

Soetwater Wind Energy Facility near Sutherland in the Northern Cape Province

Motivation for amendment of Environmental Authorisation

DEA Ref.: 12/12/20/2370/2

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PROJECT DETAILS

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TABLE OF CONTENTS

PROJECT DETAILS	i
PURPOSE OF THE REPORT	2
1. OVERVIEW OF THE PROJECT	4
2. DETAILS OF THE AMENDMENTS APPLIED FOR	5
2.1. Turbine specifications	5
3. MOTIVATION FOR THE PROPOSED AMENDMENTS	8
3.1. Technical Motivation	8
3.2. Considerations in terms of the requirements of the EIA Regulations	8
4. POTENTIAL FOR CHANGE IN THE SIGNIFICANCE OF IMPACTS AS ASSESSED IN THE EIA AS A RESULT OF THE PROPOSED AMENDMENTS	8
4.1. Ecological Impact.....	9
4.1.1. Conclusion.....	13
4.2. Noise impact.....	13
4.2.1. Conclusion.....	14
4.3. Visual impact	14
4.3.1. Conclusion.....	17
4.4. Impacts on bats.....	17
4.4.1. Conclusion.....	18
4.5. Impacts on avifauna.....	19
4.5.1. Construction phase	19
4.5.2. Operation phase.....	21
4.5.3. Conclusion.....	24
4.6. Impacts on heritage	24
4.6.1. Conclusion.....	25
5. ADVANTAGES AND DISADVANTAGES OF THE PROPOSED AMENDMENTS	25
6. REQUIREMENTS FOR ADDITIONAL MITIGATION AS A RESULT OF THE PROPOSED AMENDMENTS	26
7. PUBLIC PARTICIPATION	26
8. CONCLUSION	26

APPENDICES:

Appendix A:	Ecology Specialist Report
Appendix B:	Noise specialist Report
Appendix C:	Visual Specialist Report
Appendix D:	Bat Specialist Report
Appendix E:	Avifauna Specialist Report
Appendix F:	Heritage Specialist Report
Appendix G:	Public Participation Documentation
Appendix H:	A3 Maps

PURPOSE OF THE REPORT

Soetwater Wind Farm (Pty) Ltd received an Environmental Authorisation (EA) for the construction of the 140MW Soetwater Wind Farm (Phase 2) in the Northern Cape Province (DEA ref: 12/12/20/2370/2) on 12 August 2014. The project has been selected as a Preferred Bidder by the Department of Energy (DoE) as part of Round 4 of the Renewable Energy Independent Power Producer (IPP) Procurement Programme (REIPPPP).

Since the issuance of the EA and the delay in the construction of the wind farm due to the delays experienced in the REIPPPP, there have been advancements to wind turbine technology and the turbines which were already authorised will no longer be viable for the project in terms of production and economic viability of the project. In this regard, Soetwater Wind Farm (Pty) Ltd is considering an updated turbine model for the project, and is proposing the following:

- » an increase the rotor diameter for each turbine from 120m to a maximum of 150m;
- » a reduction in the number of turbines from 56 to 43; and
- » an increase in the generating capacity of each turbine from 2MW - 3.5MW to up to 4.5MW

The increase in the rotor diameter and reduction in the number of turbines will result in the optimisation of the facility layout which was approved by the Department of Environmental Authorisation (DEA) on 26 January 2016. These amendments are proposed in order to increase the efficiency of the facility and consequently the economic competitiveness thereof. The proposed amendments in themselves are not listed activities and do not trigger any new listed activity as the proposed amendments are within the original authorised development footprint.

In terms of Condition 5 of the Environmental Authorisation and Chapter 5 of the EIA Regulations of December 2014 (as amended on 07 April 2017), it is possible for an applicant to apply, in writing, to the competent authority for a change or deviation from the project description to be approved. Savannah Environmental has prepared this motivation report in support of this amendment application on behalf of Soetwater Wind Farm (Pty) Ltd.

This report aims to provide detail pertaining to the significance and impacts of the proposed change to the project description and approved layout in order for interested and affected parties to be informed of the proposed amendments and provide comment, and for the competent authority to be able to reach a decision in this regard. This report is supported by specialist studies in order to inform the final conclusion regarding the proposed amendments (refer to **Appendix A to F** of this report). This main report must be read together with these specialist studies in order to obtain a complete understanding of the proposed amendments and the implications thereof.

This amendment motivation report has been made available to registered interested and affected parties for a 30-day period from **27 October 2017 to 27 November 2017.**

This document is available for download at www.savannahsa.com/projects and CD copies are available on request from the contact person overleaf.

To obtain further information, register on the project database, or submit written comment please contact:

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1. OVERVIEW OF THE PROJECT

Location:

The Soetwater Wind Energy Facility is located on a site ~30km south of Sutherland in the Karoo Hoogland Local Municipality, which falls within the jurisdiction of the Namakwa District Municipality in the Northern Cape Province. This development is to be constructed within the project site which comprises the following farm portions:

- » The remainder of and Portion 1, 2 and 4 of Farm Orange Fontein 203 and Annex Orange Fontein 185;
- » Farm Leeuwe Hoek 183; and
- » Farm Zwanepoelshoek 184.

The project has been selected as a Preferred Bidder by the Department of Energy (DoE) as part of Round 4 of the Renewable Energy Independent Power Producers (IPP) Procurement (REIPPP) Programme.

Potential impacts:

From the specialist investigations undertaken within the EIA process for the wind energy facility, no environmental fatal flaws were identified. No absolute environmental 'no go' areas were identified on the site. However, the following potential impacts were identified:

- » Potential noise impact;
- » Areas of visual impact;
- » Potential impacts on birds;
- » Potential impacts on bats;
- » Potential ecological impact;
- » Potential social impacts; and
- » Potential impacts on heritage.

Key conclusions and recommendations of the EIA pertinent to this application:

From the specialist investigations undertaken as part of the EIA for the wind energy facility, it was concluded that the majority of impacts are of moderate to low significance with the implementation of appropriate mitigation measures. Areas of sensitivity identified during the EIA process include:

- » Habitats and vegetation of conservation importance: this is based primarily on the location of the site within the Hantam-Roggeveld Centre of Endemism and the Fynbos Biome and which falls within the Namakwa District Biodiversity Sector Plan (NDBSP), Critical Biodiversity Area (CBA) T2 having elevated conservation value and, for that reason, has been classified here as having ecological and avifaunal sensitivity (for this site - important terrestrial habitats are south-facing slopes larger than 25 ha in size, kloofs and habitat for riverine rabbit, therefore with high biodiversity) (rated as being of medium sensitivity). No infrastructure occurs in these areas.
- » Areas classified as mountains, ridges or steep slopes: some of the steeper scarp slopes of the study area are steep enough to be sensitive to erosion and downslope impacts from disturbance and have been identified as important biodiversity habitats (essential T2 areas from the NDBSP) (high sensitivity). No infrastructure occurs in these areas.

- » Potential areas for the occurrence of populations of Red List fauna and flora that have been evaluated as having a probability of occurring in natural habitats within the study area. Impacts have been adequately mitigated.
- » Perennial and non-perennial rivers, streams and watercourses: these support the ecosystems in the areas and may provide habitat for priority avifauna species. No infrastructure occurs in these areas.
- » Noise sensitive receptors (farmsteads on / around the site, albeit limited). These areas have been avoided.
- » Heritage artefacts include graves, stone walls and old buildings/ruins present on the site. No infrastructure is proposed on the identified heritage sites.
- » Areas of high bat sensitivity also include rivers, farm dams and slopes. No turbines occur in the areas of high bat sensitivity. No turbines occur in the areas of high avifaunal sensitivity.
- » Areas of high avifaunal sensitivity have been identified and no turbines are in high risk areas.

No environmental fatal flaws were identified to be associated with the proposed Soetwater Wind Energy Facility. A number of issues requiring mitigation were highlighted. Environmental specifications for the management of potential impacts are detailed within the approved Environmental Management Programme (EMPr).

2. DETAILS OF THE AMENDMENTS APPLIED FOR

2.1. Turbine specifications

A Part 2 substantive amendment is being applied for to change the turbine specifications as follows:

	Authorised turbine specification	Amended turbine specifications
Rotor Diameter	120m	Up to 150m
WTG rating	2MW – 3.5MW	Up to 4.5MW
Number of turbines	56	43

These changes in turbine specifications will not have an impact in the Contracted Capacity of the project, (i.e. 140MW), will fall within the originally authorised development area of the facility and do not trigger any new listed activities. The substantive amendment also includes an update to the approved facility layout (refer to **Figure 2.1**). A3 maps of the approved layout and the revised layout are included as **Appendix H**).

It is requested that these turbine specifications be amended and added into the project description on page 7 of the EA so that the EA reads:

Wind turbines (up to 4.5MW in capacity and with a rotor diameter of up to 150m and a hub height of up to 120m) and associated foundations.

It is furthermore requested that project description in the EA be amended to include the correct number of turbines to be installed at the site. The wording on page 8 of the EA is therefore requested to be changed to:

Up to 43 turbines.

The layout plan consisting of 43 turbines was approved on 29 January 2016. It is furthermore requested that the revised layout for the Soetwater Wind Energy Facility (refer to **Figure 2.1**) be approved.

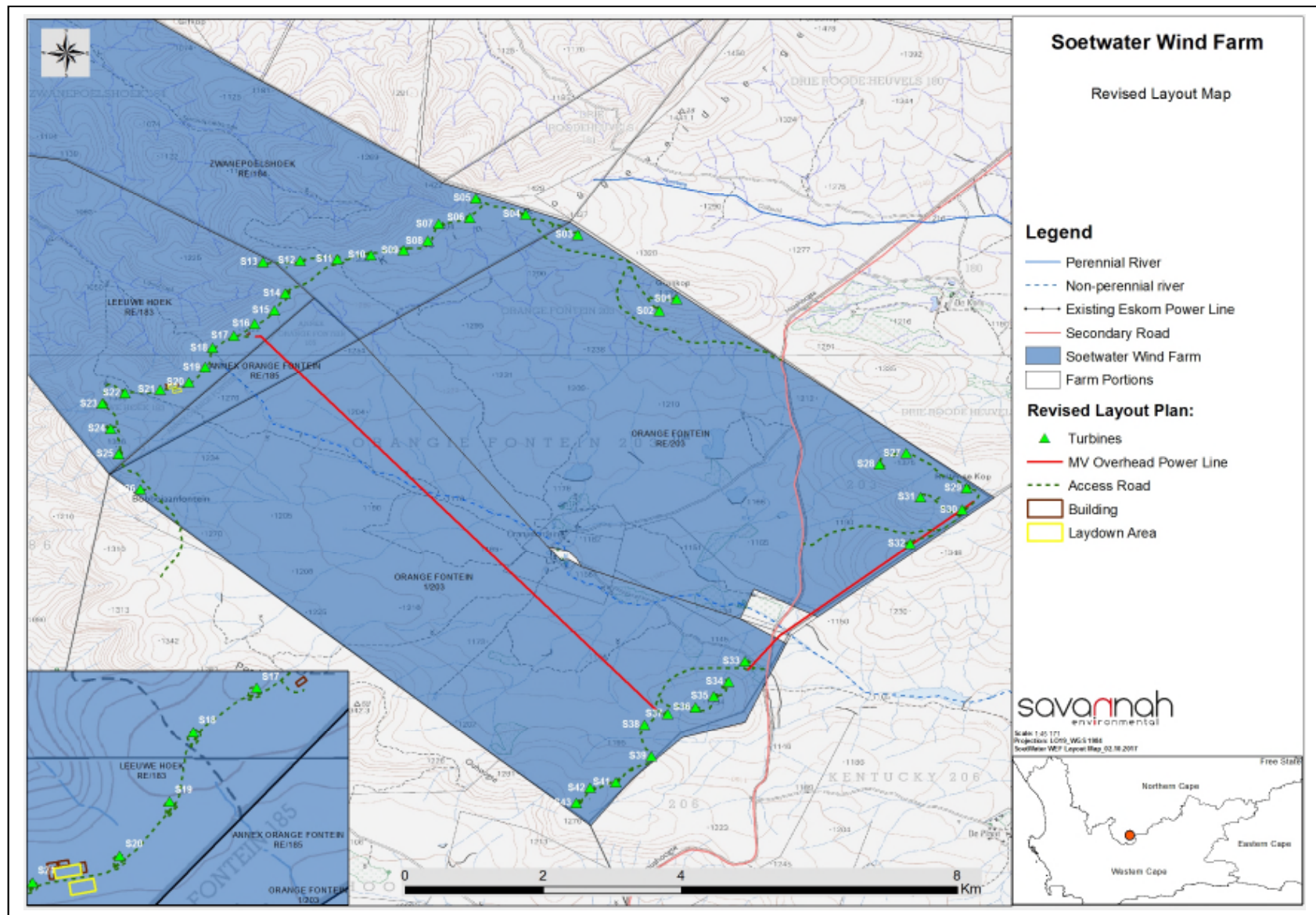


Figure 2.1: The new proposed turbine layout for the Soetwater Wind Energy Facility (A3 Map included in **Appendix H**).

3. MOTIVATION FOR THE PROPOSED AMENDMENTS

3.1. Technical Motivation

One of the significant impacts of the delay in Round 4 of the Renewable Energy Independent Power Producer Procurement (REIPPP) Programme, initially scheduled to go through Financial Close and commence with construction on 21 July 2015 (20 months delay), has been technology change by the wind turbine manufacturers. The technology proposed during the EIA Process and applied for at the time of submitting the bid proposal is now outdated, far less efficient and unavailable (out of production). Soetwater Wind Farm (Pty) Ltd is therefore obliged to consider other alternative turbine models for implementation.

Considering these developments in technology, and in considering the wind monitoring results from the site as well as economic feasibility, the developer is proposing to amend the turbine specifications in order to increase the efficiency of the facility and consequently the economic feasibility of the project thereof. Although there is an increase in the rated power of the turbines being applied for, this will not have an impact in the Contracted Capacity of the project (i.e. 140MW) due to the reduction in the number of turbines. There will however be a consequent slight adjustment in the layout within the authorised development area.

3.2. Considerations in terms of the requirements of the EIA Regulations

In terms of Regulation 31 of the EIA Regulations 2014, as amended, an environmental authorisation may be amended by following the process in this Part (i.e. a Part 2 amendment) if it is expected that the amendment may result in an increased level or change in the nature of impact where such level or change in nature of impact was not:

- a) Assessed and included in the initial application for environmental authorisation; or
- b) Taken into consideration in the initial authorisation.

In this instance, the amended turbine specifications were not assessed in the initial authorisation. The change does not however, on its own, constitute a listed or specified activity. Therefore, the application is made in terms of Regulation 31(a).

4. POTENTIAL FOR CHANGE IN THE SIGNIFICANCE OF IMPACTS AS ASSESSED IN THE EIA AS A RESULT OF THE PROPOSED AMENDMENTS

In terms of Regulation 32(1)(i), the following section provides an assessment of the impacts related to the proposed change. Understanding the nature of the proposed amendments and the impacts associated with the project (as assessed within the EIA), the following has been considered:

- » Ecological Impacts
- » Noise impacts
- » Visual impacts

- » Impacts on birds
- » Impacts on bats
- » Heritage Impacts

The change in rotor diameter, the reduction in the amount of turbines, the slight change to the layout and the increase in generating capacity of each turbine are expected to have no effect on the findings of the Social Impact Assessment Report undertaken as part of the EIA process. Therefore, no Social Specialist Report has been included. The potential for change in the significance and/or nature of impacts based on the proposed amendments as described within this motivation report is discussed below, and detailed in the specialist's assessment addendum Reports contained in **Appendix A-F**. Additional mitigation measures have been underlined for ease of reference. This section of the main report must be read together with these specialist studies in order to obtain a complete understanding of the proposed amendments and the implications thereof.

4.1. Ecological Impact

The project site falls within an endemic plant centre (Hantam-Roggeveld Centre of Endemism) and has a general high species turnover along highly varying (diverse) topographical gradients. In order to obtain accurate results and to provide an applicable and relevant comparison and description of the potential impacts associated with the amendments, a site visit was conducted by the ecologist from 20 to 22 September 2017. The following sections provide a summary of the comparison of impacts of the originally authorised project and the amended project (refer to **Appendix A** for the detailed ecology specialist report).

Red data and Protected Species:

Within the Ecological Impact Assessment of 2012, five Red Data species or species which are protected within national and/or provincial legislation were identified as having been recorded within the relevant quarter degree grid and were regarded as likely to occur within the study area; *Romulea eburnea* (VU), *Lotononis venosa* (VU), *Geissorhiza karooica* (VU), *Cleretum lyratifolium* (Rare) and *Strumaria karooica* (Rare). During the site survey, two additional species were identified namely *Drimia altissima* (Declining) and *Drimia uranthera* (Rare). The development of the Soetwater Wind Energy Facility will not have a significant impact on the status of these species as populations were recorded outside of the new proposed development area. This geophytic species is capable of surviving some form of disturbance and will most likely be lost only in areas where concrete surfaces will be present and where frequently driven access roads occur.

Several species protected within the National Environmental: Biodiversity Act (Act No. 10 of 2004) – NEM:BA; Northern Cape Nature Conservation Act of 2009 (Act 9 of 2009) as well as within the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), Appendix I, II and III were identified and discussed within the Ecological Impact Assessment undertaken in 2012, the Ecological Walk-Through Report dated October 2015 and Plant Search and Rescue and Rehabilitation Management Plan of 2016.

These species occur in lower densities within the areas affected by the proposed revised layout, as most of the locations were selected within more level, less rocky areas along the escarpment/plateau. Most of these protected succulents and geophytes are associated with more rocky/gravelly areas whereas these flatter sections along the escarpment are prone to grazing and trampling by sheep. Furthermore, fewer

turbines result in fewer areas impacted and thus lower potential of protected and red data species impacted. Thus the revised layout and infrastructure design can be regarded as a positive improvement. Four additional species have been recorded within the revised layout during the site visit undertaken in September 2017 and should be included in the Plant Search and Rescue Management Plan. These species include:

- » *Disperis purpurata* subsp. *Purpurata* - Relatively small Orchid species which occur singularly or in small populations of not more than 8 individuals. Confined to shaded, cooler and more moist areas created by large stones and boulders as well as large shrubs.
- » *Pterygodium schelpei* - Relatively small Orchid species which tend to occur locally in populations of between 15 to 35 individuals, underneath large shrubs and cooler, more moist micro-habitats created by large stones and boulders.
- » *Wurmbea variabilis* - Relatively small geophyte which tend to prefer more open sandy to sandy-loam, often stony soil comprising of lower growing shrubs.
- » *Gladiolus permeabilis* - Geophyte which can grow up to 60cm and which prefers areas with abundant stones. Plants are not visible above-ground for most of the year and only appear and flower from October to February. Corms are relative small and should be removed as earthworks commence.

The significance of impacts on indigenous natural vegetation is regarded to be very similar to that within the original Ecology Impact Assessment Report. However, due to the fact that fewer turbines will be constructed, disturbance will be lower and the significance will be slightly lower for the revised layout (refer to **Table 4.1**).

Table 4.1: Loss of habitat within indigenous natural vegetation types.

Nature: Loss of habitat within indigenous natural vegetation types.				
	Authorised		Proposed Amendment	
	Without mitigation	With mitigation	Without mitigation	With mitigation
Extent	Local (1)	Local (1)	Local (1)	Local (1)
Duration	Permanent (5)	Permanent (5)	Permanent (5)	Permanent (5)
Magnitude	Low (4)	Minor - low (3)	Low (4)	Minor - low (3)
Probability	Definite (5)	Definite (5)	Highly Probable (3)	Improbable (2)
Significance	Medium (50)	Medium (45)	Medium (30)	Low (18)
Status (positive or negative)	Negative	Negative	Negative	Negative
Reversibility	Not reversible	Not reversible	Not reversible	Limited reversibility
Irreplaceable loss of resources?	Yes	Yes	Yes	No
Can impacts be mitigated?	No		To an extent	
Existing Mitigation Measures:				
» Avoid unnecessary impacts on natural vegetation surrounding the turbines. The construction impacts must be contained to the footprint of the turbine and laydown area.				
» Disturbed areas must be rehabilitated as quickly as possible after construction in an area is completed.				
<u>Additional Mitigation:</u>				
» <u>Special emphasis should be placed on the monitoring and management/mitigation of potential erosion as recommended within the Rehabilitation Management Plan.</u>				
Cumulative impacts:				
Soil erosion, alien invasions, damage to wetlands may all lead to additional loss of habitat that will exacerbate this impact.				
Residual Risks:				

Some permanent loss of vegetation is likely but large areas that were disturbed during the construction phase can be rehabilitated and re-vegetated to an extent.

Faunal Species:

During the EIA process, three species of conservation concern which have a distribution that coincide with the site were identified namely; Riverine Rabbit (*Bunolagus monticularis*) – Critically Endangered (CE), Lesueur's wing-gland bat (*Cistugo lesueuri*) – Near Threatened (NT) and the Honey Badger (*Mellivora capensis*) – Near Threatened (NT). Due to the absence of suitable habitat it is highly unlikely that Riverine Rabbit will occur within the site. Lesueur's winged-gland bat prefers broken terrain at high-altitude with suitable rock crevices and water in the form of dams, rivers and marshes. Due to the scarcity of such water sources within the site it is also highly unlikely that important populations will persist within the study area. Although the Honey Badger has a very wide distribution and habitat preference, these species are usually sparsely distributed and there is only a very slight likelihood that such a species will occur within the site. Furthermore, honey badgers are highly adaptive and mobile species and will move away at the onset of any human activities.

The 2012 Ecology Report also mentioned two reptile species and no amphibian species of conservation concern that have a distribution that includes the study area and which could occur on site. These reptilian species are; Armadillo Girdled Lizard (*Ouroborus cataphractus*) – Vulnerable (VU), and Namaqua Plated Lizard (*Gerrhosaurus typicus*) – Near Threatened (NT). None of these species were observed within the study area, although the habitat preferred by these species are present throughout the site.

Species which are protected within National Environmental: Biodiversity Act (Act No. 10 of 2004) – NEM:BA; Northern Cape Nature Conservation Act of 2009 (Act 9 of 2009) as well as within the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), Appendix I, II and III have been identified. The only protected mammals noted within the escarpment included:

- » Grey Rhebok (*Pelea capreolus*),
- » Latrines of Hewitt's Red Rock Rabbit (*Pronolagus saundersiae*), and
- » Small earth mounds as a result of sub-surface digging activities of the Common (African) Mole Rat (*Cryptomys hottentotus*).

Grey Rhebok as well as Hewitt's Red Rock Rabbit species are both mobile animals that will move away with the onset of the construction phase and may return to some areas during the operational phase. Common Mole Rat is sensitive to soil tremors and disturbances and will also likely move away from construction areas. One protected arachnid species has been recorded within the development footprint and included the Baboon Spider (*Idiothele nigrofulva*). Two protected reptile species have been noted within the footprint and includes the Southern Rock Agama (*Agama atra*) (Near Endemic) and the Angulate Tortoise (*Chersina angulata*).

No red data mammals were recorded within the revised layout footprint although there is a low likelihood for species such as the Honey Badger to occur within the site. Most mammals recorded within the site are mobile and will likely move away at the onset of the construction phase. The significance of impacts on such mammals are regarded to be similar to that within the original Ecology Impact Assessment Report.

No red data reptiles were recorded within the revised layout footprint however a few protected species (within the provincial legislation) which are regarded as passive, slow moving species and/or species which are habitat specific and may be vulnerable to the disturbance and habitat destruction were

recorded within the revised footprint. Such species include Angulate tortoise (as well as other tortoise species that have not been recorded during the site visit but have high potential of occurring in the area) as well as Southern Rock Agama and other lizard types with a likelihood of occurring within the area (including Karoo Girdled Lizard). This, is also applicable to the baboon spider population identified within the site. As these are additional species identified and due to such species being potentially vulnerable to habitat disturbance, this impact has increased from that predicted in the EIA (refer to **Table 4.2**). All approved and proposed amended turbines and related infrastructure are located outside of identified sensitive areas with no risk to a direct change in the conservation status of the species or extinction. Significant level categories remain unchanged, (although the significance of this impact is slightly higher by number), it can still be successfully mitigated, subsequently avoiding detrimental impacts on these populations and as such the proposed revised turbine locations are regarded as acceptable by the specialist and EAP.

Table 4.2: Impacts on individuals of threatened animal species

Nature: Impacts on individuals of threatened animal species				
	Authorised		Proposed Amendment	
	Without mitigation	With mitigation	Without mitigation	With mitigation
Extent	Regional (3)	Regional (3)	Regional (3)	Local (2)
Duration	Permanent (5)	Permanent (5)	Permanent (5)	Long term (4)
Magnitude	Low (4)	Low (4)	Moderate (6)	Low (4)
Probability	Very Improbable (1)	Very Improbable (1)	Probable (3)	Improbable (2)
Significance	Low (12)	Low (12)	Medium (42)	Low (20)
Status (positive or negative)	Negative	Negative	Negative	Slightly Negative
Reversibility	Not reversible	Not reversible	Not reversible	Limited reversibility
Irreplaceable loss of resources?	Yes	Yes	Yes	No
Can impacts be mitigated?	Not required		Yes	
Existing Mitigation Measures: No mitigation measures were proposed.				
Additional Mitigation: » All management and mitigation measures recommended within the existing Search and Rescue and Rehabilitation Management Plan pertaining to faunal species should be executed. » Tortoises and girdled lizards are especially prone to illegal collection and the appointed environmental control officer (ECO) / environmental officer (EO) as well as site managers should be aware of this potential threat and monitor all personnel moving in and out of the development area. No collection of tortoises and girdled lizards may be allowed. » The wind turbine footprint areas should be thoroughly inspected and any potential protected reptilian species should be relocated to the similar habitats well outside of any development area, by an appropriate person (ECO or EO). » All turbine sites should also be thoroughly investigated for any baboon spider burrows. » Active nests should be identified (nests still lined with fresh silky webs) and all spider species located within the development footprint area should be carefully dug up by a suitably qualified person under the supervision of the ECO/EO (burrows normally 60 – 70cm deep) and the species be translocated.				
Cumulative impacts: Impacts that cause loss of habitat (e.g. soil erosion, alien invasions) may exacerbate this impact.				
Residual Risks: Residual impact are likely to low if mitigation measures are implemented.				

4.1.1. Conclusion

The proposed amended layout and turbine specifications will have very similar ecological impact to that expected within the EIA. However, due to the fact that fewer turbines will be constructed, the cumulative size of the impacts will be smaller and a smaller area will be transformed and disturbed. The significance of the impact associated with the loss of habitat within indigenous natural vegetation types has decreased due to the revised layout, while the significance of impacts on threatened animal species has slightly increased due to the confirmation of sensitive species within the footprint area, but will still be acceptable with the implementation of mitigation measures. Additional mitigation measures associated with the amendments have been identified. Additional mitigation measures should be included in the Search and Rescue Management Plan. **As such the proposed amendments to the turbine specifications and authorised layout are regarded as acceptable from an ecological perspective.**

4.2. Noise impact

The optimization of the layout of the wind energy facility as a result of the change in turbine specifications has resulted in the reduction of the number of wind turbines and micro-siting of the wind turbines at optimal locations. This has resulted in wind turbines being situated at the same distance from potential noise-sensitive receptors previously identified during the EIA process, or wind turbines being situated slightly further from the potential noise-sensitive receptors. The increase in the rotor diameter from 120m up to 150m is proposed, likely using the Vestas V136 wind turbine. The sound power emission levels of the Vestas V90 (on which the EIA assessment was based) and the now proposed V136 wind turbine are illustrated in **Figure 4.1**. Considering the maximum sound power emission level of 105.5 dBA, making use of the proposed Vestas V136 wind turbine may slightly reduce the noise rating levels at the closest noise-sensitive receptors.

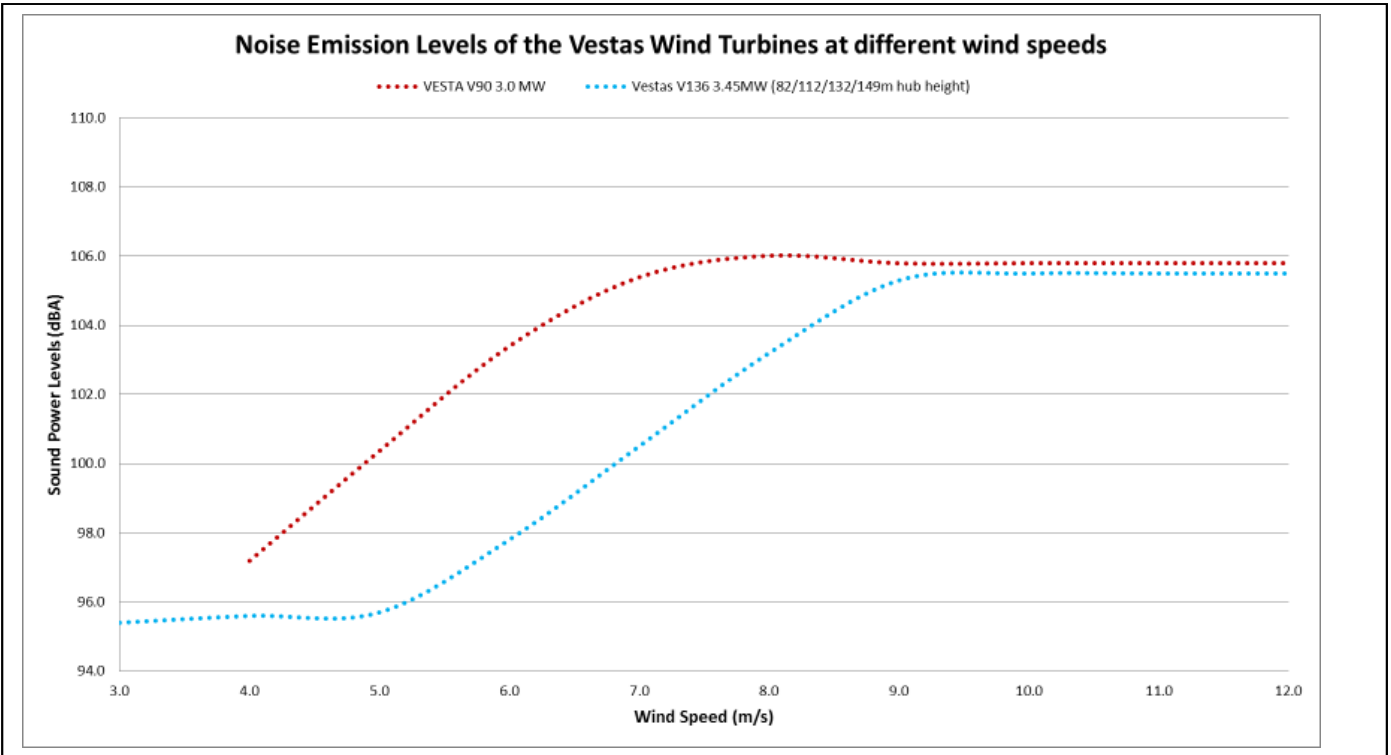


Figure 4.1: Sound power emission levels of the V90 wind turbine used in the Final EIAr (red line) versus the new V136 wind turbine (blue line)

4.2.1. Conclusion

Considering the location of the wind turbines and the potential noise impact, the change in the rotor diameter and the number of turbines will not increase the significance of the noise impact as assessed within the EIA (refer to the impact assessment table which was included in the Final EIAr dated February 2012). No additional impacts have been identified as a result of the proposed amendments. Refer to **Appendix B** for a detailed specialist report. A full noise impact assessment with new modelling will not be required and the recommendations as contained in the original assessment remain valid. **No additional mitigation measures have been proposed for the amendment under consideration and the proposed amendments to the turbine specifications and authorised layout are regarded as acceptable.**

4.3. Visual impact

A visibility analysis was undertaken from each of the wind turbine positions proposed as part of the amended layout (i.e. 43 in total) for 2 scenarios, i.e. i) at an offset of 180m (maximum blade tip height) above ground level to indicate the potential total visual exposure of the original turbine dimensions; and ii) at an offset of 195m to indicate the visual exposure of the amended turbine dimensions and the revised turbine positions. The results of the visibility analyses are displayed in **Figure 4.2** (refer also to the specialist report contained in **Appendix C**).

It is clear that the approximately 7.7% maximum increase in turbine dimensions, would have a very small influence on the overall visual exposure of the wind energy facility, due to the already tall turbine structures. The surface area (within the study area) of the original turbine exposure is 739km², compared to the 747km² of the amended dimensions turbine exposure. This is an increase of only 8km², or alternatively,

an increase of only 1% in potential visual exposure and is hardly even visible on the figure below – i.e. there is effectively no change in the visual exposure by surface area.

There are no additional sensitive visual receptors located within a 5-10km radius of the proposed amended turbine positions. Potential sensitive visual receptors within a 5km radius (identified during the EIA phase) include:

- » Damslaagte;
- » De Plaat;
- » De Hoop;
- » Oranjefontein;
- » De Kom; and
- » Observers travelling along the secondary road traversing the proposed development site.

Potential sensitive visual receptors within a 5-10km radius (identified during the EIA phase) include:

- » Meintjiesplaas;
- » Ou Tuin;
- » Rooiwal;
- » Boesmanshoek;
- » Wegkruip;
- » Oliviersberg;
- » Komsberg;
- » Welgemoed; and.
- » Observers travelling along the R354 arterial road and secondary roads.

The location of Damslaagte, De Hoop, Oranjefontein and De Plaat on properties earmarked for future wind energy facility developments reduces the probability of this impact occurring. Boesmanshoek, Oliviersberg, Wegkruip and Welgemoed located between 5-10km are also located on the authorised wind energy facility properties, negating or reducing the probability of the impact occurring. Where homesteads are derelict or deserted, the visual impact will be non-existent, until such time these are inhabited again. The increased area of visual exposure does not include any additional exposure to major roads within the study area.

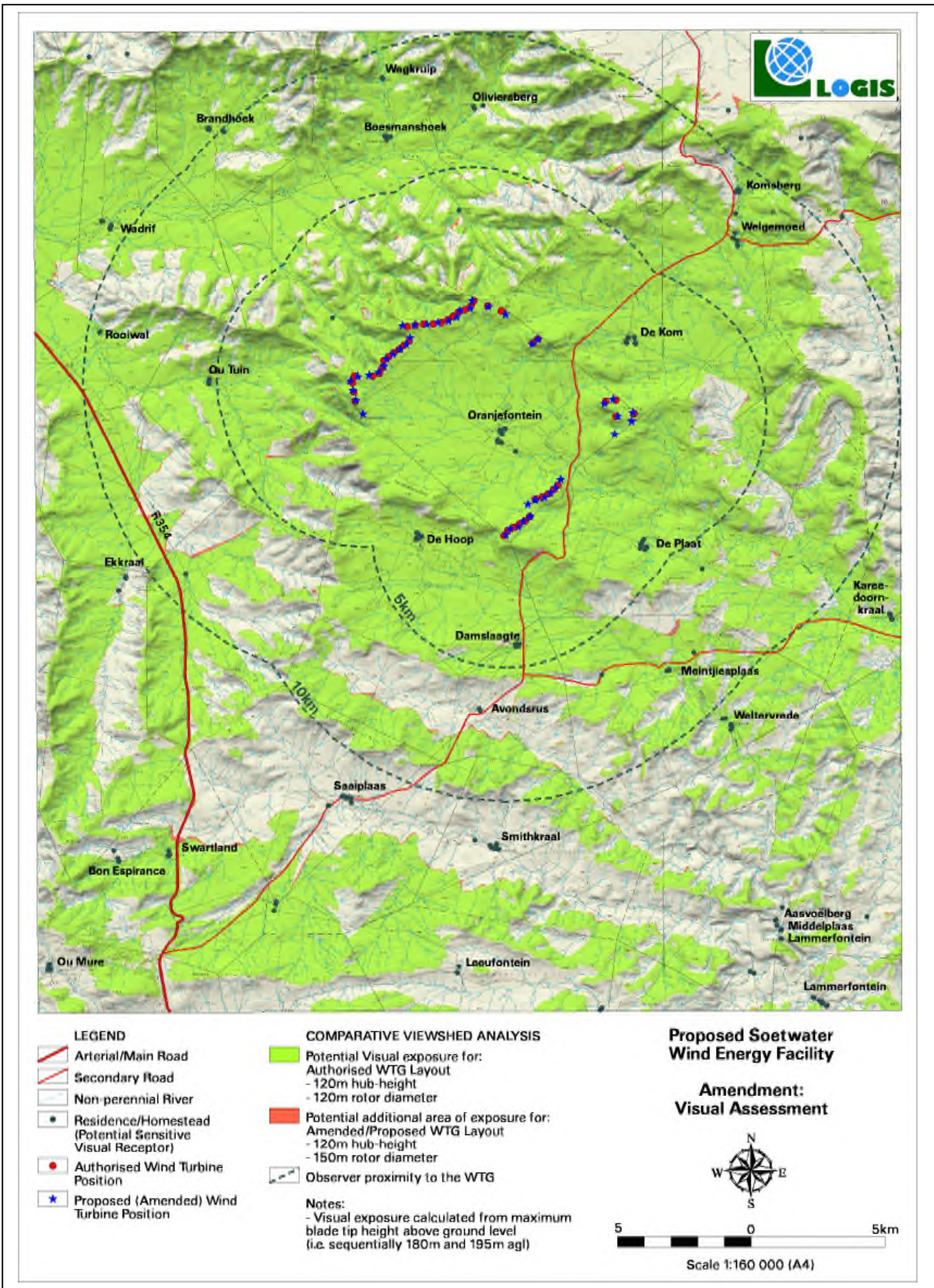


Figure 4.2: Viewshed analysis represents the potential total visual exposure of the original turbine dimensions (illustrated in green) compared to the proposed new turbine dimensions (illustrated in red).

4.3.1. Conclusion

The proposed increase in the dimensions of the wind turbine structures and the amended layout are not expected to significantly alter the influence of the wind energy facility on areas of higher viewer incidence (observers travelling along major secondary roads within the region) or potential sensitive visual receptors (residents of homesteads in close proximity to the facility). The proposed increase in dimensions and amended layout are consequently not expected to significantly influence the anticipated visual impact, as stated in the original VIA report (i.e. the visual impact is expected to occur regardless of the amendment). In fact, the reduction in turbine count may result in a reduction in visual impact of the Project. **No additional impacts, mitigation measures or alterations to the EMP are suggested for the proposed increased turbine dimensions, as the general appearance and functional design is not expected to change. The visual impact is expected to occur regardless of the increase in turbine dimensions, although with fewer turbines the impact has reduced slightly.**

4.4. Impacts on bats

Four bat species were recorded at the site during pre-construction monitoring undertaken in 2014 which includes the Egyptian free-tailed bat (*Tadarida aegyptiaca*), Roberts's flat-headed bat (*Sauromys petrophilus*), the Natal long-fingered bat (*Miniopterus natalensis*) and the Cape serotine (*Neoromicia capensis*). The first three species have a high mortality risk from wind turbines while the Cape serotine has a medium-high risk. Except for Roberts's flat-headed bat, all these species have suffered mortality at wind energy facilities in South Africa (Doty and Martin 2012; MacEwan 2016). The pre-construction monitoring revealed that bat activity for these species is low and that the risk to bats posed by the wind energy facility is subsequently low. None of the revised turbine positions are located in high risk areas for bats. It should however be noted that pre-construction activity data cannot always accurately predict bat fatality during operation of a wind energy facility and therefore a precautionary approach was recommended.

During the pre-construction monitoring, only one migratory bat species was recorded, the Natal long-fingered bat. This species was recorded very infrequently and it is anticipated that the changes to the turbine specifications would not alter the current impact assessment for this species for the Soetwater Wind Energy Facility. The significance of non-migratory impacts after the proposed amendments to the turbine specifications may increase before mitigation because of the greater rotor swept zone and because the rotor blades will extend closer to the ground. It would therefore be preferential if the rotor diameter is restricted to 140m. However, after mitigation (correct turbine placement based on the already concluded pre-construction monitoring) the impact remains unchanged as low.

The proposed amendment to the turbine specifications will result in a greater rotor swept zone and hence a potentially greater likelihood that bats would collide with turbine blades or experience barotrauma. The total rotor swept zone within the wind energy facility will increase from 11 304m² up to a maximum of 17 662.5m² if the maximum is utilised.

Based on literature, bat activity tends to decrease with height, and therefore this amendment could be a potential risk for a greater number of individual bats. It is possible that some bat species, particularly those not adapted to use open air spaces, are being killed at the lower sweep of the turbine blades and therefore the increase of the blade length and having a shorter distance between the ground and the

lowest rotor point would be negative. A higher number of bat species that make use of open air spaces in the middle to upper area of the rotor swept zone could also be at risk, even though their activity levels may be higher at lower altitudes.

Based on the review and knowledge of the area gained through the results of the pre-construction monitoring, mortality of bats due to collision with turbine blades or barotrauma during operation may slightly increase as a result of the proposed amendments to the turbine specifications, but would remain of the same significance. The difference is a higher magnitude and a higher probability of the impact associated with the increased turbine size and the decreased proximity of the blade tips to the ground (refer to **Appendix D** for the detailed bat specialist report) although still remains at medium significance.

Table 4.3: Mortality of bats due to collision with turbine blades or barotrauma during the operation phase.

Nature: Mortality of bats due to collision with turbine blades or barotrauma caused by turbine operation.				
	Authorised		Proposed Amendment	
	Without mitigation	With mitigation	Without mitigation	With mitigation
Extent	Local (1)	Local (1)	Local (1)	Local (1)
Duration	Long term (4)	Long term (4)	Long term (4)	Long term (4)
Magnitude	Moderate (6)	Low (4)	Moderate to high (7)	Low (4)
Probability	Probable (3)	Improbable (2)	Highly Probable (4)	Improbable (2)
Significance	Medium (33)	Low (18)	Medium (48)	Low (18)
Status (positive or negative)	Negative	Negative	Negative	Negative
Reversibility	Low	Low	Irreversible	Irreversible
Irreplaceable loss of resources?	Yes	No	Yes	Yes
Can impacts be mitigated?	Yes	Yes	Yes	Yes
Existing Mitigation Measures: Adhere to the sensitivity map during any further turbine layout revisions, and preferably do not move any turbines into even Moderate sensitivity areas.				
Additional Mitigation: <u>Limit the increase to rotor diameter to 140m.</u>				
Cumulative impacts: The changes being applied for should not result in an increase in cumulative impacts as assessed by Animalia (2014).				
Residual Risks: No change from Animalia (2014).				

4.4.1. Conclusion

No additional impacts on bats in the area are anticipated based on the proposed amendments to the turbine specifications. It is possible that increasing the turbine specifications at the Soetwater Wind Energy Facility may increase impacts to bats despite the facility potentially having fewer turbines. This is due to the increase in rotor swept area. This is however mitigated by limiting the rotor diameter to 140m. Based on low bat activity levels as assessed from pre-construction monitoring data in the area, impacts to bats are likely to remain of medium significance before mitigation and low significance after mitigation with no change to the significance level. **Therefore the amendment to the rotor diameter and amendment of the approved layout does not result in a change in the significance of the impacts to bats and can be supported.** A precautionary approach should however be adopted and the degree to which the rotor diameter is increased should be limited to 140m.

4.5. Impacts on avifauna

Based on observations made during the pre-construction monitoring undertaken from 2013 to 2014, the following priority species were recorded: Rock Kestrel, Gabar Goshawk, Black Harrier, Southern Pale Chanting Goshawk, Spotted Eagle Owl, Cape Eagle Owl, Martial Eagle, Verreaux's Eagle, African Harrier Hawk, Black-shouldered Kite, Rufous-chested Sparrowhawk, Lanner Falcon Falco, Black Sparrowhawk, Jackal Buzzard, Grey-winged Francolin, Southern Black *Korhaan*, Black Stork and Ludwig's Bustard. The report concluded that the impact of most concern for these species are collision with turbines, but also displacement associated with habitat transformation, disturbance and wind farm clusters forming barriers to bird movement within this area.

One of the primary aims of the pre-construction monitoring programme conducted in 2013/2014, was to determine the number of flights of priority bird species and the proportion of flying time spent within the upper, medium and lower height limits as determined by the rotor diameter and rotor hub height of the turbines to be used. Medium flight heights, defined as 30m–160m, represented flights within the rotor swept area. The range assigned to medium flight heights, comfortably accommodates the change in turbine specifications, therefore the calculated collision risk for priority species as presented in the pre-construction monitoring report remains relevant. Species frequently recorded flying within the rotor swept area were considered to be highly susceptible to collision with the proposed turbines and this informed the high sensitivity exclusion zones, which have been completely avoided by all turbines. Priority species were observed flying within more than 50% of their flights recorded at medium height of the rotor swept area includes the Rock Kestrel, Jackal Buzzard, Verreaux's Eagle, Martial Eagle and Ludwig's Bustard. The Booted Eagle *Hieraaetus pennatus* had 100% of its recorded flights observed at rotor height.

The proposed amendments will result in an increase in rotor swept area. However, the number of turbines have been reduced substantially from 56 to 43 (n=13). It is generally accepted in published literature that the number of turbines (rather than the turbine specification and the resultant rotor swept area) is an important and decisive factor in determining collision risk. Collision risk is also dependent on the frequency and height of flights and flights in the relevant areas. The reduction in the number of turbines, coupled with their position outside of the high sensitivity exclusion zones are considered to be adequate mitigatory factors that could potentially reduce the collision impact associated with a development of this nature and the amendment proposed.

The following impact tables detail the revised significance ratings for each of the identified impacts, during both the construction and operational phases of the Soetwater Wind Energy Facility (refer to **Appendix E** for the detailed specialist avifauna report). These ratings are based on current species information, in addition to the amended turbine specifications, the reduction in the number of turbines from 56 to 43 and the amended turbine layout. The significance ratings are based on information emanating from some of South Africa's large-scale operational wind farms (Ralston-Paton et al, 2016), international literature and the specialist's experience working in the avifaunal specialist field since 2006. It must be noted that it is often not possible to entirely eliminate the impacts associated with a development of this nature. Assessments such as this attempt to minimise the risk as far as possible, and although the impacts will be unavoidable, they may be temporary.

4.5.1. Construction phase

Displacement impact as a result of disturbance:

The significance of the displacement impact rating (as a result of disturbance) decreased from Medium to Low with the implementation of the recommended mitigation. Avoiding sensitive avifaunal zones and controlling construction activities, particularly in terms of vehicle and staff movements will likely result in an impact that is site bound and cause a slight impact on processes. Observations of breeding Blue Cranes and Martial Eagle have been reported at operational wind energy facilities which suggests that certain species may not be negatively affected by construction and operational activities and may in fact co-exist with the turbines.

Table 4.4: Displacement impact as a result of disturbance

Nature: Displacement as a result of disturbance associated with noise and movement of construction equipment and personnel at the Soetwater Wind Energy Facility, resulting in a negative impact on the resident avifauna, particularly the priority species (including Red Data species) recorded within the development area and the smaller passerine species.				
	Authorised		Proposed Amendment	
	Without mitigation	With mitigation	Without mitigation	With mitigation
Extent	Local (2)	Local (2)	Local (2)	Site (1)
Duration	Short Term (2)	Short Term (2)	Short Term (2)	Short Term (2)
Magnitude	Moderate (6)	Moderate (6)	Moderate (6)	Low (4)
Probability	Highly Probable (4)	Probable (3)	Highly Probable (4)	Probable (3)
Significance	Medium (40)	Medium (30)	Medium (40)	Low (21)
Status (positive or negative)	Negative	Negative	Negative	Negative
Reversibility	Medium	High	Medium	Medium
Irreplaceable loss of resources?	No	No	No	No
Can impacts be mitigated?	Partially		Partially	
Existing Mitigation Measures:				
» Strict control should be maintained over all activities during construction, in particular heavy machinery and vehicle movements, and staff.				
» Sensitive zones as identified by EWT, 2014 should be avoided where possible.				
» Environmental measures will be detailed in the site specific EMP and will be enforced and overseen by the ECO for the project.				
<u>Additional Mitigation:</u>				
<u>No additional mitigation measures are proposed.</u>				
Cumulative impacts:				
Medium				
Residual Risks:				
Low - The majority of species observed in the development area may return once the construction activity is completed.				

Displacement impact as a result of habitat transformation:

Considering the proposed amendments, specifically the reduction in the number of turbines, coupled with their position outside of the high sensitivity exclusion zones, the habitat transformation impact is assessed as being of Medium significance. Although the impact remains of Medium significance with the implementation of the recommended mitigation measures, the impact is likely to be site bound with a minor impact on processes.

Table 4.5: Displacement impact as a result of habitat transformation

Nature: Displacement as a result of habitat transformation associated with the construction of the Soetwater Wind Energy Facility resulting in a negative impact on the resident avifauna, particularly the priority species (including Red Data species) recorded within the development area and the smaller passerine species.				
	Authorised		Proposed Amendment	
	Without mitigation	With mitigation	Without mitigation	With mitigation
Extent	Local (2)	Local (2)	Local (2)	Site (1)
Duration	Long Term (4)	Long Term (4)	Long Term (4)	Long Term (4)
Magnitude	Low (4)	Minor (2)	Minor (2)	Minor (2)
Probability	Definite (5)	Definite (5)	Definite (5)	Definite (5)
Significance	Medium (50)	Medium (45)	Medium (40)	Medium (35)
Status (positive or negative)	Negative	Negative	Negative	Negative
Reversibility	Low	Low	Medium	Medium
Irreplaceable loss of resources?	No	No	No	No
Can impacts be mitigated?	Partially		Partially	
Existing Mitigation Measures:				
» Strict control over contractors, to ensure only the minimum required areas is cleared.				
» No off-road driving.				
» Minimise footprint areas, road lengths, road widths, wherever possible during the final layout design.				
» Where possible existing roads must be used and batching plants, labour camps, equipment storage, etc. should be situated in areas that are already disturbed.				
» A full site specific EMP must also be compiled to specify all of the impacts and mitigation measures and provide a step by step programme to follow for the ECO on site.				
<u>Additional Mitigation:</u>				
» <u>Clearing of alien vegetation, particularly stands of alien trees must be approved by an avifaunal specialist.</u>				
» <u>Following construction, rehabilitation of disturbed areas must be conducted to ensure habitat restoration (an appropriate plan must be developed and included in the EMP).</u>				
Cumulative impacts:				
Low				
Residual Risks:				
Low				

4.5.2. Operation phase

Collision impact during operation:

Although the proposed amendment will result in a reduced number of turbines, the collision risk is dependent on other factors such as species abundance, morphology and flight behaviour. Therefore, the significance of the collision risk remains Medium, with a small reduction in the magnitude of the impact based on the proposed amendments and the position of the turbines outside of the high sensitivity areas. Mitigation measures emanating from the post construction monitoring results will in all likelihood reduce this impact further to a rating of Low significance.

Table 4.6: Collision impact during operation

Nature: Mortality as a result of collisions with the wind turbines resulting in a negative direct impact on priority species.				
	Authorised		Proposed Amendment	
	Without mitigation	With mitigation	Without mitigation	With mitigation
Extent	Local (2)	Local (2)	Local (2)	Local (2)
Duration	Long Term (4)	Long Term (4)	Long Term (4)	Long Term (4)
Magnitude	Very High (10)	Very High (10)	High (8)	High (8)
Probability	Probable (3)	Probable (3)	Probable (3)	Improbable (2)

Significance	Medium (48)	Medium (48)	Medium (42)	Low (28)
Status (positive or negative)	Negative	Negative	Negative	Negative
Reversibility	Irreversible	Irreversible	Low	Low
Irreplaceable loss of resources?	Yes	Yes	Yes	Yes
Can impacts be mitigated?	Partially	Partially	Partially, if operational phase mitigation is implemented in the event that mortalities are encountered during operational phase (post-construction) monitoring	
Existing Mitigation Measures: <ul style="list-style-type: none">» The most important mitigation option is the correct positioning of turbines outside of the identified high sensitivity zones, and where possible, outside of the medium sensitivity zones. <i>This mitigation measure, the micro-siting, has already been undertaken and has guided the final turbine layout with the high-risk turbines being moved into medium/low sensitivity areas.</i>» Implement a 24-month post-construction monitoring programme that replicates the pre-construction monitoring surveys.» Additional available or potential mitigation options therefore would need to be employed once the turbines are already operational, if monitoring reveals significant impacts. Some mitigation options that can be employed if monitoring reveals significant numbers of collisions, include: the installation of deterrent devices curtailment and any others that may be identified as our understanding of the impacts progresses.				
<u>Additional Mitigation:</u> <ul style="list-style-type: none">» <u>Ongoing nest searches and nest monitoring must be implemented.</u>» <u>A carcass search programme for birds within the wind energy facility project site during the first 24 months of operation must be implemented.</u>				
Cumulative impacts: High				
Residual Risks: Low				

Displacement impact as a result of disturbance during operation and maintenance:

Avoiding sensitive avifaunal zones and controlling operational activities, particularly in terms of vehicle and staff movements during breeding will likely result in an impact that is site bound and cause a slight impact on processes. Observations of breeding Blue Cranes and Martial Eagle have been reported at operational wind energy facilities which suggests that certain species may not be negatively affected by construction and operational activities and may in fact co-exist with the turbines.

Table 4.7: Displacement impact as a result of disturbance during operation and maintenance

Nature: Displacement as a result of disturbance associated with noise and movement of operational equipment and personnel at the Soetwater Wind Energy Facility, resulting in a negative impact on the resident avifauna, particularly the priority species (including Red Data species).				
	Authorised		Proposed Amendment	
	Without mitigation	With mitigation	Without mitigation	With mitigation
Extent	Site (1)	Site (1)	Site (1)	Site (1)
Duration	Short Term (1)	Short Term (1)	Short Term (2)	Short Term (2)
Magnitude	Low to moderate (5)	Low (4)	Low to moderate (5)	Low (4)
Probability	Probable (3)	Improbable (2)	Improbable (2)	Improbable (2)
Significance	Low (21)	Low (12)	Low (16)	Low (14)
Status (positive or negative)	Negative	Negative	Negative	Negative

Reversibility	Medium	High	Medium	Medium
Irreplaceable loss of resources?	No	No	No	No
Can impacts be mitigated?	Partially		Partially	
Existing Mitigation Measures: » An Operational Environmental Management Plan must be developed, implemented and strictly adhered to. » The wind energy facility manager and/or Environmental Manager must identify and report the presence of priority species, and in particular any indications of breeding activities by these species. Training of the wind energy facility manager and/or Environmental Manager may be required. If a nest or breeding site is identified, it is imperative that this site is not disturbed that an avifaunal specialist is contacted for further instruction. » Strict control should be maintained over all maintenance activities, in particular heavy machinery and vehicle movements, and staff. » Operating procedures and maintenance schedules must be properly followed.				
<u>Additional Mitigation:</u> <u>No additional mitigation measures are proposed.</u>				
Cumulative impacts: Low				
Residual Risks: Low				

Barrier effect impact resulting in a disruption to local bird movement patterns.

Assessment of the barrier effect impact based on the proposed amendments has resulted in a risk rating of Medium. Avoidance of high sensitivity exclusion zones, coupled with a reduction in the number of turbines at the facility will likely result in a slight impact on processes and therefore a small decrease in the quantitative risk rating associated with this impact compared to the assessment provided in the final Avifauna Impact Assessment (AIA) dated April 2014. This impact is difficult to mitigate, therefore the risk rating after mitigation remains the same.

Table 4.7: Barrier effect impact resulting in a disruption to local bird movement patterns

Nature: Large scale wind energy facilities are a likely obstacle in the landscape that may result in a disruption to local bird movement patterns. This avoidance behaviour may lead to increased energy costs to the bird as they expend more energy flying from one point to another. This in turn may result in decreased breeding productivity and ultimately population level impacts.

	Authorised		Proposed Amendment	
	Without mitigation	With mitigation	Without mitigation	With mitigation
Extent	Local - Regional (3)	Local - Regional (3)	Local (2)	Local (2)
Duration	Long Term (4)	Long Term (4)	Long Term (4)	Long Term (4)
Magnitude	Low to moderate (5)	Low to moderate (5)	Low (4)	Low (4)
Probability	Probable (3)	Probable (3)	Probable (3)	Probable (3)
Significance	Medium (36)	Medium (36)	Medium (30)	Medium (30)
Status (positive or negative)	Negative	Negative	Negative	Negative
Reversibility	Low	Low	Low	Low
Irreplaceable loss of resources?	Possible	Possible	Possible	Possible
Can impacts be mitigated?	Unknown		Unknown	

Existing Mitigation Measures:

» This impact was not yet well understood at the time the EIA report was compiled, and it was therefore not possible to mitigate for. It is recommended that the post-construction or operational monitoring program incorporate all the phases of Hidden Valley to determine impact on bird movement over a larger scale

<u>Additional Mitigation:</u>
» <u>Lighting on turbines must be minimal and preferably provide intermittent light and where possible coloured (opposed to constant white light).</u>
<u>Cumulative impacts:</u>
High
<u>Residual Risks:</u>
Undetermined

4.5.3. Conclusion

The proposed amendments to the turbine specifications is not expected to result in an increased to the significance ratings for any of the identified impacts. In some cases, the quantitative value has changed but this has not resulted in a change to the qualitative (i.e. Low, Medium, High) significance rating. There is a reduction in significance in the displacement impact as a result of habitat transformation. Based on the revised turbine layout and the fact that the proposed turbines have been positioned in such a manner as to avoid areas of high sensitivity, the rating for this impact was reduced from high to medium significance. No additional impacts, as a result of the proposed amendments were identified but additional mitigation measures have been recommended. These should be included within the EMP for the project.

The reduction in the number of turbines, coupled with their position outside of the high sensitivity exclusion zones are considered to be adequate mitigatory factors that could potentially reduce the collision impact associated with a development of this nature and the amendment proposed. From an avifauna perspective, the amendments to the turbine specifications and the revised layout are considered to be acceptable.

4.6. Impacts on heritage

A Phase 1 Archaeological Impact Assessment was undertaken in 2012. The findings of the archaeological investigation indicated that no pre-colonial heritage remains, features or sites were encountered within the area proposed for the development of the wind energy facility. Several historical archaeological remains, features and sites were however highlighted as they occurred adjacent to possible main access roads that would have been used during the construction and development activities. These include:

- » Dry packed stone walling dwelling (Portion 1 of the Farm Orange Fontein 203);
- » Farmstead Complex (Portion 1 of the Farm Orange Fontein 203);
- » Clay packed stone walling cottage (Cottage Ruins) (Remainder of Portion 1 of the Farm Orange Fontein 203; and
- » Dry packed stone walling (Remainder of Portion 1 of the Farm Orange Fontein).

Due to these heritage resources being situated close to proposed access roads, the area was considered as having a medium – high cultural sensitivity and subsequently the layout was optimised. An archaeological heritage walk-through survey was conducted in October 2015 to assess the final optimised layout of the Soetwater Wind Energy Facility to establish the range and importance of the exposed and in situ archaeological heritage material remains, sites and features; to establish the potential impact of the development; and to make recommendations to minimise possible damage to the archaeological heritage of the final layout of the Soetwater Wind Energy Facility.

A desktop assessment of the revised layout was conducted (refer to **Appendix F** for the Heritage specialist report) as it was deemed necessary for a field survey due to the findings of both the EIA and walk-through surveys. No significant advantages or disadvantages of the amendments were identified. The impacts on the cultural landscape and sense of place are however slightly lower due to the reduction in number of turbines. It was noted that the revised layout of the Soetwater Wind Energy Facility has been developed considering the recommendations and requirements stipulated by the South African Heritage Resources Agency (SAHRA) and the archaeologist conducting the archaeological heritage assessments.

4.6.1. Conclusion

None of the proposed changes will increase the significance of the impacts identified during the EIA phase or lead to any additional impacts and will have negligible effect on the significance of impacts. The previous relevant recommendations and mitigation measures made by SAHRA and in the archaeological reports made throughout the duration of the project must be considered during the development of the Wind Energy Facility. **No additional mitigation measures have been identified. The proposed amendment is considered to be acceptable from a heritage perspective.**

5. ADVANTAGES AND DISADVANTAGES OF THE PROPOSED AMENDMENTS

In terms of Regulation 32(1)(a)(ii), this section provides details of the advantages and disadvantages of the proposed amendment.

Advantages of the amendment	Disadvantages of the amendment
<p>The increase in rotor diameter will increase the efficiency of the facility and consequently the economic viability thereof. Increased efficiency of a facility is considered to be beneficial to the environment as this will reduce the need for additional facilities to generate additional electricity.</p> <p>It is also beneficial from a macroeconomic perspective as it results in the lower cost per unit of energy, ultimately benefiting the South African public.</p>	<p>The proposed amendment will not result in any additional impacts nor will it result in an increase in the significance of impacts identified and assessed within the EIA process. Therefore, no disadvantages are anticipated.</p> <p>A precautionary approach should be adopted to decrease impacts on bats and the degree to which the blade length is increased should be limited.</p>
<p>The number of turbines is proposed to be reduced from 56 originally approved to 43 and the generating capacity for each turbine was increased to up to 4.5MW each. This would result in a reduced footprint and lower impacts on the environment (in terms of impacts on ecology and avifauna) if the amendment is granted. The significance of all identified impacts in this regard would be reduced.</p>	<p>With regards to the reduction in the number of turbines, no disadvantages are anticipated as the wind farm footprint has been reduced.</p>

Based on the above, it can be concluded that the advantages of the proposed change outweigh the disadvantages from an environmental and technical perspective.

6. REQUIREMENTS FOR ADDITIONAL MITIGATION AS A RESULT OF THE PROPOSED AMENDMENTS

As required in terms of Regulation 32(1)(a)(iii), consideration was given to the requirement for additional measures to ensure avoidance, management and mitigation of impacts associated with the proposed change. From the specialist inputs provided into this amendment motivation, it is concluded that the mitigation measures proposed within the EIA would be sufficient to manage potential impacts within acceptable levels. Updated mitigation measures were provided by the Avifaunal and Ecology specialists for the proposed amended layout or turbine dimension changes. These should be included within the approved project EMPr.

7. PUBLIC PARTICIPATION

A public participation process is being conducted in support of a Part 2 application for amendment of the Environmental Authorisation for the Soetwater Wind Energy Facility in the Northern Cape Province.

This public participation includes:

- » The release of this motivation report for a 30 day public review period from **27 October 2017 until 27 November 2017** at www.savannahsa.com/public-documents/energy-generation/. CD copies can be provided to stakeholders on request.
- » Written notification of registered I&APs regarding the availability of the amendment motivation report.
- » Placement of an advert in the Noordwester/Messenger newspaper.
- » Placement of site notices at the site on 20 September 2017.

Comments received during the public review period will be included in the final submission to the DEA for consideration in the decision-making process.

8. CONCLUSION

Based on the specialist findings as presented in Appendix A - F, it is concluded that the proposed amendments to the turbine specifications are not expected to result in an increase to the significance ratings for any of the identified impacts. In some cases, the quantitative value has changed very slightly but this has not resulted in a change to the qualitative (i.e. Low, Medium, High) significance rating. There is a reduction in significance in some impacts as a result of the reduced number of turbines and the location of these outside of identified high sensitivity areas. There are no new impacts identified as a result of the proposed amendments. The amendment in itself does not constitute a listed activity. The mitigation measures described in the original EIA document are adequate to manage the expected impacts for the project. Additional management measures recommended by the avifauna specialist and ecologist as a result of this proposed amendment must be included within the project EMPr.

Based on the findings of the Bats Specialist Assessment and to ensure that impacts related to mortality of bats due to collision with turbine blades or barotrauma during the operation phase are mitigated, it is recommended that the rotor diameter should not exceed 140m for a precautionary approach to be adopted.

In this regard, Soetwater Wind Farm (Pty) Ltd requests the following:

- » an increase the rotor diameter for each turbine from 120m to a maximum of 140m,
- » a reduction in the number of turbines from 56 to 43, and
- » an increase the generating capacity of each turbine from 2MW - 3.5MW to up to 4.5MW.

Taking into consideration the conclusions of the studies undertaken for the proposed amendments associated with the revised turbine specifications and layout (as detailed in Appendix A – F), it is concluded that these amendments are considered acceptable from an environmental perspective, given that mitigation measures are implemented.