

THE BASIC ASSESSMENT FOR THE PROPOSED KOMAS WIND ENERGY FACILITY AND ASSOCIATED INFRASTRUCTURE NEAR KLEINSEE IN THE NORTHERN CAPE PROVINCE.

# APPENDIX C.2

## Aquatic Biodiversity Assessment



# **Aquatic Biodiversity Sensitivity Verification and Compliance Statement for the Proposed Development of the Komass Wind Energy Facility and Associated Infrastructure near Kleinsee in the Northern Cape Province**

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***Report prepared for:***

CSIR – Environmental Management Services

P O Box 320

Stellenbosch

7600

***Report prepared by:***

Joshua Gericke from EnviroSwift (Pty) Ltd

Louise Zdanow from EnviroSwift (Pty) Ltd

46 Patricia Street

Walmer Downs

Port Elizabeth

6070

October 2020

## LIST OF ABBREVIATIONS

Table 1: Abbreviations.

ASL	Above Sea Level
BGIS	Biodiversity Geographic Information System
CBA	Critical Biodiversity Area
CEPF	Critical Ecosystem Partnership Fund
CSIR	Council for Scientific and Industrial Research
DEA	Department of Environmental Affairs
DWAF	Department of Water Affairs and Forestry
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EI	Ecological Importance
EIA	Environmental Impact Assessment
EIS	Ecological Importance and Sensitivity
ES	Ecological Sensitivity
GPS	Global Positioning System
IHIA	Index of Habitat Integrity Assessment
kV	Kilovolt
MTS	Main Transmission Substation
MW	Megawatts
NBA	National Biodiversity Assessment
NEMA	National Environmental Management Act, 1998 (Act 107 of 1998)
NEMBA	National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004)
NFEPA	National Freshwater Ecosystem Priority Areas
NPAES	National Protected Areas Expansion Strategy
NWA	National Water Act, 1998 (Act No. 36 of 1998)
O&M	Operation and Maintenance
PES	Present Ecological State
PSDF	Provincial Spatial Development Framework
QGIS	Quantum Geographic Information System
REDZ	Renewable Energy Development Zone
REIPPPP	Renewable Energy Independent Power Producer Procurement Programme
SANBI	South African National Biodiversity Institute
SANParks	South African National Parks
WEF	Wind Energy Facility
WMA	Water Management Area
WTG	Wind Turbine Generator
WUL	Water Use License

## GLOSSARY

Table 2: Glossary.

<b>Biodiversity</b>	The number and variety of living organisms on earth, the millions of plants, animals, and micro-organisms, the genes they contain, the evolutionary history and potential they encompass, and the ecosystems, ecological processes, and landscapes of which they are integral parts.
<b>Catchment</b>	The area contributing to runoff at a particular point in a river system.
<b>Delineation</b>	(of a wetland or riparian zone): to determine the boundary of a water resource (wetland or riparian area) based on soil and vegetation (wetland) or geomorphological and vegetation (riparian zone) indicators.
<b>Environmental Impact Assessment (EIA)</b>	In relation to an application to which scoping must be applied, means the process of collecting, organising, analysing, interpreting and communicating information that is relevant to the consideration of that application as defined in National Environmental Management Act.
<b>Ephemeral</b>	A river or watercourse that only flows at the surface periodically, especially those drainage systems that are only fed by overland flow (runoff).
<b>Hydromorphic Soils</b>	Soils formed under conditions of saturation, flooding or ponding for sufficient periods of time for the development of anaerobic conditions and thus favouring the growth of hydrophytic vegetation.
<b>Intermittent flow</b>	Flows only for short periods.
<b>Reach</b>	A portion of a river.
<b>Riparian Area</b>	(as defined by the National Water Act): includes the physical structure and associated vegetation of the areas associated with a watercourse which are commonly characterised by alluvial soils (deposited by the current river system), and which are inundated or flooded to an extent and with a frequency sufficient to support vegetation of species with a composition and physical structure distinct from those of adjacent land areas.

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# KOMAS WIND ENERGY FACILITY

## 1.1. INTRODUCTION AND METHODOLOGY

### 1.1.1. Scope and Objectives

Genesis ENERTRAG Komass (Pty) Ltd (the applicant) is proposing to develop the Komass Wind Energy Facility (WEF) and associated infrastructure near the coastal town of Kleinsee within the Nama Khoi Local Municipality, in the far western parts of the Northern Cape Province (Figure 1 and 2). The proposed WEF is located within the Springbok Renewable Energy Development Zone (REDZ 8) and is therefore subject to a Basic Assessment (BA) instead of a full Environmental Impact Assessment (EIA). The applicant has appointed the Council of Scientific and Industrial Research (CSIR) to undertake the required BA process to apply for Environmental Authorisation (EA) for the proposed project. The CSIR in turn has appointed EnviroSwift (Pty) Ltd (hereafter, "EnviroSwift") to undertake an Aquatic Biodiversity study to inform the BA.

It is proposed that the WEF development will consist of up to 50 wind turbines and associated infrastructure with a total generation capacity of up to 300 MW. The total generation capacity will be subject to allowable limits in terms of the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP). The generated electricity will be fed into the national grid at the Gromis Main Transmission Substation (MTS) via a 132 kV power line and a collector substation (if required) which is the subject of a separate on-going BA process. The application site for the proposed Komass WEF development is approximately 5 070 hectares (ha) in extent and is situated on the land parcels:

- Portion 1 of the Farm Zonnekwa No. 326
- Portion 2 of the Farm Zonnekwa No. 328
- Portion 3 of the Farm Zonnekwa No. 328
- Portion 4 of the Farm Zonnekwa No. 328
- Portion 4 of the Farm Kap Vley No. 315

The proposed Komass WEF and associated infrastructure includes the following components:

- Up to 50 wind turbine generators (WTGs) with a maximum capacity of up to 300MW.
- Turbines with a hub height of up to 200m and a rotor diameter of up to 200m.
- Hardstand areas of approximately 1 500m<sup>2</sup> per turbine.
- Temporary construction laydown and storage area of approximately 4 500m<sup>2</sup> per turbine.
- Medium voltage cabling connecting the turbines will be laid underground.
- A Lithium-ion Battery Energy Storage System (BESS) comprising of several utility scale battery modules within shipping containers or an applicable housing structure on a concrete foundation.
- Internal roads with a width of up to 10m providing access to each turbine, the BESS, on-site substation (SS) and laydown area. The roads will accommodate cable trenches and stormwater channels (as required) and will include turning circle/bypass areas of up to 20m at some sections during the construction phase. Existing roads will be upgraded wherever possible, although new roads will be constructed where necessary.
- A temporary construction laydown/staging area of approximately 4.5 hectares (ha) which will also accommodate the operation and maintenance (O&M) buildings.
- A 33/132kV on-site SS to feed electricity generated by the proposed Komass WEF into the national grid.



The Basic Assessment for the proposed Komag Wind Energy Facility and associated infrastructure near Kleinsee in the Northern Cape Province.

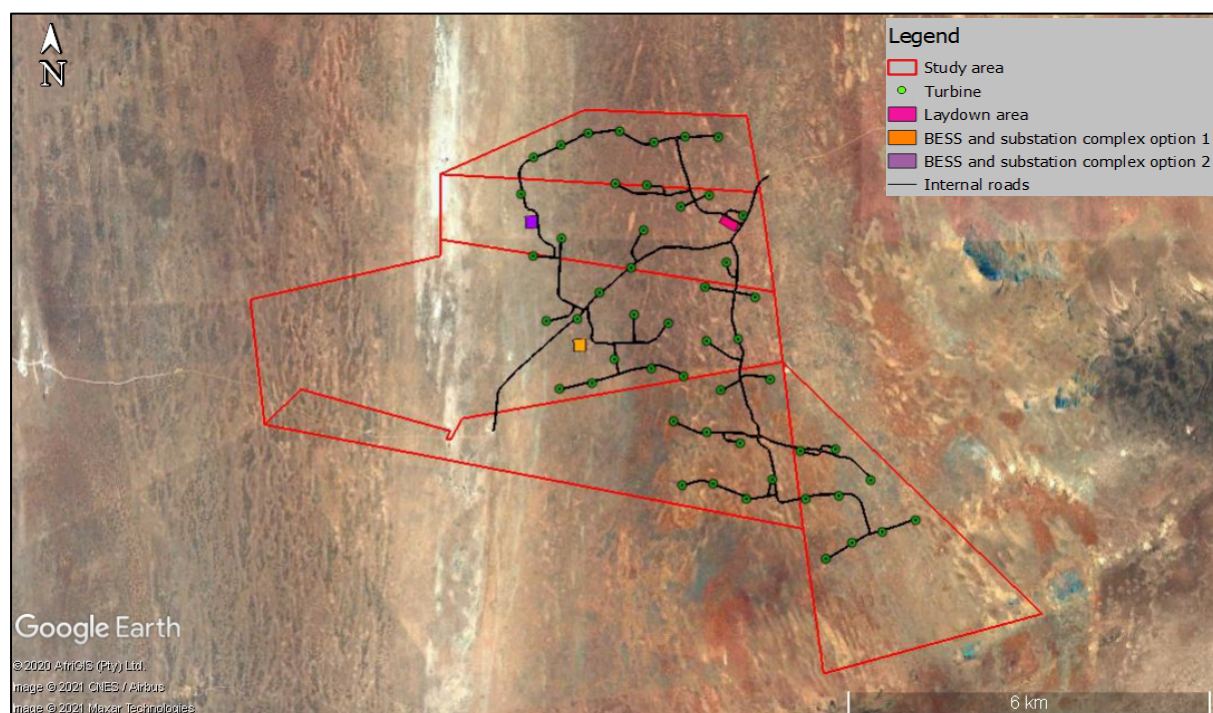
The BESS and 33/132kV on-site SS will be located within a 4ha battery and SS complex to allow for micro-siting of the BESS components and to accommodate internal roads (as required), a temporary construction laydown area and a firebreak around the BESS footprint. Two BESS and on-site SS complex area alternatives have been identified for assessment as part of the BA process, i.e. Option 1 and Option 2. Both alternatives are acceptable from an aquatic perspective as there are no watercourses on the proposed Komag WEF site.

The portions of the farm parcels earmarked for development together with all associated infrastructure will be referred to collectively as the study area within the remainder of this report (Figure 1 and 2).



**Figure 1: Location of the Komag WEF study area in relation to Kleinsee.**





**Figure 2: Study area indicating turbine localities, BESS and substation complex area alternatives (Option 1 and Option 2), the laydown area and internal access roads (accommodating cable trenches and stormwater channels, as required).**

### **1.1.2. Specialist Expertise**

**The Aquatic Biodiversity study was undertaken by Joshua Gericke and Louise Zdanow and was reviewed by Natasha van de Haar of Enviroswift. Their expertise is included below:**

#### **Joshua Gericke**

##### **SACNASP Professional Natural Scientist (Registration number:117997)**

Joshua holds a Bachelor of Science Honours Degree (B.Sc. Hons) in the field of Environmental Science from the University of Cape Town. Over the course of Joshua's career, he has completed a number of fauna and flora identification and estuarine management short courses, as well as courses in fire management and other facets of biodiversity management. He is also a member of the Western Cape Wetlands Forum. He has also featured as a guest lecturer for the Nelson Mandela University Estuary Management Course and for the International Ocean Institute's Ocean Governance Course.

His career began in biodiversity management in 2009, focusing on management of wetlands, estuaries and coastal systems. He was employed in this capacity, in several roles, from October of 2009 to September 2017 by the City of Cape Town. He has had the rare opportunity with the City of Cape Town to create, implement, monitor and fine-tune his own management strategies. Through many iterations of this management cycle, he has acquired sound understanding of freshwater estuarine and marine ecosystems and their relationship with surrounding social systems.

### **Louise Zdanow**

#### **SACNASP Professional Natural Scientist (Registration number: 114072)**

Louise is the Managing Director of EnviroSwift KZN (Pty) Ltd. She has a BSc Honours degree in Botany from the University of Cape Town. She began working as an environmental specialist in 2012 and has since gained extensive experience in conducting freshwater as well as botanical assessments in the residential, mining and infrastructure development industries. Louise is a registered Professional Natural Scientist (Pr. Sci. Nat.) with the South African Council for Natural Scientific Professions (SACNASP, Reg. no. 114072), and is an accredited SASS5 practitioner. She is a member of the South African Wetland Society and the International Association of Impact Assessments South Africa. She has received a certificate of competence for the Tools for Wetland Assessments course attended at Rhodes University; has attended a soil classification course presented by Jon Atkinson of the KZN Department of Agriculture and Rural Development; and has attended a wetland soils course presented by UFS in association with Piet-Louis Grundling.

### **Natasha van de Haar**

#### **SACNASP Professional Natural Scientist (Registration number: 400229/11)**

Natasha is a registered Professional Natural Scientist (Pr.Sci.Nat) with the South African Council for Natural Scientific Professions (SACNASP). She also holds a Masters Degree in Science (M.Sc.) in the field of Botany. Over the course of Natasha's career, she completed a number of floral identification short courses and also obtained a certificate of competence for wetland assessments from Rhodes University. She is also a member of the South African Wetland Society, Botanical Society of SA as well as the Western Cape Wetlands Forum.

Her career kicked off as a field ecologist in 2009, focusing on floral biodiversity and ecological functioning, with special mention of wetland ecology and functioning within South Africa (all provinces). She further worked as a specialist project member in Mauritius, Lesotho and Ghana. During the course of her career she obtained extensive experience in conducting terrestrial as well as wetland related surveys in the mining, residential and infrastructure development industries as well as development of several alternative energy facilities. Natasha also gained experience in Biodiversity Offset Initiatives as well as RDL/protected plant permit applications. Presently her main focus is wetland assessments including delineation as well as present ecological state and function assessments

Detailed Curriculum Vitae are available in Appendix A.

In addition, a signed specialist statement of independence is included in Appendix B of this Compliance Statement.

### **1.1.3. Terms of Reference**

The requirement for this Aquatic Biodiversity specialist study and the Scope of Works is prescribed in terms of both the National Environmental Management Act, 1998 (Act 107 of 1998), as amended (NEMA) and the National Water Act, 1998 (Act No. 36 of 1998) (NWA). As such the study aims to comply with both legislative requirements.

In terms of NEMA wetlands, rivers and ephemeral drainage lines fall under the identified theme of Aquatic Biodiversity. In accordance with 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, 1998, when applying for environmental authorisation*<sup>1</sup> the current use of the land and the environmental sensitivity of the site under consideration as identified by the national web-based environmental screening tool, must be confirmed by undertaking a site sensitivity verification. The site sensitivity verification must be undertaken by either an Environmental Assessment Practitioner (EAP) or a specialist and must entail the following:

- a) Desktop analysis, using satellite imagery;
- b) A preliminary on-site inspection; and
- c) Any other available relevant information.

The outcome of the site sensitivity verification must be recorded in the format of a report which:

- a) Confirms or disputes the current use of the land and the environmental sensitivity as identified by the screening tool;
- b) Contains a motivation and evidence of either the verified or different use of the land and environmental sensitivity of the site; and
- c) Is submitted together with the relevant assessment report as required in terms of the NEMA Environmental Impact Assessment (EIA) Regulations (2014, as amended).

In order to comply with GN R320, the site sensitivity verification has been recorded in this Compliance Statement -see Appendix C.

The screening tool was applied by the specialist to the study area and areas of very high sensitivity in terms of Aquatic Biodiversity were identified. However, no aquatic features were encountered within the study area during the site screening investigation conducted by EnviroSwift (2020). Accordingly, the environmental sensitivity as identified by the screening tool in terms of Aquatic Biodiversity is incorrect. In terms of the protocol for the specialist assessment and minimum report contents for environmental impacts on Aquatic Biodiversity, if information gathered from the site sensitivity verification differs from the screening tool designation of "very high" aquatic biodiversity sensitivity, and it is found to be of a "low" sensitivity, an Aquatic Biodiversity Compliance Statement must be submitted.

In preparing the Aquatic Biodiversity Compliance Statement, EnviroSwift will address the minimum reporting criteria that are applicable as indicated in Table 3:

**Table 3: Compliance with the reporting requirements as per the Protocol for Aquatic Biodiversity Specialist Assessments**

No	Reporting Requirements as per the Protocol for Aquatic Biodiversity Specialist Assessments	Compliance of current report
1	The compliance statement must contain, as a minimum, the following information:	
1.1	Contact details of the specialist, their SACNASP registration number, their field of expertise and a curriculum vitae;	Appendix A and Section 1.1.2
1.2	a signed statement of independence by the specialist	Appendix B
1.3	a statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment	See Section 1.1.4
1.4	a baseline profile description of biodiversity and ecosystems of the site	See Section 1.3
1.5	the methodology used to verify the sensitivities of the aquatic biodiversity features on the site including the equipment and modelling used where relevant	See Section 1.1.4
1.6	in the case of a linear activity, confirmation from the aquatic biodiversity specialist that, in their opinion, based on the mitigation and remedial measures proposed, the land can be returned to the current state within	N/A

<sup>1</sup> Gazetted on 20 March 2020 (GN No. R320) and which came into effect in May 2020

	two years of completion of the construction phase	
1.7	where required, proposed impact management outcomes or any monitoring requirements for inclusion in the EMPr	Not required (no aquatic habitat within the study area)
1.8	a description of the assumptions made as well as any uncertainties or gaps in knowledge or data	See Section 1.1.5
1.9	any conditions to which this statement is subjected	N/A

In terms of fulfilling the requirements of the NWA and the Water Use Authorisation requirements, this site sensitivity verification and aquatic biodiversity compliance statement includes the following:

- Gathering of background information as defined by provincial and national databases.
- A physical site survey in order to groundtruth the accuracy of desktop information.
- Confirmation of the site sensitivity as identified by the National Web-Based Environmental Screening Tool.
- No watercourses are located within the study area boundary, therefore no on site delineation according to the method supplied by the Department of Water Affairs and Forestry (DWAf, 2005 updated in 2008) was required.
- Provision of an indication as to whether the proposed development will have an impact on watercourses.
- Where required, provision of impact management outcomes or any monitoring requirements for inclusion in the Environmental Management Program (EMPr).
- Identification of any potential fatal flaws.

#### **1.1.4. Approach and Methodology**

Available national and provincial databases were utilised in order to confirm the presence or absence of watercourses<sup>2</sup> within the study area and to determine the high level conservation significance of the study area. Primary resources which were utilised are listed within Section 1.1.6.

The desktop assessment was followed by a physical site survey undertaken on the 29<sup>th</sup> of January 2020 in order to groundtruth the accuracy of the desktop information, as well as to verify the perceived level of sensitivity of the study area.

All results including supplementary maps produced with the use of Quantum Geographic Information System (QGIS) as well as the site sensitivity are included within the report. The report was prepared in accordance with the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Aquatic Biodiversity (Government Notice 320, dated 20 March 2020), as well as in line with the NWA.

#### **1.1.5. Assumptions and Limitations**

A single field survey was undertaken in January 2020 during the dry season and after a significant period of drought. However, upon the investigation of Google Earth Pro digital satellite imagery no watercourses were visible within the proposed Komas WEF development study area

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<sup>2</sup> The National Water Act (Act No. 36 of 1998) defines a watercourse as -  
 (a) a river or spring;  
 (b) a natural channel in which water flows regularly or intermittently;  
 (c) a wetland, lake or dam into which, or from which, water flows; and  
 (d) any collection of water which the Minister may, by notice in the *Gazette*, declare to be a watercourse.

boundary. Seasonal constraints are therefore unlikely to have created a significant limitation to the assessment.

The assessment was confined to the top 50 cm of soil, in line with the delineation guideline provided by DWAF (2005, updated 2008). Therefore, groundwater was not considered as part of this assessment.

### **1.1.6. Source of Information**

Primary information sources used to inform the assessment included:

- The Northern Cape Provincial Spatial Development Framework (PSDF, 2012);
- The Northern Cape Critical Biodiversity Areas (CBA) Map (2016);
- The National Biodiversity Assessment (NBA) River Assessment Layer (2018);
- The National Web-Based Environmental Screening Tool (2020);
- The National Wetland Map 5 (Council for Scientific and Industrial Research (CSIR, 2018);
- The National Vegetation Map (South African National Biodiversity Institute (SANBI, 2018); and
- Google Earth Pro and vector data received from the Chief Directorate Surveys and Mapping (2015).

## **1.2. APPLICABLE LEGISLATION AND PERMIT REQUIREMENTS**

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### **1.2.1. National Environmental Management Act, 1998 (Act No. 107 of 1998)**

Any development within the extent of a watercourse or within 32 m from a watercourse may require Environmental Authorisation in terms of the NEMA.

A watercourse is defined in the Act as:

- (a) River or spring;
- (b) A natural channel in which water flows regularly or intermittently;
- (c) A wetland, pan, lake or dam into which, or from which, water flows; and any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse as defined in the NWA.

**No watercourses were encountered within the study area boundary and development will therefore not take place within the extent of a watercourse or within 32 m from a watercourse.**

### **1.2.2. National Water Act (Act No 36 of 1998)**

The crossing of watercourses e.g. roads and cables is considered to be a water use as defined within the NWA and would require authorisation from the Department of Human Settlements, Water and Sanitation (DHSWS). However, no watercourses are located within the study area boundary and the proposed Komas WEF infrastructure does not fall within the regulated area of a watercourse<sup>3</sup>. Water uses listed within Section 21 of the NWA therefore do not apply.

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<sup>3</sup> According to the National Water Act (NWA), the regulated area of a watercourse means:

- The outer edge of the 1 in 100 year flood line and /or delineated riparian habitat, whichever is the greatest distance, measured from the middle of the watercourse of a river, spring, natural channel, lake or dam.
  - In the absence of a determined 1 in 100 year flood line or riparian area the area within 100m from the edge of a watercourse where the edge of the watercourse is the first identifiable annual bank fill flood bench.
-

### **1.2.3. National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004) Alien and Invasive Species Regulations (GN R598 of 2014)**

According to the National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004) (NEMBA) Alien and Invasive Species Regulations (GN R598 of 2014) alien and invasive species must be eradicated and managed according to the category and criteria specified.

## **1.3. DESCRIPTION OF THE AFFECTED ENVIRONMENT**

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### **1.3.1. Regional Overview**

The study area is situated in the far western parts of the Northern Cape Province, within the Nama Khoi Local Municipality, approximately 23 km to the south east of the coastal town of Kleinsee. The Northern Cape Province can be described as semi-arid in the east, to arid in the central region, to hyper-arid in the far western parts of Namaqualand (Northern Cape SDF, 2012).

The study area falls within the Succulent Karoo Biodiversity Hotspot (Northern Cape SDF, 2012). The Succulent Karoo is the only arid ecosystem to be recognised as a global biodiversity hotspot. Nearly one-third of the floral species of the region are unique to the hotspot and the region boasts the richest variety of succulent flora in the world. The Succulent Karoo hotspot is under extreme pressure from human activities, including overgrazing, mining, illegal collection of wild plants and animals and the impact of climate change (Critical Ecosystem Partnership Fund (CEPF), 2003)).

The study area is located within the Western Coastal Belt Aquatic Ecoregion, within the Lower Orange Water Management Area (WMA) and within the Coastal Orange Sub-WMA. The quaternary catchment indicated for the study area is F40A, and the Wetland Bioregion associated with the area is the Namaqualand Sandveld (CSIR, 2018).

### **1.3.2. Climate**

The study area is located approximately 23 km to the south east of Kleinsee, approximately 16 km inland of the Atlantic Ocean at an altitude of approximately 170-350 m above sea level (ASL). Kleinsee normally receives about 42 mm of rain per year and because it receives most of its rainfall during winter it has a Mediterranean climate. It receives the lowest rainfall (0 mm) in January and the highest (9 mm) in May. The monthly distribution of average daily maximum temperatures shows that the average midday temperatures for Kleinsee range from 19.7°C in July to 27.2°C in February. The region is the coldest during July when the mercury drops to 8°C on average during the night

( [http://www.saexplorer.co.za/south-africa/climate/kleinsee\\_climate.asp](http://www.saexplorer.co.za/south-africa/climate/kleinsee_climate.asp) ).

### **1.3.3. Geology and Soils**

The majority of the study area is underlain by quaternary alluvium, sand and calcrete with an isolated area of quartzites and schists of the Bushmanland Group and Khurisberg Subgroup occurring in the south (Figure 3). The soils associated with the study area are red and yellow, well drained, sandy soils (SA Soil Map, SANBI Biodiversity Geographic Information System (BGIS)).



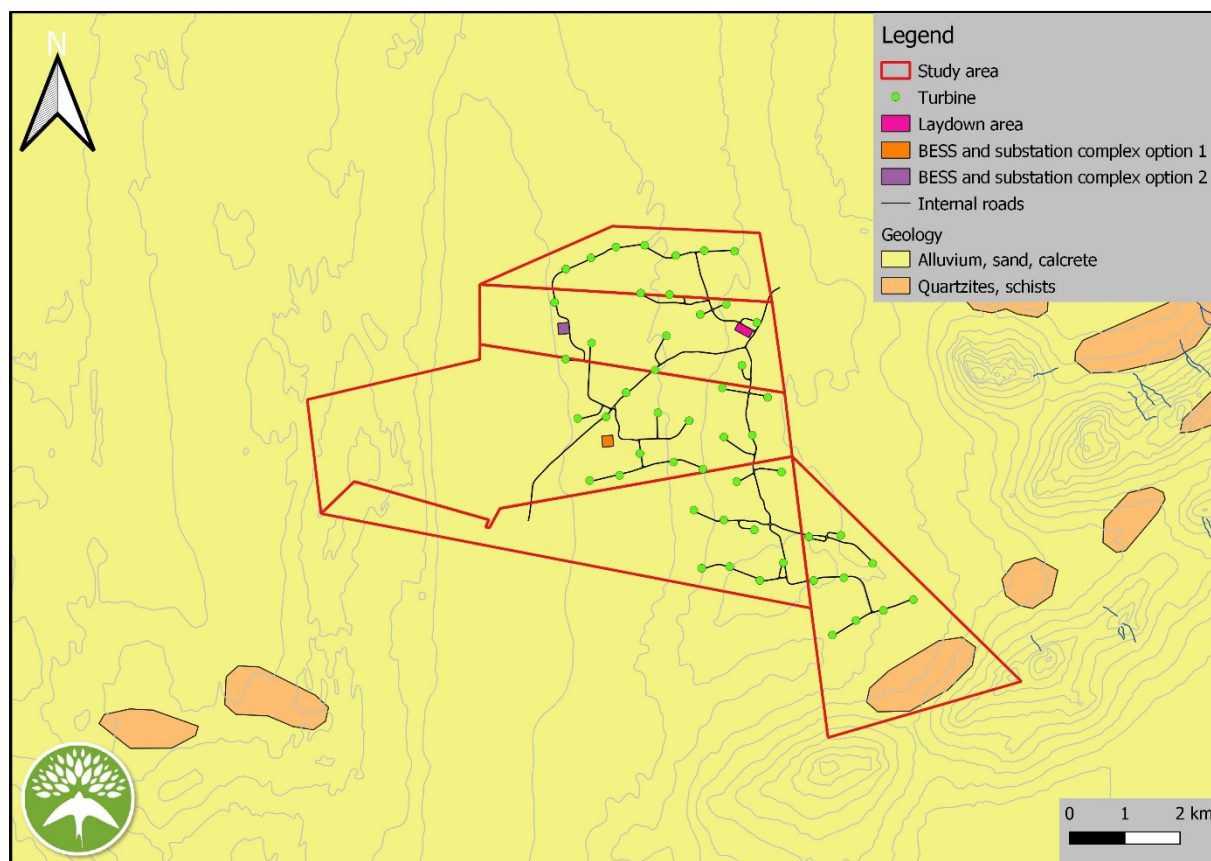


Figure 3: Geology associated with the study area (Republic of South Africa Geology layer).

### 1.3.4. Vegetation Types

According to the National Vegetation Map (2018) a single vegetation type, the Namaqualand Strandveld dominates the study area (Figure 4). This vegetation type is listed as Least Threatened within the region (National List of Threatened Terrestrial Ecosystems, 2011).

### 1.3.5. Freshwater Conservation Context

According to the National Wetland Map 5 (CSIR, 2018), a large depression wetland is located within the western portion of the study area (Figure 5). This depression has been indicated as an area of very high sensitivity in terms of Aquatic Biodiversity by the National Environmental Screening Tool (Figure 6). However, upon investigation of this area during the field survey undertaken in January 2020 it was found that the area indicated as wetland habitat is in fact an extensive dune field. This dune field is a flat area located between two ridge lines and is characterised by fresh, wind-blown sand and dry terrestrial vegetation (Figure 7). There is no indication that water accumulates within this area, and no wetland indicators as defined by the delineation guidelines (DWAF 2005, updated 2008) were encountered e.g. hydromorphic soils, wetland vegetation, signs of salt accumulation or hardened / cracked surface layers. Therefore, the site sensitivity verification disputes the rating of very high sensitivity assigned to this area in the National Web-Based Screening Tool in terms of Aquatic Biodiversity.



The Basic Assessment for the proposed Komas Wind Energy Facility and associated infrastructure near Kleinsee in the Northern Cape Province.

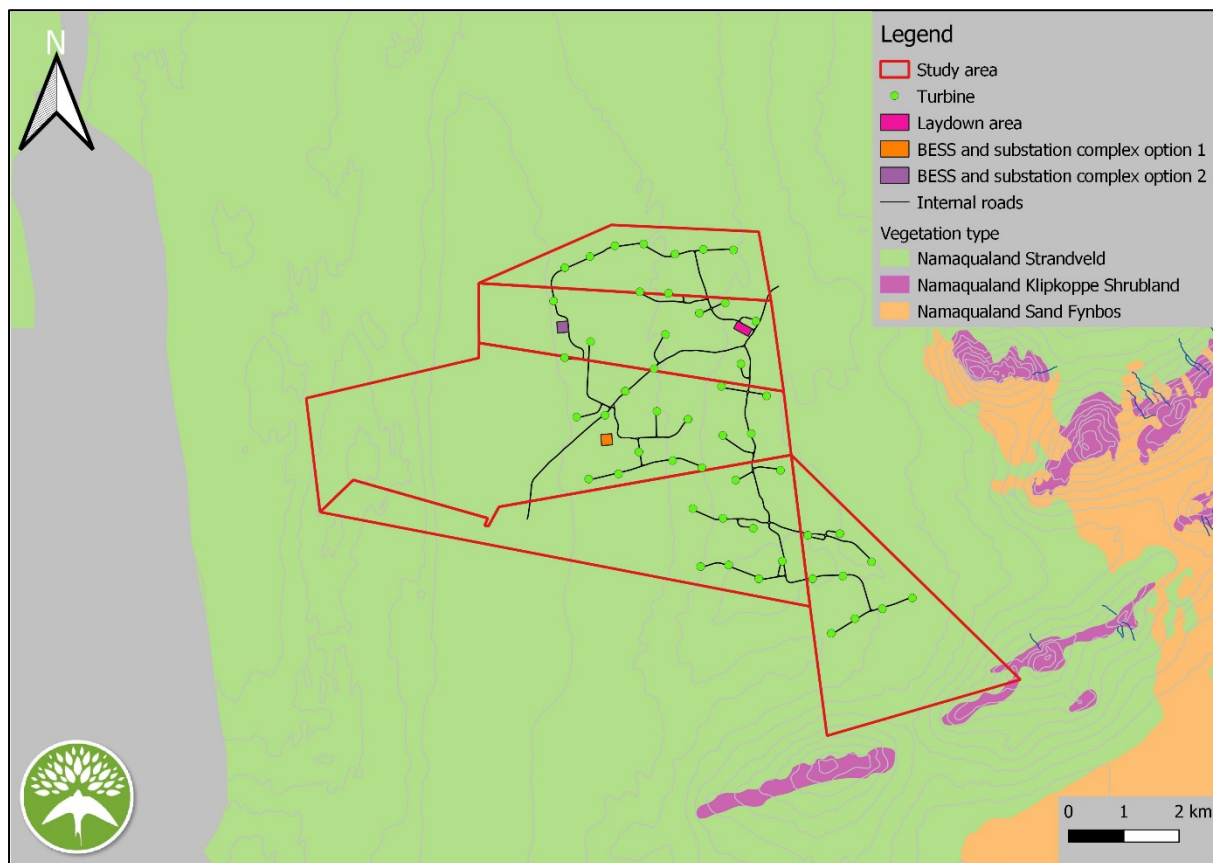


Figure 4: Vegetation types associated with the study area.

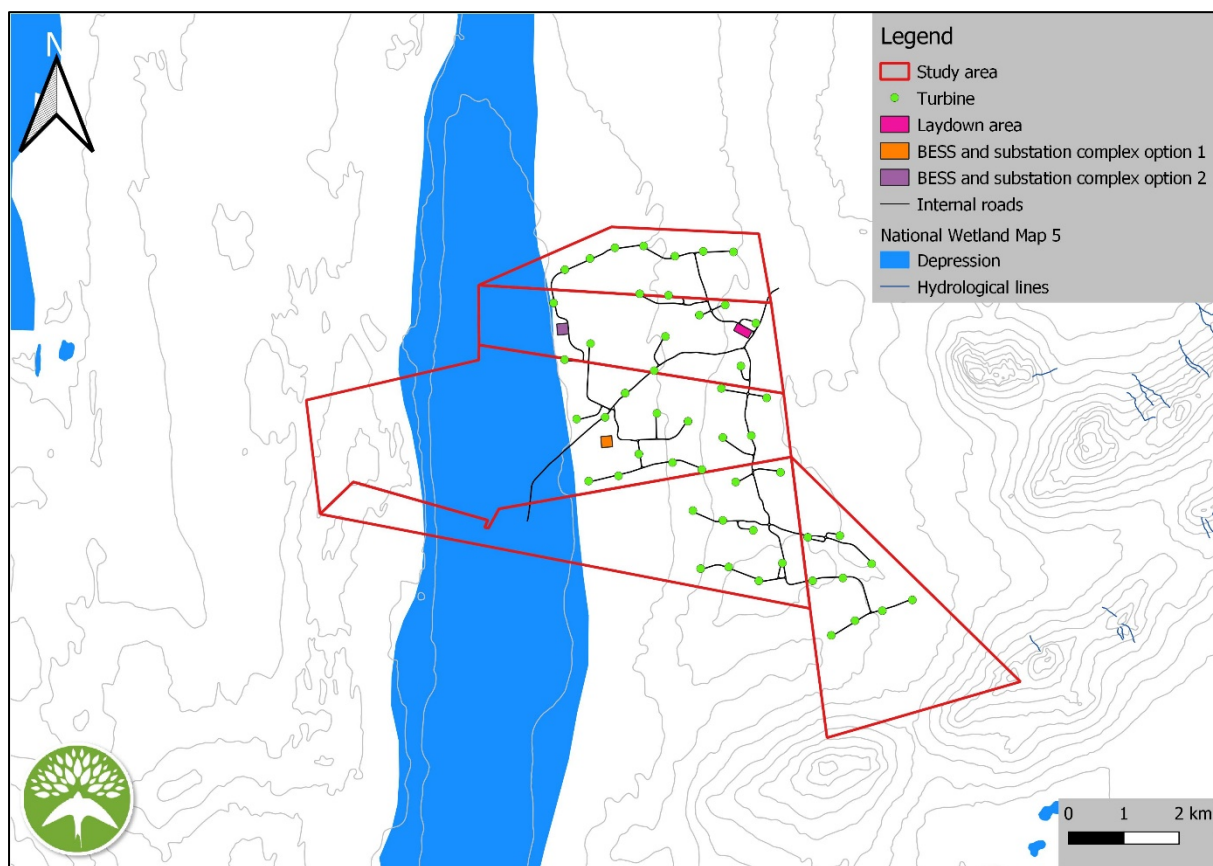
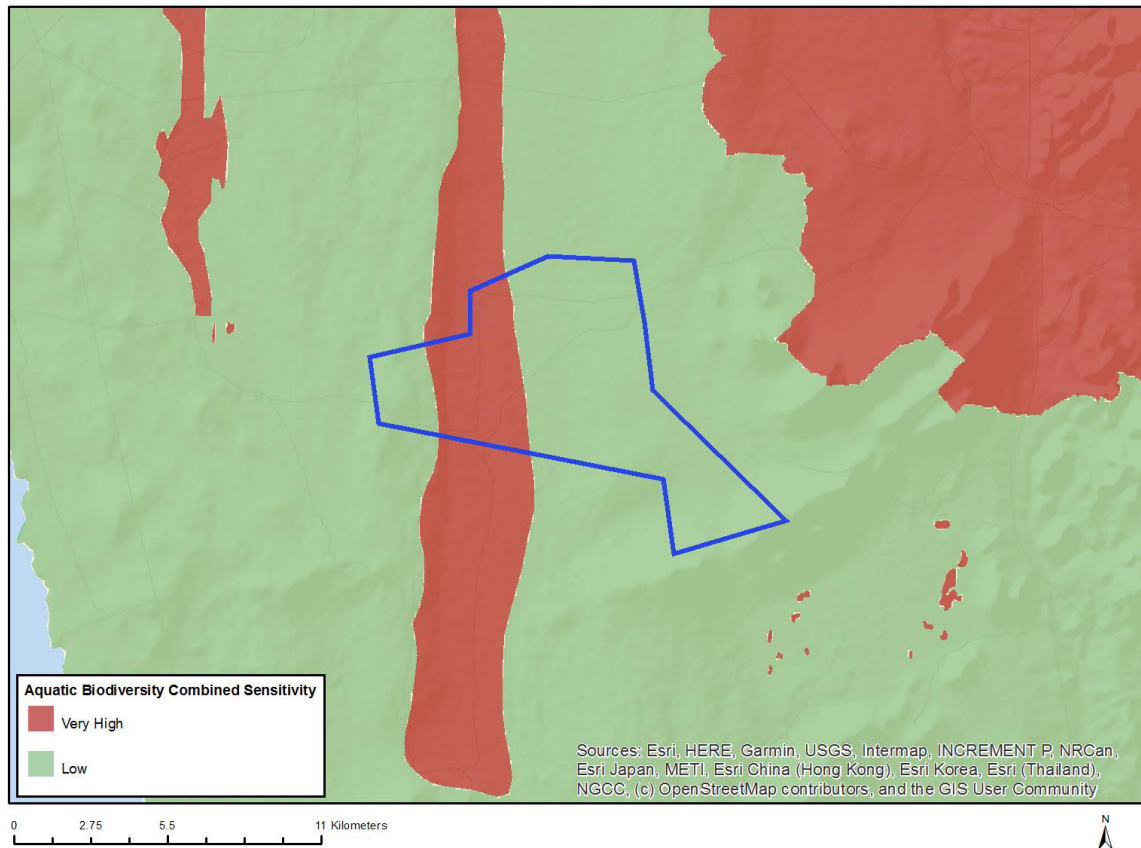


Figure 5: Wetland indicated by the National Wetland Map 5 (CSIR, 2018).

The Basic Assessment for the proposed Komass Wind Energy Facility and associated infrastructure near Kleinsee in the Northern Cape Province.



**Figure 6: Very high sensitivity aquatic biodiversity areas (National Web-Based Environmental Screening Tool).**

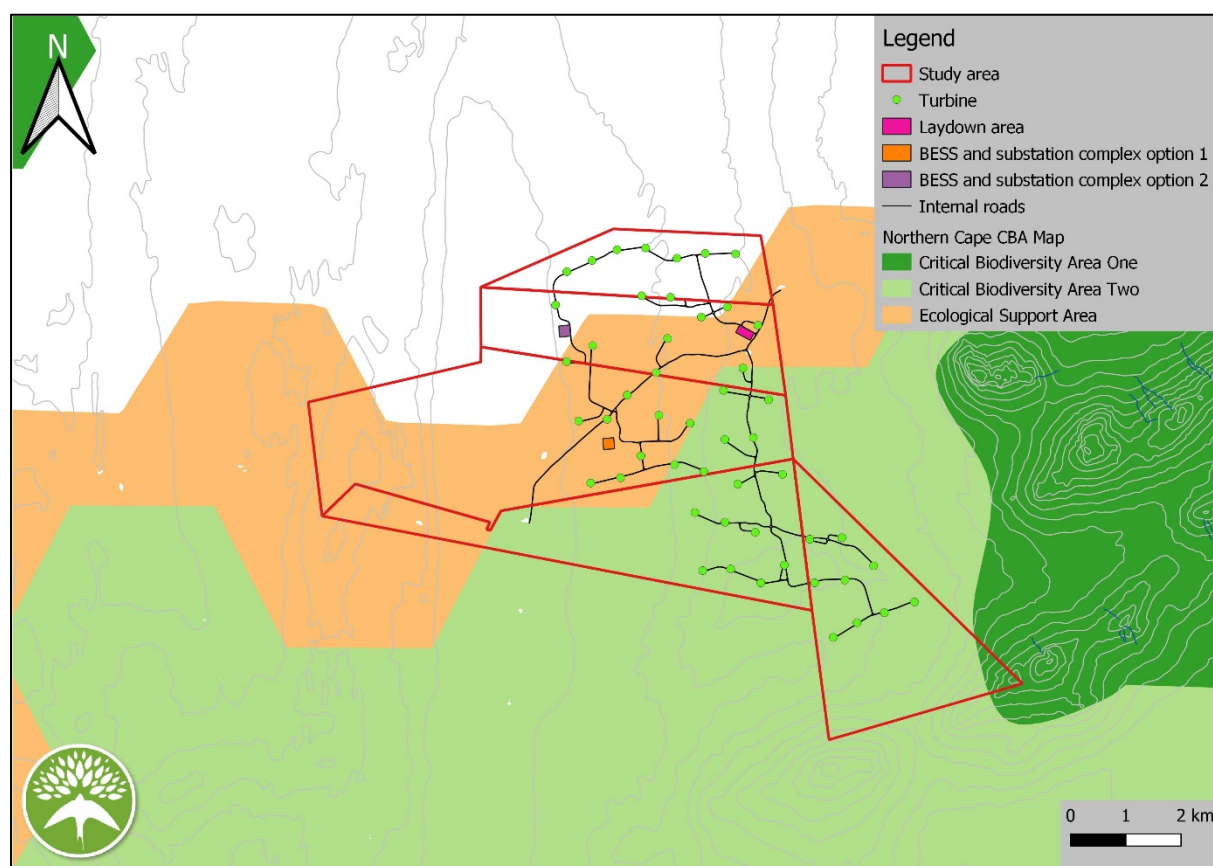


**Figure 7: Dry terrestrial vegetation dominating the area identified as a very high sensitivity aquatic biodiversity area.**



According to the Northern Cape CBA map the majority of the study area is associated with an Ecological Support Area (ESA) and a CBA 2 with only a very small portion within the south eastern corner associated with a CBA 1 (Figure 8). However, the majority of the biodiversity features that were considered in the analysis of the ESA and CBAs (as indicated in the Northern Cape CBA layer) are of terrestrial biodiversity conservation significance i.e. Namaqualand Strandveld, Namaqualand Klipkoppe Shrubland, South African National Parks (SANParks) Expansion Area, the Succulent Karoo Ecosystem Plan (SKEP) expert areas, Namakwa CBAs, National Protected Areas Expansion Strategy (NPAES) protected area or focus area and large high value climate resilience areas. Although Namaqualand Salt Pans are also indicated as a biodiversity feature for the ESA, no salt pans were encountered within the study area.

CBAs and ESAs are important for the persistence of a viable representative sample of all ecosystem types and species as well as the long-term ecological functioning of the landscape as a whole and should remain in a natural state as far as possible.



**Figure 8: Critical Biodiversity Areas and ESAs indicated within the proposed Komas WEF study area.**

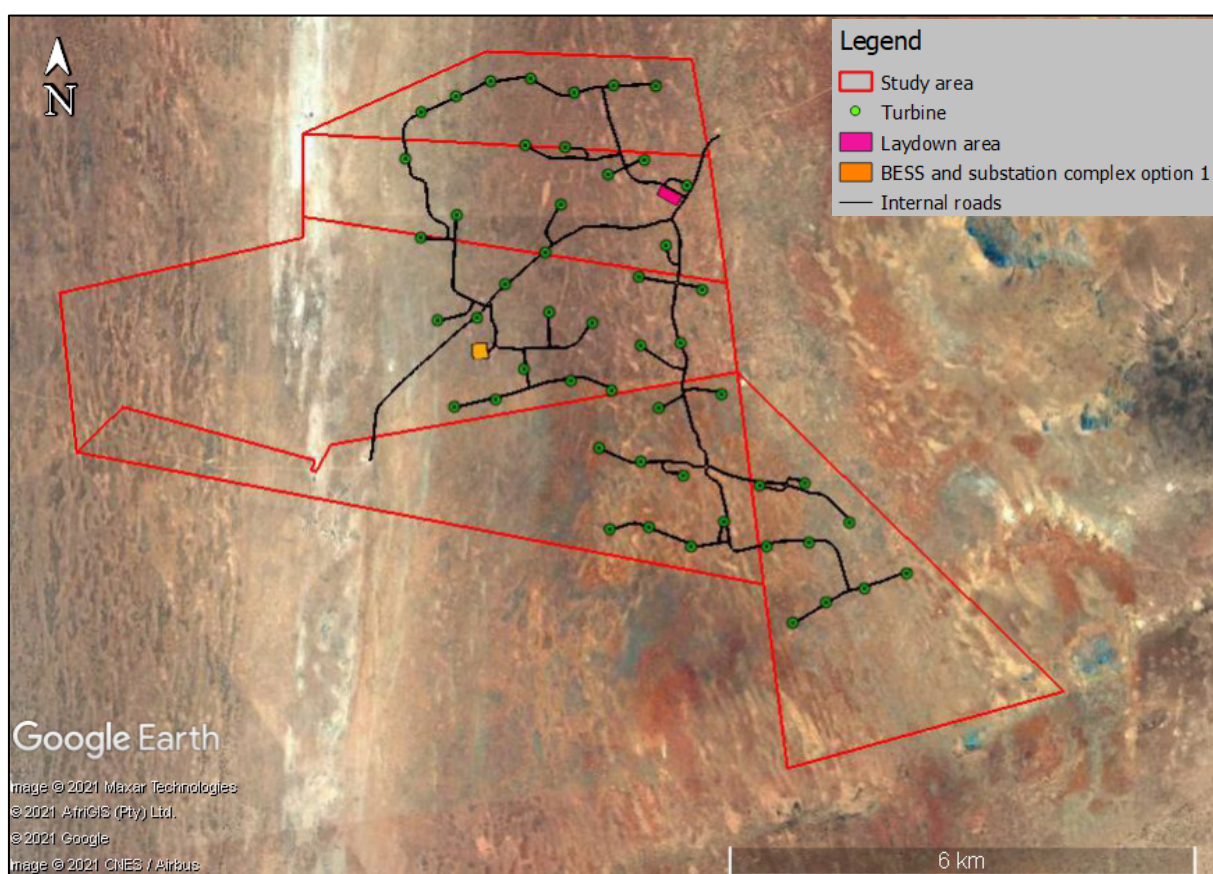
### **1.3.6. Results of the Field Study**

The low regional rainfall, semi-desert conditions and dominance of well drained, sandy soils within the study area is not conducive to the formation of wetland habitat. Furthermore, the relatively flat topography, the absence of ridges, and the lack of concentrated flow paths is not conducive to the formation of drainage lines. No watercourses as defined by the NWA were therefore encountered within the study area, and no additional watercourses have been indicated within 500m of the study area by desktop resources.

### 1.3.7. Conclusion

No watercourses were encountered within the study area. It is therefore the opinion of the specialist that the study area is not considered to be important in terms of Aquatic Biodiversity and would fall within the low sensitivity category as defined by the National Web-Based Environmental Screening Tool. The proposed development will not have an impact on any aquatic features and a full Aquatic Biodiversity Specialist Assessment is therefore not required. A Compliance Statement has been prepared instead in accordance with the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Aquatic Biodiversity (Government Gazette 43110/ Government Notice 320, dated 20 March 2020). It is the opinion of the Aquatic Biodiversity specialist that this Compliance Statement is sufficient as the aquatic sensitivity of the site was rated as very low and therefore the rating of very high significance as identified by the National Web-Based Environmental Screening Tool is disputed based on the evidence collected during the site visit and as motivated in this report.

**It is the opinion of the specialist that the proposed development of the Komas WEF and associated infrastructure does not pose an unacceptable risk and can therefore be approved from an Aquatic Biodiversity perspective. The preferred layout is indicated in Figure 9.**



**Figure 9: Preferred layout of the proposed Komas WEF.**

## 1.4. REFERENCES

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- The South African National Biodiversity Institute - Biodiversity Geographic Information System (BGIS) [online]. URL: <http://bgis.sanbi.org>.
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## APPENDIX A: CURRICULUM VITAE OF SPECIALISTS

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### Joshua Gericke (Pr. Sci. Nat)

#### Personal Information

<b>Full name:</b>	Joshua Cleve Gericke
<b>Nationality:</b>	South African
<b>Address:</b>	Cape Town
<b>Telephone Number:</b>	074 295 9571
<b>Date of Birth:</b>	1986-09-24
<b>Sex:</b>	Male
<b>Home Language:</b>	English
<b>Other Languages:</b>	Afrikaans
<b>E-mail:</b>	natasha@enviroswift.co.za

#### Professional Profile

Joshua holds a Bachelor of Science Honours Degree (B.Sc. Hons) in the field of Environmental Science from the University of Cape Town. Over the course of Joshua's career, he has completed a number of fauna and flora identification and estuarine management short courses, as well as courses in fire management and other facets of biodiversity management. He is also a member of the Western Cape Wetlands Forum. He has also featured as a guest lecturer for the Nelson Mandela University Estuary Management Course and for the International Ocean Institute's Ocean Governance Course.

His career began in biodiversity management in 2009, focusing on management of wetlands, estuaries and coastal systems. He was employed in this capacity, in several roles, from October of 2009 to September 2017 by the City of Cape Town. He has had the rare opportunity with the City of Cape Town to create, implement, monitor and fine-tune his own management strategies. Through many iterations of this management cycle, he has acquired sound understanding of freshwater estuarine and marine ecosystems and their relationship with surrounding social systems.

#### Employment History

##### EnviroSwift (October 2017 – Present)

###### *Freshwater Specialist*

###### **Role and Responsibilities:**

- Project management and client liaison;
- Identification and Delineation of wetlands and riparian zones according to the method supplied by DWA (updated 2008) in combination with wetland soil characteristics guidelines drafted by Job (2009);
- Buffer allocation according to industry best practice guidelines as well as application the preliminary guideline drafted by MacFarlane *et al.* (2014) for freshwater features in South Africa;
- Background information gathering with the use of information resources such as ARC GIS and BGIS;
- Classification of wetland systems according to Ollis *et al.* , 2013;
- Assessment of WetHealth according to Macfarlane *et al.* , 2009;
- Assessment of WetEcoservices according to Kotze *et al.* , 2008;
- Assessment of the Wetland Index for Habitat Integrity according to DWAF (2007);



The Basic Assessment for the proposed Komas Wind Energy Facility and associated infrastructure near Kleinsee in the Northern Cape Province.

- Determination of the Ecological Importance and Sensitivity according to DWA (1999);
- Application of the Riparian Vegetation Response Assessment Index, level 3 (Kleynhans *et al.*, 2007);
- Providing mitigation measures and recommendations in line with the National Water Act as well as National Environmental Management Act;
- Impact assessment according to clients predefined methods provided;
- The Risk Assessment Matrix as required in terms of GA 509 gazetted on the 26th of August 2016;
- Assistance with Wetland Offset Initiatives utilising the draft wetland offset calculator; and
- Assistance with Water Use Licenses and General Authorisations.

### **City of Cape Town (July 2012 – September 2017)**

*Conservation Manager*

#### ***Role and Responsibilities:***

- Management of freshwater, estuarine, coastal and terrestrial ecosystems within an urban context including (with examples):
  - Conservation research
    - Investigation of the response of *Chironomidae* to observed changes in substrate
    - Effectiveness of *Liza richardsonii* stocking as a *Chironomid* biocontrol measure and determination of optimal stocking densities
    - Determination of effectiveness of various clearing methods for *Typha capensis*
    - Determination of optimal fish ladder gate parameters for use by *Liza Richardsonii*
    - Trapping/detection methods, local distribution, microhabitat use: Brant's Climbing Mouse (*Dendromus mesomelas*)
    - Waterbird species richness comparison between adjacent saline and freshwater systems
  - Stakeholder engagement
    - Management of the public image of natural systems through press releases, media, events, social media
    - Instituting and running an Estuary Management Forum and a Protected Area Advisory Committee
    - Environmental education program (~5000 people per annum)
  - Drafting of management and operational plans
    - Integrated Reserve Management Plan – Zeekoevlei Nature Reserve ZNR
    - Estuary Management Plan – Zandvlei Estuary
    - Environmental Contingency Plan – Zandvlei Estuary
    - Invasive Species Management Plans
    - Fire Management Plans
    - *Stuckenia pectinata* harvesting and control strategy
  - Implementation of management interventions
    - Implementation of the first successful water hyacinth eradication project in the Zeekoe catchment
    - *Stuckenia pectinata* harvesting and control by means of salinity manipulation
    - Dredging of Zandvlei Estuary
    - Improvement in mouth management of the Zandvlei Estuary
    - Straightening of the Zeekoe Estuary Mouth
    - Water level manipulation of artificial pans to simulate natural systems
    - Design of a litter trap for high flow, high litter loads of the Sand River
    - Response to
  - Monitoring of ecological systems and management effectiveness
    - Water quality and chemistry monitoring
      - Fauna surveys (fish, birds, mammals, reptiles, amphibians, certain invertebrates)
      - Flora surveys
      - Sediment surveys (bathymetry, sediment characteristics, erosion)
      - Litter surveys
      - Statistical analysis
      - Monitoring of events such as harmful golden algae blooms to determine effectiveness of interventions in near real-time
  - General Management



The Basic Assessment for the proposed Komas Wind Energy Facility and associated infrastructure near Kleinsee in the Northern Cape Province.

- Staff of up to 40 people
- Fleet, assets, and expendable stores
- Management of operational, capital and project budgets
- Other
  - Assisting with drafting of the “Bylaw Governing Recreational Use of Inland Waterbodies”
  - Drafting the “Rotenone” policy for the City of Cape Town

### ***Additional Courses Attended***

- Wetland Plant Identification (Water Research Commission)
- Advanced Fynbos Identification (Wendy Hitchcock)
- Estuary Management – attended and co-lectured (Nelson Mandela University)
- Fisheries Management – DEA Oceans and Coasts
- Environmental Management Inspector’s (EMI) course – Western Cape Government
- Ocean Governance – attended and co-lectured (International Ocean Institute)
- Freshwater, estuarine and marine fish identification – course convener (City of Cape Town)
- Freshwater and coastal bird identification (City of Cape Town)
- Snake identification and handling – Cape Reptile Institute
- Firefighting – Basic, Crew Leader, Incident Commander 5
- C-class Skipper’s Course

### ***Professional Society Memberships***

- Professional Natural Scientist (Registration number: 117997)
- South African Wetland Society
- Western Cape Wetland Forum
- Member of the City of Cape Town Ramsar City steering committee’s panel of advisors

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## **Louise Zdanow (Pr. Sci. Nat)**

### ***Personal Information***

**Full name:** Louise Zdanow  
**Nationality:** South African  
**Address:** Manguzi, KwaZulu-Natal  
**Cell phone number:** 0767255657  
**Date of Birth:** 24/04/1988  
**Sex:** Female  
**Home Language:** English  
**Drivers Licence:** Code B  
**Email:** louise@envirosswift.co.za

### ***Professional Profile***

Louise is the Managing Director of EnviroSwift KZN (Pty) Ltd. She has a BSc Honours degree in Botany from the University of Cape Town. She began working as an environmental specialist in 2012 and has since gained extensive experience in conducting freshwater as well as botanical assessments in the residential, mining and infrastructure development industries. Louise is a registered Professional Natural Scientist (Pr. Sci. Nat.) with the South African Council for Natural Scientific Professions (SACNASP, Reg. no. 114072), and is an accredited SASS5 practitioner. She is a member of the South African Wetland Society and the International Association of Impact Assessments South Africa. She has received a certificate of competence for the Tools for Wetland Assessments course attended at Rhodes

The Basic Assessment for the proposed Komas Wind Energy Facility and associated infrastructure near Kleinsee in the Northern Cape Province.

University; has attended a soil classification course presented by Jon Atkinson of the KZN Department of Agriculture and Rural Development; and has attended a wetland soils course presented by UFS in association with Piet-Louis Grundling.

## **Employment History**

### **EnviroSwift KZN (February 2016 – Present)**

*Freshwater and Botanical Specialist*

#### **Roles and Responsibilities:**

- Project management and client liaison;
- Identification and delineation of wetlands and riparian zones according to the method supplied by DWA (2005, updated 2008) in combination with wetland soil characteristics guidelines drafted by Job (2009);
- Buffer allocation according to the recently published Buffer Zone Guidelines for Rivers, Wetlands and Estuaries (Macfarlane and Bredin, 2016);
- Background information gathering with the use of information resources such as ARC GIS and BGIS;
- Classification of freshwater systems according to Ollis *et al.*, 2013;
- Assessment of Wet-Health according to Macfarlane *et al.*, 2009;
- Assessment of Wet-Ecoservices according to Kotze *et al.*, 2008;
- Application of the Wetland Index of Habitat Integrity according to DWAF, 2007;
- Application of the river Index of Habitat Integrity Assessment according to Kemper, 1999;
- Application of the Riparian Vegetation Response Assessment Index according to Kleynhans *et al.*, 2007;
- Determination of wetland Ecological Importance and Sensitivity according to Rountree *et al.*, 2013.
- Determination of river Ecological Importance and Sensitivity according to DWA (1999);
- Vegetation Present Ecological State assessments;
- Species of Conservation Concern assessments;
- Assessment of the Ecological Importance and Sensitivity of vegetation;
- Assessment of impacts (construction and operation) associated with projects;
- Providing mitigation measures and recommendations in line with the National Water Act as well as National Environmental Management Act;
- Assistance with Water Use Licenses and General Authorisations;
- Application of the Risk Assessment Matrix as required in terms of GA 509 gazetted on the 26th of August 2016;
- Assistance with plant permit applications.

### **SAS Environmental (January 2012 - November 2015)**

*Field Biologist*

#### **Roles and Responsibilities:**

- Vegetation Assessments;
- Freshwater Assessments;
- Desktop Evaluations;
- Permit Applications for Protected Trees and Plants;
- Water Use Licence Applications (WULAs); and
- River Rehabilitation Plans.

### ***Additional Courses Attended***

- Grass identification course presented by Frits van Oudtshoorn
- Fynbos identification course presented by Wendy Hitchcock
- Tools for Wetland Assessment course presented by Prof Fred Ellery
- SASS5 Aquatic Biomonitoring course presented by Dr Mark Graham
- Soil Classification course presented by Jon Atkinson of the KZN Department of Agriculture and Rural Development
- Wetland Soils course presented by Piet-Louis Grundling.

### ***Professional Society Memberships/Accreditations***

- SACNASP Professional Natural Scientist (Registration number:114072)
- Accredited SASS5 Practitioner
- IAIAA
- South African Wetland Society

### ***Work Experience***

- South Africa
- Mozambique

## APPENDIX B: SPECIALIST DECLARATION



### environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA

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

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

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

#### PROJECT TITLE

Basic Assessment for the proposed Komas Wind Energy Facility and associated infrastructure near Kleinsee in the Northern Cape Province: Aquatic study.

#### Kindly note the following:

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

#### Departmental Details

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

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

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

1. SPECIALIST INFORMATION

Specialist Company Name:	EnviroSwift Pty Ltd.		
B-BBEE	Contribution level (indicate 1 to 8 or non-compliant)	4	Percentage Procurement recognition
Specialist name:	JOSHUA GERIKE		
Specialist Qualifications:	BSC HONOURS		
Professional affiliation/registration:	SACNASP 117997		
Physical address:	25 HODDINGTON RD, BERGVELD		
Postal address:	AS ABOVE		
Postal code:	7945	Cell:	074 295 9571
Telephone:		Fax:	
E-mail:	JOSHUA@ENVIROSWIFT.CO.ZA		

2. DECLARATION BY THE SPECIALIST

I, JOSHUA GERIKE, declare that -

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

  
Signature of the Specialist

EnviroSwift Pty Ltd.  
Name of Company:

28.09.2020.  
Date



## APPENDIX C: SITE SENSITIVITY VERIFICATION

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Prior to commencing with the specialist assessment in accordance with the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Aquatic Biodiversity (Government Gazette 43110/ Government Notice 320, dated 20 March 2020), a site sensitivity verification was undertaken in order to confirm the current land use and environmental sensitivity of the proposed project area as identified by the National Web-Based Environmental Screening Tool (Screening Tool).

The details of the site sensitivity verification are noted below:

<b>Date of Site Visit</b>	29 January 2020
<b>Specialist Name</b>	Joshua Gericke
<b>Professional Registration Number</b>	117997
<b>Specialist Affiliation / Company</b>	EnviroSwift (Pty) Ltd

The screening tool was applied by the specialist to the study area and an area of very high sensitivity in terms of Aquatic Biodiversity was identified (Figure A). A desktop analysis was undertaken utilising available national and provincial databases as well as digital satellite imagery (Google Earth Pro); and an onsite inspection was undertaken in order to confirm or dispute the current use of the land and the environmental sensitivity as identified by the screening tool.

Upon investigation of relevant national and provincial databases it was determined that the area of very high sensitivity in terms of Aquatic Biodiversity has been identified as such due to the indication of this area as a large depression wetland by the National Wetland Map 5<sup>4</sup> (CSIR, 2018) (Figure B). However, upon investigation of this area during the field survey undertaken in January 2020 it was found that the area indicated as wetland habitat is in fact an extensive dune field. This dune field is a flat area located between two ridge lines and is characterised by fresh, wind-blown sand and dry terrestrial vegetation (Figure C). There is no indication that water accumulates within this area, and no wetland indicators as defined by the delineation guidelines (DWAF 2005, updated 2008) were encountered e.g. hydromorphic soils, wetland vegetation, signs of salt accumulation or hardened / cracked surface layers. The depression can therefore not be defined as wetland or aquatic habitat and it is the opinion of the specialist that the very high environmental sensitivity as identified by the screening tool in terms of Aquatic Biodiversity is incorrect.

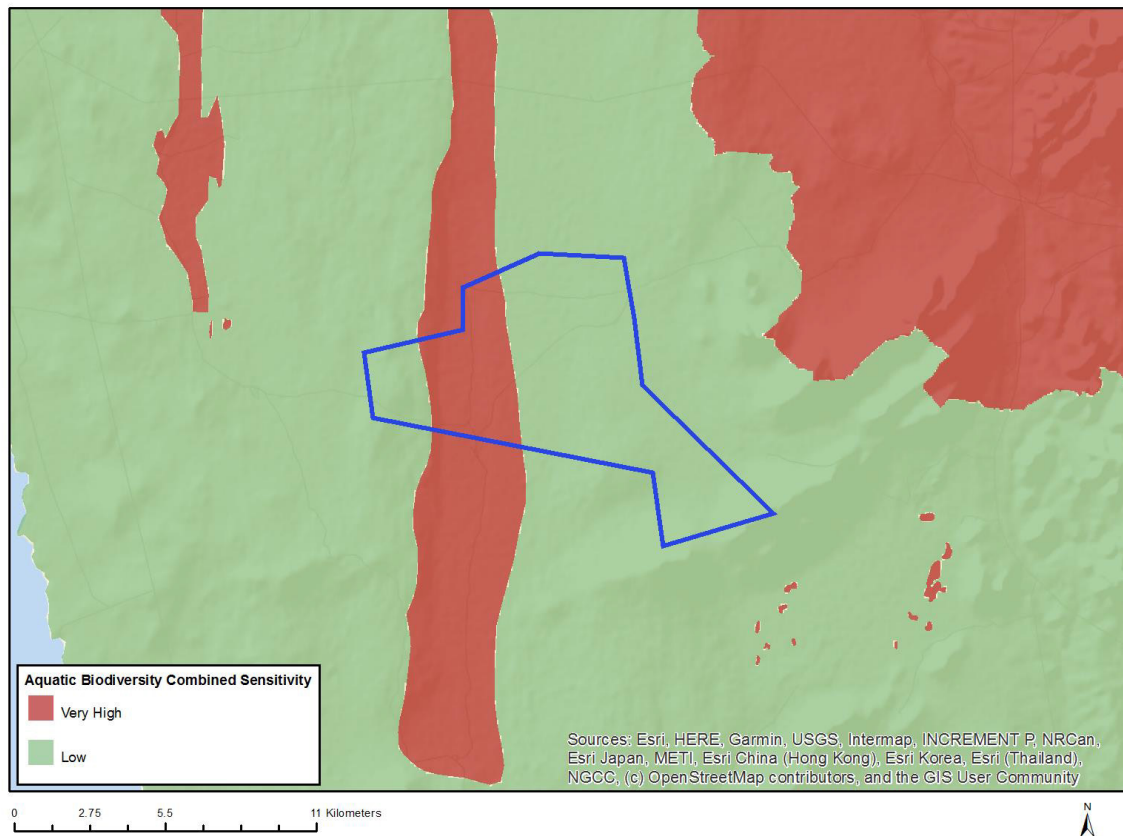
Since no watercourses were encountered within the study area, it is the opinion of the specialist that the study area is not considered to be important in terms of Aquatic Biodiversity and would fall within the low sensitivity category as defined by the National Web-Based Environmental Screening Tool. In terms of the protocol for the specialist assessment and minimum report contents for environmental impacts on aquatic biodiversity, if information gathered from the site sensitivity verification differs from the screening tool designation of "very high" aquatic biodiversity sensitivity, and it is found to be of a "low" sensitivity, an Aquatic Biodiversity Compliance Statement must be submitted. The proposed development will not have an impact on any aquatic features, and it is therefore the opinion of the specialist that an Aquatic Biodiversity Compliance Statement is sufficient in order to meet the requirements of NEMA.

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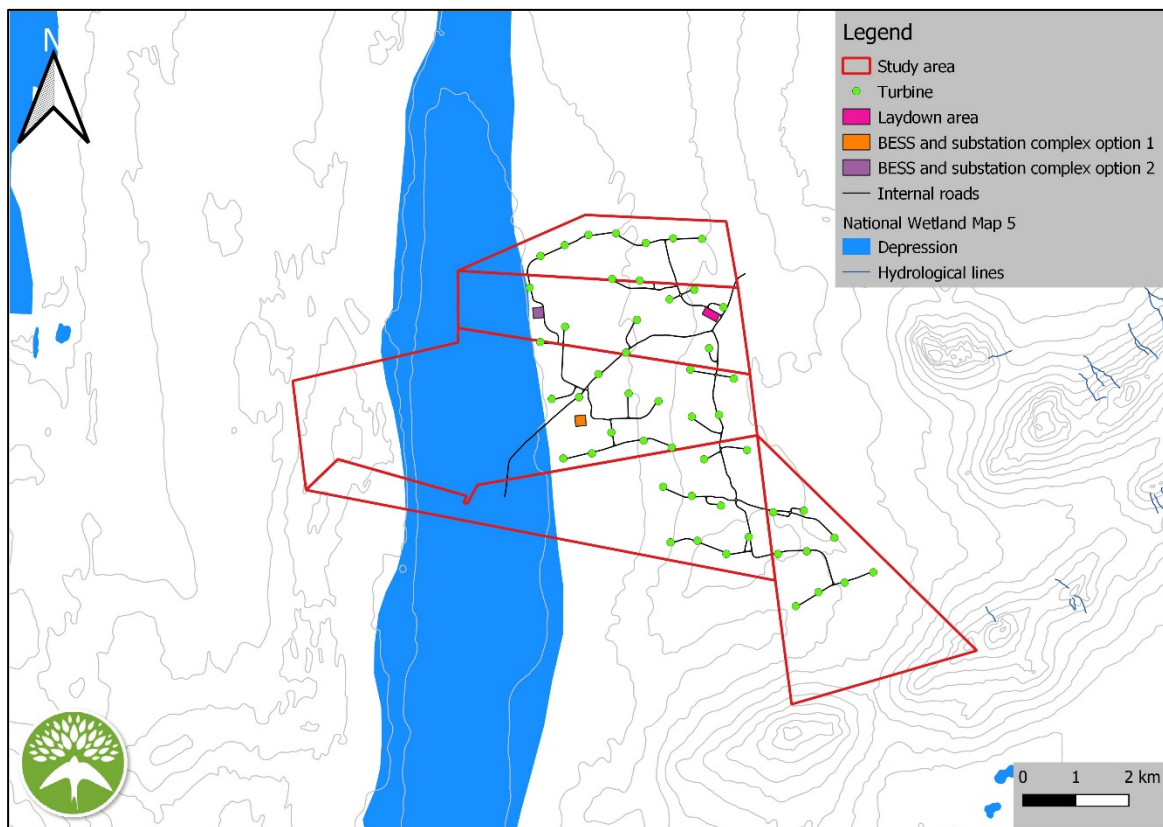
<sup>4</sup> The National Wetland Map 5 replaced the NFEPA map.



The Basic Assessment for the proposed Komas Wind Energy Facility and associated infrastructure near Kleinsee in the Northern Cape Province.



**Figure A: Very high sensitivity aquatic biodiversity areas (National Web-Based Environmental Screening Tool).**



**Figure B: Wetland indicated by the National Wetland Map 5 (CSIR, 2018).**

The Basic Assessment for the proposed Komas Wind Energy Facility and associated infrastructure near Kleinsee in the Northern Cape Province.



**Figure C: Dry terrestrial vegetation dominating the area identified as a very high sensitivity aquatic biodiversity area (29/01/2020).**