



Modderfontein Wind Energy Facility – Part 2 Amendment Application – Site Sensitivity Verification Report

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1 INTRODUCTION AND BACKGROUND

This Site Sensitivity Verification Report refers to an Amendment Application being applied for under an existing Environmental Authorisation (EA) for the Modderfontein Wind Energy Facility (WEF), with the Department of Forestry, Fisheries and Environment (DEFF) Reference: 12/12/20/1993/3.

The Modderfontein WEF was originally included in the larger proposed Karoo Renewable Energy Facility (Northern and Western Cape Province) (see Figure 1). A Final Environmental Impact Assessment (EIA) Report was concluded in May 2011 and thereafter the EA was split into three project development phases via an amendment application with an amended EA issued on 12 February 2012 (for the Noblesfontein wind project, Modderfontein wind project, and the Noblesfontein solar PV site). Subsequently a number of extension applications have been approved and the current EA is valid until 22 February 2022.

The Modderfontein WEF includes the construction of 67 turbines with a maximum capacity of 201 MW in an 10,652ha area. The holder of the existing EA, South African Renewable Green Energy (Pty) Ltd, proposes to change the technical specifications of the wind turbines by amending the authorised infrastructure from:

- Up to 67 wind turbines with a total generating capacity of 201 MW using turbines with a generating capacity of up to 3 MW,
- Each turbine will be a steel tower (between 80m and 125m in height), nacelle (gear box) and three rotor blades with a rotor diameter of between 90m and 110m (i.e. each blade up to 55m in length),
- 67 temporary turbine laydown areas of 50m x 25m (83 750m²),
- 67 concrete foundations to support the turbine towers (15m x 15m x 2.5m in depth),

to,

- Up to 34 wind turbines with a total generating capacity of up to 140MW (cluster 1) and 50.4MW (cluster 2)
- A total output of 190.4MW
- Wind turbines with a generating capacity of up to 5.6MW,
- Each turbine will be a steel tower (up to 119m in height), nacelle (gear box) and three rotor blades with a rotor diameter of up to 162m (i.e. each blade up to 81m in length),
- 34 temporary turbine laydown areas of 50m x 25m (31 250m²),
- 34 concrete foundations to support the turbine towers (15m x 15m x 2.5m in depth).

The proposed development will be an approximately 50% reduction in turbine density compared to the current authorised layout.

To guide the level of assessment and reporting when applying for environmental authorisation (or in this case an application for amendment) 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, were promulgated. These procedures are based on the outputs of a web-based Screening Tool, obligatory in all Environmental Impact Assessment (EIA) processes as of 4 October 2019.

The Screening Report is a key output of the Screening Tool and identifies the key environmental sensitivities of the site. Regulations relating to the implementation of the Protocols and assessment criteria were published on 20 March 2020. Procedures to be followed are specified for each Environmental Theme and are aimed at confirming or disputing the current use of the land and the environmental sensitivity as identified by the screening tool through the use of motivating evidence (photographs, satellite imagery, site investigation etc) of either the verified or different use of the land and environmental sensitivity. The outcomes of the Site Sensitivity Verification (SSV) will, subject to the approval of the Competent Authority, determine what level of assessment and reporting will be undertaken in the EIA process.

In terms of NEMA (as amended), an independent Environmental Assessment Practitioner (EAP) must be appointed in terms of section 12 to 14 of the EIA Regulations. Terramanzi Group (Pty) Ltd (TMG) has been appointed to undertake this Application for Amendment of the EA on behalf of the Applicant.

2 ENVIRONMENTAL ASSESSMENT PRACTITIONER DETAILS

In terms of NEMA (as amended), an independent environmental assessment practitioner must be appointed in terms of section 12 to 14 of the EIA Regulations. Terramanzi Group (Pty) Ltd (TMG) has been appointed to undertake this Application for Amendment of the Environmental Authorisation on behalf of the Applicant.

Monique Sham is the Independent Environmental Assessment Practitioner (EAP) responsible for this Report. Monique is an environmental consultant with more than 16 years of experience in the Environmental Management industry. She is an EAPASA Registered EAP and an EAPASA appointed EAP Registration Assessor. In addition to being an IAIAA Western Cape Branch committee member she is the 2021 President Elect for the National Committee, is certified with the Southern African Institute of Ecologists and Environmental Scientists (SAIE&ES), a member of the Environmental Law Association (ELA) and the Water Institute of Southern Africa (WISA). Monique holds a BA Degree in Geography & Environmental Science and Media & Communication Studies from Monash as well as a BSc (Hons) degree from Wits in Geography and Environmental Studies and is currently undertaking an LLB degree part-time through UNISA.

Monique Sham was assisted and supported on this Project and the associated Report writing, by Evan Milborrow, who holds a BSc in Chemistry and Biochemistry, a BSc (Hons) and MSc in Molecular and Cell Biology from the University of Cape Town, and is a junior member of the Environmental Services Team at Terramanzi Group (Pty) Ltd.

TMG hereby declares that they have no conflicts of interest related to the work of this Report. Specifically, TMG declares that they have no personal financial interests in the property and/or activity being assessed in this report, and that they have no personal or financial connections to the relevant property owners, developers, planners, financiers or consultants of the property or activity, other than fair remuneration for professional services rendered for this Report to the Competent Authority. TMG declares that the opinions expressed in this Report are independent and a true reflection of their professional expertise.

TMG is a Level 4 Broad Based Black Economic Empowerment Company and is professionally accredited with several relevant industry bodies and is an authorised supplier on the Western Cape Supplier Database (WCSD), in line with the Preferential Procurement Policy Framework Act No. 5 of 2000 (PPPFA).

3 DESCRIPTION OF THE SITE AND PROPOSED ACTIVITY

The site is located approximately 34 km south of Victoria West and lies within both the Northern and Western Cape Provinces, within the Ubuntu as well as the Beaufort West Local Municipalities (refer to Figure 1 and 2). Access to the site exists via a secondary road which traverses the site from east to west and which connects the N1 and N12 national roads which run to the south-east and west of the study site respectively. A number of less significant local roads lead from this secondary road to various parts of the site. The N12 national road joins up with the N1 approximately 8km to the south-west of the study site. The R63 road is situated north west of the site.

The site is located within an area described as semi-arid to arid, typical of the Northern Cape. Rainfall occurs in late summer to autumn, peaking in March. The rainfall for the area varies from 200 to 400mm per year which classifies the area as being arid. Mean minimum and maximum temperatures for Victoria West are -8oC and 36.6oC respectively.

The region has a rural character with a number of individual farming homesteads/dwellings occurring within the study area. Land cover is dominated by shrubland, with some thicket, bushland and bush clumps along the drainage lines. Small, isolated pockets of irrigated agriculture also occur within the site. Karroid broken veld is the dominant vegetation type in the area, becoming false upper karoo in the north, with very limited disturbance.



Figure 1: Site locality map indicating the location of the Modderfontein Wind Energy Facility (as indicated by the yellow markers and blue outline) within a regional context.



Figure 2: Site locality detail map - Modderfontein Wind Energy Facility site boundary outlined in blue.

GPS Location:

31°45'16.62" South

23°16'16.79" East

The current authorised project descriptions includes:

- Up to 67 wind turbines with a total generating capacity of 201 MW using turbines with a generating capacity of up to 3 MW,
- Each turbine will be a steel tower (between 80m and 125m in height), nacelle (gear box) and three rotor blades with a rotor diameter of between 90m and 110m (i.e. each blade up to 55m in length),
- 67 temporary turbine laydown areas of 50m x 25m (83 750m²),
- 67 concrete foundations to support the turbine towers (15m x 15m x 2.5m in depth),

The proposed amended description is as follows:

- Up to 34 wind turbines with a total generating capacity of up to 140MW (cluster 1) and 50.4MW (cluster 2)
- A total output of 190.4MW
- Wind turbines with a generating capacity of up to 5.6MW,
- Each turbine will be a steel tower (up to 119m in height), nacelle (gear box) and three rotor blades with a rotor diameter of up to 162m (i.e. each blade up to 81m in length),
- 34 temporary turbine laydown areas of 50m x 25m (31 250m²),
- 34 concrete foundations to support the turbine towers (15m x 15m x 2.5m in depth).

The proposed development will be an approximately 50% reduction in turbine density compared to the current authorised layout.

4 SITE SENSITIVITY VERIFICATION METHODOLOGY

To inform the SSV Report, data and information was gathered and reviewed by the EAP from various sources. These sourced included:

- The original Environmental Impact Assessment Report (dated May 2011) along with its associated Specialist Studies.
- Specialist statements from 2016 that formed part of a Part 1 Amendment Application.
- The Screening Tool Report for the proposed activity which revealed the associated environmental themes.
- Maps from Google Earth, Cape Farm Mapper, and City of Cape Town Map Viewer.
- Specialist inputs and studies for the current Amendment Application.

5 IDENTIFIED THEME SENSITIVITIES FOR THE SITE/ACTIVITY

The following sensitivities have been identified by the Screening Tool:

Theme	Sensitivity			
	Very High	High	Medium	Low
Agricultural			X	
Animal Species		X		
Aquatic Biodiversity	X			
Archaeological and Cultural Heritage	X			
Civil Aviation				X
Defence				X
Palaeontology	X			
Plant Species			X	
Terrestrial Biodiversity	X			

5.1 SITE SENSITIVITY VERIFICATION

5.1.1 Agricultural Theme

Screening Tool categorisation

According to the Screening Tool Report this theme is rated as having a “Medium sensitivity”.

How the project site relates to identified theme

The limitations of the agricultural resources of the site area were included in the original EIA. The proposed amendment is to reduce the amount of wind turbines and thus having a less of an impact on the physical attributes of the site.

EAP Recommendation

An agricultural specialist has been appointed to assess the agricultural sensitivity of the site.

5.1.2 Animal Species Theme

Screening Tool categorisation

According to the Screening Tool Report this theme is rated as having a “High sensitivity”.

How the project site relates to identified theme

Avifauna and bats are likely to be the most affected faunal species relating to wind farms and relevant specialists in each field have been appointed to assess the impact of the proposed amendment on bats and birds.

EAP Recommendation

Faunal specialists have been appointed to assess the faunal sensitivity of the site.

5.1.3 Aquatic Biodiversity Theme

Screening Tool categorisation

According to the Screening Tool Report this theme is rated as having a “Very high sensitivity”. Most of the site, however, is mapped as “Low” with only a small area possibly overlapping an area of “Very high” sensitivity.

How the project site relates to identified theme

The site is located within an area described as semi-arid to arid, and freshwater systems area limited.

EAP Recommendation

The proposed amendment will reduce the number of wind turbines, and therefore the associated footprints of the infrastructure, and the anticipated impact on any freshwater systems is anticipated to be negligible. A freshwater specialist has, however, been appointed to provide a compliance statement.

5.1.4 Archaeological and Cultural Heritage Theme

Screening Tool categorisation

According to the Screening Tool Report this theme is rated as having a “Very high sensitivity”.

How the project site relates to identified theme

An archaeological assessment was undertaken as part of the original EA application and the 67 turbines were subsequently approved. The proposal to reduce the number of turbines will result in less of an impact than the existing authorised layout.

EAP Recommendations

A heritage specialist has been appointed to assess the archaeological sensitivity of the site.

5.1.5 Civil Aviation ThemeScreening Tool categorisation

According to the Screening Tool Report this theme is rated as having a “Low sensitivity”.

How the project site relates to identified theme

Due to the height of the proposed turbines civil aviation may be impacted.

EAP Recommendation

Although the sensitivity rating of low is likely to be correct the Civil Aviation Authority will be notified of the proposed amendment.

5.1.6 Defence ThemeScreening Tool categorisation

According to the Screening Tool Report this theme is rated as having a “Low sensitivity”.

How the project site relates to identified theme

Due to the nature of the activity, the fact that it is already authorised and that the amendment is to reduce the number of turbines, it is unlikely that any impact on defence will take place.

EAP Recommendation

The EAP is in agreement with the rating of low in this theme and no further action is recommended.

5.1.7 Palaeontology ThemeScreening Tool categorisation

According to the Screening Tool Report this theme is rated as having a “Very high sensitivity”.

How the project site relates to identified theme

The original authorisation application included a Phase 1 Palaeontological Impact Assessment. As the proposal is reduce the number of wind turbines compared to the authorised layout, no additional impact is anticipated on this sensitivity.

EAP Recommendation

The sensitivity is likely to be correct for a new application on the property, however as this is an amendment to reduce the number of turbines the EAP is of the opinion that no further

assessments will be required. The relevant heritage authorities will, however, be notified of this amendment process and be provided with an opportunity to comment.

5.1.8 Plant Species Theme

Screening Tool categorisation

According to the Screening Tool Report this theme is rated as having a “Medium sensitivity”.

How the project site relates to identified theme

Most of the site is mapped as either “Ecological Support Area” or “Other Natural Areas”. The vegetation in the area has been mapped as Eastern Upper Karoo, Upper Karoo Hardeveld and Southern Karoo Riviere. All of these units have been gazetted as a Least Threatened vegetation types on a national basis.

EAP Recommendation

The sensitivity rating of “Medium” is likely to be accurate and a botanical specialist has been appointed to assess the impact of the proposed amendment.

5.1.9 Terrestrial Biodiversity Theme

Screening Tool categorisation

According to the Screening Tool Report this theme is rated as having a “Very high sensitivity”.

How the project site relates to identified theme

The terrestrial faunal and flora on the site will be impacted by the development, however as the proposal is to amend the existing authorised layout by reducing it by 50% this impact is deemed to be low.

EAP Recommendation

A specialist will be appointed to assess the impact of the proposed amendment on terrestrial biodiversity.

6 CONCLUSION AND WAY FORWARD

An amendment process is currently underway relating to the authorised Modderfontein WEF. The proposed amended layout will be an approximately 50% reduction in turbine density compared to the current authorised layout.

According to this SSV Report the following specialist inputs will be obtained to inform the Part 2 Amendment Application process:

- Agricultural
- Animal species
- Archaeological/Cultural/Heritage
- Palaeontological
- Plant Species
- Terrestrial Biodiversity

With regards to the remainder of the sensitivities, the EAP is of the opinion no additional assessments or compliance statements are required.