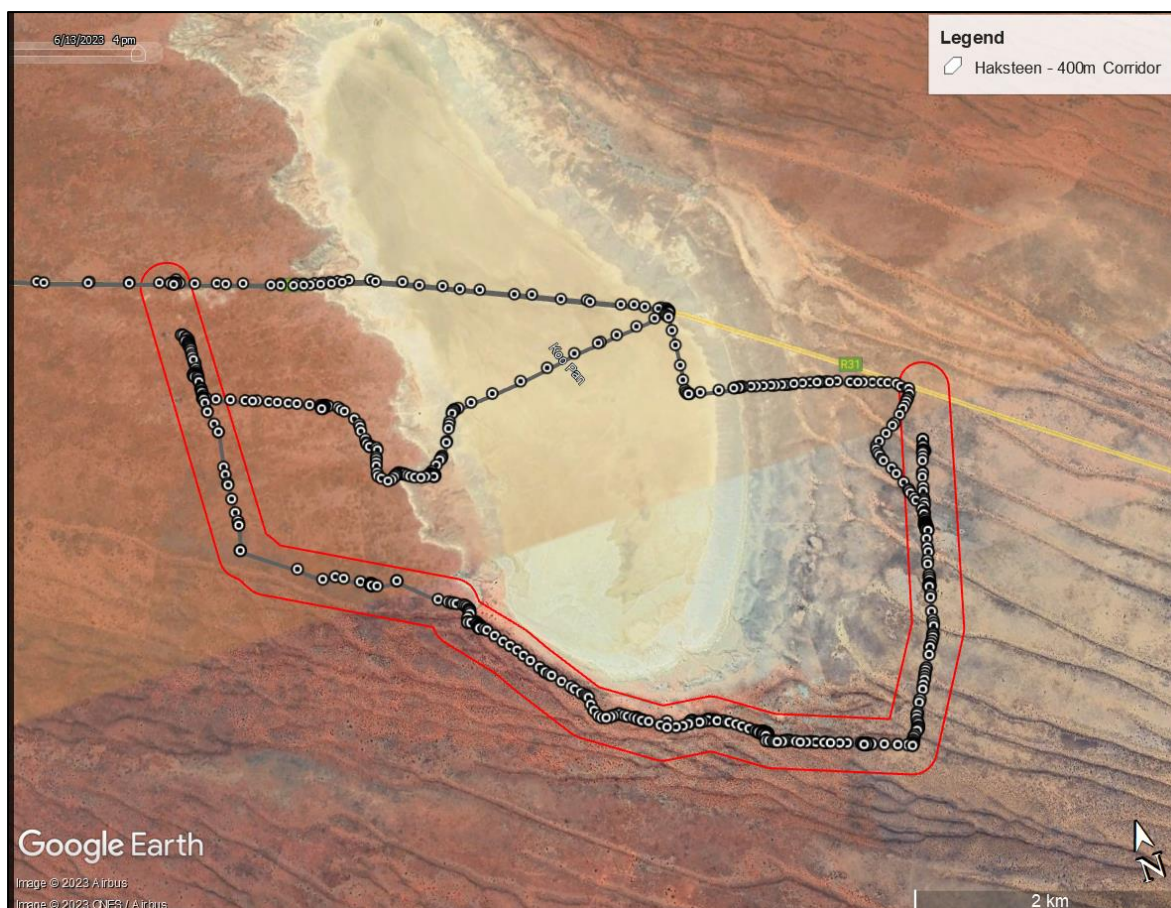


Figure 10 Track sampled for the Koo Pan deviation route (delineated in red)

#### 4.3.5 Ecological Importance

The Site Ecological Importance (SEI) was evaluated according to the protocol outlined in the Species Environmental Assessment Guideline (2020). This protocol produces a standardised metric for identifying site-based ecological importance for species in relation to a proposed project. The SEI is a function of the biodiversity importance of a specific receptor (e.g., vegetation unit or SCC population) and its resilience to environmental impacts. The biodiversity importance is, in turn, a function of the conservation importance and functional integrity of the specific receptor.

### 4.3. Assumptions, uncertainties and gaps in knowledge

#### 4.3.1 Assumptions and uncertainties

The processes of investigation which have led to the production of this report harbour several assumptions, which include the following:

- All information provided by the applicant to the environmental specialist was correct and valid at the time that it was provided.
- Note that avifauna has been excluded from this assessment.

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- The proposed project development footprint as provided by the applicant is correct and will not be significantly deviated from.
- Strategic-level investigations undertaken by the applicant before the commencement of the EIA process determined that the development site represents a potentially suitable and technically acceptable location.
- The public will receive a fair and reoccurring opportunity to participate and comment during the EIA application process, through the provision of adequate public participation timeframes stipulated in the EIA Regulations (2017, as amended).
- The need and desirability of the project are based on strategic national, provincial, and local plans and policies which reflect the interests of both statutory and public viewpoints.
- The EIA application process is a project-level framework, and the specialists are limited to assessing the anticipated environmental impacts associated with the operational phases of the proposed project.
- Strategic-level decision-making is conducted through cooperative governance principles with the consideration of sustainable and responsible development principles underpinning all decision-making.

Given that an EA application process involves prediction, uncertainty forms an integral part of the process. Two types of uncertainty are associated with the EA application process, namely process-related and prediction-related.

- Uncertainty of prediction is critical at the data collection phase as final certainty will only be obtained upon implementation of the proposed development. Adequate research, experience and expertise may minimise this uncertainty.
- Uncertainty of values depicts the approach assumed during the EIA application process, while final certainty will be determined at the time of decision-making. Enhanced communication and widespread/comprehensive coordination can lower uncertainty.
- Uncertainty of related decisions relates to the interpretation and decision-making aspect of the EIA application process, which shall be appeased once monitoring of the project phases is undertaken.
- The significance/importance of widespread/comprehensive consultation towards minimising the risk/possibility of omitting significant impacts is further stressed. The use of quantitative impact significance rating formulas (as utilised in this document) can further standardise the interpretation of results and limit the occurrence and scale of uncertainty.
- The initial study was undertaken as a desktop assessment and as such, the information gathered must be considered with caution, as inaccuracies and data-capturing errors are often present within these databases.
- Global Positioning System (GPS) technology is inherently inaccurate and some inaccuracies due to the use of handheld GPS instrumentation may occur. If more accurate assessments are required, the relevant areas will need to be surveyed and pegged according to surveying principles.

- The risk assessment was applied on the basis that the stipulated mitigation measures in all specialist recommendations will be implemented as recommended and therefore the results presented demonstrate the impact significance of perceived impacts on the receiving environment post-mitigation.

#### 4.3.2 Gaps in the knowledge

The observations and findings made during the site inspection were during a specific time frame and the condition of the proposed site may vary throughout the year. Therefore, circumstances throughout the year may differ and deliver different results.

### 5.Results

#### 5.1 Land cover

Both the Hakskeen Pan and Koo Pan deviation routes are mostly surrounded by natural shrubland and where the respective pans are delineated, the land cover is classified as barren land due to the limited plant species that grown in the pans (Figures 11 and 12).

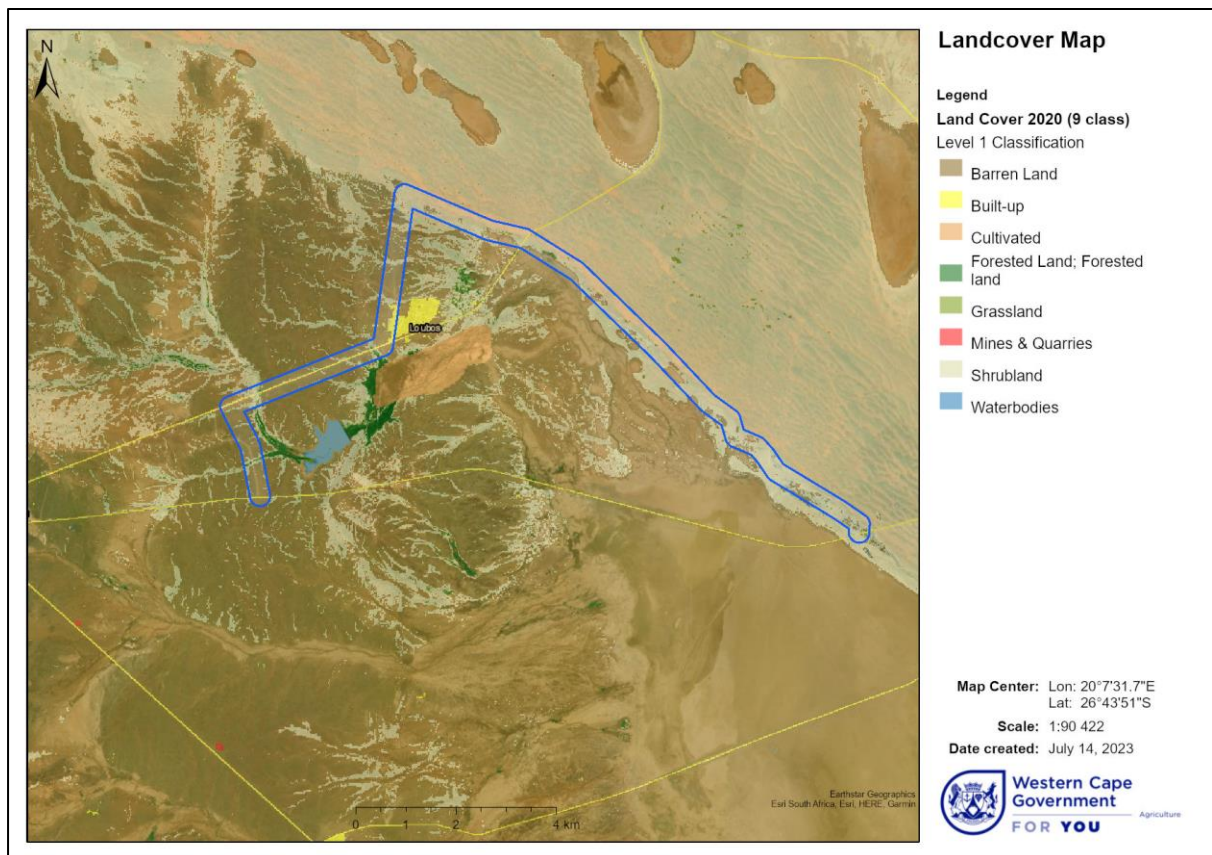


Figure 11 Landcover map for the proposed development footprint at Hakskeen Pan (demarcated in blue)

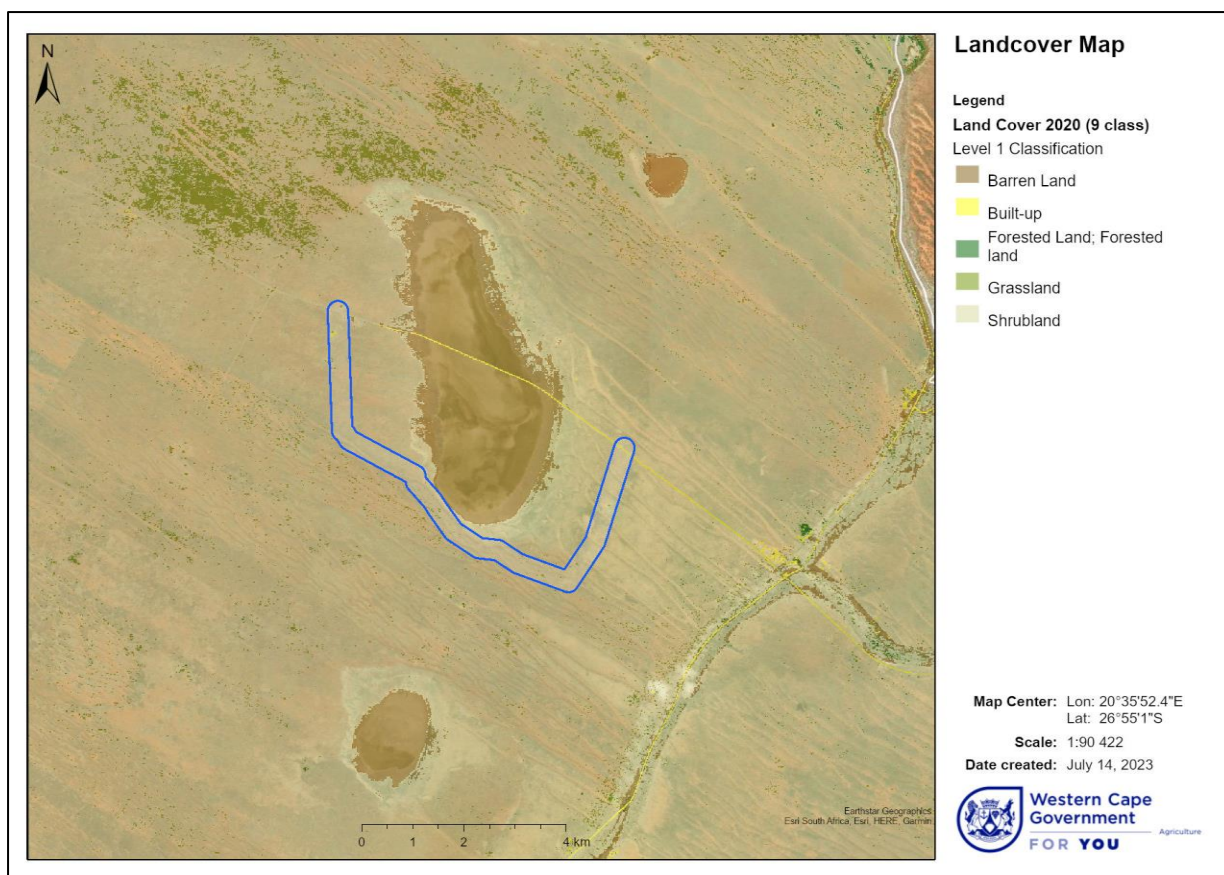


Figure 12 Landcover map for the proposed development footprint at Koo Pan (demarcated in blue)

## 5.2 Climate

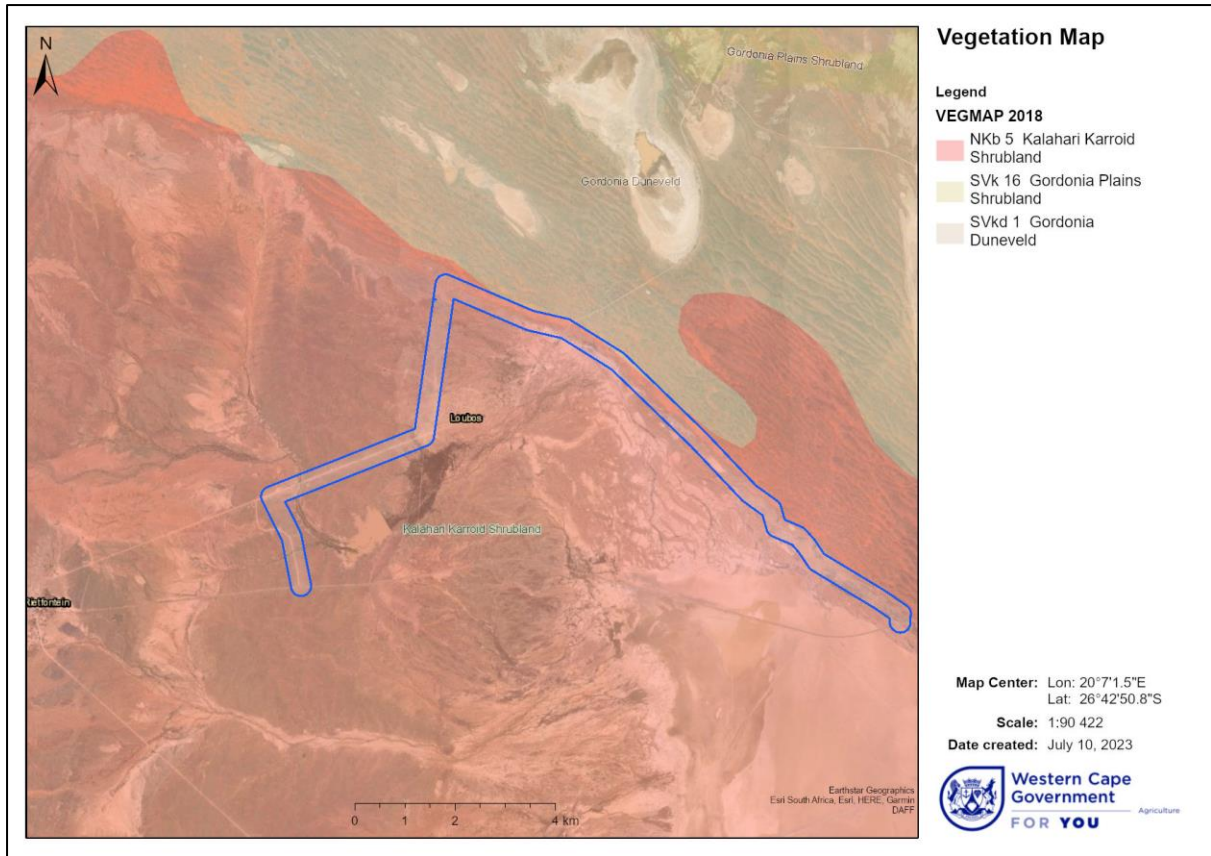
Rietfontein has a semi-arid climate. The average annual temperature for Rietfontein is 22° degrees and there is about 268 mm of rain in a year. It is dry for 258 days a year with an average humidity of 49% and an UV-index of 5 (<https://www.besttimetovisit.co.za/south-africa/rietfontein-3498186/>).

## 5.3 Botanical, Faunal and Terrestrial Assessment

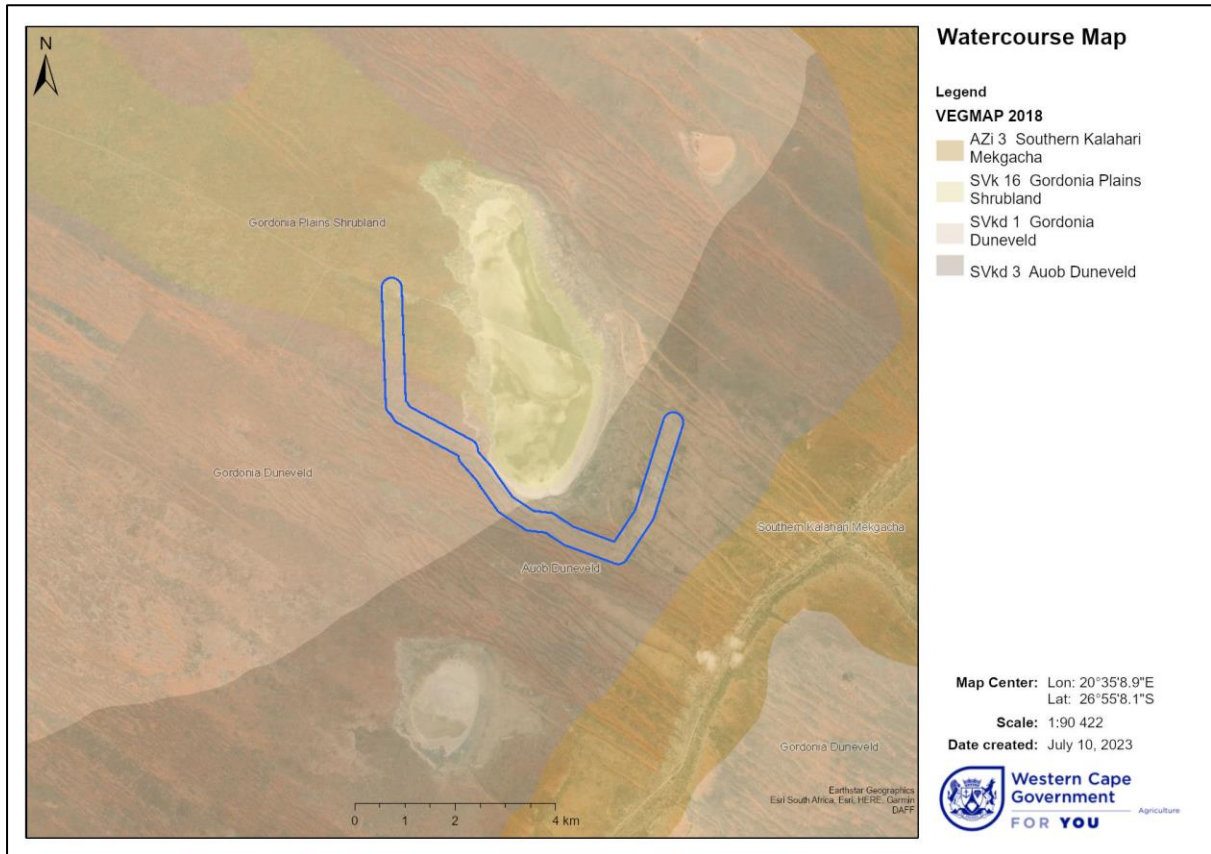
### 5.3.1 Desktop Assessment - General Vegetation description

The proposed development sites (demarcated in blue in Figures 13 and 14) consists mostly of Kalahari Karroid Shrubland and Gordonia Plains Shrubland. The Koo Pan deviation footprint does also include Auob Duneveld and Gordonia Duneveld .

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*Figure 13 Vegetation map of the proposed development footprint for the Hakskeen Pan deviation*



*Figure 14 Vegetation map of the proposed development footprint the Koo Pan deviation*

### **NKb 5 Kalahari Karroid Shrubland**

**Distribution** Northern Cape Province: Typically forming belts alternating with belts of *Gordonia Duneveld* on plains northwest of Upington through Lutzputs and Noenieput to the Rietfontein/Mier area in the north. Other patches occur around Kakamas and north of Groblershoop. The unit is also found in the neighbouring Namibia. Altitude varies mostly from 700–1 100 m.

**Vegetation & Landscape Features** Low karroid shrubland on flat, gravel plains. Karoo-related elements (shrubs) meet here with northern floristic elements, indicating a transition to the Kalahari region and sandy soils.

**Geology & Soils** Cenozoic Kalahari Group sands and small patches also on calcrete outcrops and screes on scarps of intermittent rivers (mekgacha). In places Dwyka Group tillites outcrop. The soils are deep (>300 mm), red-yellow, apedal, freely drained, with a high base status, typical of Ae land type.

**Climate** MAP ranges from about 100–200 mm and most rain falls in late summer and early autumn. Winters are particularly dry, with lowest winter relative humidity compared to other Nama-Karoo types. Mean maximum and minimum monthly temperatures in Upington are 39.5°C and –4.2°C for January and July, respectively. Solar radiation is high and in winter is higher than in any other vegetation type of the Nama-Karoo. See also climate diagram for NKb 5 Kalahari Karroid Shrubland (Figure 7.2).

**Important Taxa** Small Trees: *Acacia mellifera* subsp. *detinens* (d), *Parkinsonia africana* (d), *Boscia foetida* subsp. *foetida*. Tall Shrub: *Rhigozum trichotomum* (d). Epiphytic Semiparasitic Shrub: *Tapinanthus oleifolius*. Low Shrubs: *Hermannia spinosa* (d), *Limeum aethiopicum* (d), *Phaeoptilum spinosum* (d), *Aizoon schellenbergii*, *Aptosimum albomarginatum*, *A. lineare*, *A. marlothii*, *A. spinescens*, *Barleria rigida*, *Hermannia modesta*, *Indigofera heterotricha*, *Leucosphaera bainesii*, *Monechma genistifolium* subsp. *genistifolium*, *Phyllanthus maderaspatensis*, *Polygala seminuda*, *Ptychlobium biflorum* subsp. *biflorum*, *Sericocoma avolans*, *Solanum capense*, *Tephrosia dregeana*. Herbs: *Dicoma capensis* (d), *Chamaesyce inaequilatera* (d), *Amaranthus praetermissus*, *Barleria lichtensteiniana*, *Chamaesyce glanduligera*. *Chascanum garipense*, *Cleome angustifolia* subsp. *diandra*, *Cucumis africanus*, *Geigeria ornativa*, *Hermannia abrotanoides*, *Indigostrum argyraeum*, *Indigofera alternans*, *I. auricoma*, *Kohautia cynanchica*, *Limeum argute-carinatum*, *Mollugo cerviana*, *Monsonia umbellata*, *Sesamum capense*, *Tribulus cristatus*, *T. pterophorus*, *T. terrestris*. Succulent Herbs: *Gisekia africana*, *G. pharnacioides*, *Trianthema parvifolia*. Graminoids: *Aristida adscensionis* (d), *Enneapogon desvauxii* (d), *E. scaber* (d), *Stipagrostis obtusa* (d), *Aristida congesta*, *Enneapogon cenchroides*, *Eragrostis annulata*, *E. homomalla*, *E. porosa*, *Schmidtia kalahariensis*, *Stipagrostis anomala*, *S. ciliata*, *S. hochstetteriana*, *S. uniplumis*, *Tragus berteronianus*, *T. racemosus*.

**Biogeographically Important Taxon** (Southwestern distribution limit) Graminoid: *Dinebra retroflexa*.

**Conservation** Least threatened. Target 21%. Very little statutorily conserved in Au-grabies Falls National Park. Although only a small area has been transformed many of the belts of this type were preferred routes for early

roads, thus promoting the introduction of alien plants (about a quarter of the unit has scattered *Prosopis* species). Erosion is very low (94%).

**Remarks** Vegetation of this mapping unit shows transitional features between the Kalahari proper (Savanna Biome) and the northern Nama-Karoo.

### **SVkd 1 Gordonia Duneveld**

**Distribution** Northern Cape Province: Areas with dunes comprising the largest part of the South African side of the Kgalagadi Transfrontier Park. South of the Molopo River border with Botswana (west of Van Zylsrus), interleafing with NKb 5 Kalahari Karroid Shrubland in the west (south of Rietfontein to the Orange River area) and in the south (around Upington and north of Groblershoop). Also occurs as a number of loose dune cordons south of the Orange River near Keimoes and between Upington and Putsunderwater. Eastern boundary is found at the longitude of Pearson's Hunt, but with outliers near Niekerkshoop in the southeast and Floradora in the northeast. Altitude 800–1 200 m.

**Vegetation & Landscape Features** Parallel dunes about 3–8 m above the plains. Open shrubland with ridges of grassland dominated by *Stipagrostis amabilis* on the dune crests and *Acacia haematoxylon* on the dune slopes, also with *A. mellifera* on lower slopes and *Rhigozum trichotomum* in the interdune straaen.

**Geology & Soils** Aeolian sand underlain by superficial silcretes and calcretes of the Cenozoic Kalahari Group. Fixed parallel sand dunes, with Af land type almost exclusively.

**Climate** Summer and autumn rainfall with very dry winters. MAP about 120–260 mm. Frost fairly frequent to frequent in winter. Mean monthly maximum and minimum temperatures for Vrouenspan 41.5°C and –4.0°C for December and July, respectively. See also climate diagram for SVkd 1 Gordonia Duneveld.

**Important Taxa** Small Tree: *Acacia mellifera* subsp. *detinens* (d). Tall Shrubs: *Grewia flava* (d), *Rhigozum trichotomum* (d). Low Shrubs: *Aptosimum albomarginatum*, *Monechma incanum*, *Requienia sphaerosperma*. Succulent Shrubs: *Lycium bosciifolium*, *L. pumilum*, *Talinum caffrum*. Graminoids: *Schmidtia kalahariensis* (d), *Brachiaria glomerata*, *Bulbostylis hispidula*, *Centropodia glauca*, *Eragrostis lehmanniana*, *Stipagrostis ciliata*, *S. obtusa*, *S. uniplumis*. Herbs: *Hermstaedtia fleckii* (d), *Acanthosicyos naudinianus*, *Hermannia tomentosa*, *Limeum arenicolum*, *L. argute-carinatum*, *Oxygonum dregeanum* subsp. *canescens* var. *canescens*, *Sericorema remotiflora*, *Sesamum triphyllum*, *Tribulus zeyheri*.

**Biogeographically Important Taxa** (Kalahari endemics) Tall Shrub: *Acacia haematoxylon* (d). Graminoids: *Stipagrostis amabilis* (d), *Antheophora argentea*, *Megaloprotachne albescens*. Herbs: *Helichrysum arenicola*, *Kohautia ramosissima*, *Neuradopsis austro-africana*.

**Conservation** Least threatened. Target 16%. Some 14% statutorily conserved in the Kgalagadi Transfrontier Park. Very little transformed. Generally low erosion, but some areas with spectacular destabilisation of normally vegetated dunes (through local overstocking) favoured by photographers. Erosion is normally very low.



**Remarks** The unit extends into Namibia to a large extent (Leistner 1967) and very little into Botswana. Only degenerates into semimobile dunes, where heavily disturbed through intense grazing pressure.

### **SVkd 3 Auob Duneveld**

**Distribution** Northern Cape Province: Belt of duneveld south of the Auob River from Mata Mata to Twee Rivieren within the Kgalagadi Transfrontier Park as well as in the northern Mier area. Found also in the area between the Auob and Nossob Rivers near their confluence as well as small areas around the confluences of the Nossob, Molopo and Kuruman Rivers. Altitude 880–1 040 m.

**Vegetation & Landscape Features** Open shrubland with low shrub layer dominated by *Acacia haematoxylon*, *A. mellifera* and *Rhigozum trichotomum*. Trees of *A. erioloba* and *Boscia albitrunca* are widely scattered and grass layer is scanty.

**Geology & Soils** Deep aeolian sand forming undulating dunes, with outcrops of calcrete, Namib soil form. Shallow soils on calcrete outcrops often with Clovelly soil form. Land type Af.

**Climate** Summer and autumn rainfall with very dry winters. MAP about 150–250 mm. Frost fairly frequent to frequent in winter. Mean monthly maximum and minimum temperatures for Twee Rivieren 40.6°C and –6.0°C for December and July, respectively. See also climate diagram for SVkd 3 Auob Duneveld.

**Important Taxa** Tall Tree: *Acacia erioloba*. Small Trees: *Acacia mellifera* subsp. *detinens* (d), *Boscia albitrunca*. Tall Shrubs: *Rhigozum trichotomum* (d), *Grewia flava*. Low Shrub: *Requienia sphaerosperma*. Graminoids: *Schmidtia kalahariensis* (d), *Stipagrostis ciliata* (d), *S. uniplumis* (d), *Brachiaria glomerata*, *Bulbostylis hispidula*, *Centropodia glauca*, *Eragrostis trichophora*. Herbs: *Acanthosicyos naudinianus*, *Acrotome angustifolia*, *Hermannia tomentosa*, *Limeum arenicolum*, *Sesamum triphyllum*.

**Biogeographically Important Taxa** (Kalahari endemics) Tall Shrub: *Acacia haematoxylon* (d). Low Shrub: *Hermannia burchellii*. Graminoid: *Stipagrostis amabilis* (d).

**Conservation** Least threatened. Target 16%. Some 57% statutorily conserved in the Kgalagadi Transfrontier Park. Erosion is very low.

### **SVk 16 Gordonias Plains Shrubland**

**Distribution** Northern Cape Province: Broad north-south band on flats west of the Korannaberg and Langeberg Mountains (and of their western pediment) and east of the main Kalahari duneveld area (for example at Pearson's Hunt). From Van Zylsrus in the north to southwest of Witsand in the south. Also as a number of isolated patches embedded in the duneveld area between the Auob and Nossob Rivers in the Kgalagadi Transfrontier Park as well as the valley containing Groot and Klein Mier south of the park. Altitude 900–1 250 m.

**Vegetation & Landscape Features** Plains with open grassland with occasional shrubs *Rhigozum trichotomum* and *Grewia flava*, sometimes including *Acacia haematoxylon* and scattered individuals of *A. erioloba*. The area has virtually no dunes.

**Geology & Soils** Aeolian sand, underlain by calcrete of the Kalahari Group, deep, loose, sandy soils of the Namib soil form on the flat plains. Land types mainly Ah and Af with a little Ae.

**Climate** Summer and autumn rainfall with very dry winters. MAP about 180–280 mm. Frost frequent in winter. See also climate diagram for SVk 16 Gordonias Plains Shrubland.

**Important Taxa** Tall Tree: *Acacia erioloba* (d). Small Tree: *Acacia mellifera* subsp. *detinens*. Tall Shrubs: *Grewia flava* (d), *Rhigozum trichotomum* (d). Low Shrubs: *Jatropha erythropoda*, *Plinthus sericeus*, *Requienia sphaerosperma*. Geoxylic Suffrutex: *Elephantorrhiza elephantina*. Semiparasitic Shrub: *Thesium lineatum*. Herbaceous Climber: *Merremia tridentata*. Graminoids: *Aristida meridionalis* (d), *Centropodia glauca* (d), *Eragrostis lehmanniana* (d), *Schmidtia kalahariensis* (d), *Brachiaria glomerata*, *Bulbostylis hispidula*, *Eragrostis pallens*, *Stipagrostis uniplumis*. Herbs: *Acanthosicyos naudinianus*, *Cucumis africanus*, *Dicoma capensis*, *Harpagophytum procumbens* subsp. *procumbens*, *Heliotropium ciliatum*, *Hermannia tomentosa*, *Ipomoea hackeliana*, *Limeum argute-carinatum*, *Oxygonum dregeanum* subsp. *canescens* var. *canescens*, *Senna italica* subsp. *arachoides*, *Sericorema remotiflora*.

**Biogeographically Important Taxa** (Kalahari endemics) Tall Shrub: *Acacia haematoxylon*. Low Shrub: *Hermannia burchellii*. Graminoid: *Antheplora argentea*.

#### **SVk 16 Gordonias Plains Shrubland**

**Distribution** Northern Cape Province: Broad north-south band on flats west of the Korannaberg and Langeberg Mountains (and of their western pediment) and east of the main Kalahari duneveld area (for example at Pearson's Hunt). From Van Zylsrus in the north to southwest of Witsand in the south. Also as a number of isolated patches embedded in the duneveld area between the Auob and Nossob Rivers in the Kgalagadi Transfrontier Park as well as the valley containing Groot and Klein Mier south of the park. Altitude 900–1 250 m.

**Vegetation & Landscape Features** Plains with open grassland with occasional shrubs *Rhigozum trichotomum* and *Grewia flava*, sometimes including *Acacia haematoxylon* and scattered individuals of *A. erioloba*. The area has virtually no dunes.

**Geology & Soils** Aeolian sand, underlain by calcrete of the Kalahari Group, deep, loose, sandy soils of the Namib soil form on the flat plains. Land types mainly Ah and Af with a little Ae.

**Climate** Summer and autumn rainfall with very dry winters. MAP about 180–280 mm. Frost frequent in winter. See also climate diagram for SVk 16 Gordonias Plains Shrubland.

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**Important Taxa** Tall Tree: *Acacia erioloba* (d). Small Tree: *Acacia mellifera* subsp. *detinens*. Tall Shrubs: *Grewia flava* (d), *Rhigozum trichotomum* (d). Low Shrubs: *Jatropha erythropoda*, *Plinthus sericeus*, *Requienia sphaerosperma*. Geoxylic Suffrutex: *Elephantorrhiza elephantina*. Semiparasitic Shrub: *Thesium lineatum*. Herbaceous Climber: *Merremia tridentata*. Graminoids: *Aristida meridionalis* (d), *Centropodia glauca* (d), *Eragrostis lehmanniana* (d), *Schmidtia kalahariensis* (d), *Brachiaria glomerata*, *Bulbostylis hispidula*, *Eragrostis pallens*, *Stipagrostis uniplumis*. Herbs: *Acanthosicyos naudinianus*, *Cucumis africanus*, *Dicoma capensis*, *Harpagophytum procumbens* subsp. *procumbens*, *Heliotropium ciliatum*, *Hermannia tomentosa*, *Ipomoea hackeliana*, *Limeum argute-carinatum*, *Oxygonum dregeanum* subsp. *canescens* var. *canescens*, *Senna italica* subsp. *arachoides*, *Sericorema remotiflora*.

**Biogeographically Important Taxa** (Kalahari endemics) Tall Shrub: *Acacia haematoxylon*. Low Shrub: *Hermannia burchellii*. Graminoid: *Antheophora argentea*.

**Conservation** Least threatened. Target 16%. Some 9% statutorily conserved in the Kgalagadi Transfrontier Park. Very little of the area is transformed and erosion is very low.

#### **SVk 16 Gordonia Plains Shrubland**

**Distribution** Northern Cape Province: Broad north-south band on flats west of the Korannaberg and Langeberg Mountains (and of their western pediment) and east of the main Kalahari duneveld area (for example at Pearson's Hunt). From Van Zylsrus in the north to southwest of Witsand in the south. Also as a number of isolated patches embedded in the duneveld area between the Auob and Nossob Rivers in the Kgalagadi Transfrontier Park as well as the valley containing Groot and Klein Mier south of the park. Altitude 900–1 250 m.

**Vegetation & Landscape Features** Plains with open grassland with occasional shrubs *Rhigozum trichotomum* and *Grewia flava*, sometimes including *Acacia haematoxylon* and scattered individuals of *A. erioloba*. The area has virtually no dunes.

**Geology & Soils** Aeolian sand, underlain by calcrete of the Kalahari Group, deep, loose, sandy soils of the Namib soil form on the flat plains. Land types mainly Ah and Af with a little Ae.

**Climate** Summer and autumn rainfall with very dry winters. MAP about 180–280 mm. Frost frequent in winter. See also climate diagram for SVk 16 Gordonia Plains Shrubland.

**Important Taxa** Tall Tree: *Acacia erioloba* (d). Small Tree: *Acacia mellifera* subsp. *detinens*. Tall Shrubs: *Grewia flava* (d), *Rhigozum trichotomum* (d). Low Shrubs: *Jatropha erythropoda*, *Plinthus sericeus*, *Requienia sphaerosperma*. Geoxylic Suffrutex: *Elephantorrhiza elephantina*. Semiparasitic Shrub: *Thesium lineatum*. Herbaceous Climber: *Merremia tridentata*. Graminoids: *Aristida meridionalis* (d), *Centropodia glauca* (d), *Eragrostis lehmanniana* (d), *Schmidtia kalahariensis* (d), *Brachiaria glomerata*, *Bulbostylis hispidula*, *Eragrostis pallens*, *Stipagrostis uniplumis*. Herbs: *Acanthosicyos naudinianus*, *Cucumis africanus*, *Dicoma capensis*, *Harpagophytum procumbens* subsp. *procumbens*, *Heliotropium ciliatum*, *Hermannia tomentosa*, *Ipomoea*

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*hackeliana*, *Limeum argute-carinatum*, *Oxygonum dregeanum* subsp. *canescens* var. *canescens*, *Senna italica* subsp. *arachoides*, *Sericorema remotiflora*.

**Biogeographically Important Taxa** (Kalahari endemics) Tall Shrub: *Acacia haematoxylon*. Low Shrub: *Hermannia burchellii*. Graminoid: *Antheophora argentea*.

**Conservation** Least threatened. Target 16%. Some 9% statutorily conserved in the Kgalagadi Transfrontier Park. Very little of the area is transformed and erosion is very low.

### *5.3.2 Desktop Assessment - Sensitive areas*

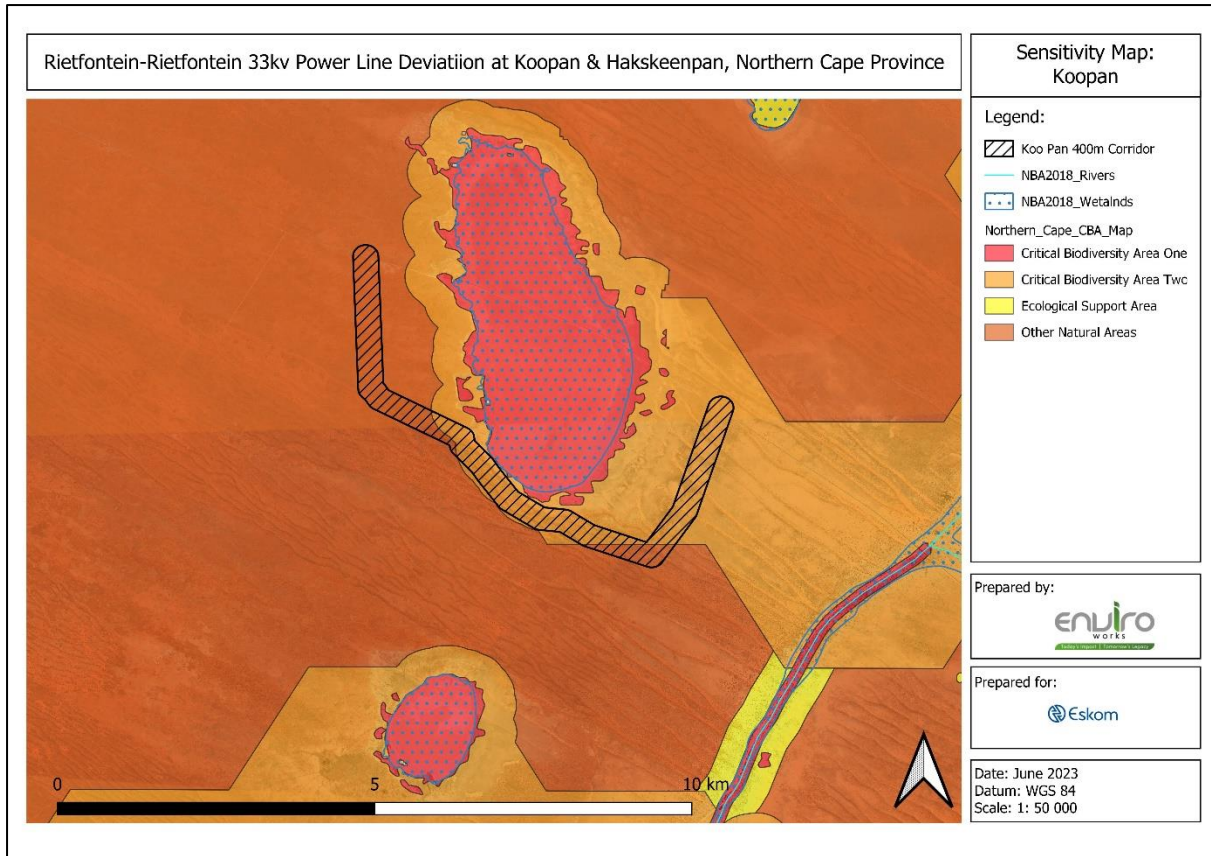
The proposed development footprint of the Koo Pan deviation corridor is included in two different types of the sensitive areas according to the Northern Cape Critical Biodiverse Areas Map (2016). These include a Critical Biodiverse Area two and an Other Natural Area. Similarly, the proposed development footprint of the Hakskeen Pan deviation corridor also includes a Critical Biodiverse Area two and an Other Natural Area, but also includes a Critical Biodiverse Area one where the Depression Pan is mapped. See Figures 15 and 16.

CBAs are areas of high biodiversity and ecological value. These areas are required to meet biodiversity targets for species, ecosystems or ecological processes and infrastructure. CBAs that are likely to be in a natural condition are classified as Category 1 CBAs and those that are potentially degraded or represent secondary vegetation are classified as Category 2 CBAs. Only low-impact, biodiversity-sensitive land uses are considered appropriate within CBAs (Pool-Stanvliet et al., 2017). These areas are also to be managed for biodiversity conservation purposes, restored where required and incorporated into the Protected Area network.

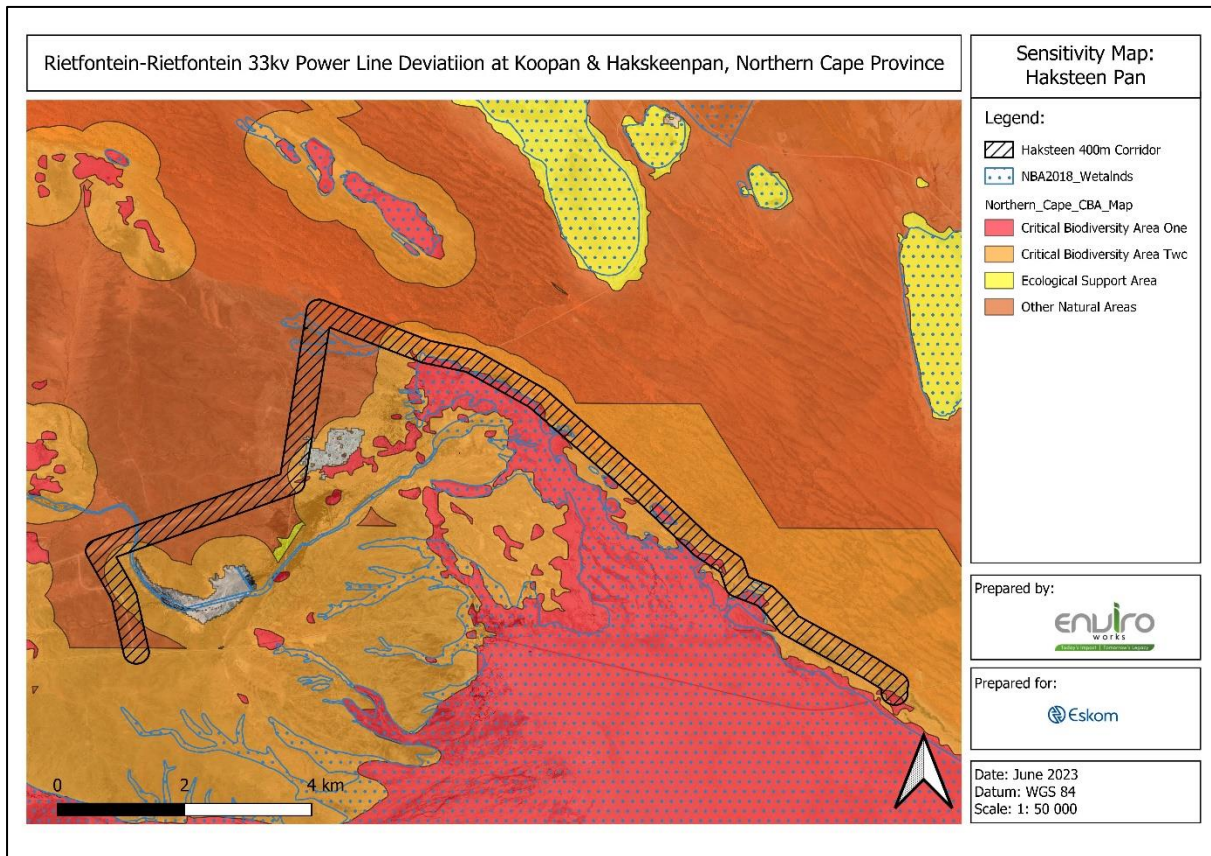
Other Natural Areas are areas not currently identified as a priority but retain most of their natural character and perform a range of biodiversity and ecological infrastructure functions. Although not prioritised, they are still an important part of the natural ecosystem. The conservation targets for these areas are to minimize habitat and species loss and ensure ecosystem functionality through strategic landscape planning. There is flexibility in permissible land-uses, but some authorisation may still be required for high-impact land-uses.

Since the proposed development footprints are situated in sensitive areas identified by the Northern Cape Critical Biodiverse Areas Map, the footprint is considered to hold conservation importance. It must be noted that the Critical Biodiverse Area One (CBA 1) is delineated due to Pans (which are not covered in this report) and the CBA 2 is mostly delineated due to the presence of *Gordonia Duneveld* vegetation type. The state of the footprint and surrounding area is discussed in Section 5.4.3.

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*Figure 15: Sensitivity of the proposed development of the Koo Pan deviation (demarcated in black)*



*Figure 16: Sensitivity of the proposed development of the Haksteen Pan deviation (demarcated by a black)*

### 5.3.3 Site Assessment

#### 5.3.3.1 Vegetation description

During the site inspection, both the Hakskeen and Koo Pan deviation corridor footprints were confirmed to be located on a mixture of plains and dunes. The footprints mostly included natural vegetation with some disturbance from the development of farms and grazing of sheep. The main vegetation types within the corridors include Kalahari Karroid Shrubland, *Gordonia* Duneveld and *Gordonia* Plains Shrubland. A baseline description of the vegetation types on the footprints and surrounding areas are included in the sections below.

##### 5.3.3.1.1 Kalahari Karroid Shrubland

This shrubland is predominantly located in the Hakskeen Pan deviation route corridor and is mostly absent from the Koo Pan deviation route corridor. Most of the vegetation type included in the corridor is natural and disturbed (Figure 17). It is dominant in species such as *Boscia foetida*, *Senegalia mellifera*, *Rhigozum trichotomum*, *Phaeoptilum spinosum*, and grasses such as *Stipagrostis obtusa* and *Pappostipa speciosa*. In certain areas throughout the footprint, especially around the farms, disturbance is evident via low shrub cover and high abundance of *Prosopis* sp., a common alien species in the area (Figure 18).

Areas of Kalahari Karroid Shrubland are often high in faunal activity and limited in threatened plant species abundance. Given that the areas are mostly natural, they will likely form an important part of the overall ecology of the area.



*Figure 17: Ecological condition of the vegetation described as Kalahari Karroid Shrubland*





Figure 18: Ecological condition of the disturbed areas included in Kalahari Karroid Shrubland vegetation type in the footprints.

#### 5.3.3.1.2 *Gordonia Duneveld*

The dunes (and associated dune veld) are evident in both route corridor footprints. Because the dunes are often difficult to develop on, they are mostly natural with limited evidence of disturbance. The dunes area dominant in species such as *Pappostipa speciosa*, *Stipagrostis obtusa* and *Vachellia erioloba*. In the Koo Pan deviation route corridor footprint, species such as *Vachellia erioloba*, *Senegalia mellifera* and *Vachellia haematoxylon* were dominant in the slacks (Figure 19). The dunes exhibit deep, red soils with evidence of calcrete deposition.

Dunes are often sensitive to development since development often causes erosion and prevent the movement of sand. The movement of sand on dunes form an integral part of the ecological of this vegetation type. The areas delineated as *Gordonia Duneveld* are also included in a Critical Biodiverse Areas Two. Therefore, these areas are considered to be of conservation importance.



Figure 19: Ecological condition of the vegetation described as Gordonia Duneveld

#### 5.3.3.1.3 Gordonia Plains Shrubland

The Gordonia Plains Shrubland are mostly evident in the Koo Pan deviation route corridor footprint. This section of the footprint is mostly natural with limited disturbance only from small farm houses and light sheep grazing. The plains area dominant in species such as *Justicia australis*, *Tapinanthus oleifolius* and *Stipagrostis obtusa* (Figure 20). Overall, the plains were recorded to be homogenous in plant species. Although areas that include Gordonia Plains Shrubland have limited plant diversity, these areas are often high in faunal activity are likely extremely important for the overall ecological functioning of the area.



*Figure 20: Ecological condition of the vegetation described as Gordonia Plains Shrubland*

### 5.3.3.2 Species of conservation concern

#### 5.3.3.2.1 Plant Species

No threatened species were recorded on the footprints during the site inspection which is expected given that no species were identified by the DFFE Screening Tool. The vegetation types noted on the footprints do not typically have a high abundance of threatened and thus, it not likely that any threatened plant species will inhabit the footprints. However, two protected trees were recorded within the Koo Pan deviation route footprint including *Vachellia erioloba* and *Vachellia haematoxylon*. Both species have a threatened status of least concern but do require a tree removal permit should they be uprooted.

#### 5.3.3.2.2 Animal Species

No terrestrial fauna species of special concern (besides avifauna) were identified by the DFFE Screening Tool and no species of conservation concern were recorded on the footprint. Common species that are likely to inhabit the area are listed in Appendix C but mostly include (but are not limited to) *Suricata suricatta*, *Oryx gazella*, *Geosciurus inauris*, *Agama aculeata*. Various evidence of faunal species was recorded on the footprints (Figures 21-23). However, these species are likely to be non-threatened and not protected.

As mentioned in the above sections, the Kalahari is well known for the high faunal activity especially arachnids, reptiles and small mammals such as genets, mongoose and meerkats. Special care should be taken during construction not to disturb any fauna and burrows and nests should be avoided as far as practically possible. The aforementioned is especially true for the protected species confirmed on the footprints and surrounding area, all of which must be avoided. Given that there is potential habitat surrounding the development footprint, any faunal species that inhabits the development footprint, will likely be able to find refuge in the surrounding areas.



*Figure 21: Buck droppings in the Koo Pan deviation route corridor footprint*



*Figure 22: Example of burrows evident within both corridor footprints.*



*Figure 23: Track (likely from a wild cat) within the Koo Pan deviation route corridor footprint.*

### 5.3.3.3 Ecological Importance

The Site Ecological Importance (SEI) of the footprint was evaluated as Low (Table 7) for each of the habitat units. The aforementioned was determined based on the medium biodiversity importance and medium receptor resilience. .

Table 7 Site Ecological Importance of the different habitat units delineated within the footprint.

Habitat	Conservation Importance	Functional Integrity	Receptor Resilience	Site Ecological Importance
Kalahari Karroid Shrubland	<b>Medium:</b> > 50% of receptor contains natural habitat with potential to support SCC.	<b>Medium:</b> Good habitat connectivity with potentially functional ecological corridors and a regularly used road network between intact habitat patches. Mostly minor current negative ecological impacts with some major impacts (e.g. established population of alien and invasive flora) and a few signs of minor past disturbance. Moderate rehabilitation potential.	<b>High:</b> Habitat that can recover relatively quickly (~ 5–10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a high likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a high likelihood of returning to a site once the disturbance or impact has been removed.	<b>Low:</b> Minimisation and restoration mitigation – development activities of medium to high impact acceptable followed by appropriate restoration activities.
Gordonia Duneveld	<b>Medium:</b> > 50% of receptor contains natural habitat with potential to support SCC	<b>High:</b> Good habitat connectivity with potentially functional ecological corridors and a regularly used road network	<b>High:</b> Habitat that can recover relatively quickly (~ 5–10 years) to restore > 75% of the original species composition and	<b>Low:</b> Minimization & restoration mitigation - Development activities of medium to high impact



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		<p>between intact habitat patches. Only minor current negative ecological impacts (e.g. few livestock utilising area) with no signs of major past disturbance (e.g. ploughing) and good rehabilitation potential</p>	<p>functionality of the receptor functionality, or species that have a high likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a high likelihood of returning to a site once the disturbance or impact has been removed.</p>	<p>acceptable followed by appropriate restoration activities</p>
<p>Gordonia Plains Shrubland</p>	<p><b>Medium:</b> &gt; 50% of receptor contains natural habitat with potential to support SCC</p>	<p><b>High:</b> Good habitat connectivity with potentially functional ecological corridors and a regularly used road network between intact habitat patches. Only minor current negative ecological impacts (e.g. few livestock utilising area) with no signs of major past disturbance (e.g. ploughing) and good rehabilitation potential</p>	<p><b>High:</b> Habitat that can recover relatively quickly (~ 5–10 years) to restore &gt; 75% of the original species composition and functionality of the receptor functionality, or species that have a high likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a high likelihood of returning to a site once the disturbance or impact has been removed.</p>	<p><b>Low:</b> Minimization &amp; restoration mitigation - Development activities of medium to high impact acceptable followed by appropriate restoration activities</p>

#### **5.4 Site Sensitivity Verification of the Environmental Themes**

The DFFE National Screening Tool Classified the proposed development area as “very high” sensitivity for the Terrestrial Biodiversity theme, “low” sensitivity for the Plant Species theme, and “low” for the Animal Species Theme for both the Hakskeen and Koo Pan deviation route corridor footprint.

The footprints constitute of three main vegetation types: Kalahari Karroid Shrubland, Gordonia Duneveld, and Gordonia Plains Shrubland. The footprints mostly consist of natural habitat with only minimal disturbance from the development of small farm houses and sheep grazing. In areas where disturbance is evident, *Prosopis* species are abundant and there is a low abundance of shrubs. Two protected tree species were recorded on the Koo Pan deviation route corridor footprint namely *Vachellia haematoxylon* and *Vachellia erioloba*.

Most of the footprints are located in Other Natural Areas which have been confirmed given the natural and mostly undisturbed state of the vegetation. Moreover, some areas (mostly those included in the Gordonia Duneveld) are included in a Critical Biodiverse Area Two (CBA 2). These have been confirmed given that the dunes are usually sensitive specially to changes that lead to restricted sand movement. It is recommended that development be restricted to the dune slacks to avoid any compression of the dunes and removal of the vegetation on the dunes. Given that the footprint of the structures is small (300 mm), it is unlikely that the development will have any impact on the functioning of the CBA 2 or the Other Natural Area.

It must be noted that although CBA 2 areas and Other Natural Areas are included in biodiversity spatial plans, these areas are of low importance in terms of conservation (see Section 5.4.2) and are therefore, not considered to be included in high sensitivity categories.

Based on the above and that the footprint of the deviation routes will be small, it is confirmed that the sensitivity for each theme (for each deviation route footprint) is as follows: “low” sensitivity for the Terrestrial Biodiversity theme, “low” sensitivity for the Plant Species theme, and “low” for the Animal Species Theme.

#### **6. Impact management outcomes or any monitoring requirements for inclusion in the EMPR**

The majority of the study area has already been subjected to disturbance. The list below highlights the key integrated mitigation measures that are applicable to the development to suitably manage and mitigate ecological impacts, on both fauna and flora that are associated with the footprint. Provided that all management and mitigation measures are implemented, as stipulated in this report, the overall risk to floral and faunal diversity, habitat and Species of Conservation Concern can be adequately mitigated and minimised.

- Fires are prohibited.
- Sufficient fire management equipment must be on the site.
- Dunes should be avoided as a far as practically possible and dune slack should be developed on.
- Erosion measures must be in place should any erosion be noted during construction or operations.

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- Erosion must be monitored at least once a month during construction and annually after heavy rains during operations.
- All mitigation measures in the Aquatic Biodiversity Assessment must be adhered to.
- Smoking must be restricted to designated smoking areas.
- No dumping of untreated sewage or hazardous waste into the adjacent ecosystem.
- Effort should be made to avoid all protected trees. Should the aforementioned not be feasible, a Protected Tree Permit should be applied for should any protected trees be earmarked for removal.
- All activities must remain within the designated footprint.
- All areas outside of the footprint must be considered no-go areas.
- Expansions and new access roads should be restricted to already disturbed areas as far as practically possible.
- Alien Invasive Species (AIS) proliferation, which may affect adjacent natural habitat within surrounding areas, needs to be strictly managed via an alien invasive species management method statement (to be compiled by the designated Environmental Officer and then signed off by a suitably qualified Botanical Specialist).
- All areas disturbed outside of the footprint must be adequately rehabilitated according to a rehabilitation method statement (to be compiled by the designated Environmental Officer and then signed off by a suitably qualified Botanical Specialist).
- Vehicles use must be restricted to designated roads.
- All staff must be trained to ensure that they are aware of any potential fauna may be on the footprint or surrounds.
- Vehicles should be restricted to a clearly demarcated area and drivers must be vigilant.
- A speed limit of 20km per hour should apply to the roads on site to reduce the chance of road fatalities.
- Should any faunal species need to be translocated, a faunal or avifaunal (in the case of birds) specialist will need to be consulted.
- All personnel working on site must undergo environmental inductions to ensure they are aware of the environmental sensitivities of the site.
- No fauna may be caught, trapped, or harmed in any way.

- No threatened or protected plant species are to be removed, as far as practically possible.
- No feeding of any fauna is allowed.

## **7. Conditions to which this statement is subjected**

- This signed copy of the compliance statement must be read as an appendix to the Basic Assessment Report (BAR) for this project.
- This Compliance Statement is subject to the condition that the information supplied to the specialist regarding the project scope, design, layout, location or any other project specifications will not be significantly deviated from.
- All mitigation measures and requirements as specified in this compliance statement, the BAR and EMPr will adhered to during all project phases.

## **8. Assumptions, uncertainties, and gaps in knowledge**

- All information provided by the Applicant, EAP and design team, to the environmental specialist, was correct and valid at the time that it was provided.
- The results of the botanical and faunal survey reflect a specific time of year. The botanical and faunal survey was conducted during early winter when some of the annual plant species may not be visually present and when certain animal species will either not be present or active.
- The initial study was undertaken as a desktop assessment and as such, the information gathered must be considered with caution, as inaccuracies and data capturing errors are often present within these databases; and,
- Global Positioning System (GPS) technology is inherently inaccurate and some inaccuracies due to the use of handheld GPS instrumentation may occur.

## **9. References**

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- Global Biodiversity Information Facility [WWW Document], n.d. URL <https://www.gbif.org/>
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- IUCN 2020 [WWW Document], n.d. . The IUCN Red List of Threatened Species. Version 2019-3. URL <https://www.iucnredlist.org> (accessed 7.29.20).

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- Nick, N.A., Raimondo, D., 2007. National Assessment: Red List of South African Plants version 2020.1. [WWW Document].
- South African National Biodiversity Institute (SANBI), 2019. National Biodiversity Assessment 2018: The status of South Africa's ecosystems and biodiversity, Synthesis Report. South African National Biodiversity Institute, an entity of the Department of Environment, Forestry and Fisheries, Pretoria.
- South African National Biodiversity Institute (SANBI), 2016. Botanical Database of Southern Africa (BODATSA) [dataset] [WWW Document].

## **9. Appendixes**

Appendix A - Specialist and Review Specialist CVs.

Appendix B - List of plant species recorded on the footprint.

Appendix C - List of potential faunal species that may inhabit the site.

## Appendix A - Curriculum Vitae of specialist



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### **Megan Smith** **Lead Ecological Specialist and Legal Assistant**

<b>Name:</b>	Megan
<b>Surname:</b>	Smith
<b>Highest qualification:</b>	MSc Biological Sciences (UCT)
<b>South African Association of Botanists</b>	Ordinary member since 2020
<b>Botanical Society of southern Africa</b>	No. 80495
<b>IAIAsa membership</b>	No. 6459
<b>EAPASA Registration</b>	2020/2855 (Candidate EAP)
<b>SACNASP Registration</b>	130295 (Pr.Nat.Sci) – Ecological Science
<b>Years' experience conducting botanical/ecological related works in the Cape Floristic Region</b>	>6 years

#### RELEVANT QUALIFICATIONS AND TRAINING

- MSc Biological Sciences (UCT): Specialising in Plant Ecology
- BSc Hons Botany (NMU)
- BSc Environmental Sciences (NMU)
- Scientific writing training led by Dr Pippin Anderson (August 2019)
- Fynbos plant identification training (July 2019)
- CDM calibration training by Renew Technologies (August 2020)
- ISO 14001:2015 Lead auditor training by SACAS (March 2021)
- Hydopedology and wetland delineation course led by WETrust and digital Soils Africa (September 2021)

#### WORK EXPERIENCE

- March 2015 – September 2016: Research assistant determining sustainable cultivation practices of Honeybush (*Cyclopia* spp.) at NMU
- March 2019 – April 2020: Restoration Ecology and Conservation Planning intern at SANBI
- March 2019- December 2021: Lead several Fynbos Identification courses for amateur botanists
- April 2020 – current: Ecological specialist and legal assistant at Enviroworks
- November 2022 – Current: Lead of Ecological Specialist Services at Enviroworks

#### PUBLISHED ARTICLES:

PLANT SPECIES, ANIMAL SPECIES AND TERRESTRIAL BIODIVERSITY THEME COMPLIANCE  
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- Smith, M., Rebelo, A.G. 2020. The Amazing Nature Race. Veld and Flora 106: 16-21.
- Smith, M., Rebelo, A., Rebelo, A.G. 2020. Passive restoration of Critically Endangered Cape Flats Sand Fynbos at lower Tokai Park section of Table Mountain National Park, Cape Town. ReStory
- Smith, M., Rebelo, A., Rebelo, A.G. 2020. Saving Critically Endangered Peninsula Granite Fynbos from extinction at Tokai Park, Cape Town. ReStory.
- Smith, M., Rebelo, A.G. 2020. iNaturalist: your portal into nature and becoming a citizen scientist. African Wildlife and Environment 75.

**BASIC ASSESSMENT/ FULL SCOPING AND EIA PROCESS**

- The proposed development of a thirty-five metre (35m) telecommunication base station and associated infrastructure on Portion 42 of Farm 428, Plettenberg Bay, Western Cape Province, SBA Towers South Africa.
- The proposed development of a twenty-five metre (25m) telecommunication base station and associated infrastructure on Lorraine Farm, the Remainder of Farm 790, Phillipi Western Cape Province, SBA Towers South Africa.
- The proposed development of a desalination or reverse osmosis plant, Tormin Mine, Western Cape Province, Mineral Sands Resources
- Proposed expansion of chicken houses from approximately 30 000 to 60 000 chickens, Bulhoek Farm, near Swartruggens, Northwest Province, Quantum Foods.
- Proposed expansion of the Samrand Data Centre, African Data Centres.
- Proposed development of the Lendlovu Lodge, Addo Elephant Park, Eastern Cape Province, SANParks (in progress).
- Proposed Development of One Hundred and Fifty Metres (150m) Fence And Associated Four Hundred Metres (400m) Access Road, Saldanha Port, Western Cape Province, Transnet Ports Authority.

**WATER USE LICENSE APPLICATION**

- Proposed expansion of chicken houses from approximately 30 000 to 60 000 chickens, Bulhoek Farm, near Swartruggens, Northwest Province, Quantum Foods (in progress).
- Proposed development of a community hall and associated parking lot on erven 4978 & erven 4979 on a portion of Portion 6 of the Remaining Extent (Re) of the Farm Selosesha Townlands No. 900, Thaba 'Nchu, Free State Province, Mission Point (in progress).

**ENVIRONMENTAL MANAGEMENT PLANS**

- The proposed development of a thirty-five metre (35m) telecommunication base station and associated infrastructure on Portion 42 of Farm 428, Plettenberg Bay, Western Cape Province, SBA Towers South Africa.
- The proposed development of a twenty-five metre (25m) telecommunication base station and associated infrastructure on Lorraine Farm, the Remainder of Farm 790, Phillipi Western Cape Province, SBA Towers South Africa.
- The proposed development of a desalination or reverse osmosis plant, Tormin Mine, Western Cape Province, Mineral Sands Resources
- Proposed expansion of chicken houses from approximately 30 000 to 60 000 chickens, Bulhoek Farm, near Swartruggens, Northwest Province, Quantum Foods.
- Proposed development of the Lendlovu Lodge, Addo Elephant Park, Eastern Cape Province, SANParks (in progress).

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- Proposed Development of One Hundred and Fifty Metres (150m) Fence and Associated Four Hundred Metres (400m) Access Road, Saldanha Port, Western Cape Province, Transnet Ports Authority
- Proposed expansion of the Samrand Data Centre, African Data Centres.

**BOTANICAL, FAUNAL, AND TERRESTRIAL IMPACT STUDIES**

- Botanical Impact Assessment: Rezoning and the development of fifteen (15) resort units on Portion 12 of the Farm Riet Valley no. 452, Hessequa Local Municipality, Western Cape Province (Faunal Compliance Statement and Botanical Impact Assessment), Hessequa Municipality.
- Botanical survey and delineation of sensitive areas for the proposed development of a six-point three kilometre (6.3km) long pipeline along Macassar Road, Macassar, Cape Town, Western Cape Province, BVi Consulting Engineers Western Cape.
- Botanical, Faunal and Terrestrial Biodiversity Compliance Statement; Proposed expansion of chicken houses from approximately 30 000 to 60 000 chickens, Bulhoek Farm, near Swartruggens, Northwest Province, Quantum Foods.
- Protected Tree and Animal Species Survey: Ramatlabama Poultry Farm, Mahikeng, Northwest Province, Supreme Poultry (in progress).
- Botanical, Terrestrial and Faunal Compliance Statement: Proposed development of a Battery Energy Storage Facility, Ashton, Western Cape Province.
- Botanical and Faunal Site Sensitivity: Proposed housing development on Erven 2244 & 2245; Private Landowner.
- Botanical, Faunal, and Terrestrial Impact Assessment: Proposed sand mining permit on Erf 656, Schaap Kraal, located in the Wynberg Magisterial District, Atlantic Sands.
- Plant Species, Terrestrial Biodiversity Theme and Faunal Species Site Verification: Proposed Photovoltaic Solar Energy Facilities (PEFS) And Grid Connections Near Welkom, Free State Province: Khauta Solar PV Cluster, WKN Windcurrent SA
- Plant Species, Terrestrial Biodiversity Theme and Faunal Species Impact Assessment (Including a Dune Impact Assessment): Proposed Development of One Hundred and Fifty Metres (150m) Fence and Associated Four Hundred Metres (400m) Access Road, Saldanha Port, Western Cape Province, Transnet Ports Authority.
- Plant Species, Terrestrial Biodiversity Theme and Faunal Species Scoping Report, Proposed Mixed-Use Development on Farm 820, Bot River, Western Cape Province, Wildekrans Estate
- Plant Species, Terrestrial Biodiversity Theme and Faunal Species Theme Compliance Statement: S24g Environmental Rectification for The Operation of Facilities For The Treatment Of Wastewater With A Daily Throughput Of 4200 Cubic Meters, Moedi Engineers.
- Plant Species, Terrestrial Biodiversity Theme and Faunal Species Theme Compliance Statement: Proposed Upgrades To The Geelbek Restaurant, West Coast National Park, Langebaan, SANParks.
- Plant Species, Animal Species and Terrestrial Biodiversity Theme Compliance Statement: Proposed Prospecting Right Application for Four Drill Holes, Vorstershoop, North West.
- Threatened Species Survey and Plant Removal Permit Application: Proposed Development of One Hundred and Fifty Metres (150m) Fence And Associated Four Hundred Metres (400m) Access Road, Saldanha Port, Western Cape Province, Transnet Ports Authority.

**REHABILITATION IMPLEMENTATION PLANS**

- Protocols for restoring Critically Endangered Cape Flats Sand Fynbos within lower Tokai Park, Cape Town, South African National Biodiversity Institute.
- Proposed development of a six-point three kilometre (6.3km) long pipeline along Macassar Road, Macassar, Cape Town, Western Cape Province, BVi Consulting Engineers Western Cape.



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- Rehabilitation implementation plan for Tormin Mine, Western Cape Province, Mineral Sands Resources
- Overseeing rehabilitation works and compilation of quarterly monitoring reports and annual updates of the rehabilitation plan: Tormin Mine, Western Cape Province, Mineral Sands Resources (in progress)
- Rehabilitation Method Statement for 132 kV and 33 kV transmission lines, transmission substation, cabling line trenches, and access roads on Roggeveld Wind Farm, Western Cape, Raubex Infra.
- Reseeding Method Statement: 132 kV and 33 kV transmission lines, transmission substation, cabling line trenches, and access roads on Roggeveld Wind Farm, Western Cape, Raubex Infra.
- Reseeding training: Roggeveld Wind Farm, Western Cape, Raubex Infra.
- Rehabilitation Method Statement for Areas Disturbed by The Buffer Yard And Lay Down Area on Roggeveld Wind Farm, Raubex Infra.
- Overseeing rehabilitation works and compilation of quarterly monitoring reports: Roggeveld Wind Farm, Western Cape Province, Raubex Infra (in progress).
- Environmental Rehabilitation Plan for All the Areas Affected by The Continuous Spillage of Raw Sewage In and Around Upington, Dawid Kruiper Municipality, Northern Cape Province, Stabilis Environmental On Behalf Of Dawid Kruiper Municipality.
- Rehabilitation Plan Proposed Upgrade of The Bayside Stormwater Canal, Tableview, Cape Town, Western Cape Province, BVi Consulting Engineers
- Rehabilitation Plan and Aquatic Impact Assessment for All the Areas Affected by The Spillage of Raw Sewage, Caledon, Theewaterskloof Municipality (In progress).
- Rehabilitation Plan: Illegal Clearance of More Than 1 Hectare/300 m<sup>2</sup> Of Indigenous Vegetation at Farmall Agricultural Holding, Fourways, City of Johannesburg Metropolitan Municipality, Life Co.
- Rehabilitation Plan: Residential development on portion 205 of Farm 559, Hangklip, Western Cape Province, private landowner (in progress)

**WETLAND DELINEATION AND SECTION 21 (C) & (I) RISK MATRIXES**

- Wetland Delineation and Section 21 (c) and (i) risk matrix: Residential development on portion 205 of Farm 559, Hangklip, Western Cape Province, private landowner.
- Freshwater Impact Assessment: Proposed development of a community hall and associated parking lot on erven 4978 & erven 4979 on a portion of Portion 6 of the Remaining Extent (Re) of the Farm Selosessa Townlands No. 900, Thaba 'Nchu, Free State Province, Mission Point.
- Wetland Delineation and Section 21 (c) and (i) risk matrix: Proposed Residential Development on Remainder of Erf 4413, Betty's Bay Western Cape Province, private landowner.
- Freshwater Impact Assessment: Proposed Development of The R300/Bottlery Road Cabling Route, City Of Cape Town, Western Cape Province, Element Consulting on behalf of City of Cape Town.
- Watercourse verification and Section 21 (c) and (i) risk matrix: Proposed housing development on Erven 2244 & 2245; Private Landowner.
- Aquatic Biodiversity Theme Compliance Statement and Section (c) and (i) Risk Matrix: The Proposed Development of a Twenty-Five Metre (25m) Monopole Telecommunications Mast on Portion 1 Of The Farm No. 1248, Sonop Primary School, Western Cape, SBA Towers.
- Aquatic Biodiversity Theme Compliance Statements and Section 21 (c) and (i) risk matrix: S24g Environmental Rectification for The Operation Of Facilities For The Treatment Of Wastewater With A Daily Throughput Of 4200 Cubic Meters, Moedi Engineers (Itsoseng, Itekeng, Coligny, and Lichtenburg) (in progress).
- Aquatic Biodiversity Theme Compliance Statement: Proposed Prospecting Right Application for Four Drill Holes, Vorstershoop, North West.
- Aquatic Biodiversity Compliance Statement and Section 21 (c) and (i) risk matrix: Proposed Development of gravity outflow pipelines and oxidation ponds, Schweizer Reneke, North West Province.

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- Aquatic Biodiversity Theme Impact Assessment and Section 21 (c) and (i) risk matrix: The Proposed Cultivation Of 19,8 Ha Pomegranate Farming on The Remainder Portion of The Farm Jagfontein No. 85 Near Calitzdorp, Western Cape Province
- Wetland Verification and Section 21 (c) and (i) Risk Matrix: Proposed Housing Development on Erf 1341, Greyton.

**ENVIRONMENTAL CONTROL OFFICER (ECO) AND AUDITING**

- Environmental Control Officer: The proposed development of a backup energy centre including diesel storage and generators, on Erf 142504, Diep River, Cape Town, Western Cape Province, African Data Centres.
- The proposed construction of new and rehabilitation of existing non-motorised transport facilities in the Cape Town CBD, Western Cape Province, BVi Consulting Engineers Western Cape.
- Environmental Compliance Audit for Franki Africa Stock Yard, Durban, KwaZulu Natal Province, Franki Africa.
- The proposed development of a twenty-five metre (25m) telecommunication base station and associated infrastructure on Lorraine Farm, the Remainder of Farm 790, Phillipi Western Cape Province, SBA Towers South Africa
- The proposed maintenance of the Blue Stone Quarry Wall, Robben Island, Robben Island Museum.

**MAINTENANCE MANAGEMENT PLANS**

- The proposed maintenance of the Blue Stone Quarry Wall, Robben Island, Robben Island Museum.
- Proposed erosion control measures for road OP06914 on Swartvlei Lake, Sedgefield, Garden Route District Municipality.

**ENVIRONMENTAL SCREENING**

- Proposed upgrading of the Durbanville Public Transport Interchange, Western Cape, BVi Consulting Engineers Western Cape.
- Proposed the upgrade on national road R40 section from Hazyview (km 0.0) to Maviljan (km 32.1), BVi Consulting Engineers Western Cape.
- Proposed development of a data centre in Tatu City, Kenya, Africa Data Centre.
- Proposed construction of a back-up data energy centre on Erf 33, Atlantic Hills Business Park, Durbanville, Africa Data Centre
- Proposed development of a data centre in Grand Bassam, Côte D'ivoire, Africa Data Centre
- Proposed Development of a Data Centre In Accra, Ghana, Africa Data Centre
- Proposed Development of a Data Centre In Casablanca, Morocco, Africa Data Centre

**ALIEN INVASIVE SPECIES MANAGEMENT PLANS**

- Invasive species monitoring, control and eradication plan, Garden Route District Municipality, Western Cape Province, Garden Route District Municipality.
- Alien Invasive Species Management Plan and consultation services for Tormin Mine, Western Cape Province, Mineral Sands Resources.
- Alien Invasion Management Plan for Ramatlabama Poultry Farm, Mahikeng, Northwest Province, Supreme Poultry.

**CLEAN DEVELOPMENT MECHANISM**

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- Calibration and advisory services for the CDM Methane Burning Plant at the Coastal Park and Bellville South Landfill Sites, Promethium Carbon (in progress)

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## Appendix B

**Table 8: Plant species likely to be found on the proposed development footprint**

Species name	Common name	Family	Red list status	Protected Status	Alien Invasive Species Category
<i>Tapinanthus oleifolius</i>	Lighted Candles	LORANTHACEAE	Least Concern	Not Protected	N/A
<i>Justicia australis</i>	N/A	ACANTHACEAE	Least Concern	Not Protected	N/A
<i>Vachellia haematoxylon</i>	Grey Camel Thorn	FABACEAE	Least Concern	Nationally Protected	N/A
<i>Vachellia erioloba</i>	Camel Thorn	FABACEAE	Least Concern	Nationally Protected	N/A
<i>Rogeria longiflora</i>	Djirrie	PEDALIACEAE	Least Concern	Not Protected	N/A
<i>Ziziphus mucronata</i>	Blinkblaar-wag-'n-bietjie	RHAMNACEAE	Least Concern	Not Protected	N/A
<i>Phaeoptilum spinosum</i>	Brittle Thorn	NYCTAGINACEAE	Least Concern	Not Protected	N/A
<i>Pappostipa speciosa</i>	N/A	POACEAE	Least Concern	Not Protected	N/A
<i>Stipagrostis obtusa</i>	Kortbeenboesmangras	POACEAE	Least Concern	Not Protected	N/A
<i>Boscia foetida</i>	Stink Shepherdstree	BRASSICACEAE	Least Concern	Not Protected	N/A
<i>Senegalia mellifera</i>	Black Thorn	FABACEAE	Least Concern	Not Protected	N/A
<i>Prosopis sp</i>	Mesquites	FABACEAE	N/A	N/A	1b
<i>Rhigozum trichotomum</i>	Trithorn	BIGNONIACEAE	Least Concern	Not Protected	N/A

PLANT SPECIES, ANIMAL SPECIES AND TERRESTRIAL BIODIVERSITY THEME COMPLIANCE  
STATEMENT: RIETFontein Deviation

## Appendix C

Animal species that are likely to occur on the footprint are listed in Table 9.

**Table 9 Animal species likely to be found on the proposed development footprint (which have also been recorded on the footprint or surrounding area)**

Species name	Common name	IUCN threat status	Protected Status
<i>Trachylepis sparsa</i>	Karasburg Tree Skink	Least concern	Not protected
<i>Oiketicoides maledicta</i>		Least concern	Not protected
<i>Suricata suricatta</i>	Meerkat	Least concern	Not protected
<i>Anthracocentrus capensis</i>		Least concern	Not protected
<i>Pachydactylus capensis</i>	Cape Thick-toed Gecko	Least concern	Not protected
<i>Ptenopus garrulus</i>	Common Barking Gecko	Least concern	Not protected
<i>Pachydactylus wahlbergii furcifer</i>	Striped Ground Gecko	Least concern	Not protected
<i>Pseudaspis cana</i>	Mole Snake	Least concern	Not protected
<i>Prosymna frontalis</i>	South-western African Shovel-snout	Least concern	Provincially Protected
<i>Anthia decemguttata</i>	Tenspot ground beetle	Least concern	Not protected
<i>Delta emarginatum</i>	Black Mud Wasp	Least concern	Not protected
<i>Stigmochelys pardalis</i>	Leopard Tortoise	Least concern	Provincially Protected
<i>Chondrodactylus bibronii</i>	Bibron's Thick-toed Gecko	Least concern	Not protected
<i>Chondrodactylus angulifer</i>	Namib Giant Ground Gecko	Least concern	Not protected
<i>Rhodesiana cuneicerca</i>	Botswanian Agile Grasshopper	Least concern	Not protected
<i>Empusa binotata</i>	Spotty Conehead Mantid	Least concern	Not protected
<i>Opisthophthalmus concinnus</i>	Regular Burrowing Scorpion	Least concern	Provincially Protected
<i>Parabuthus kuanyamarum</i>	Ovambo Thicktail Scorpion	Least concern	Not protected
<i>Parabuthus laevifrons</i>	Black-tipped Thicktail Scorpion	Least concern	Not protected
<i>Parabuthus raudus</i>	Rough Thicktail Scorpion	Least concern	Not protected
<i>Psammobates oculifer</i>	Serrated Tortoise	Least concern	Not protected
<i>Belenois aurota aurota</i>	Brown-veined White	Least concern	Not protected
<i>Cacosternum boettgeri</i>	Boettger's dainty frog	Least concern	Provincially Protected
<i>Hystrix africaeaustralis africaeaustralis</i>	Southern Porcupine	Least concern	Provincially Protected
<i>Neocleonus sannio</i>		Least concern	Not protected
<i>Oryx gazella gazella</i>	Gemsbok	Least concern	Provincially Protected
<i>Geosciurus inauris</i>	Cape Ground Squirrel	Least concern	Not protected
<i>Boaedon mentalis</i>	Bug-Eyed House Snake	Vulnerable	Protected
<i>Trachypetrella anderssonii</i>	Toad Grasshopper	Least concern	Not protected
<i>Antidorcas marsupialis</i>	Springbok	Least concern	Provincially Protected
<i>Pedetes capensis</i>	Springhare	Least concern	Provincially Protected
<i>Pedioplanis lineocellata</i>	Spotted Sand Lizard	Least concern	Not protected

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<i>Camponotus fulvopilosus</i>	Karoo Balbyter Ant	Least concern	Not protected
<i>Agama aculeata</i>	Ground Agama	Least concern	Not protected
<i>Trachylepis spilogaster</i>	Kalahari Tree Skink	Least concern	Not protected
<i>Anthia cinctipennis</i>		Least concern	Not protected
<i>Bitis arietans</i>	Puffadder	Least concern	Not protected
<i>Catopsilia florella</i>	African Migrant	Least concern	N/A
<i>Genetta felina</i>	Southern Small-spotted Genet	Least concern	N/A
<i>Danaus chrysippus orientis</i>	African Monarch	Least concern	N/A
<i>Lupulella mesomelas mesomelas</i>	Southern Black-backed Jackal	Least concern	N/A
<i>Carvilia saussurii</i>		Least concern	N/A
<i>Agama anchietae</i>	Western Rock Agama	Least concern	N/A
<i>Morasa modesta</i>	Lederhosen Moth	Least concern	N/A
<i>Proteles cristatus</i>	Southern Aardwolf	Least concern	Provincially Protected
<i>Felis lybica cafra</i>	Southern African Wildcat	Least concern	Provincially Protected
<i>Cynictis penicillata</i>	Yellow Mongoose	Least concern	N/A
<i>Lampides boeticus</i>	Pea Blue	Least concern	N/A
<i>Acraea neobule</i>	Wandering Donkey Acraea	Least concern	N/A
<i>Lydomorphus bisignatus</i>		Least concern	N/A
<i>Cylogramma latona</i>	Creamstriped Owl	Least concern	Provincially Protected
<i>Panthera leo melanochaita</i>	Southern Lion	Vulnerable	Provincially Protected
<i>Opisththalmus wahlbergii</i>	Kalahari Burrowing Scorpion	Least concern	Provincially Protected
<i>Ceroplesis ferrugator</i>		Least concern	Not protected
<i>Agama aculeata aculeata</i>	Western Ground Agama	Least concern	Not protected
<i>Locustana pardalina</i>	Brown Locust	Least concern	N/A
<i>Parabuthus granulatus</i>	Granular Thicktail Scorpion	Least concern	N/A
<i>Hottentotta arenaceus</i>	South-western Nomad Scorpion	Least concern	N/A
<i>Opisththalmus carinatus</i>	Robust Burrowing Scorpion	Least concern	Provincially Protected
<i>Cynictis penicillata penicillata</i>	Southern Yellow Mongoose	Least concern	Provincially Protected
<i>Pedioplanis lineocellata pulchella</i>	Spotted Sand Lizard	Least concern	Not protected
<i>Gonometa postica</i>	African Silk Moth	Least concern	N/A