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Our reference: 210302 Your reference: DFFE Ref: 2021-04-0020 Date: 28 June 2021

Physical address:
Department Forestry, Fisheries and the Environment (DFFE)
Attention: Chief Director: Integrated Environmental Authorisations
Environment House
473 Steve Biko Road
Arcadia

Tel no: (012) 399 9368
Email: zlanga@environment.gov.za

Postal Address:
Department of Forestry, Fisheries and the Environment
Chief Director: Integrated Environmental Authorisations
Private Bag X447
Pretoria
0001

ATTENTION: MS Zama Langa

SUBMISSION OF DRAFT BASIC ASSESSMENT REPORT (BAR) FOR UPGRADES TO THE NOBLESFONTEIN WIND ENERGY FACILITY (WEF), UBUNTU MUNICIPALITY, NORTHERN CAPE.

On behalf of the applicant (**CORIA (PKF) Investments 28 (Pty) Ltd***), please find attached to this cover letter the **draft basic assessment report (for public review)** for the above listed Renewable Energy project.

The applicant wishes to obtain environmental authorisation for the following technical specification upgrades and additional infrastructure to the existing Noblesfontein WEF:

- Upgrading of two authorised wind turbines from 2MW to between 4 and 5.6MW each, for a total of 11.2MW
- Increasing the maximum height of the two wind turbines from 125m to 137.5m
- Increasing the maximum turbine blade diameter of the two towers from 110m to 165m
- A 132kV overhead power line (OHPL) of up to 500m
- An additional substation to service the turbines
- Service roads and laydown areas for the two turbines

The above-mentioned changes and additions require Environmental Authorisation, and a Basic Assessment Application is therefore underway. The Draft Basic Assessment Report (for a 30 day Public Participation process) is being submitted to your Department for comment.

Please do not hesitate to contact me directly on (021) 701 5228 or (072) 989 5119 should you require any clarification or additional information.

Yours Faithfully,

Monique Sham
Senior Environmental Consultant
Terrmanzi Group (Pty) Ltd

* There has recently been a change in company details from CORIA (PKF) Investments 28 (Pty) Ltd to Sarge Development (Pty) Ltd. The identity of the Applicant and the nature/content of the application remain unchanged.

BASIC ASSESSMENT REPORT (BAR) FOR TECHNICAL SPECIFICATION UPGRADES TO THE EXISTING NOBLESFONTEIN WIND ENERGY FACILITY (WEF), UBUNTU MUNICIPALITY, NORTHERN CAPE.

CLIENT: SARGE DEVELOPMENT (PTY) LTD
CONTACT: MR PIETER FRANCOIS ROUX

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JUNE 2021

APPLICABLE LEGISLATION	COMPETENT AUTHORITY REFERENCE NUMBER/S
NEMA EIA Regulations (2017) (as amended)	DFFE Reference No.: 2021-04-0020
WULA in terms of Section 21 of the National Water Act (Act No. 39 of 1998)	There is no evidence to suggest any watercourses are impacted.
National Heritage Resource Act (SAHRA)	Application being processed
Report Title	Basic Assessment Report (BAR) for technical specification upgrades to the existing Noblesfontein Wind Energy Facility (WEF), Ubuntu Municipality, Northern Cape.
Author (EAP)	Monique Sham and Evan Milborrow (Terramanzi Group (Pty) Ltd)
Specialist Sub-Consultants	Agricultural Assessment - Agriformatics C/O Francois Knight Bat - Arcus C/O Ashlin Bodasig Birds - Arcus C/O Owen Davies Ecological - Nick Helme Botanical Surveys C/O Nick Helme Heritage - CTS C/O Jenna Noise - Enviro Acoustic Research C/O Morne De Jager Traffic - ITS C/O Pieter Arangie Visual - Environmental planning and Design C/O Jon Marshal
Client	CORIA (PKF) Investments 28 (Pty) Ltd* C/O Pieter Francois Roux
Report Version	Basic Assessment Report for Public Comment
Submission Date	June 2021

Please use the following as a reference for this Report:

Terramanzi Project Number: 210302

Project Title: Basic Assessment Report for Upgrades to the Noblesfontein Wind Energy Facility (WEF), Ubuntu Municipality, Northern Cape

* There has recently been a change in company details from CORIA (PKF) Investments 28 (Pty) Ltd to Sarge Development (Pty) Ltd. The identity of the Applicant and the nature/content of the application remain unchanged.

Purpose of this Document:

The Noblesfontein Wind Energy Facility (WEF) is an operational facility located in the Ubuntu Local Municipality, Northern Cape.

The Noblesfontein WEF is currently authorised to construct up to 44 Wind Turbine Generators (WTGs) with a total power output of up to 132 megawatts (MW) with each WTG producing up to a maximum of 3MW. Currently, there are only 41 WTGs built and operating with each operational WTG producing a maximum of 2MW thus providing a total output of 82MW for the WEF. Coria (PKF) Investments 28 (Pty) Ltd* (the project owner and Applicant), is now able to proceed with completing the construction of the WEF.

With the significant technological advances in WTGs over the years, the Applicant has made the decision to construct only two (2) additional WTGs of up to 5.6MW each. This technical specification upgrade would ordinarily comprise a Part 2 Amendment Application to the Competent Authority. However, due to gird connection constraints at the current approved substation, a new substation is required and this infrastructure triggers the need for a Basic Assessment Process. The appointed Environmental Assessment Practitioner (EAP) has consulted extensively with the Competent Authority on the matter and it was agreed to run a single Basic Assessment Process for the WTG upgrades and the associated overhead powerline (OHPL) and new substation, with the clear understanding that the context of the assessment is effectively a technical specification upgrade for an existing and authorised WEF, with the only new infrastructure being a short OHPL and substation located directly adjacent to the existing and authorised substation for the WEF.

Summary of the proposed upgrades and additional infrastructure:

- Upgrading of two authorised turbines:
  - from 2MW to between 4 and 5.6MW each, for a total of up to 11.6MW.
  - increasing maximum turbine towers height from 125m to 137.5m.
  - increasing maximum turbine up to 500m.
- An additional spanned overhead 132kV power line (OHPL) of up to 500m in length.
- An additional substation, located adjacent to the existing substation, to service the turbines.
- Service roads and laydown areas for the two turbines

The site has been assessed by independent experts as part of this environmental permitting process to allow for the development of opportunities and constraints maps, in accordance with the statutory requirements, in order to guide the Applicant and the professional team by means of development considerations for the site. The opportunities and constraints maps (please refer to Sections 2 and 10) has been designed to provide a clear and accountable record of areas that are immediately deemed suitable and those areas which are considered potentially problematic for development. Based on the above, the Applicant has investigated and presented a development footprint (hereinafter referred to as the Preferred Alternative) and which is presented in this Report. Based on the findings of the Basic

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* Please note that just prior to submission of the Basic Assessment Report the **owner and applicant,** Mr. Pieter Francois Roux, **changed the Company applying for EA** from CORIA (PKF) Investments 28 (Pty) Ltd to **Sarge Development (Pty) Ltd.** The identity of the Applicant and **the nature/content of the application remain unchanged**.

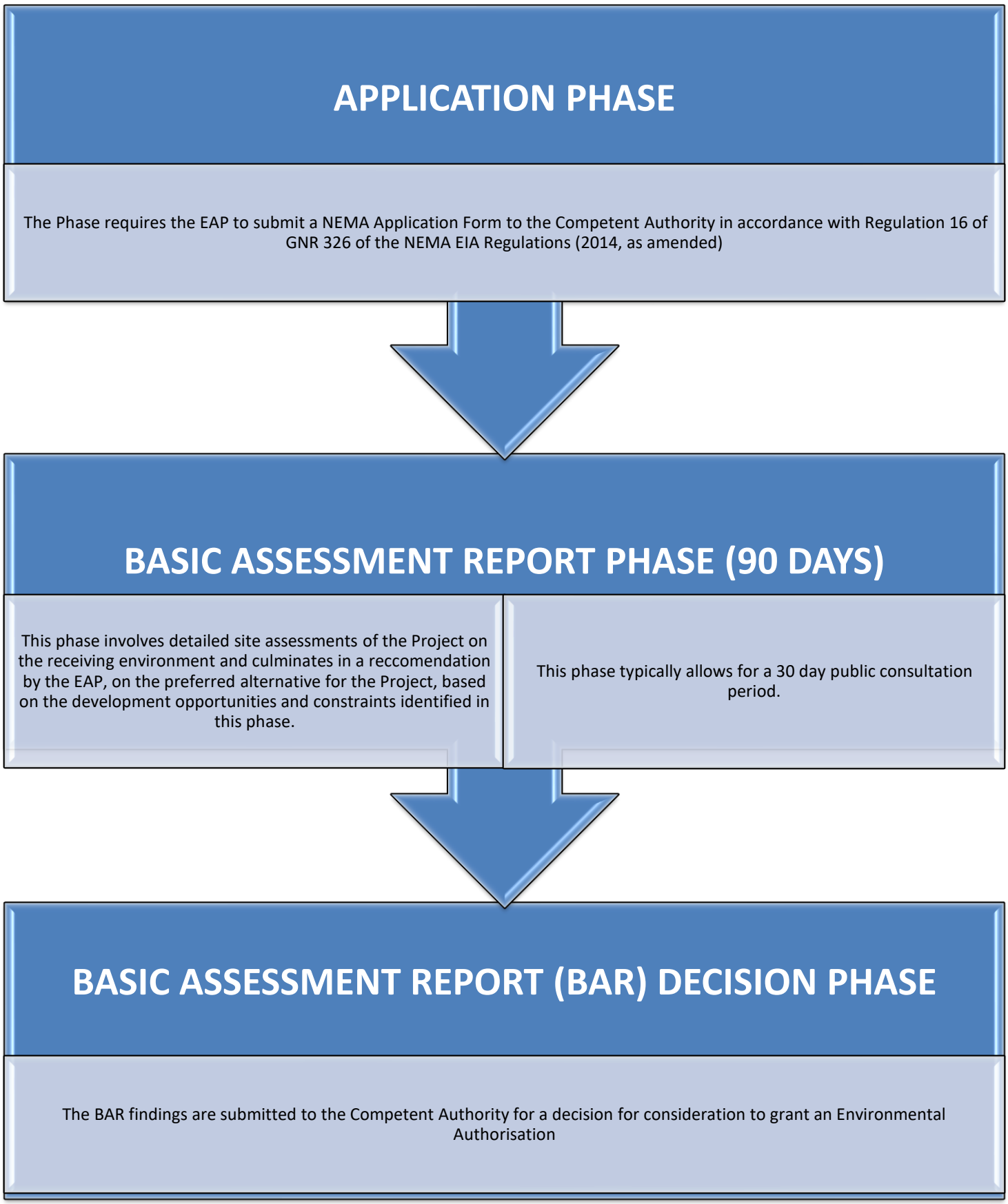
Assessment Report, including inputs received from the appointed Specialists, the Preferred Alternative has been deemed as acceptable and implementable for this Environmental Permitting Process.

As part of this Basic Assessment Report (BAR) process, a number of Specialist Environmental Impact Assessments have been undertaken by independent experts, in terms of the National Environmental Management Act (107 of 1994) (NEMA) Environmental Impact Assessment (EIA) Regulations (2014, as amended), with a view to providing impacts assessment findings and recommendations to inform this BAR and also to assess the potential impacts associated with the proposed turbine upgrades and associated infrastructure on the receiving environment.
As per the requirements of the NEMA EIA Regulations (2014, as amended), this BAR has been issued for public participation in terms of GNR 326, Regulation 41(b)).

This BAR will be available for comment for 30 calendar days from 30 June 2021 until 29 July 2021, as stipulated by the NEMA EIA Regulations (2014, as amended).

Summary of what this BAR addresses:

- Details of the EAP
- Location of the proposed development
- Plan which locates the proposed activity or activities applied for at an appropriate scale
- Description of the scope of proposed activity
- Description of the policy and legislative context applicable to the proposed development
- A motivation for the need and desirability for the proposed development
- Full description of the process followed to reach the proposed preferred activity, site and location within the site



Public Participation Process for the BAR

To comply with the requirements of Regulations 39-44 of the EIA Regulations (2014, as amended), stakeholders will be notified through the following mechanisms:

- A stakeholder database, compliant with Regulation 42 of the EIA Regulations, already exists from the authorised Noblesfontein WEF Scoping and Full Environmental Impact Assessment from May 2011. The contact details of these stakeholders have been verified (through phone calls and emails) and these registered stakeholders will be notified via written notice (email) of the Basic Assessment process and the availability of the Draft BAR for a 30-day comment period.

- Site notice boards (with minimum dimensions of 60cm X 42cm) in English and Afrikaans will be erected on the Project Site boundary (at strategic viewable locations) by 20 June 2021.

- Newspaper advertisements (in English and Afrikaans) will be placed in two local newspapers: The Messenger* (Victoria West) on Friday the 25th of June 2021, and the Courier on Thursday the 24th of June 2021.

- The Draft BAR for public comment will be made available to registered stakeholders through an online electronic link (One Drive or similar). If there are any registered stakeholders that cannot access the electronic report, we will courier hard copies or CDs to them upon request. For hard copies/CDs, strict COVID measures will be implemented to ensure that the documentation is sanitized prior to distribution.

The BAR is available for comment for a period of a minimum of 30 calendar days from **Wednesday 30 June 2021 up to and including Tuesday 29 July 2021.**

The BAR and supporting documentation are available electronically at the link below:

- https://bit.ly/3gF7Cqd

Comments were required to be directly submitted to Terramanzi Group (Pty) Ltd, as follows:

- Electronic mail: comments@terramanzi.co.za; or
- Facsimile: 086 558 1213; or
- Post: Postnet Suite 211, Private Bag X26, Tokai, Cape Town
- For Attention: **Evan Milborrow**
- Terramanzi Project Reference Number: 210302
- Visit us at www.terramanzi.co.za

COMMENTS RECEIVED AFTER 26 JULY 2021 WILL NOT BE CONSIDERED

* Due to the unavailability of Messenger (Victoria West) on the required dates, the Newspaper Advertisements were instead published in the 'Karoo Stem', a larger regional Newspaper with greater reach.

Contents

APPENDICES INDEX

Please note that the Appendices are located after the BAR and have detailed cover pages available to facilitate document navigation for the reader.

Appendix A – Site Maps

Appendix B – Photographs of the Site

Appendix C – Overhead Powerline Design

Appendix D – Specialist Reports

- Screening Tool Report (STR)
- Site Sensitivity Verification Report (SSVR)
- Agricultural Assessment - Agriformatics C/O Francois Knight
- Bat Assessment - Arcus C/O Ashlin Bodasig
- Birds Assessment - Arcus C/O Owen Davies
- Ecological Assessment - Nick Helme Botanical Surveys C/O Nick Helme
- Heritage Assessment - CTS C/O Jenna Lavin
- Noise Assessment - Enviro Acoustic Research C/O Morne De Jager
- Traffic Assessment - ITS C/O Pieter Arangie
- Visual Assessment - Environmental planning and Design C/O Jon Marshal

Appendix E – Public Participation Folder

Appendix F – Environmental Management Programme (EMPr)

- Environmental Management Programme

Appendix G – Competent Authority Correspondence:

- Application

Appendix H – Other Permits and Information

Appendix I – EAP Curriculum Vitae

1 DEFINITIONS AND TERMINOLOGY REFERRED TO IN THIS REPORT

PLEASE REFER TO ANNEXURE I FOR THE DEFINITIONS AND TERMINOLOGY REFERRED TO IN THIS REPORT

Why no other alternatives. Was going to be amendment, exiting EA

2 PROJECT OVERVIEW AND ENVIRONMENTAL IMPACT STATEMENT

*In accordance with **Appendix 1 Regulation 3(l) of GN No. R. 326 of the NEMA EIA Regulations (2017 as amended)**:*

An environmental impact statement which contains:

***3(l) i** – A summary of the key findings of the environmental impact assessment;*

***3(l) ii** – A map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers; and*

***3(l) iii** - A summary of the positive and negative impacts and risks of the proposed activity and identified alternatives.*

2.1 PROJECT OVERVIEW

A brief history of the Noblesfontein Wind Energy Facility (WEF):

This report relates to the Basic Assessment process being undertaken for the technical specification upgrade of two unbuilt wind turbines and the addition of supporting infrastructure to the operational Noblesfontein WEF, hereinafter referred to as the "Project" or "Noblesfontein WEF upgrades". Noblesfontein WEF is located at the coordinates 31°45'46.04" South and 23° 9'42.29" East, within the Ubuntu Local Municipality in the Northern Cape. Please refer to the locality and layout maps below.

Environmental Authorisation (EA) was first issued to the Noblesfontein WEF by the competent authority, the Department of Forestry, Fisheries and the Environment (DFFE), (hereinafter referred to as the "Competent Authority", on 22 February 2012 (DFFE: 12/12/20/1993/1).

The authorised WEF consists of the following:

- Up to 44 wind turbines with a total generating capacity of 132MW using turbines with a generating capacity of up to 3MW.
- 22.07 hectares (ha) of the proposed site will be permanently transformed for the installation of the turbines and related infrastructure.
- 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).
- 44 temporary turbine laydown areas of 50m x 25m (55 000m^2).
- 44 concrete foundations to support the turbine towers (15m x 15m x 2.5m in depth).
- A temporary laydown area with a footprint of 0.66km^2 (66ha).
- A 132kV substation with high voltage (HV) yard footprint of approximately 100m x 100m (10 000m^2)
- Underground cabling between project components.
- One new overhead 132kV power line of 1km in length, turning into the existing Hutchinson/Blesiespoort-1 132kV line.
- Internal access roads (5m wide and 40km long) linking the wind turbines and the infrastructure on the site.

- Operations and maintenance building including a storage facility with a footprint of 40m x 20m (800m²) for maintenance and storage purposes.

Currently only 41 turbines have been installed, each with an output of 2MW (i.e. 82MW current total capacity) and these have been operating for a number of years already.

The holder of the existing EA, CORIA (PKF) INVESTMENTS 28 (PTY) LTD*, (hereinafter referred to as the "Applicant"), wishes to construct the remaining two turbines with a technical specification upgrade to ensure that an additional 11.2MW is added to the Project (i.e., up to 5.6MW per turbine). The Applicant also requires a short span 132kV overhead powerline (OHPL) and a second substation (due to Eskom requirements) to service these two turbines.

Summary of the proposed turbine upgrades and additional infrastructure:

- Upgrading of two authorised wind turbines
  - from 2MW to between 4 and 5.6MW each, for a total of up to 11.2MW
  - increasing maximum height of the two wind turbines from 125m to 137.5m
  - increasing maximum turbine blade diameter of the two towers from 110m to 165m
- A spanned overhead 132kV power line (OHPL) of up to 500m in length
- An additional substation to service the turbines
- Access and service roads and laydown areas for the two turbines

Given the fact that the proposed turbines will simply be larger versions (dimensions) of the currently authorised (up to 3MW) turbines a Part 2 Amendment Process was initially proposed. On 04 May 2021 a pre-application meeting was held with the competent authority, who indicated that the associated components of an Amendment process must not trigger listed activities on their own (see box below). Due to the fact that the existing Environmental Authorisation (DFFE: 12/12/20/1993/1, 22 February 2012) does not clearly describe more than a single substation, WTG access roads or additional OHPL structures, the Competent Authority suggested that it would be more appropriate for the proposal to submit to a Basic Assessment Process and to list the substation and OHPL as its own listed activity (as per GNR 327 Act. 11)[1].It was therefore concluded that the proposed upgrade to the existing Noblesfontein WEF requires a Basic Assessment process to be undertaken and not a Part 2 Amendment Process.

* There has recently been a change in company details from CORIA (PKF) Investments 28 (Pty) Ltd to Sarge Development (Pty) Ltd. The identity of the Applicant and the nature/content of the application remain unchanged.

[1] Listed Activity 11 (GNR 327, Listing Notice 1, 7 April 2017

The development of facilities or infrastructure for the transmission and distribution of electricity—
(i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts; or
(ii) inside urban areas or industrial complexes with a capacity of 275 kilovolts or more;

excluding the development of bypass infrastructure for the transmission and distribution of electricity where such bypass infrastructure is—
(a) temporarily required to allow for maintenance of existing infrastructure;
(b) 2 kilometres or shorter in length;
(c) within an existing transmission line servitude; and
(d) will be removed within 18 months of the commencement of development.

GNR 326, Section 3.1, April 2017
EIA Regulations states:

31. Amendments to be applied for in terms of Part 2

An environmental authorisation may be amended by following the process prescribed in this Part if the amendment will result in a change to the scope of a valid environmental authorisation where such change will 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 environmental authorisation

and the change does not, on its own, constitute a listed or specified activity.

This proposal in its entirety, at the guidance and instruction of the Competent Authority will therefore constitute a Basic Assessment Process and the existing EA for the Noblesfontein WEF will remain unaffected. Importantly, given the fact that this is materially a technical specification upgrade for an existing and operating Wind Energy Facility, and with the support and guidance of the Competent Authority, the "No-Go" alternative is defined as the existing and authorised WTG specification, which will be comparatively assessed against the preferred alternative, as detailed in Section 5 below.

As part of this process, several Specialist Impact Assessments have been undertaken by independent experts, in terms of the NEMA EIA Regulations (2014, as amended), with a view to providing impacts assessment findings and recommendations associated with the proposed turbine upgrades, OHPL and associated infrastructure on the receiving environment. The findings of these studies are included in this report.

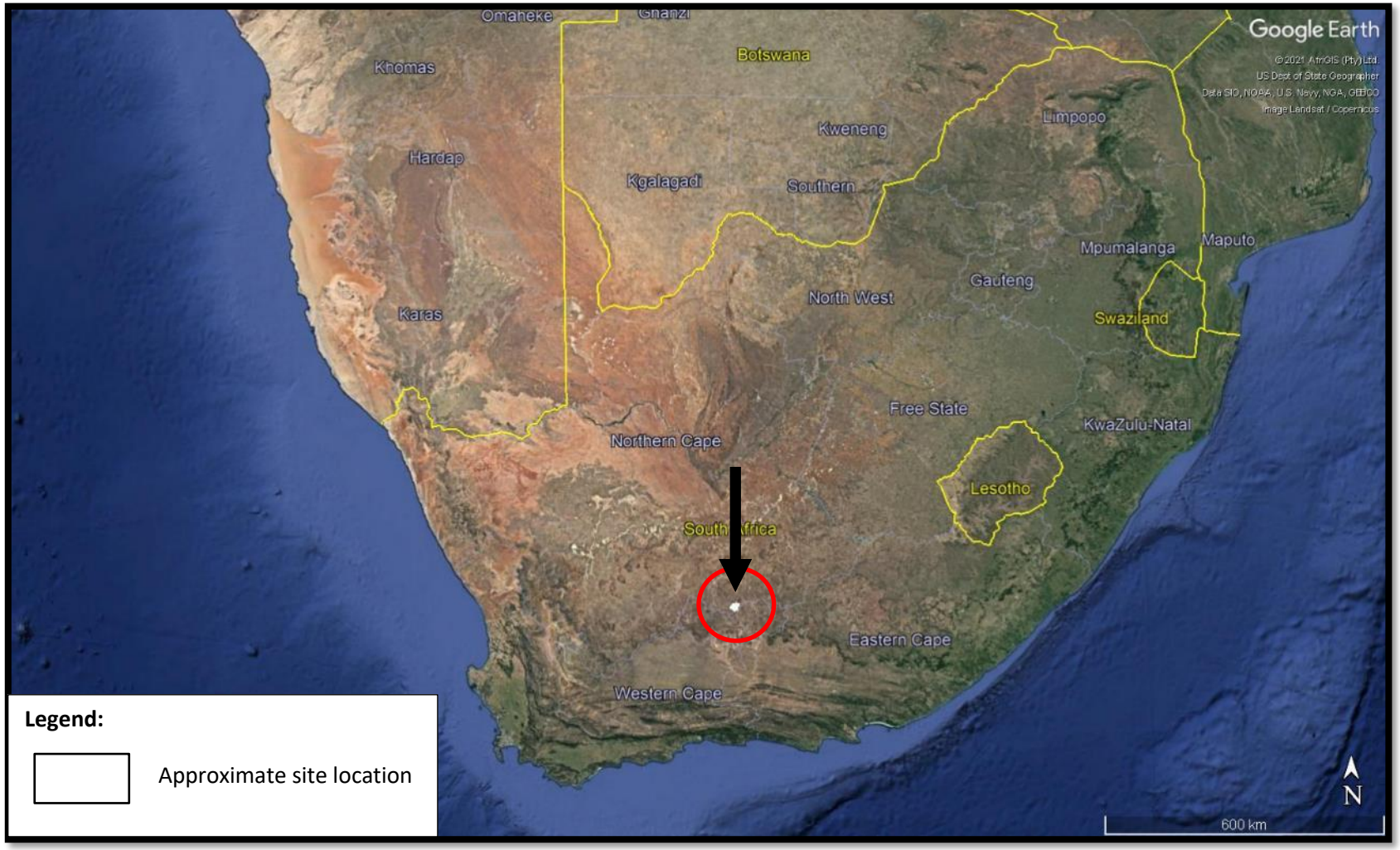


Figure 2.1: This figure shows the location of the authorised Noblesfontein Wind Energy Facility within a broad geographical context.

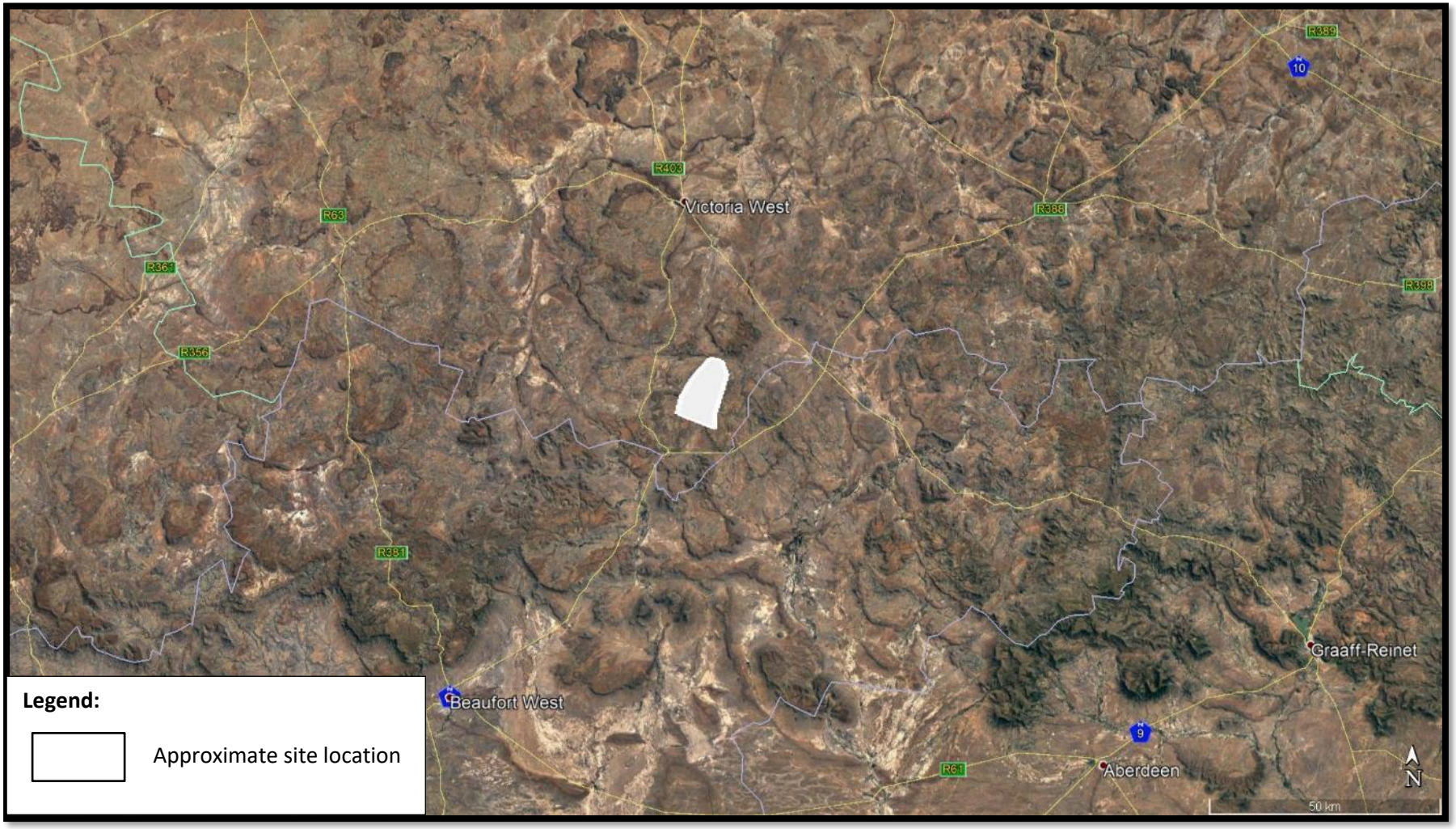


Figure 2.2: This figure shows the regional location of the authorised Noblesfontein Wind Energy Facility.

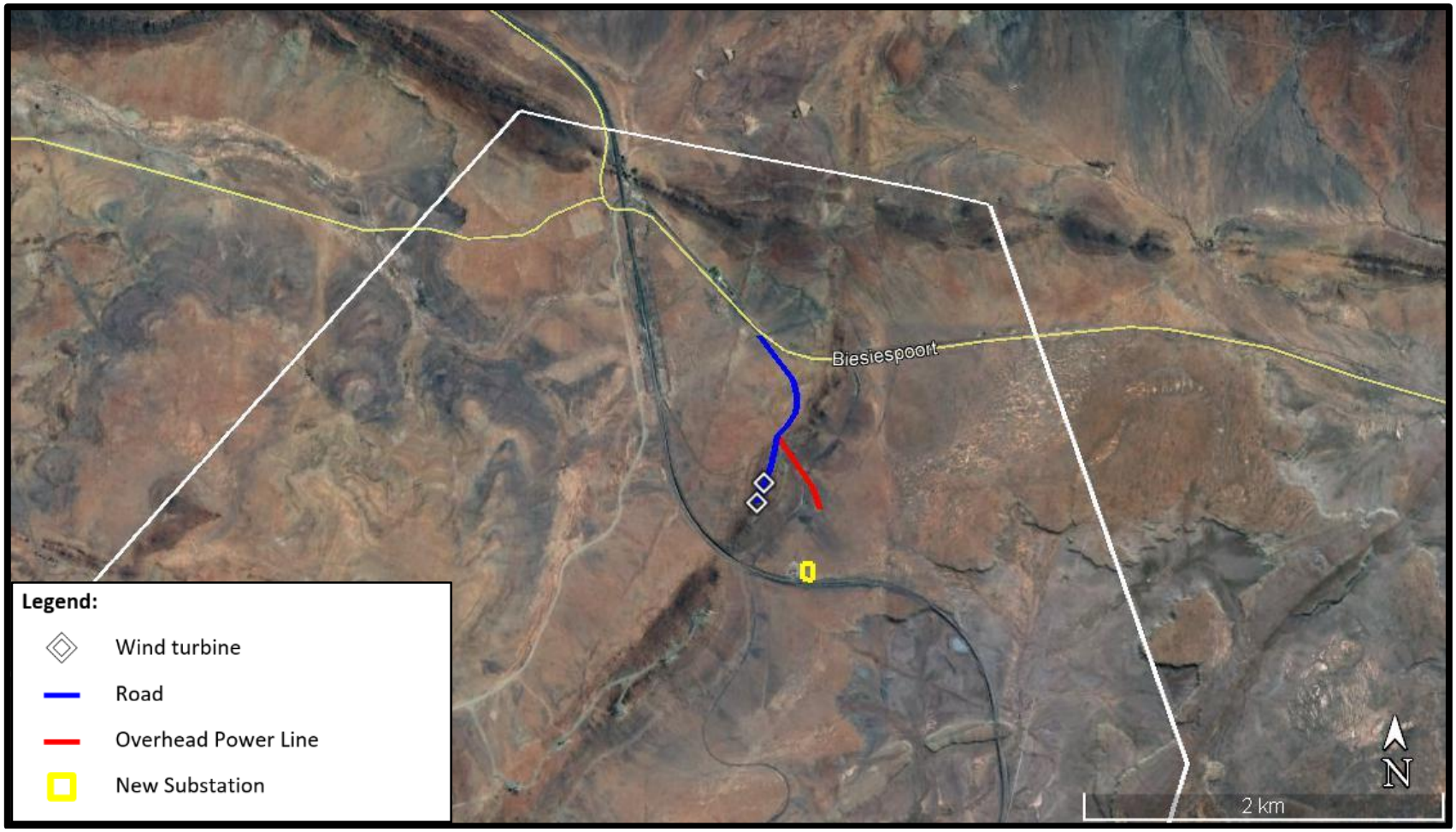


Figure 2.3: This figure shows the locality and layout of the proposed upgraded wind turbines, service roads (blue), OHPL (red) and substation (yellow), relative to the Noblesfontein Site boundary (White), completed turbines to the South West, and the existing substation (directly adjacent/West of the proposed substation).

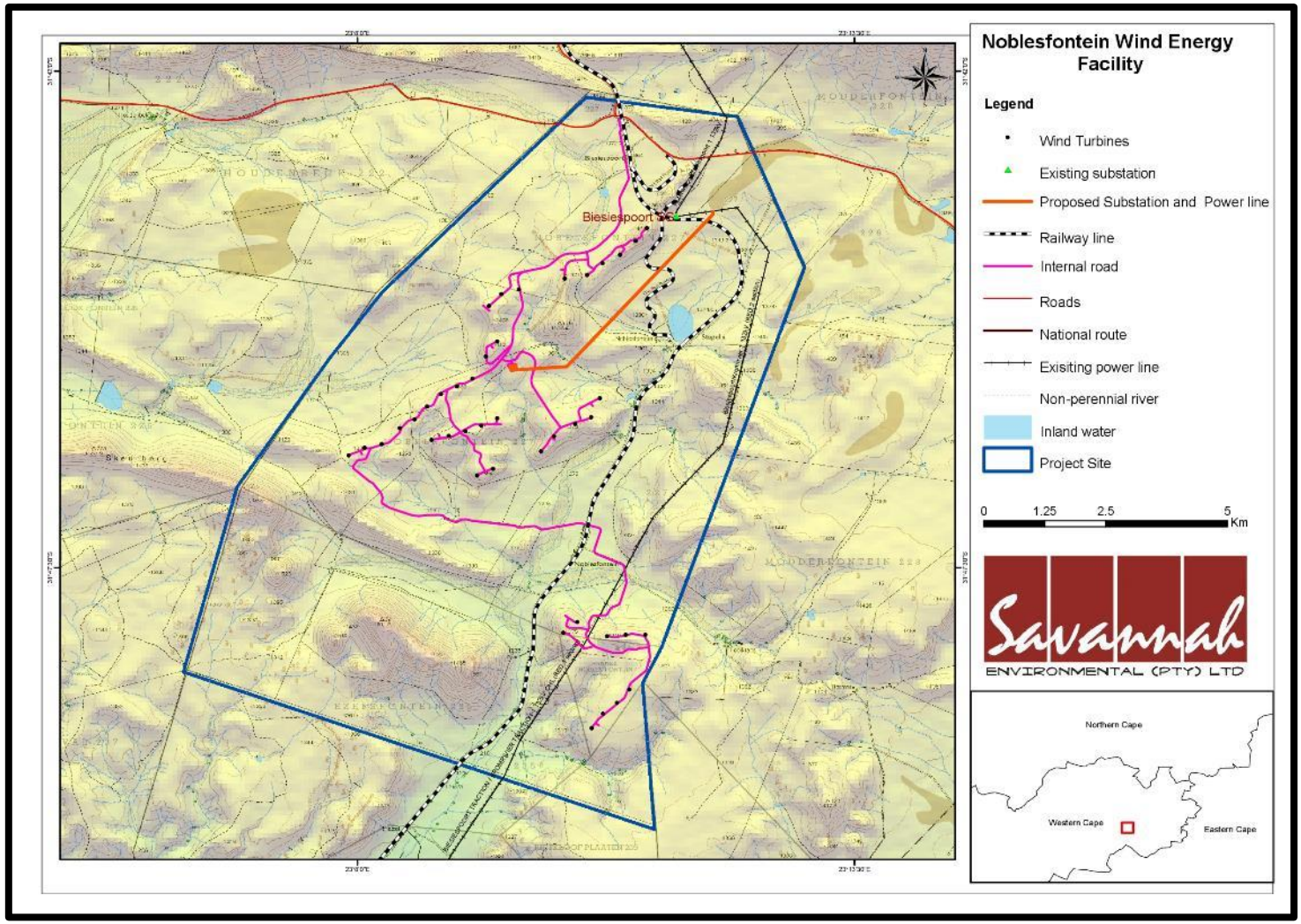


Figure 2.4: Authorised layout for the operational Noblesfontein WEF.

2.2 ENVIRONMENTAL PERMITTING PROCESS TO DATE

The Applicant underwent an iterative process to determine the best turbines for the given application, the routing of the overhead powerline, and the position of the second substation, which were all informed by the appointed specialists' recommendations. Based on these recommendations and assessments undertaken by both the EAP and Professional Team, a preferred layout (see Section 9) was designed and assessed against the No-Go Alternative as part of the BAR. This Preferred Alternative has been found to be feasible and reasonable.

2.3 SUMMARY OF INDEPENDENT SPECIALIST UNDERTAKEN AS PART OF THIS BASIC ASSESSMENT REPORT

The following specialist assessments were undertaken:

- Agricultural – Agri Informatics C/O Francois Knight (19 May 2021)
- Avifaunal – Arcus C/O Owen Davies (12 May 2021)
- Bat – Arcus C/O Ashlin Bodasig (18 May 2021)
- Botanical – Nick Helme Botanical Surveys C/O Nick Helme (12 May 2021)
- Heritage – CTS Heritage C/O Jenna Lavin (11 May 2021)
- Noise – Enviro Acoustic Research C/O Morné de Jager (5 May 2021)
- Traffic – Innovative Transport Solutions C/O C. Krogscheepers, P. Arangie & T. Neels (10 May 2021)
- Visual – Environmental Planning and Design C/O Jonathan Marshall (12 May 2021)

Summaries of the key findings are presented below.

For the full impact please see Section 8 of this report and the Specialist Reports found included in Appendix D.

PLEASE NOTE:

On 4 May 2021 a **pre-application meeting** was held with the competent authority, who indicated that the proposed changes to turbine specifications (i.e. turbine dimension and number) and supporting infrastructure (service roads, OHPL and substation) required a **Basic Assessment process** to be undertaken, and **not a Part Two Amendment Process**.

As specialists had already conducted assessments based on an amendment process, it was agreed that the **logic and the existing specialist findings received** could be presented in a BAR format.

As such, the specialist findings presented assess the turbine upgrades and associated infrastructure as part of and relative to the authorised and operational Noblesfontein WEF, and not as independent structures. **The EAP has had to infer and interpret certain impacts for the proposed upgrades and structures alone.**

2.3.1 Agricultural Findings – Agri Informatics C/O Francois Knight

Based on the evidence before the EAP, it is clear that the **appointed specialist has not identified any fatal flaws** with the project proposal. and it is reasonable to suggest that the proposed turbine upgrades and supporting structures are **acceptable and implementable** from an agricultural perspective.

2.3.1.1 Specialist Findings

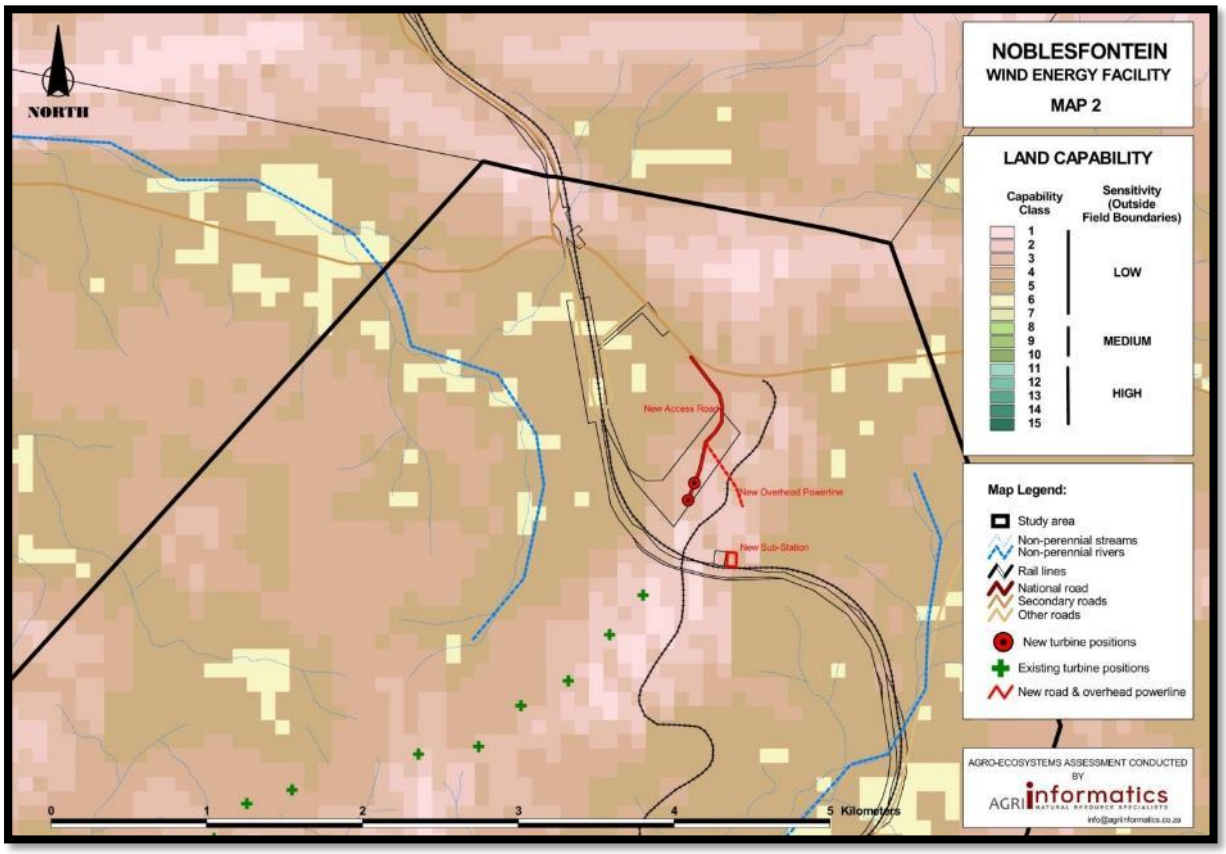


Figure 2.5: This figure shows the agricultural land capability.

The Scoping Study for the original Environmental Assessment found that "prevailing unfavourable climatic conditions for arable agriculture as well as prevalence of soils with limited depth" did not necessitate further detailed Agricultural Potential and Land Capability investigation.

The climate of the area is arid (mean annual precipitation = 237 mm and annual evaporation = 2379 mm), with severe frost during the winter months […] *The grazing capacity is low at ±25 ha per large stock unit (DAFF, 2018) while the soils are predominantly very shallow or rocky and non-arable.*

The Land Capability map (Figure 2.5) also reflects the low agricultural potential of the study area. All proposed turbines and appurtenant infrastructure are positioned on land capability values lower than 4. These areas have a Low Sensitivity for renewable energy generation facilities (Protocol for the assessment of environmental impacts on agricultural resources, Government Notice 648, Government Gazette 45421, May 2019).

The limitations of the agricultural resources of the study area, have been confirmed, as outlined above. The two additional turbines, despite being larger in generation capacity will have a smaller footprint than the three previously approved and thus a proportionally reduced impact on the agro-ecosystems.

The access road follows a section of old (unused) railway line, while the overhead powerline and sub-station is also situated on low potential agricultural land and will induce negligible impact on farming activities.

No full Impact assessment was therefore deemed necessary by the Agricultural Specialist and the EAP.

Please refer to the Agricultural Impact Assessment in Appendix D.

2.3.2 Avifaunal Findings – Arcus C/O Owen Davies

Based on the evidence before the EAP, it is clear that the **appointed specialist has not identified any fatal flaws** with the project proposal, and it is reasonable to suggest that the proposed turbine upgrades and supporting structures are **acceptable and implementable** from an Avifaunal perspective

2.3.2.1 Specialist Findings

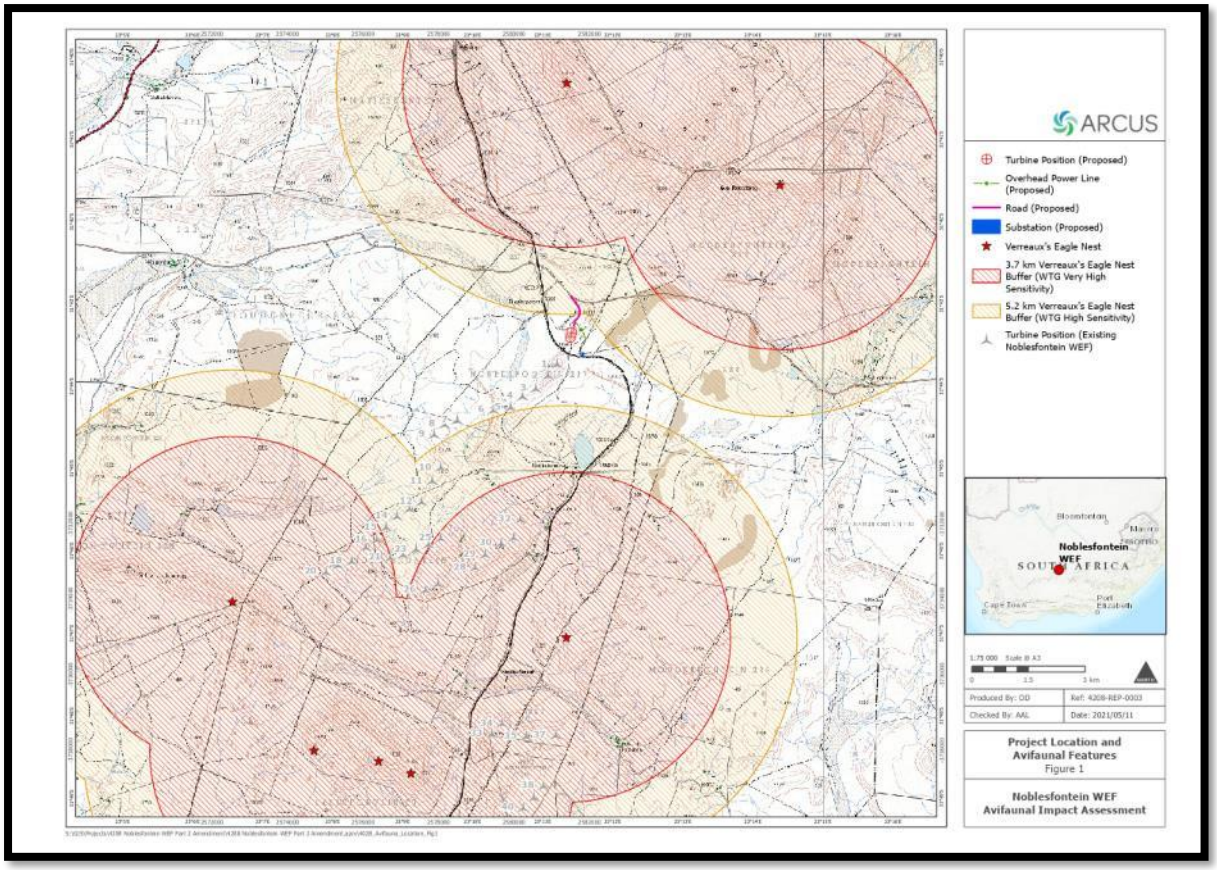


Figure 2.6: This figure shows the avifaunal opportunities and constraints for the upgraded turbines and supporting infrastructure.

The overhead power line is relatively short (< 0.5 km) and unlikely to result in a significant negative impact to avifauna following the implementation of mitigation measures. Similarly, the substation is relatively small and positioned alongside an existing substation and existing transmission infrastructure and a railway. The substation is therefore unlikely to contribute additional significant negative impacts on avifauna above those that are already present on the site.

The primary consideration relevant to the proposed development is the potential effects that the proposed changes to turbine specifications (i.e. turbine dimension and number) may have on the collision risk posed to avifauna compared to the original authorisation.

The proposed development is unlikely to result in an increase the overall impact significance to avifauna identified by the existing authorisation. The proposed development may reduce the

probability and/or severity of the impacts identified in the original authorisation; however the degree to which the impacts may be reduced is insufficient to reduce the existing impact significance ratings. Therefore, from an avifaunal perspective, the proposed development considered by this assessment can proceed without unacceptable impacts to avifauna, provided mitigation measures are adhered to.

Please refer to the Avifaunal Impact Assessment in Appendix D.

2.3.3 Bat Findings – Arcus C/O Ashlin Bodasig

Based on the evidence before the EAP, it is clear that the **appointed specialist has not identified any fatal flaws** with the project proposal and it is reasonable to suggest that the proposed turbine upgrades and supporting structures are **acceptable and implementable** from a Bat perspective, **provided all mitigation measures are adhered to.**

2.3.3.1 Specialist Findings

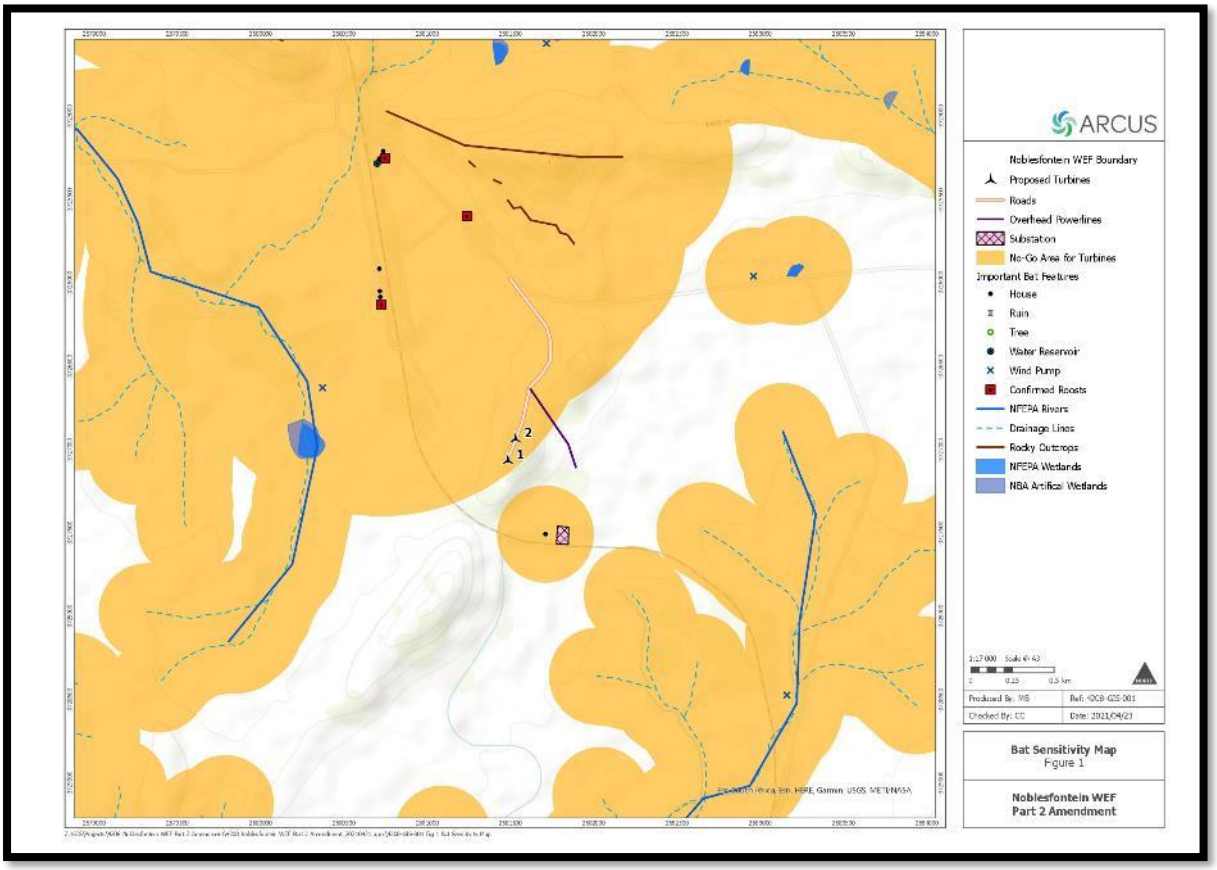


Figure 2.7: This figure shows the bat opportunities and constraints for the upgraded turbines and supporting infrastructure.

The Noblesfontein WEF site contains numerous sensitive features, particularly relating to the presence of potential roosting structures for bats, such as buildings, large trees, rocky outcrops and steep cliffs. Other sensitive features considered potentially important, particularly for their suitability for foraging activities, are farm dams/reservoirs, drainage lines, rivers, wetlands and cultivated fields. (Figure 2.7)

It should be noted that these buffers apply only to turbines and not associated infrastructure such as roads and powerlines.

[…] both proposed turbines fall within bat sensitive areas – particularly that related to relevant 1,000m roosting buffers. It is recommended […] to adjust the positioning of these turbines to the appropriate distance, during the design phase, in order to avoid these sensitive areas. Should it not be possible to move these two turbines, then certain strict mitigation measures, which includes curtailment should be defined and implemented as soon as turbines are erected.

Compared to the current turbine layout and dimensions of Noblesfontein WEF, it is likely that the addition of the two turbines would (without mitigation) slightly increases mortality impacts on bats. This is primarily because of an increased overall rotor swept area relative to that which is currently present at Noblesfontein WEF.

When assessed relative to the full 44 turbines authorised for the Noblesfontein WEF, not just those under operation: therefore, although two turbines are proposed to be added with this basic assessment, the overall final rotor swept area for the entire facility is still noted to be lower than that which was originally authorised.

If all mitigation measures listed in this report are strictly adhered to, then it is not anticipated for any change in impacts, relative to that currently taking place at the authorised WEF, to be significant. Therefore, from a bat perspective, the proposed development considered can proceed, provided that all mitigation measures are adhered to.

Please refer to the Bat Assessment in Appendix D.

2.3.4 Botanical Findings – Nick Helme Botanical Surveys C/O Nick Helme

Based on the evidence before the EAP, it is clear that the **appointed specialist has not identified any fatal flaws** with the project proposal, and it is reasonable to suggest that the proposed turbine upgrades and supporting structures are **acceptable and implementable** from a Botanical perspective.

2.3.4.1 Specialist Findings

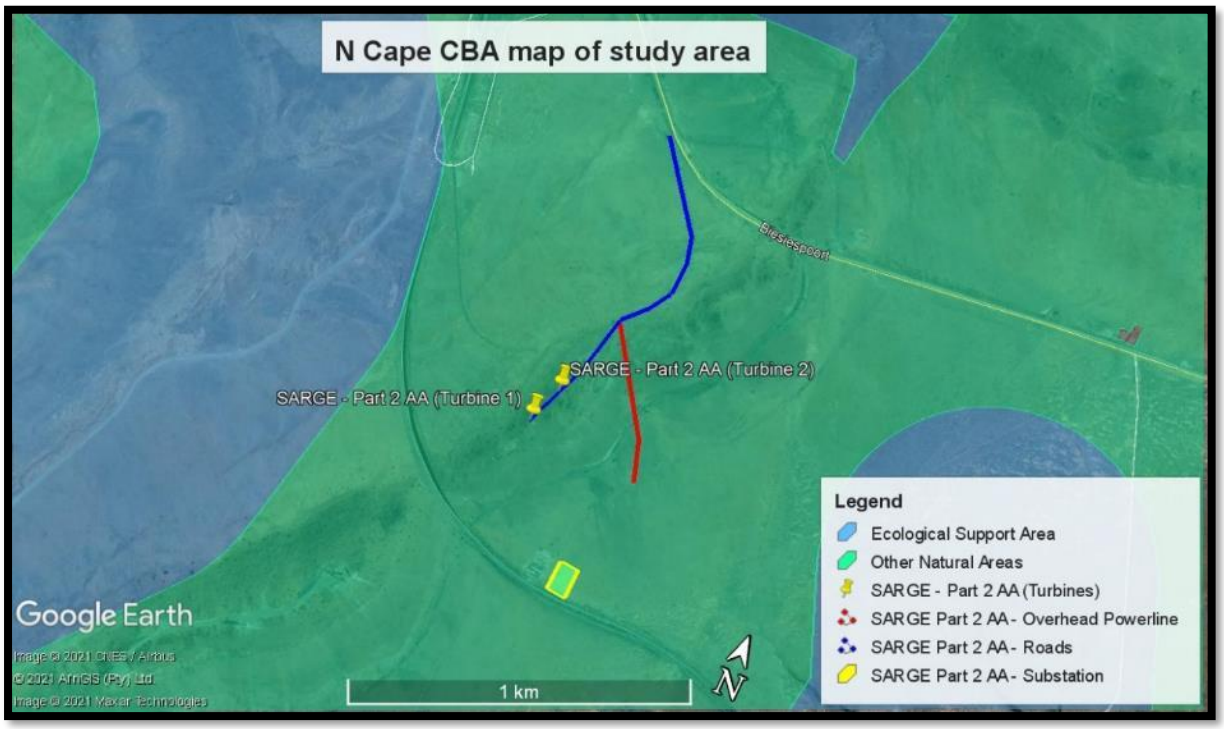


Figure 2.8: This figure shows the conservation planning map for the area, showing the proposed infrastructure and that no Critical Biodiversity Areas (CBAs) are mapped in the study area. The entire development footprint is within areas mapped as lower level Other Natural Areas (ONAs).

[…] the study area is classified as an ONA (Other Natural Area), a relatively low conservation rating (Figure 2.8). No higher-level Critical Biodiversity Areas (CBAs) are mapped within the study area. Activities that do not impinge on ecological functioning and water quality are permissible within Ecological Support Areas (ESAs) and ONAs (Holmes et al 2012).

No plant Species of Conservation Concern (SoCC) are likely from within the study area. Few SoCC are generally found within the Upper Karoo Hardeveld, at least in comparison to many other habitats.

No plant SoCC are likely to be impacted by the proposed amendment, but up to 3ha of plant and faunal habitat will be lost, mainly to the roads and turbine construction.

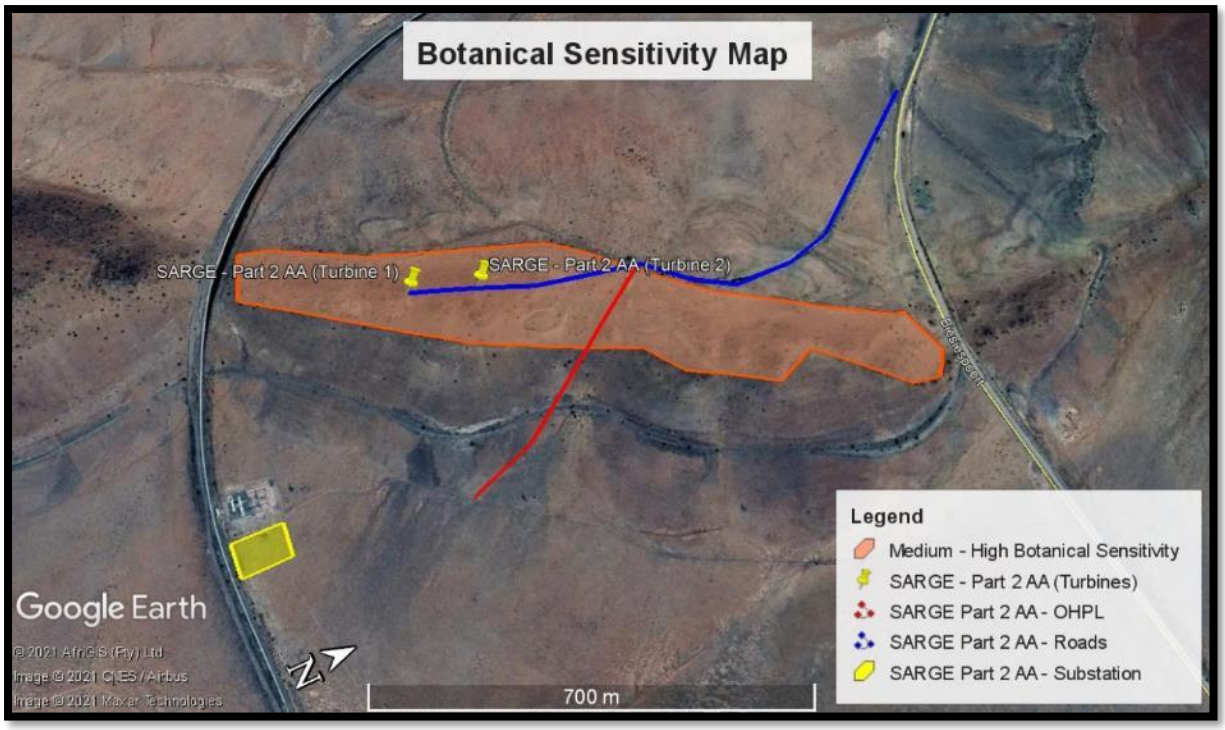


Figure 2.9: This figure shows the Botanical Sensitivity map (desktop based) of the study area. Unshaded areas within the study areas are of Low - Medium botanical sensitivity.

About 50% of the road route and both the turbines are located within an area assessed as being of Medium - High sensitivity, and this area includes most of the dolerite ridges and plateaus (Figure 2.9). *The remainder of the infrastructure is located within an area deemed to be of Low to Medium botanical sensitivity.*

The two-turbine amended layout may disturb up to 25% more habitat in the two targeted turbine positions than would the approved turbine layout, and thus the amended layout is likely to have a very slightly greater botanical and faunal impact than the authorised layout overall, ***but the difference is marginal.***

There is no substantial faunal or botanical reason why the proposed amended layout should not be approved.

Please refer to the Botanical Impact Assessment in Appendix D.

2.3.5 Heritage Findings – CTS Heritage C/O Jenna Lavin

Based on the evidence before the EAP, it is clear that the **appointed specialist has not identified any fatal flaws** with the project proposal and it is reasonable to suggest that the proposed turbine upgrades and supporting structures are **acceptable and implementable** from a Heritage perspective, provided the mitigation measures are followed.

2.3.5.1 Specialist Findings

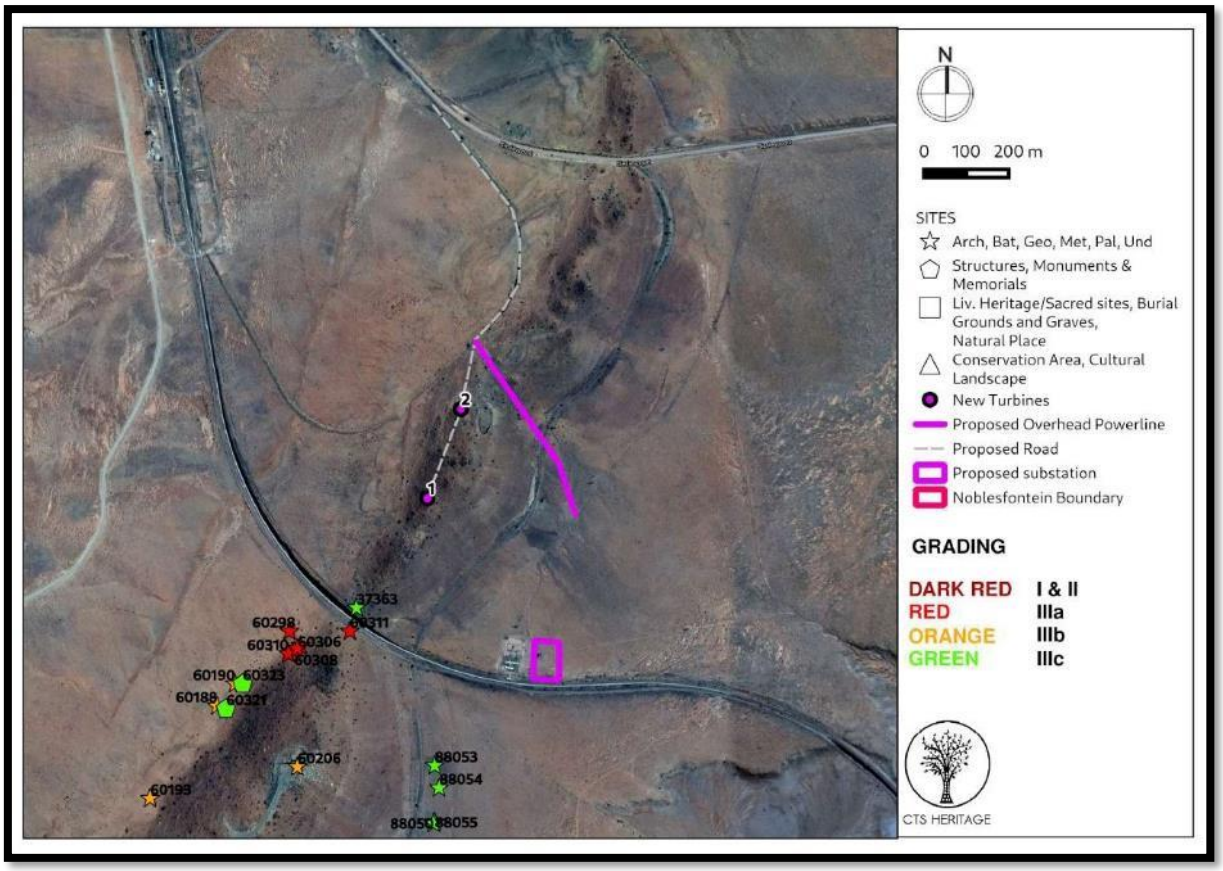


Figure 2.10: Heritage Resources Map for all heritage resources located in proximity to the proposed upgraded turbines, road, OHL and substation.

Figure 2.11: Palaeosensitivity Map indicating fossil sensitivity underlying the study area.

All of the heritage resources identified within this property have been mapped. (Figure 2.10).*There are likely more examples of rock art and rock engravings on the Noblesfontein property that have not been located in the assessments completed to date. These kinds of resources, the rock art and rock engravings, are rare and generally have high heritage significance.*

Although it is unclear if Binneman (2011) assessed the area proposed for the new infrastructure, no known heritage resources are located near the proposed development. Furthermore, most of the proposed road is located along an existing road alignment. The proposed new turbines and the remaining section of the road are located on top of a small dolerite koppie. As such, due to the high archaeological significance of the resources known from this farm, there is a possibility that the development of the two new turbines, proposed road and overhead line will negatively impact on significant archaeological heritage in the form of rock art or engravings associated with the dolerite outcrop.

[…] it is recommended that the area proposed for development as part of this amendment application is assessed for significant archaeological heritage such as rock art and rock engravings associated with the dolerite outcrop prior to construction activities. It is further recommended that the attached Palaeontological Chance Finds Procedure be implemented for the duration of construction activities.

The specific area proposed for the new turbines […] is located on a small dolerite koppie with ***zero palaeontological sensitivity*** *and as such, it is* ***unlikely that the proposed development will impact***

***significant palaeontological heritage**. It is important to note that Rossouw (2011) recommends that a palaeontological field assessment be undertaken to mitigate impacts to palaeontological heritage.* (Figure 2.11) [emphasis added]

Please refer to the Heritage Assessment in Appendix D.

It should be noted that the construction of three turbines is already authorised for the Noblesfontein WEF and that the comments raised by the specialist above do not represent any new findings for the site. It is therefore the EAP's opinion that the two upgraded turbines materially represent a decrease in associated impacts above relative to the No-Go Alternative. The requirements above have been accommodated in the EMPR and will be implemented prior to any construction activities taking place.

2.3.6 Noise Findings – Enviro Acoustic Research C/O Morné de Jager

Based on the evidence before the EAP, it is clear that the **appointed specialist has not identified any fatal flaws** with the project proposal, and it is reasonable to suggest that the proposed turbine upgrades and supporting structures are **acceptable and implementable** from a Noise perspective.

2.3.6.1 Specialist Findings

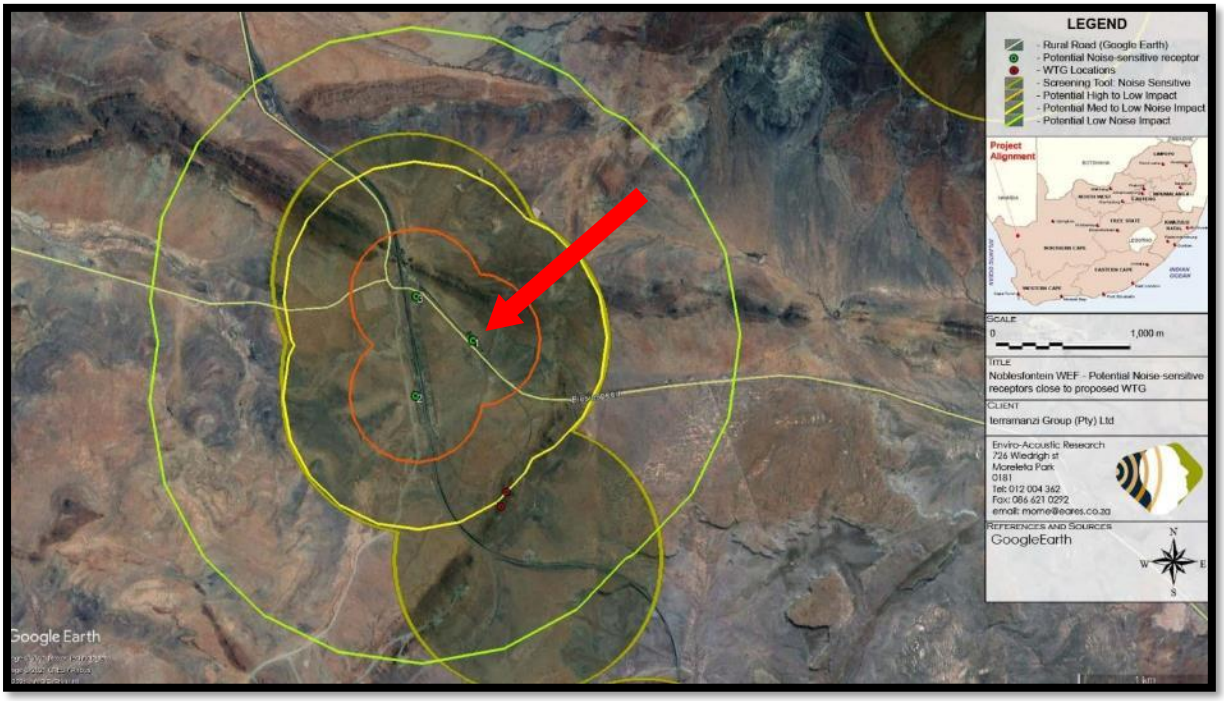


Figure 2.12: This figure shows the Potential Noise Sensitive Areas and identified receptors. Site Sensitivity Verification found that only a single occupied residential dwelling/receptor exists (Red Arrow).

The online screening tool highlighted that the proposed WTGs could be located in an area with a "high noise sensitivity".

Based on the available information, the structures identified as NSDs [Noise Sensitive Developments] *2, 3 and the sub-station area are not used for residential activities. The* [Site Sensitivity] *verification therefore differs from the designation of "very high" sensitivity as defined on the screening tool, and found it to be of a "low" sensitivity.*

Considering section 6.3.3 (j), the proposed WTGs will be developed further than 1,000m from an NSA [Noise Sensitive Area]*, yet closer than 2,000m. The maximum noise level due to the operation of the WTGs were estimated at 37.1 dBA at the closest house use for residential purposes.*

It is therefore the opinion of the author [Specialist] ***that there is no risk from a potential noises impact from the addition of the WTG (and further acoustical investigations would not be required) when considering:***
- The low projected noise levels from the proposed addition of the WTGs; and
- The distance between the proposed WTGs and closest NSA.

No specific mitigation measures regarding noise or additional noise measurements are recommended.
No additional conditions regarding noise are recommended for inclusion in the EMPr.
It is therefore recommended that the addition of the two WTGs at the authorized Noblesfontein WEF project be approved from a noise perspective.

Please refer to the Noise Impact Assessment in Appendix D.

It is the EAP's opinion that as Noblesfontein is an already operating WEF of 41 turbines, the two upgraded turbines will replace three already authorised turbines, and as only one valid noise receptor exists (resident has been consulted and has no objections to the proposed upgrades) that the proposed upgraded turbines do not represent any increased impact relative to the No-Go alternative and there is no evident reason they should not be authorised.

2.3.7 Traffic Findings – Innovative Transport Solutions C/O C. Krogscheepers, P. Arangie & T. Neels

Based on the evidence before the EAP, it is clear that the **appointed specialist has not identified any fatal flaws** with the project proposal, and it is reasonable to suggest that the proposed turbine upgrades and supporting structures are **acceptable and implementable** from a Traffic perspective.

2.3.7.1 Specialist Findings

The current demand on the existing road network in the site vicinity is low and the road network and intersections operate at acceptable levels of service.

During the construction phase there will be an increase in truck traffic along the roads in the site vicinity, compared to the current truck traffic along these roads. However, the expected total traffic volumes along these roads will still be well within the function of the roads and no operational or safety issues are expected.

The operational phase of this project is not expected to generate significant traffic volumes. The typical day-to-day activities will probably only be service vehicles undertaking general maintenance at the site. No additional permanent staff will be required for the two additional wind turbines. Hence the two additional wind turbines will not result in any additional site traffic during the operational phase.

Based on the evaluation as discussed in this report [Traffic Specialist's Report] *the existing road network has sufficient spare capacity to accommodate the proposed two additional wind turbines without any road upgrades required to the existing road infrastructure. It is recommended that the proposed Noblesfontein WEF Basic Assessment be approved from a transport impact perspective.*

It should be noted that the Traffic Specialist's findings find no reason that the two upgraded turbines and supporting infrastructure should not be authorised from a traffic perspective. The Noblesfontein WEF is however already authorised for an additional three wind turbines. It is the EAP's opinion that two upgraded turbines (and supporting infrastructure), which are proposed to replace these three authorised turbines, will therefore have negligible impact relative to the No-Go/Authorised Alternative.

Please refer to the Traffic Specialist's Assessment in Appendix D.

2.3.8 Visual Findings – Environmental Planning and Design C/O Jonathan Marshall

Based on the evidence before the EAP, it is clear that the **appointed specialist has not identified any fatal flaws** with the project proposal, and it is reasonable to suggest that the proposed turbine upgrades and supporting structures are **acceptable and implementable** from a Visual perspective.

2.3.8.1 Specialist Findings

Possible landscape and visual implications include:
a) Due to the larger size of turbines, it is possible that they may be visible over a wider area than the smaller authorised structures;
b) Due to the larger size of turbines, it is possible that they may more obvious than the smaller authorised structures;
c) Due to the larger size of turbines, it is possible that they may affect a greater number of stakeholders with shadow flicker than the smaller authorised structures;

[…] the additional impact associated with the increased height of the two proposed 5.6MW turbines is unlikely to be obvious to the main roads in the area including the N1, N12 and R63.

The review indicates that the proposed change will not significantly increase levels of visual impact compared with those assessed by the Original Visual Impact Assessment (*VIA). [Relative to the No-Go Alternative]. **Therefore, from a visual impact perspective, there is no reason why the proposed amended layout and change to the turbine specification should not be authorised.***

Based on the findings of the report before the EAP, the appointed specialist has not identified any additional fatal flaws with the proposed project, and there will be no significant increase in visual impact resulting from the proposed turbine upgrades and additional supporting infrastructure. It is reasonable to suggest that the project is acceptable from a Visual perspective.

Please refer to the Visual Statement included in Appendix D.

2.4 SUMMARISED IMPACTS ASSOCIATED WITH EACH ALTERNATIVE

This Section summarises the anticipated impacts of each alternative (Preferred Alternative and No-Go alternative) considered, as informed through independent specialist assessment and findings. The detailed comparative impact summary table is described and assessed in Section 12 of this BAR.

2.4.1 POTENTIAL CONSTRUCTION, OPERATIONAL AND DECOMMISSIONING IMPACTS

Construction, Operational, Decommissioning and Cumulative impacts have been assessed by the Professional Team and the EAP and are detailed in Section 10 of this Report.

- Avifaunal Impact 1 – Disturbance
- Avifaunal Impact 2 – Destruction of Habitat (Construction Phase)
- Avifaunal Impact 3 – Disturbance
- Avifaunal Impact 4 – Mortality (Operational Phase)
- Bat Impact 1 - Mortality (Operational Phase)
- Bat Impact 2 - Cumulative Impacts
- Botanical Impact 1 – Loss or fragmentation of indigenous natural vegetation (Construction Phase)
- Botanical Impact 2 – Establishment and spread of declared weeds and alien invader plants (Construction and Operation Phase)
- Noise Impact 1 – Construction Activities (Construction Phase)
- Noise Impact 2 – Operational Noise (Operational Phase)
- Visual Impact 1 – Construction Activities[2]
- Visual Impact 2 – Combined Operational Phase Impacts[3]
- Traffic Impacts – No Specific Impacts Identified
- Heritage Impacts – No Specific Impacts Identified

The Construction/Decommissioning impacts are summarised in the table below for ease of reference:

[2 + 3] Cumulative Overall Findings as inferred from the Specialist Report. The highest impact level (low/medium high) identified by the specialist is used.

Summary table of overall Significance (for each impact identified):

DESCRIPTION OF IMPACT	Overall Significance (With Mitigation)		Effect of proposed upgrades on significance with mitigation relative to No-Go Alternative
	No-Go Alternative	Preferred Alternative	
Construction Phase			
Avifaunal Impact 1 – Disturbance	Low -	Low -	No Change
Avifaunal Impact 1 – Habitat Loss	Low -	Low -	No Change
Botanical Impact 1 – Loss or fragmentation of indigenous natural vegetation	Low -	Low -	No Change
Botanical Impact 2 – Establishment and spread of declared weeds and alien invader plants (Construction and Operation Phase)	Low -	Low -	No Change
Noise Impact 1 - Construction Activities (Construction Phase)	Low -	Low -	No Change
Visual Impact 1 – Construction Activities*	Low -	Low -	No Change
Operational Phase			
Avifaunal Impact 3 – Disturbance	Medium -	Medium -	No Change
Avifaunal Impact 4 – Mortality	Low -	Low -	No Change
Bat Impact 1 – Mortality	Low -	Low -	No Change
Noise Impact 2 - Operational Noise (Operational Phase)	Low -	Low -	No Change
Visual Impact 2 – Combined Operational Phase Impacts*	High -	High -	No Change
Cumulative Impacts			
Bat Impact 2 – Cumulative Impacts	Low -	Low -	No Change

* Cumulative Overall Findings as inferred from the Specialist Report. The highest impact level identified by the specialist is used.

2.5 OVERALL FINDINGS FOR THIS BASIC ASSESSMENT REPORT

Based on the information presented in this Report, as informed by the statutory requirements, independent expert studies, public consultation, commenting authorities and the competent authority, the findings of this Basic Assessment indicate that the Project, in the form of the preferred alternative, (read strictly in conjunction with the mitigation measures stipulated in Section 18.2 of this Basic Assessment Report as well as the attached EMPr, which must form part of the conditions of the EA) will not result in unacceptable negative impacts.

During the project design phase, the Applicant underwent an iterative process, which was informed by environmental considerations and the appointed specialist recommendations and resulted in the Preferred Alternative which was analysed.

The Preferred Alternative for this Project is described as follows:

- From the possible turbine positions, the two turbine positions previously authorised for the Noblesfontein WEF were selected, having already been already assessed as suitable from an impact and wind perspective.
- The shortest possible direct OHPL route, minimising and avoiding all possible sensitivities was selected.
- The additional substation will be placed adjacent to the existing substation and Hutchinson/Biesiespoort-1 132kV OHPL, to minimise impact and required transmission lines.
- It is evident that The Preferred Alternative Layout is the only reasonable and feasible layout alternative, which can be implemented on the site.
- The construction of the Noblesfontein WEF upgrades addresses a national and regional need for the generation of clean, renewable energy and greater access to electricity through the construction of necessary infrastructure. This goal is reflected in national plans and policies as well as regional Spatial Development Frameworks (SDFs), Integrated Development Plans (IDPs) and Development Programmes. The project site already contains an authorised and operational WEF.

The Preferred Alternative is the most feasible and reasonable alternative and has been comparatively assessed against the No-Go alternative in this Report. Please refer to Section 12 for the impact assessment.

The **Preferred Alternative** for the purposes of this Report refers to a Project Alternative that takes into consideration and implements the findings and recommendations of the professional team, which have been noted above in terms of operational, layout and technology alternatives considered to date and which have all been informed through independent expert assessments.

In conclusion and based on:

i. the Specialist Study Findings undertaken by the professional team appointed to this this Project and represented in Section 8 of this BAR;
ii. the assessment undertaken by the EAP in conjunction with the Specialist Findings and represented in Section 8 and 12 of the BAR; and
iii. the motivation of Alternatives in Section 9.

It is reasonable to suggest the overall impact associated with the Noblesfontein WEF upgrades will be mitigated to an acceptable environmental level and **therefore it is reasonable to suggest that there is no reason why the Competent Authority should not authorise the preferred alternative.**

Based on the above, and the findings of this environmental assessment process, there is no reason to suggest that the preferred alternative cannot be authorised by the Competent Authority.

3 GENERAL PROJECT INFORMATION

3.1 APPLICATIONS RELATED TO THIS PROJECT

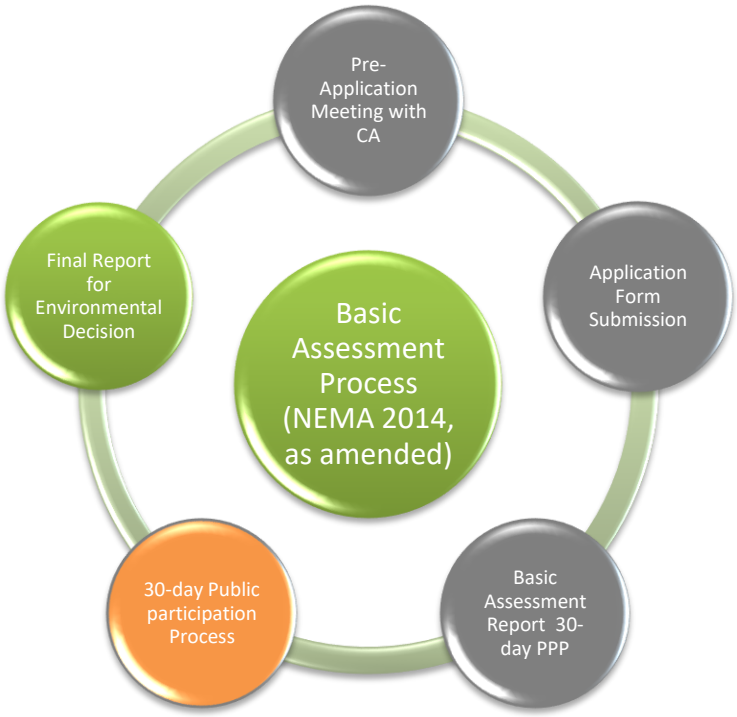
The Environmental Authorisation (EA) issued for Noblesfontein WEF and the subsequent amendments to the EA are presented in Table 1 below.

Table 3.1: Summary of environmental authorisation and amendments for the Noblesfontein WEF.

COMPETENT AUTHORITY REFERENCE NUMBER	DETAILS OF APPLICATION	COMPETENT AUTHORITY
Environmental Authorisation (dated 13/10/2011 with Ref: 12/12/20/1993)	Original application for Environmental Authorisation for the Karoo Renewable Energy Facility.	Department of Environmental Affairs (DEA)
Environmental Authorisation (dated 22/02/2012 with Ref: 12/12/20/1993/1)	Amendment to split Noblesfontein WEF off from the Karoo Renewable Energy Facility, and grant Noblesfontein its own separate EA.	DEA
Basic Assessment Application with ref: 2021-04-0020	Basic assessment for turbine upgrades and additional supporting infrastructure.	DFFE

3.2 OVERVIEW OF THE BASIC ASSESSMENT PROCESS

The **Basic Assessment process** can be broadly broken down into the key phases presented in the image below. The process proposed is in keeping with the requirements stipulated in the NEMA EIA Regulations (2014, as amended) (GN No. R. 326 refers):



The phases highlighted in grey above illustrate phases already completed. The phase highlighted in orange is currently underway and the phases highlighted in green are pending. The application requirements as set out in Notice Nos R. 326, R. 327, R. 325 and R. 324, promulgated in terms of Section 5 of the NEMA and the requirements of the Department of Environmental Affairs (DEA) have been followed in the preparation of this BAR.

The BAR now available for 30-day Public Participation Process (PPP). PPP commenced on **30 June 2011** and will conclude on **29 July 2011**. Once this commenting period has concluded, the Final BAR for decision-making purposes will be submitted to the Competent Authority for a decision.

3.3 CONTENT OF THE BASIC ASSESSMENT REPORT

This document is the BAR for 30-day PPP and contains all information which is necessary for an appropriate understanding of the project, describing all considered alternatives, the scope of the assessment, and the consultation process to be undertaken throughout the BAR Environmental Permitting Process. The summarised content of this BAR, as prescribed by NEMA EIA Regulations (2014, as amended) is presented in Table 3.2 below.

Appendix 1 Regulation 3 of GN No. R. 326 of the NEMA EIA Regulations (2014, as amended) stipulates that a BAR must contain the information that is necessary for the Competent Authority to consider and come to a decision on the application, and must include the following:

Table 3.2: Requirements of the NEMA EIA Regulations (2014, as amended).

Regulation		Scope of Assessment and Content of Basic Assessment Report	Relevant Sections
A1 R3 (a)		**Details of:**	
	(i)	*The EAP who prepared the report; and*	Section 4.2
	(ii)	*The expertise of the EAP, including a curriculum vitae*	Section 4.2
A1 R3 (b)		***The location of the activity, including:***	
	(i)	*The 21 digit Surveyor General code of each cadastral land parcel;*	Section 4.3
	(ii)	*Where available, the physical address and farm name; and*	Section 4.3
	(iii)	*Where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties.*	Section 4.3
A1 R3 (c)		***A plan which locates the proposed activity or activities applied for as well as the associated structures and infrastructure at an appropriate scale, or, if it is-***	
	(i)	*a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken;*	Section 4.3
	(ii)	*on land where the property has not been defined, the coordinates within which the activity is to be undertaken;*	Section 4.3
A1 R3 (d)		***A description of the scope of the proposed activity, including:***	
	(i)	*All listed and specified activities triggered and being applied for; and*	Section 5.3
	(ii)	*A description of the associated structures and infrastructure related to the development*	Section 5.2
A1 R3 (e)		***A description of the policy and legislative context within which the development is proposed including:***	
	(i)	*An identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to this activity and have been considered in the preparation of the report; and*	Section 6
	(ii)	*How the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools frameworks, and instruments*	Section 6
A1 R3 (f)		***A motivation for the need and desirability for the proposed development, including the need and desirability of the activity in the context of the preferred location***	Section 7
A1 R3 (g)		***A motivation for the preferred development footprint within the approved site***	Section 9.2
A1 R3 (h)		***A full description of the process followed to reach the proposed development footprint within the approved site, including:***	
	(i)	*Details of the alternatives considered;*	Section 9.1

	(ii)	*Details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;*	Section 14
	(iii)	*A summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;*	N/A
	(iv)	*The environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;*	Section 8
	(v)	*The impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts-*	Section 12
		(aa) Can be reversed	Section 12
		(bb) May cause irreplaceable loss of resources; and	Section 12
		(cc) Can be avoided, managed or mitigated	Section 12
	(vi)	*The methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks with the alternatives;*	Section 11
	(vii)	*Positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;*	Section 12
	(viii)	*The possible mitigation measures that could be applied and level of residual risk;*	Section 12
	(ix)	*The outcome of the site selection matrix;*	Section 10
	(x)	*if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and*	Section 9
	(xi)	*A concluding statement indicating the preferred alternative development location within the approved site;*	Section 9.2
A1 R3 (i)		***A full description of the process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including-***	
	(i)	*A description of all environmental issues and risks that were identified during the environmental impact assessment process; and*	Section 12
	(ii)	*An assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures;*	Section 12
A1 R3 (j)		***An assessment of each identified potentially significant impact and risk, including-***	
	(i)	*Cumulative impacts;*	Section 12
	(ii)	*The nature, significance and consequences of the impact and risk;*	Section 12
	(iii)	*The extent and duration of the impact and risk;*	Section 12
	(iv)	*The probability of the impact and risk occurring;*	Section 12
	(v)	*The degree to which the impact and risk can be reversed;*	Section 12
	(vi)	*The degree to which the impact and risk may cause irreplaceable loss of resources; and*	Section 12
	(vii)	*The degree to which the impact and risk can be mitigated;*	Section 12
A1 R3 (k)		***Where applicable, a summary of the findings and recommendations of any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final assessment report;***	Section 8
A1 R3 (l)		***An environmental impact statement which contains:***	
	(i)	*A summary of the key findings of the environmental impact assessment:*	Section 2
	(ii)	*Map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers; and*	Section 2
	(iii)	*A summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;*	Section 2

A1 R3 (m)		***Based on the assessment, and where applicable, recommendations from specialist reports, the recording of proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMPr;***	Section 8
A1 R3 (n)		***Any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation***	Not Applicable accommodated in the EMPr
A1 R3 (o)		***A description of any assumptions, uncertainties and gaps in knowledge which relate to the assessment and mitigation measures proposed;***	Section 17
A1 R3 (p)		***A reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation;***	Section 18
A1 R3 (q)		***Where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required and the date on which the activity will be concluded and the post construction monitoring requirements finalised;***	Section 18 – Not Applicable
A1 R3 (r)		***An undertaking under oath or affirmation by the EAP in relation to:***	
	(i)	*The correctness of the information provided in the reports;*	Section 19
	(ii)	*The inclusion of comments and inputs from stakeholders and I&APs;*	Section 19
	(iii)	*The inclusion of inputs and recommendations from the specialist reports where relevant; and*	Section 19
	(iv)	*Any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested or affected parties;*	Section 19
A1 R3 (s)		***Where applicable, details of any financial provisions for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts***	Not Applicable
A1 R3 (t)		***Any specific information that may be required by the Competent Authority***	Section 16
A1 R3 (u)		***Any other matters required in terms of Section 24(4)(a) and (b) of the Act***	This BAR has been written in accordance with Section 24(4) (a) and (b) of the Act.

3.4 OBJECTIVES OF THE BASIC ASSESSMENT PROCESS

In accordance with the **Appendix 1 Regulation 2 of GN No. R. 326 of the NEMA EIA Regulations (2014, as amended)** the objective of the BAR is to, through a consultative process-

(a) determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;

(b) identify the alternatives considered, including the activity, location, and technology alternatives;

(c) describe the need and desirability of the proposed alternatives;

(d) through the undertaking of an impact and risk assessment process inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on these aspects to determine-

i. the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and

ii. the degree to which these impacts-

(aa) can be reversed;

(bb) may cause irreplaceable loss of resources; and

(cc) can be avoided, managed or mitigated; and

(e) through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to-

i. identify and motivate a preferred site, activity and technology alternative;

ii. identify suitable measures to avoid, manage or mitigate identified impacts; and

iii. identify residual risks that need to be managed and monitored

4 PROJECT DETAILS

4.1 ENTITY RESPONSIBLE FOR DEVELOPMENT OF THE PROJECT

Table 4.1: This table depicts the Project Administrative Details

PROJECT ADMINISTRATION DETAILS	
DEVELOPMENT ENTITY	
Applicant Name	CORIA (PKF) Investments 28 (Pty) Ltd*
Responsible Person	Mr Pieter Francois Roux
Address	33 Sillery Avenue, Constantia, 7806
Contact Details	021 795 5242 (T); 076 435 4241 (M)

4.2 EAP DETAILS, EXPERTISE AND INDEPENDENCE

*In accordance with **Appendix 1 Regulation 3(a) of GN No. R.326 of the NEMA EIA Regulations (2014, as amended)**:*

Details of-

i. The EAP that prepared the report, and
ii. The expertise of the EAP, including curriculum vitae

Terramanzi Group (Pty) Ltd ("TMG"), is the consulting firm appointed to undertake this Application for Environmental Authorisation (EA) on behalf of the Applicant.

Monique Sham is the 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 IAIAsa 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 and Environmental Science and Media and 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 who holds a BSc, BSc (Hons) and MSc in Molecular and Cellular Biology, and who is a junior member of the Environmental Services Team at Terramanzi Group (Pty) Ltd.

Monique Sham, on behalf of MG, hereby declares that the EAP and the firm have no conflicts of interest related to the work of this report. Specifically, the EAP and TMG declare 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

* There has recently been a change in company details from CORIA (PKF) Investments 28 (Pty) Ltd to Sarge Development (Pty) Ltd. The identity of the Applicant and the nature/content of the application remain unchanged.

services rendered for this report to the Competent Authority. The EAP and TMG declare that the opinions expressed in this report are independent and a true reflection of the professional expertise exercised.

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

Please refer to Appendix I for the EAP's Curriculum Vitae

4.3 PROJECT LOCATION

*In accordance with **Appendix 1 Regulation 3(b) of GN No. R. 326 of the NEMA EIA Regulations (2017, as amended)**:*

***3(b):** The location of the activity, including:*

i. The 21-digit Surveyor General Code of each cadastral land parcel;
ii. Where available the physical address and farm name; and
iii. Where the required information in terms (i) and (ii) is not available, the coordinates of the boundary of the property or properties.

The proposed upgraded turbines and additional supporting infrastructure will form part of the existing Noblesfontein WEF located south of Victoria West within the Ubuntu Local Municipality and the larger Pixley ka Seme District Municipality. The farms making up the Noblesfontein WEF are given in Table 4.2 below.

Table 4.2: Farms making up and upon which the authorised and operational Noblesfontein WEF is built. The Noblesfontein WEF upgrades are all on the farm portion indicated in bold.

Farm name(s)/ Erf No	Noblesfontein (RE/227) **Noblesfontein (P3/227)** Ezelsfontein (P2/235) Ezelsfontein (P3/235) Ezelsfontein (P4/235) Annex Noblesfontein (RE/234) Annex Noblesfontein (P1/234) Rietkloofplaaten (P1/239)

The two turbines (technical specification upgrades), OHPL, substation and other supporting infrastructure considered in this Basic Assessment are all and wholly located on the Noblesfontein Farm Portion 3 (P3/277), (hereinafter referred to as the "Site"), the details of which are given in Table 4.3 below.

Table 4.3: Details of the land parcel(s) within the Noblesfontein WEF, where the proposed structures and Basic Assessment will be located.

Province	Northern Cape
District Municipality	Pixley ka Seme District Municipality
Local Municipality	Ubuntu local Municipality
Ward Number	3
Farm Name and Number	Noblesfontein P3/227
Portion Number	3
SG Code	C08000000000022700003
GPS Coordinates (Lat. Long.)	31°43'1.38"S 23° 11'34.97"E

All Noblesfontein WEF farm portions, are illustrated in Figure 4.6.

4.4 SITE LOCATION OF THE PROJECT

*In accordance with **Appendix 1 Regulation 3 (c) of GN No. R. 326 of the NEMA EIA Regulations (2014, as amended)**:*

***3(c):** A plan which locates the proposed activity or activities applied for as well as the associated structures and infrastructures at an appropriate scale, or if it is-*

i. A linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken
ii. On land where the property has not been defined, the coordinates within which the activity is to be undertaken

The project is located in the Ubuntu Local Municipality, within the Pixley ka Seme District Municipality of the Northern Cape Province (Refer to Figures 4.1 and 4.2). The Noblesfontein WEF is located due south of Victoria West, and north-west of Beaufort West, with the N12 highway running to the west, and the N1 highway to the South and East (See Figure 4.4). The development spans several farms, as indicated in Section 4.6.

The site is currently zoned for Agriculture and is being used as an existing Wind Farm.

Figure 4.1: This figure depicts the regional location of the Pixley ka Seme District Municipality (red polygon), Northern Cape, South Africa

Figure 4.2: This figure shows the Ubuntu Local Municipality (red polygon) that is situated in the Pixley ka Seme District Municipality.

The GPS co-ordinates of the proposed structures are included in this application are presented in the table below:

Table 4.4: This table details the GPS co-ordinates of the proposed structures.

POINT OF INTEREST	LATITUDE	LONGITUDE
Upgraded Turbine 1	31° 43' 24.37" S	23° 11' 23.45" E
Upgraded Turbine 2	31° 43' 20.81" S	23° 11' 24.95" E
OHPL start	31° 43' 12.48" S	23° 11' 27.80" E
OHPL end	31° 43' 25.62" S	23° 11' 36.76" E
Substation	31° 43 '36.63" S	23° 11' 34.11" E

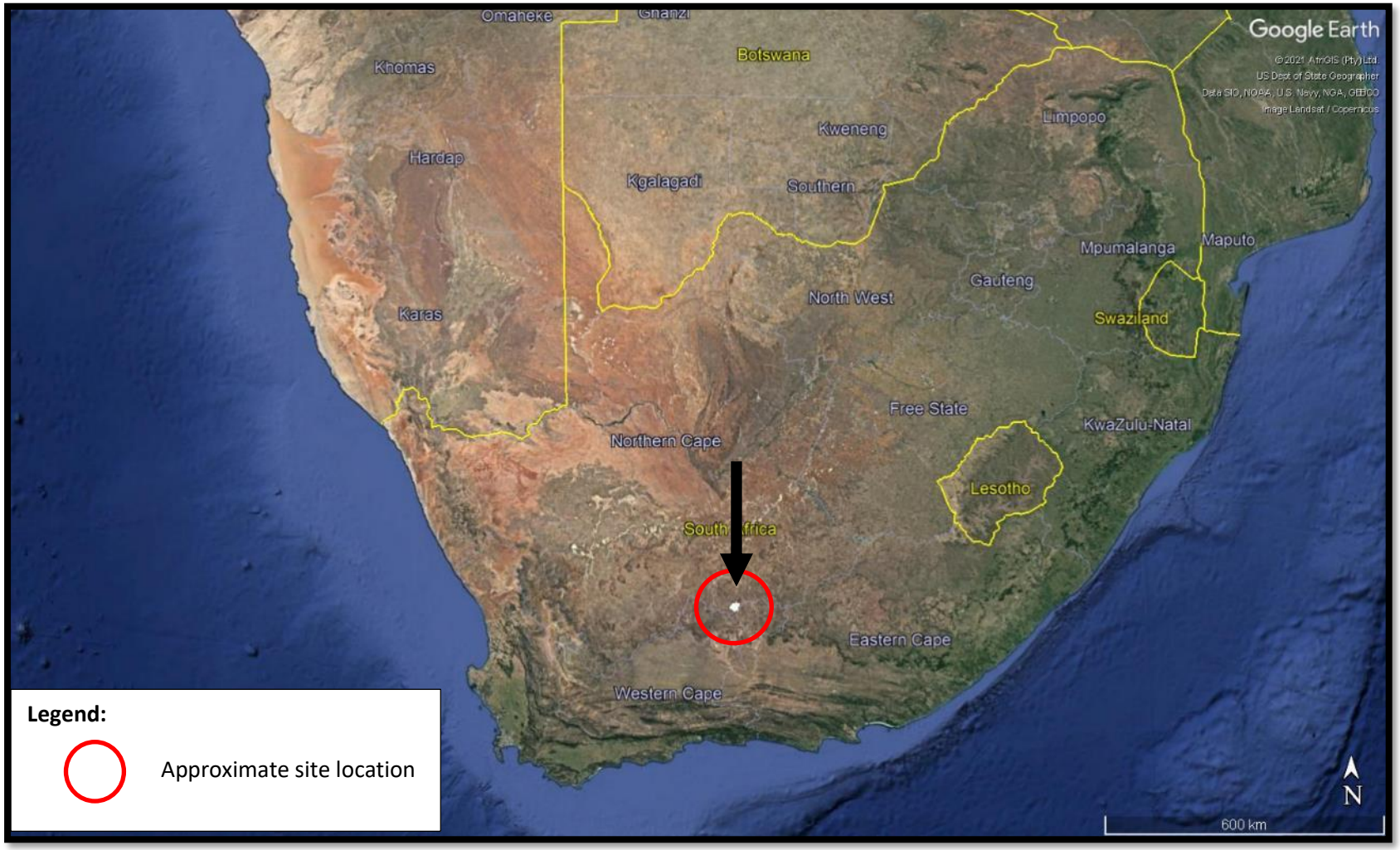


Figure 4.3 Site Locality Map – Broad Geographical Context - Authorised Noblesfontein Wind Energy Facility.

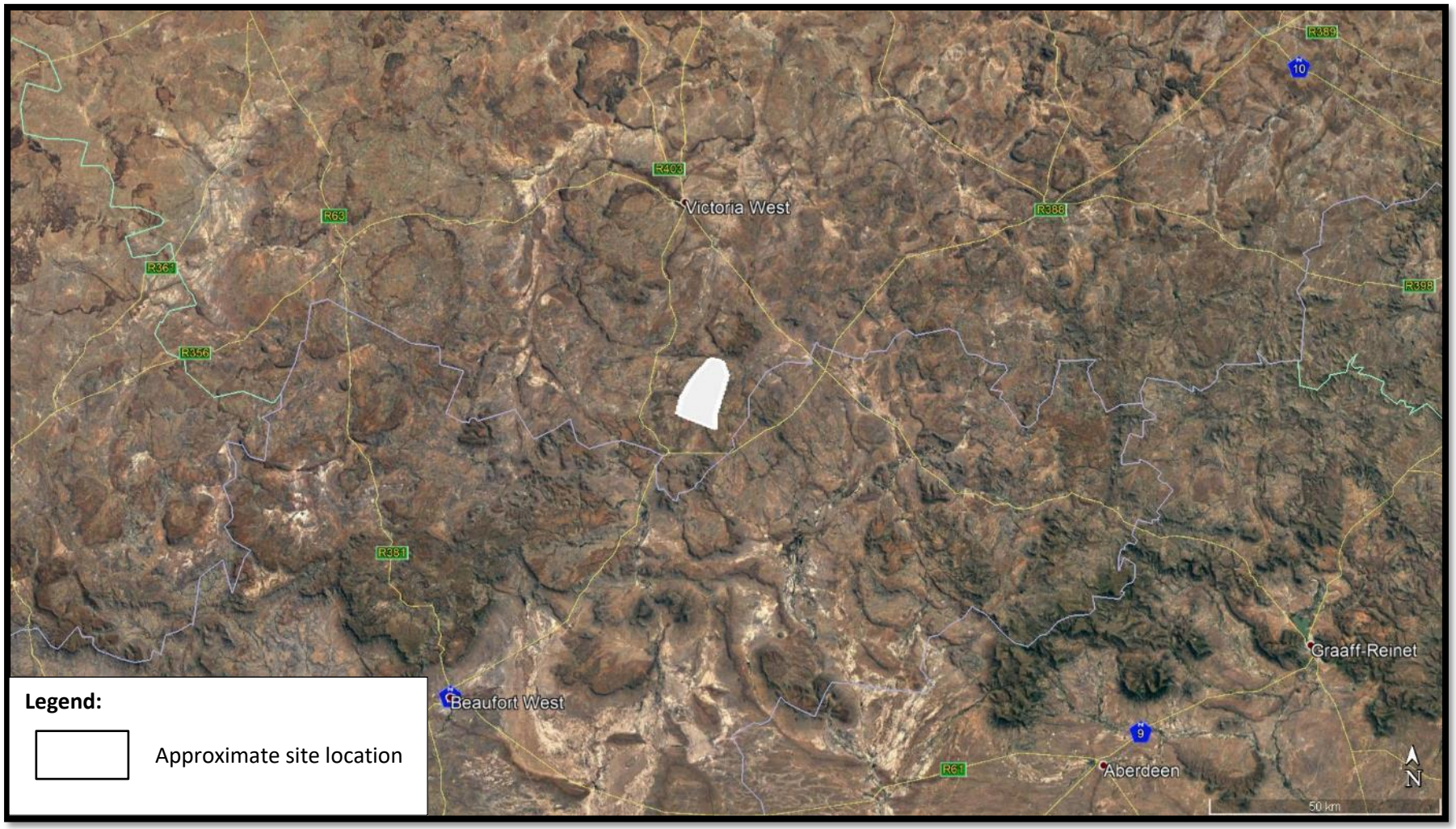


Figure 4.4: Site Locality Map – Local Context - Authorised Noblesfontein Wind Energy Facility.

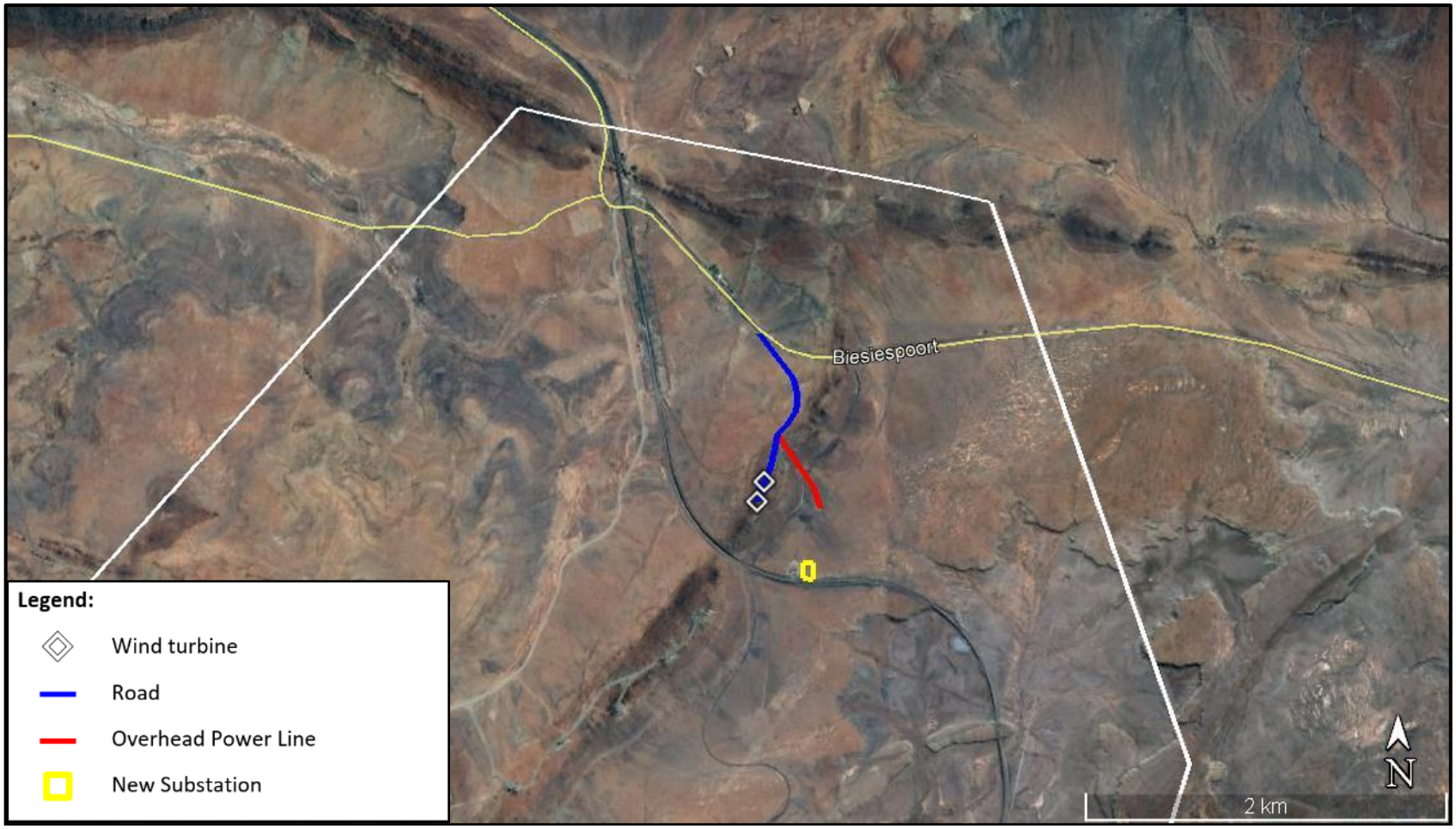


Figure 4.5: Layout for the proposed road, OHPL and two upgraded wind turbines, showing the Noblesfontein Site's Northern boundary, completed turbines to the South West, and the position of the proposed second substation adjacent to the existing substation.

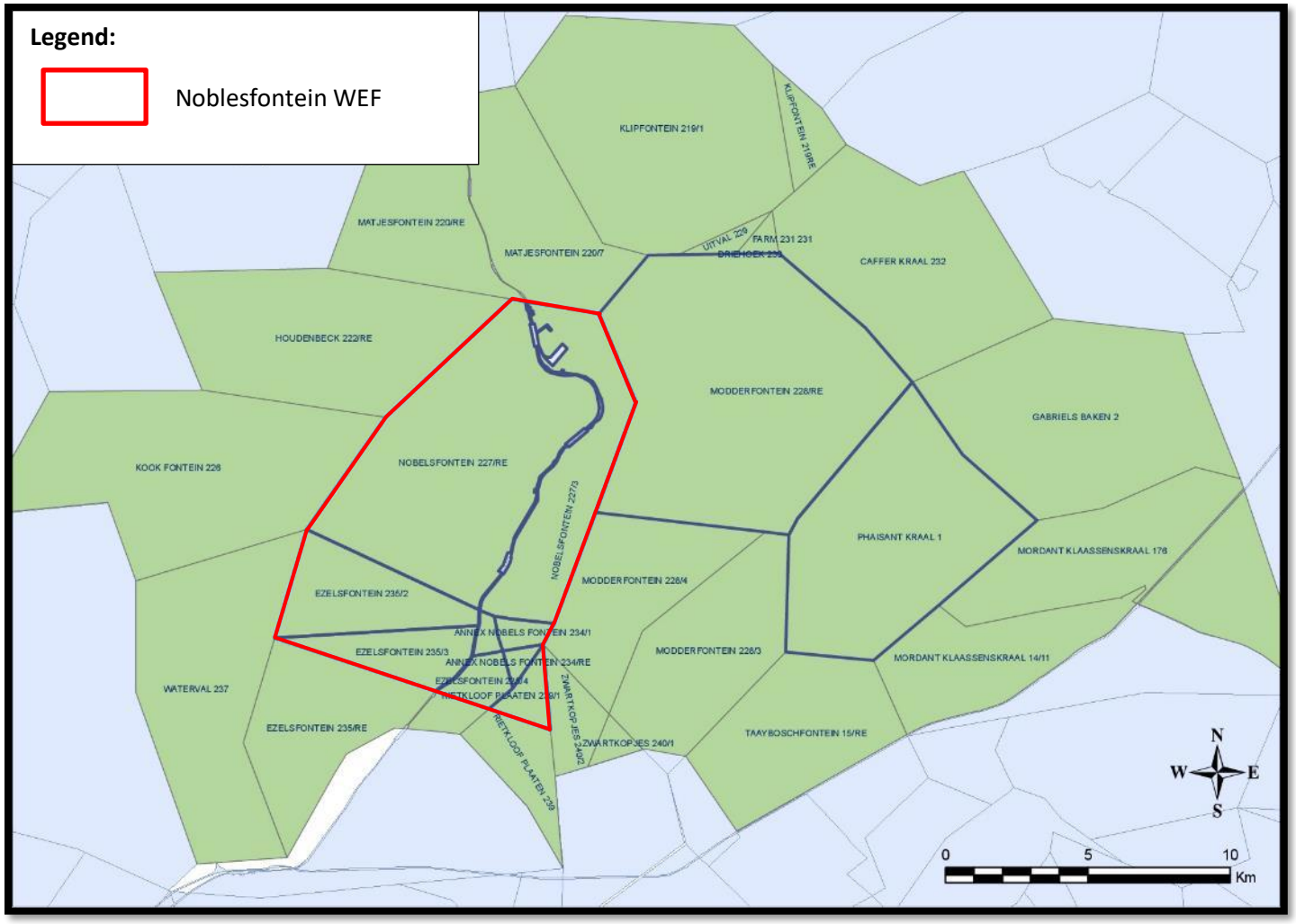


Figure 4.6: Farm Portions and Property Details for the Authorised Noblesfontein Wind Energy Facility, and the Proposed Noblesfonetein WEF Upgrades.

5 SCOPE OF THE PROPOSED ACTIVITY

*In accordance with **Appendix 1 Regulation 2(d) of GN No. R. 326 of the NEMA EIA Regulations (2014, as amended)**:*

i. All listed and specified activities triggered and being applied for;

ii. A description of the activities to be undertaken including associated structures and infrastructures.

5.1 DESCRIPTION OF PROPOSED ACTIVITIES AND DEFINING DEVELOPMENT ALTERNATIVES

5.1.1 Proposed Activities

The Applicant wishes to upgrade the technical specifications of two turbines authorised for the Noblesfontein WEF located within the Ubuntu Local Municipality, Northern Cape Province. The Applicant also wishes to add additional supporting infrastructure, including an OHPL and substation.

The proposed changes are outlined below:

- Upgrading of two authorised wind turbines
  - from 2MW to between 4 and 5.6MW each, for a total of 11.2MW
  - increasing maximum turbine towers height from 125m to 137.5m
  - increasing maximum turbine blade diameter of 110m to 165m
- A 132kV overhead power line (OHPL) of up to 500m
- An additional substation to service the turbines
- Service roads (<1km) and laydown areas for the two turbines (70m x 25m)

5.1.2 Development Alternatives

5.1.2.1 The Authorised/No-Go Alternative

The Noblesfontein WEF is already authorised for 44 turbines of up to 3MW, for a total capacity of 132MW (DEFF 12/12/20/1993/1). Currently only 41 turbines have been installed, each with an output of 2MW. The 'No-Go' alternative would therefore allow for the construction of the remaining 3 wind turbines and supporting infrastructure.

This is the current status quo i.e. it is not the "no development" alternative, but rather the permitted development alternative detailed in the existing EA, should the proposed upgrades and additions not be approved.

<u>The following was authorised in terms of the EA:</u>

- Up to 44 wind turbines with a total generating capacity of 132MW using turbines with a generating capacity of up to 3MW.
- 22.07ha of the proposed site will be permanently transformed for the installation of the turbines and related infrastructure.

- 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).
- 44 temporary turbine laydown areas of 50m x 25m (55 000m^2).
- 44 concrete foundations to support the turbine towers (15m x 15m x 2.5m in depth).
- A temporary laydown area with a footprint of 0.66km^2 (66ha).
- A 132kV substation with high voltage (HV) yard footprint of approximately 100m x 100m (1000m2).
- Underground cabling between project components.
- One new overhead 132kV power line of 1km in length, turning into the existing Hutchinson/Blesiespoort-1 132kV line.
- Internal access roads (5m wide and 40km long) linking the wind turbines and the infrastructure on the site.
- Operations and maintenance building including a storage facility with a footprint of 40m x 20m (800m^2) for maintenance and storage purposes.

The No-Go Alternative relevant to the Basic Assessment is therefore:

- Up to three wind turbines with a generating capacity of up to 3MW each.
- 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).
- Three temporary turbine laydown areas of 50m x 25m (55 000m^2).
- Three concrete foundations to support the turbine towers (15m x 15m x 2.5m in depth).
- Underground cabling between project components.
- Internal access roads (5m wide and approximately 1.5km long) linking the wind turbines and the infrastructure on the site.

5.1.2.2 The Preferred Alternative

The "Preferred" Alternative represents the proposed turbine upgrade and additional supporting infrastructure.

The existing Noblesfontein EA remains valid. A new separate EA will be granted for the two upgraded turbines, and additional supporting infrastructure, including larger laydown areas, the new OHPL and the new 132kV substation.

The Preferred Alternative comprises the following:

- Up to two wind turbines with a total generating capacity of up to 11.2MW using turbines with a generating capacity of between 4MW and 5.6 MW each.
- Each turbine will be a steel tower (with a maximum height of up to 137.5m), nacelle (gear box) and three rotor blades (rotor diameter of 165m, each blade up to 82m in length).
- Two temporary turbine laydown areas of 70m x 25m (55 000m^2).
- Two concrete foundations to support the turbine towers.
- Underground cabling between project components.
- 132kV overhead power line (up to 500m in length), turning into the existing Hutchinson/Blesiespoort-1 132kV line.

- Additional substation with HV yard footprints of approximately 100m x 100m (1000m^2) adjacent to the existing Noblesfontein substation.
- Underground cabling between project components.
- Internal access roads (5m wide and up to, but less than, 1km long) linking the wind turbines and the infrastructure on the site.

Please note that the final footprints of the monopoles and/or lattice structures comprising the proposed overhead powerline will be determined prior to construction phase commencing. Micro-siting of the preferred route will determine optimal sizes and positions of the monopoles and/or lattice structures should an EA be granted.

5.2 DETAILED DESCRIPTION OF THE UPGRADED TURBINES AND ASSOCIATED INFRASTRUCTURE

This Section of the report provides a detailed description of the upgraded turbines, OHPL, additional substation and associated infrastructure.

5.2.1 Upgraded Wind Turbine Specifications

The applicant intends to use the latest **V150-4.2 MW™ IEC IIIB/IEC S model turbines from Vestas,** the industry's highest producing onshore low wind turbine, designed for a broad range of wind and site conditions. The turbines have been selected on account of their reliability, serviceability, and exceptional energy capture (performance), with a maximum output of 4.2MW per turbine, for a combined total generating capacity of 8.4MW. They therefore represent the latest in wind turbine technology and energy capture efficiency.

A summary of the turbine specifications are presented below:

- Each turbine will be a steel tower with a maximum height of up to 137.5m and will include a nacelle (gear box) with three rotor blades.
- Each rotor blade will have a maximum length of up to 82m in length with a total rotor diameter of up to 165m.
- The total swept rotor area is a maximum of 21382.5m^2.
- The total turbine height will be a maximum of up to 220m.
- Maximum sound output will be up to 104.9dB.

The full technical specifications can be viewed at the following **LINK[4].**

Each turbine will have a concrete foundation of approximately 20m x 20m, for a total coverage of 0.04ha.

5.2.2 Description of OHPL

Based on information provided by the Applicant and advised by Eskom, the proposed 132kV line is required to be comprised of monopoles and/or lattice structures, which run the electrical cabling above ground. The monopoles and/or lattice structures are considered desirable in terms of requisite infrastructure, and this is detailed in this section of the report.

The proposed powerline will be up to 500m in length and will be constructed using monopoles and/or lattice structures for both strain lines and angled bends, which will be placed approximately 100m to 300m apart. The maximum height above ground is approximately 30m and the width of the servitude will be 31m.

Between 3 and 5 pylons will be constructed each with a base area of approximately 20m x 20m. A maximum footprint area of 2000m^2 or 0.2 ha.

[4] https://www.vestas.com/en/products/4-mw-platform/v150-4_2_mw

5.2.2.1 Servitude

It is a requirement of Eskom that 132 kV powerlines are located on a servitude of 31 m width. The associated servitude for the overhead powerline will have a width of 31m(15.5m on either side of the centre line of the power line). Access to the overhead powerline will be required during both the construction and operational phases of the project and the servitude will be cleared and maintained for this purpose. Maximum use of any existing servitudes and existing roads shall be made in order to gain access to construction sites and the servitude.

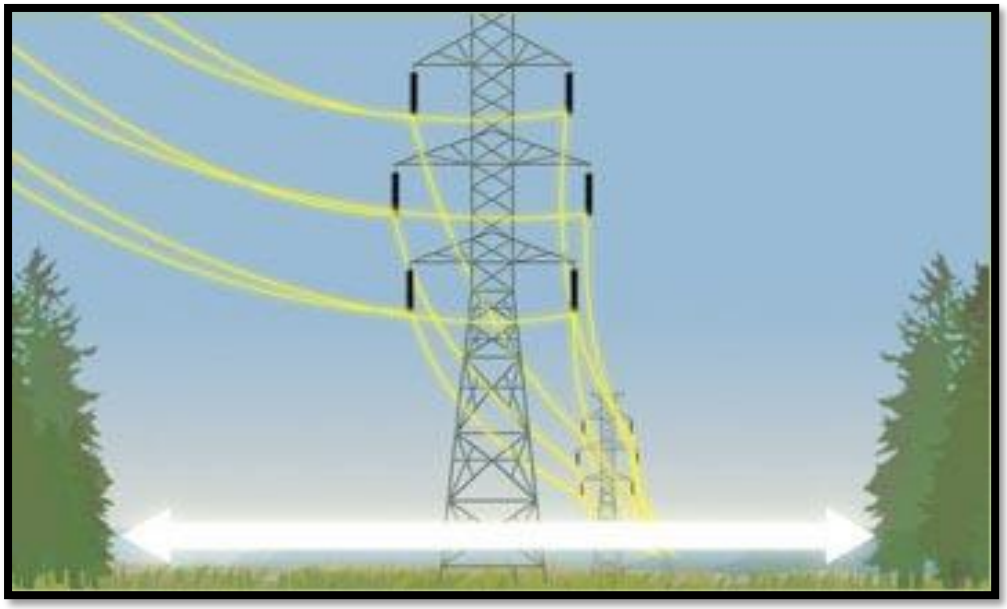


Figure 5.1: This figure shows a typical servitude cleared underneath the powerline route.[5]

5.2.2.2 Lattice OHPL Structure

A typical steel lattice transmission structure requires an average of 14,000kg of steel per structure. Lattice steel towers are typically supported by shallow gravity pad foundations (see Figure 5.3) at a depth of approximately 1 metre. Guyed towers may involve dead man gravity anchors and/or drilled anchors to support the tower (see Photo 5.4 below).

[5] http://www.hydroquebec.com/electricity-and-you/servitudes-and-property-rights/transmission-lines-substations/

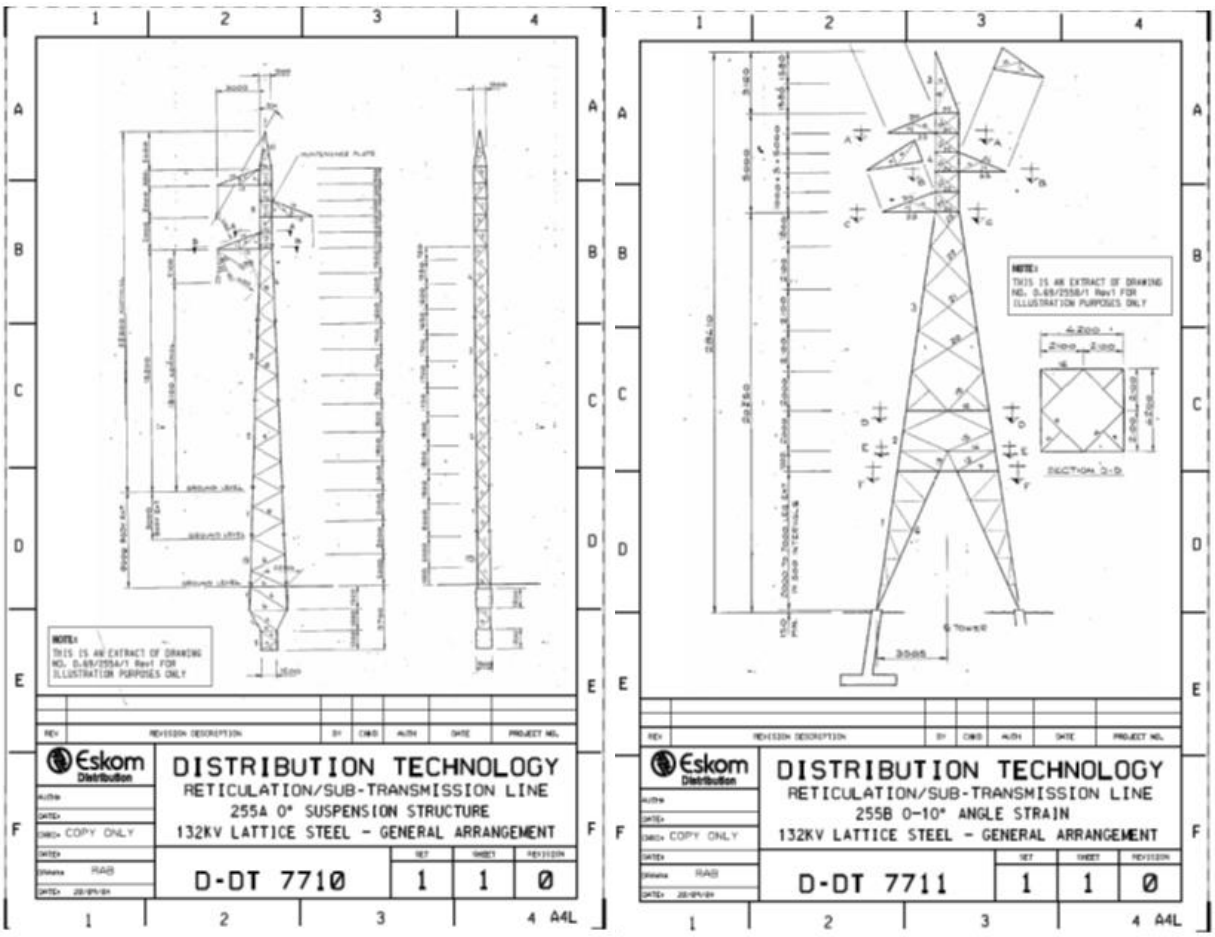


Figure 5.2: This Figure depicts the typical lattice structure considered for the overhead powerline (Photo courtesy of Eskom, 2017).

Photo 5.3: This Figure depicts the typical gravity foundation of lattice steel self-supported transmission towers (Photo courtesy of Outeniqua Geotechnical Services, 2017).

Photo 5.4: Typical dead man anchor foundations for guyed towers (Photo courtesy of Outeniqua Geotechnical Services, 2017).

5.2.2.3 Monopoles

A typical steel monopole transmission structure requires around 18,000kg of steel per structure. Monopoles typically have single pier foundations, which consists of a cylindrical cement column to support the monopole above. Monopoles require a concrete cap at the foot of each steel monopole structure with an approximate diameter of 750mm (see Photo 5.5 below).

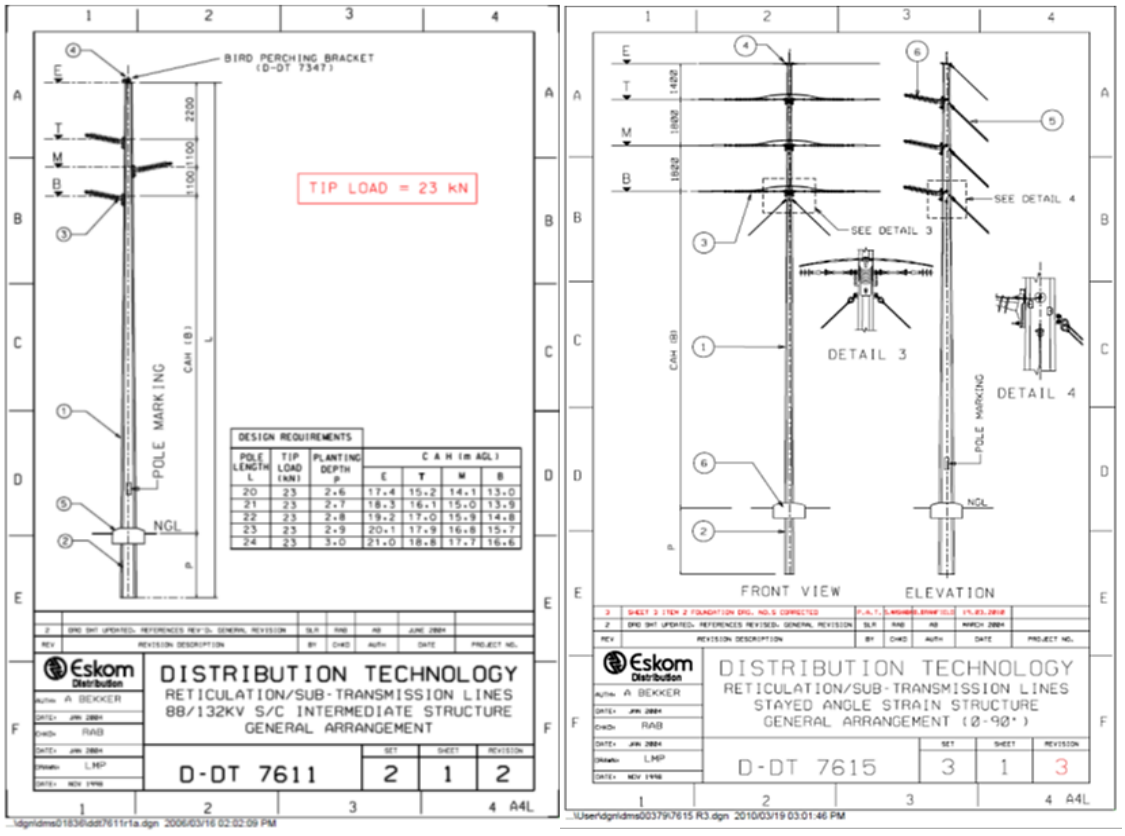


Figure 5.5: This Figure depicts the typical monopoles considered for the overhead powerline (Photo courtesy of Eskom, 2017).

5.2.2.4 Statutory Safety Clearance Requirements

Statutory safety clearances for power lines are stipulated by the Occupational Health and Safety Act (85 of 1993). For 132kV Powerlines, a minimum 1.45msafety clearance is required to be implemented. The minimum vertical clearance to buildings, poles and structures not forming part of the power line must be 3.8m, while the minimum vertical clearance between the conductors and the ground is 6.7m. The minimum distance of a 132kV distribution line running parallel to public roads is 95m from the centreline of the powerline to the centreline of the road servitude. The minimum distance between any part of a tree or shrub and any bare phase conductor of a 132kV distribution line must be 3.8m to allow for the possible lateral movement of this vegetation that could be a potential hazard for distribution lines that are operational and energised.

5.2.3 Substation

The additional substation will be constructed as per the existing substation, and in consultation with Eskom to ensure all current Eskom standards are complied with. The substation facility will be approximately 250m x 250m (or 6.25 ha).

5.2.4 Service Road

A 5m wide service road of just under 1km will be constructed, for a total cleared area of 5000m^2 or 0.5 ha.

5.2.5 Turbine Laydown Areas

Two turbine laydown areas of 75m x 25m will be used during construction of the wind turbines, for a total cleared area of 3750m^2 or 0.375 hectares.

5.2.6 Area taken up by Structural Footprints.

Table 5.1: Summary table of the footprint areas for the proposed Noblesfontein WEF upgraded turbines and additional supporting infrastructure.

Structure	Area covered by structural footprint
Turbine foundations	0.04 ha
OHPL pylons	0.2 ha
Substation	6.25 ha
Service Road	0.5 ha
Turbine Laydown Area	0.375
Total Footprint Area	**7.365 ha**

It should be noted that the Noblesfontein property mostly consists of sand and rocky areas with very sparsely vegetation. This Footprint area therefore exceeds the effective area of cleared vegetation.

5.3 LISTED ACTIVITIES TRIGGERED

The following approach to the Environmental Application and process for the proposed ***Activity*** is based on the provisions stipulated in section 24(5) of NEMA (as amended) and the EIA Regulations (2014, as amended) contained in GNRs. 326, R. 327, R. 325 and R. 324, which dictate that a Basic Assessment Environmental Application process be followed. The reasons for such as well as the listed activities triggered and therefore relevant to this Basic Assessment are presented below.

The full list of Listed Activities considered in this Basic Assessment are therefore given below:

Table 5.2: Summary table of the listed activities proposed for the Noblesfontein WEF upgrades.

GNR (LN)	GNR Date	Activity	Theme
GNR 327 (LN1)	2017	Activity 1.	Renewable electricity generation.
		Activity 11.	Electricity transmission <275kV.
		Activity 14.	Storage of dangerous goods.
		Activity 27.	Clearance of vegetation.

The service road will not trigger any listed activities as it partially falls over existing service road, with the new road development being 1km or shorter.

EIA Regulations – Listed Activities (as discussed and agreed with the Competent Authority)

Based on the information currently available on the proposed Project, it is anticipated that the following Listed Activities contained in **Listing Notice 1** would require a Basic Assessment process in terms of the NEMA:

GNR 327 - Listing Notice 1: Activity 1
The development of facilities or infrastructure for the generation of electricity from a renewable resource where— ***(i) the electricity output is more than 10 megawatts but less than 20 megawatts; or*** ***(ii) the output is 10 megawatts or less but the total extent of the facility covers an area in excess of 1 hectare;*** ***Excluding where such development of facilities or infrastructure is for photovoltaic installations and occurs—*** ***(a) within an urban area; or*** **(b)** ***on existing infrastructure.***
The proposed Noblesfontein turbine upgrades will be built outside of an urban area and have a combined output of up to 11.6MW.

GNR 327 - Listing Notice 1: Activity 11
The development of facilities or infrastructure for the transmission and distribution of Electricity - ***(i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts; or*** ***(ii) inside urban areas or industrial complexes with a capacity of 275 kilovolts or more.*** ***Excluding where development of bypass infrastructure for the transmission and distribution of electricity where such bypass infrastructure is –*** ***(a) temporarily required to allow for maintenance of existing infrastructure;*** ***(b) 2 kilometres or shorter in length;***

(c) Within an existing transmission line servitude; and **(d)** *Will be removed within 18 months of the commencement of development.*
The proposed Noblesfontein WEF upgrades Overhead Powerline will be built outside of an urban area and has a capacity of 132 kV.

GNR 327 - Listing Notice 1: Activity 14
The development and related operation of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic meters or more but not exceeding 500 cubic meters.
The Noblesfontein WEF upgrades will require the on-site storage of fuel during construction phase activities

GNR 327 - Listing Notice 1: Activity 27
The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for - ***(i) the undertaking of a linear activity; or*** ***(ii) maintenance purposes undertaken in accordance with a maintenance management plan.***
The construction of the Noblesfontein WEF upgrades will likely involve the clearance of an area of more than 1, but less than 20 hectares of indigenous vegetation.

This application for EA will be submitted to and considered by the DFFE as the appropriate Competent Authority for the Application.

Based on the above and in terms of GN No. R. 326 of the NEMA EIA Regulations (2014, as amended), a **BASIC ASSESSMENT PROCESS must be followed**.

6 LEGISLATIVE CONTEXT

*In accordance with **Appendix 1 Regulation 3(e) of GN No. R. 326 of the NEMA EIA Regulations (2014, as amended)**, the following information is presented in Section 5:*

i. An identification of all legislation, policies, plans and guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and have been considered in the preparation of the report

ii. How the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools frameworks and instruments

6.1 SOUTH AFRICAN LEGISLATION (NATIONAL)

The information below has been extracted from the Socio-Economic Scoping Report (dated September 2017 and attached in Appendix D), which forms part of the professional team inputs for the Project.

The national policy environment, clearly outlines the need, desire and intention to increase the reliance on renewable energy as a key source of power. These commitments are outlined in various Acts, White Papers, development plans and framework, specifically including:

- *National Energy Act (2008).*
- *White Paper on Energy Policy of the Republic of South Africa (December 1998).*
- *White Paper on Renewable Energy (November 2003).*
- *National Development Plan.*
- *National Integrated Resource Plan for Electricity (2010-2030).*
- *National Infrastructure Plan, 2010.*
- *Integrated Development Plans.*
- *Spatial Development Frameworks.*

The policy and planning frameworks regarding energy are all underpinned by the need for the delivery of electricity to all South Africans to support social and economic health and ongoing development. The construction and operation of the proposed Noblesfontein WEF upgrades will enable the generation of an additional 11.6MW of power, which will be fed into the national grid and distributed throughout the country.[6] The OHPL and additional substation are essential for and therefore necessitated by the operation of the two upgraded turbines. Therefore, the policies that support renewable power generation also support the need for the turbine upgrades and supporting infrastructure.

Powerlines are subject to specified building line restrictions, servitude widths, line separations and clearances from other powerlines. The building restriction on either side of a 132kV powerline (measured from the centre line is required to be ~18m (15.5-20m) and the distance between two parallel powerlines should be ~15m (21-24m)[7].

[6] Distribution will be limited by the Eskom distribution infrastructure.
[7] Eskom Distribution, March 2011 (reviewed March 2016), building line restrictions, servitude widths, line separations and clearances from other powerlines: Distribution Guide – Part 19.

6.1.1 National Environmental Management Act (Act No. 107 of 1998)

In terms of NEMA, as amended and the NEMA EIA Regulations, 2014 as amended, an application for EA for certain listed activities is required to be submitted to either the Provincial Environmental Competent Authority, or the National Competent Authority (DEA):

- The current NEMA EIA regulations, GN R.326, GN R.327, GN R.325 and GN R.324, promulgated in terms of Sections 24(5), 24M and 44 of the NEMA and subsequent amendments, commenced on 08 December 2014 (and amended in April 2017).
- GN R.326 lists those activities for which a Basic Assessment is required.
- GN R.327 lists the activities requiring a full EIA (Scoping and Impact Assessment phases).
- GN R.325 lists certain activities and competent authorities in specific identified geographical areas.
- GN R.324 defines the EIA processes that must be undertaken to apply for EA.

6.1.2 National Water Act (Act No. 36 of 1998)

The National Water Act, 1998 (Act No. 36 of 1998) (NWA) is the primary legislation regulating both the use of water and the pollution of water resources. It is applied and enforced by the Department of Water Affairs (DWA). Section 19 of NWA regulates pollution, which is defined as "the direct or indirect alteration of the physical, chemical or biological properties of a water resource so as to make it:

- less fit for any beneficial purpose for which it may reasonably be expected to be used; or
- harmful or potentially harmful to -
- the welfare, health or safety of human beings;
- any aquatic or non-aquatic organisms;
- the resource quality; or
- Property.

The persons held responsible for taking measures to prevent pollution from occurring, recurring or continuing include persons who own, control, occupy or use the land. This obligation or duty of care is initiated where there is any activity or process performed on the land (either presently or in the past) or any other situation which could lead or has led to the pollution of water.

The following measures are prescribed in the section 19(2) of the NWA to prevent pollution:

- cease, modify or control any act or process causing the pollution;
- comply with any prescribed standard or management practice;
- contain or prevent the movement of pollutants;
- eliminate any source of the pollution;
- remedy the effects of pollution; and
- remedy the effects of any disturbance to the bed or banks of a watercourse.

Section 21 of the NWA lists the water uses for which a water use licence (WUL) is required. In terms of the NWA, water uses include the following activities:

a) Taking water from a water resource;

b) Storing water;

c) Impeding or diverting the flow of water in a watercourse;
d) Engaging in a stream flow reduction activity contemplated in section 36;
e) Engaging in a controlled activity identified as such in section 37(1) or declared under section 38(1);
f) Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea
g) outfall or other conduit;
h) Disposing of waste in a manner which may detrimentally impact on a water resource;
i) Disposing in any manner of water which contains waste from or which has been heated in, any industrial or power generation process;
j) Altering the bed, banks, course or characteristics of a watercourse:
k) Removing, discharging or disposing of water found underground if it is necessary for the efficient
l) continuation of an activity or for the safety of people; and
m) Using water for recreational purposes.

6.1.3 National Heritage Resource Act (Act No. 25 of 1999)

The National Heritage Resources Act (NHRA) governs the management of heritage resources which are of cultural significance. The South African Heritage Resources Agency (SAHRA) is the national body responsible for the protection of South Africa's cultural heritage resources.

Section 38(3) of the NHRA requires that all heritage resources are identified and assessed and that any comments and recommendations of the relevant heritage resources authority with regard to the proposed development have been taken into account prior to the granting of the consent.

The NHRA provides protection for the following categories of heritage resources:

- Landscapes, cultural or natural (Section 3 (3))
- Buildings or structures older than 60 years (Section 34);
- Archaeological Sites, palaeontological material and meteorites (Section 35);
- Burial grounds and graves (Section 36);
- Public monuments and memorials (Section 37);
- Living heritage (Section 2 (d) (xxi)).

6.1.4 Civil Aviation Act (Act No. 13 Of 2009)

The purpose of this act is to repeal, consolidate and amend the aviation laws giving effect to certain International Aviation Conventions; to provide for the control and regulation of aviation within the Republic; to provide for the establishment of a South African Civil Aviation Authority with safety and security oversight functions; to provide for the establishment of an independent Aviation Safety Investigation Board in compliance with Annexure 13 of the Chicago Convention; to give effect to certain provisions of the Convention on Offences and Certain other Acts Committed on Board Aircraft; to give effect to the Convention for the Suppression of Unlawful Seizure of Aircraft and the Convention for the Suppression of Unlawful Acts against the Safety of Civil Aviation; to provide for the National

Aviation Security Program; to provide for additional measures directed at more effective control of the safety and security of aircraft, airports and the like; and to provide for matters connected thereto.

6.1.5 National Energy Act (Act No 34 of 2008)

The National Energy Act was promulgated in 2008 (Act No 34 of 2008). One of the objectives of the Act was to promote diversity of supply of energy and its sources. In this regard, the preamble makes direct reference to renewable resources, including wind:

"To ensure that diverse energy resources are available, in sustainable quantities, and at affordable prices, to the South African economy, in support of economic growth and poverty alleviation, taking into account environmental management requirements (…); to provide for (…) increased generation and consumption of renewable energies…" (Preamble).

6.1.6 White Paper on the Energy Policy of the Republic of South Africa

The White Paper on Energy Policy of the Republic of South Africa (December 1998) states that "Government policy is based on an understanding that renewables are energy sources in their own right, are not limited to small-scale and remote applications, and have significant medium and long-term commercial potential". Furthermore, it recognizes that "Renewable resources generally operate from an unlimited resource base and, as such, can increasingly contribute towards a long-term sustainable energy future".

The support for renewable energy policy is guided by a rationale that South Africa has a very attractive range of renewable resources, particularly solar and wind and that renewable applications are in fact the least cost energy service in many cases; more so when social and environmental costs are taken into account.

Government policy on renewable energy is thus concerned with meeting the following challenges:

- *Ensuring that economically feasible technologies and applications are implemented;*
- *Ensuring that an equitable level of national resources is invested in renewable technologies, given their potential and compared to investments in other energy supply options; and,*
- *Addressing constraints on the development of the renewable industry.*

The White Paper also acknowledges that South Africa has neglected the development and implementation of renewable energy applications, despite the fact that the country's renewable energy resource base is extensive and many appropriate applications exist.

6.1.7 White Paper on Renewable Energy

This White Paper on Renewable Energy (November, 2003) (further referred to as the White Paper) supplements the White Paper on Energy Policy, which recognizes that the medium and long-term potential of renewable energy is significant. This Paper sets out Government's vision, policy principles, strategic goals and objectives for promoting and implementing renewable energy in South Africa.

The White Paper notes that while South Africa is well-endowed with renewable energy resources that have the potential to become sustainable alternatives to fossil fuels, these have thus far remained largely untapped. As signatory to the Kyoto Protocol[8], Government is determined to make good the country's commitment to reducing greenhouse gas emissions. To this purpose, Government has committed itself to the development of a framework in which a national renewable energy framework can be established and operate.

South Africa is also a signatory of the Copenhagen Accord, a document that delegates at the 15th session of the Conference of Parties (COP 15) to the United Nations Framework Convention on Climate Change agreed to "take note of" at the final plenary on 18 December 2009. The accord endorses the continuation of the Kyoto Protocol and confirms that climate change is one of the greatest challenges facing the world. In terms of the accord South Africa committed itself to a reduction target of 34% compared to business as usual.

Apart from the reduction of greenhouse gas emissions, the promotion of renewable energy sources is aimed at ensuring energy security through the diversification of supply (in this regard, also refer to the objectives of the National Energy Act).

Government's long-term goal is the establishment of a renewable energy industry producing modern energy carriers that will offer in future years a sustainable, fully non-subsidized alternative to fossil fuels. The medium-term (10-year) target set in the White Paper is:

10 000GWh renewable energy contribution to final energy consumption by 2013, to be produced mainly from biomass, wind, solar and small-scale hydro. The renewable energy is to be utilised for power generation and non-electric technologies such as solar water heating and bio-fuels. This is approximately 4% (1667MW) of the projected electricity demand for 2013 (41539MW) (Executive Summary, ix).

6.1.8 National Integrated Resource Plan for Electricity (2010-2030)

The Integrated Resource Plan (IRP) outlined the preferred energy mix to meet electricity needs over a 20-year planning horizon from 2010 to 2030. In line with the national commitment to transition to a low carbon economy, 17,800MW of the 2030 target are expected to be from renewable energy sources, with 5,000 MW to be operational by 2019 and a further 2,000MW (i.e. combined 7,000MW) operational by 2020. The majority of the anticipated renewable energy is proposed to come from onshore wind and solar projects. In addition, through power generation, there are requirements to contribute towards socio-economic and environmentally sustainable growth. Social and local economic benefits are created via job creation and training programmes, community ownership schemes, improved quality of life and levels of sustainability.

[8] The Kyoto Protocol is a protocol to the United Nations Framework Convention on Climate Change (UNFCCC), aimed at fighting global warming. The UNFCCC is an international environmental treaty with the goal of achieving "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system."[The Protocol was initially adopted on 11 December 1997 in Kyoto, Japan and entered into force on 16 February 2005. As of November 2009, 187 states have signed and ratified the protocol (Wikipedia)

6.1.9 National Development Plan

Key priority areas, with applicable targets and actions were identified by the planning commission in the National Development Plan's (NDP) vision for 2030. Of relevance, the plan prioritises 'improvements to infrastructure' to ensure increased access to electricity and a 'transition to a low-carbon economy'. The NDP identifies the need for South Africa to invest in a strong network of economic infrastructure designed to support the country's medium- and long-term economic and social objectives. A critical component is energy infrastructure, which underpins all economic activity and facilitates growth. The NDP requires the development of 10,000MWs of additional electricity capacity by 2025 (44,000MWs was being generated in 2013).

6.1.10 National Infrastructure Plan

The South African Government adopted a National Infrastructure Plan in 2012. The aim of the plan is to transform the economic landscape while simultaneously creating significant numbers of new jobs, and strengthen the delivery of basic services. The plan also supports the integration of African economies. The Minister of Finance, Mr Pravin Gordhan, announced in his 2013 Budget Speech that, in terms of the plan, Government will invest R827 billion over the next three years to build new and upgrade existing infrastructure.

These investments will improve access by South Africans to healthcare facilities, schools, water, sanitation, housing and electrification. On the other hand, investment in the construction of ports, roads, railway systems, ***electricity plants****, hospitals, schools and dams will contribute to faster economic growth.*

As part of the National Infrastructure Plan, Cabinet established the Presidential Infrastructure Coordinating Committee . The Committee has identified and developed 18 strategic integrated projects (SIPS). The SIPs cover social and economic infrastructure across all nine provinces (with an emphasis on lagging regions) and comprise:

- *Five geographically-focused SIPs*
- *Three spatial SIPs*
- *Three energy SIPs*
- *Three social infrastructure SIPs*
- *Two knowledge SIPs*
- *One regional integration SIP*
- *One water and sanitation SIP*

The Three Energy SIPS are SIP 8, 9 and 10.

SIP 8: Green energy in support of the South African economy

- *Support sustainable green energy initiatives on a national scale through a diverse range of clean energy options as envisaged in the Integrated Resource Plan (IRP2010).*
- *Support bio-fuel production facilities.*

SIP 9: Electricity generation to support socio-economic development

- *Accelerate the construction of new electricity generation capacity in accordance with the IRP2010 to meet the needs of the economy and address historical imbalances.*
- *Monitor implementation of major projects such as new power stations: Medupi, Kusile and Ingula.*

SIP 10: Electricity transmission and distribution for all

- *Expand the transmission and distribution network to address historical imbalances, provide access to electricity for all and support economic development.*
- *Align the 10-year transmission plan, the services backlog, the national broadband roll-out and the freight rail line development to leverage off regulatory approvals, supply chain and project development capacity.*

6.1.11 Spatial Planning and Land Use Management Act

In 2013, land use planning was influenced by the promulgations of the Spatial Planning and Land Use Management Act (2013) (SPLUMA) which outlines a set of principles to influence spatial planning, land use management and land development. The general principles of SPLUMA are that spatial planning, land use management and land development must promote and enhance spatial justice, spatial sustainability; efficiency; spatial resilience, and good administration. (IDP) and SDF are the key planning instruments used by municipalities for new developments (whether residential or commercial). Across the country all municipal operations are governed by the Municipal Systems Act (Act No. 32 of 2000). This Act stipulates that all municipalities must prepare and implement an IDP for their area of jurisdiction, which should include an SDF. The IDP and SDF are reviewed annually to accommodate new priorities or to maintain existing ones.

The IDP is a tool for municipal planning and budgeting to enable them to deliberate on developmental issues identified by communities. Each IDP should have a five-year lifespan that is linked directly to the term of office for local councillors.

The purpose of the SDF as a land-use management tool is to plan, direct and control development but it does not provide land use rights. It provides the necessary guidance for land uses at local level in order to ensure the application of the development principles of sustainability, integration, equality, efficiency and fair and good governance in order to create quality of living, investor confidence and security of tenure.

6.1.12 Renewable Energy Development Zones and Power Corridors

The site is **not** located within one of the gazetted Renewable Energy Development Zones (REDZ). The REDZ are zones that have been identified by the DEA in consultation with an independent professional team, which comprised of Visual, Bird, Bat, Biodiversity, Socio-Economic, Archaeological, Palaeontological and Freshwater Consultants and whom provided inputs to identify these REDZs. Please refer to the Figures 6.1 and 6.2 below, which shows the eight Phase 1 and three Phase 2 REDZs respectfully.

The following information has been extracted from the DEA website, which depicts the actual statement which was issued to the Public on 17 February 2016.

Cabinet on Wednesday, 17 February 2016, approved the gazetting of 8 Renewable Energy Development Zones (REDZ) and 5 Power Corridors. (Note that an additional REDZ were gazetted on 26 February 2021)

These Renewable Energy Development Zones and Power Corridors are geographical areas where wind and solar Photovoltaic technologies can be incentivized and where 'deep' grid expansion can be directed and where regulatory processes will be streamlined.

The REDZs act as energy generation hubs and provide anchor points for grid expansion thereby allowing for strategic and proactive expansion of grid into these areas. This will ensure that the grid expansion does not hamper the progress of the renewable energy power purchase agreement process.

The REDZs and Power Corridors support 2 of the 18 SIPs which were identified in the Infrastructure Development Plan which is aimed at promoting catalytic infrastructure development to stimulate economic growth and job creation.

To ensure that when required, environmental authorisations are not a cause for delay, the DEA embarked on a program of Strategic Environmental Assessments (SEAs) for large-scale developments to support the SIPs. The intention of undertaking SEAs is to pre-assess environmental sensitivities within the proposed development areas at a regional scale to simplify the site-specific EIA when they are undertaken, and to focus the assessment requirements to addressing the specific sensitivity of the site.
The REDZs and Power Corridors were identified through the development of three SEAs as part of the Departments Strategic Environmental Assessment programme. The outputs of these three SEAs must now be gazetted to allow them to be implemented.

The outputs of the SEAs directly relate to several government priorities including:

- *Contributing to reducing present current energy constraints by facilitating renewable energy development in strategic areas in South Africa;*
- *Addressing the major objectives of the National Development Plan, namely transitioning to a low carbon economy, developing infrastructure to create jobs and reducing the regulatory burden and the cost of doing business;*
- *Contributing to achieving the renewable energy target identified in the Integrated Resource Plan and implementing the renewable energy independent power producers program (REI4P) implemented by the Department of Energy and National Treasury;*
- *Promoting the green economy and sustainable development; and*
- *Promoting intergovernmental coordination and integrated authorisations.*

The outcome of the gazetting process means that wind and solar PV activities within the eight [now eleven] *Renewable Development Zones and electricity grid expansion within the five Power Corridors will be subjected to a Basic Assessment and not a full EIA process.*

This reduces the review and decision-making time and the level of assessment required for each project based on the fact that scoping level pre-assessment was already undertaken in those areas. From an application for EA taking 300 days it will now be completed in 147 days.

REDZs[9] refer to geographical areas where wind and solar PV development can occur in concentrated zones, which will lead to:

- *a reduction of negative environmental consequences;*
- *alignment of authorisation and approval processes;*
- *attractive incentives; and*
- *focused expansion of the South African electricity grid.*

Cabinet further stated that the REDZs will, among others, accelerate infrastructure development and contribute in creating a "predictable regulatory framework that reduces bureaucracy related to the cost of compliance".

The DEA media statement issued in respect of the approved gazetting of the REDZs provided that eight REDZs and five Power Corridors have been identified. The gazetting of these areas means that projects within these areas will now only be subject to a Basic Assessment and not a full EIA process. This change will accelerate the assessment process, as scoping level pre-assessments would have been undertaken. As such an application for an EA should be completed in 147 days, instead of 300 days.

Currently one of the greatest challenges of South African renewable energy development is constraints on grid infrastructure, and the resulting timelines for and costs of grid expansion. The REDZs are anticipated to aid the future bidding rounds of the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) by allowing for focused grid development and an alignment of

[9] *Information sourced from: https://www.cliffedekkerhofmeyr.com/en/news/publications/2016/projects/projects-and-infrastructure-alert-25-february-renewable-energy-development-zones.html*

approval processes in the REDZs. To date the REIPPPP has led to the procurement of 7000MW of renewable capacity across 92 projects.

The eight Phase 1 REDZs were gazetted on 16 February 2018 (No. 41445, Notice 114, page 92-96) stating the following:

1. *The SEA for Wind and Solar Photovoltaic Energy in South Africa, 2015 has identified eight REDZs that are of strategic importance for large scale wind and solar photovoltaic energy development, including the rollout of its supporting transmission and distribution infrastructure, in terms of Strategic Integrated Project 8: Green Enemy in Support of the South African Economy.*
2. *On 17 February 2016, Cabinet approved, amongst others, the REDZs contained in this Notice, which are of strategic importance for large scale wind and/or solar photovoltaic energy development and an integrated decision-making process for applications for environmental authorisation in terms of NEMA.*
3. *Applications for EA for large scale wind or solar photovoltaic energy facilities, such facilities trigger activity I of EIA Regulations Listing Notice 2 of 2014 (as amended) and any other fisted and specified activities necessary for the realisation of such facilities, and where the entire proposed facility is to occur in such REDZs, must follow the basic assessment procedure contemplated in Regulation 19 and 20 of the Impact Assessment Regulations, 2014, in order to obtain EA as required in terms of the Act.*
4. *The timeframe for decision-making as contained in the EIA Regulations, 2014 (as amended) for purposes of the applications for environmental authorisation contemplated in this Notice is 57 days.*
5. *Applications for EA large scale wind or solar photovoltaic energy facilities, if being applied for outside of any REDZ, will be considered in line with the requirements as prescribed in terms of the EIA Regulations, 2014 (as amended).*
6. *If any part of the facilities contemplated in this Notice falls outside a REDZ contemplated in this Notice, the requirements as prescribed in terms of the EIA Regulations, 2014 (as amended) apply.*

7. REDZs compiled in terms of section 24(3) of NEMA and the applicability of each REDZ for purposes of this Notice, are as follows:

Renewable Energy Development Zone Number (Phase)	***Name***	***Applicability of REDZ***
Renewable energy development zone 1 (Phase 1)	*Overberg*	*Large scale wind and solar photovoltaic energy facilities*
Renewable energy development zone 2 (Phase 1)	*Komsberg*	*Large scale wind and solar photovoltaic energy facilities*
Renewable energy development zone 3 (Phase 1)	*Cookhouse*	*Large scale wind and solar photovoltaic energy facilities*
Renewable energy development zone 4 (Phase 1)	*Stormberg*	*Large scale wind and solar photovoltaic energy facilities*
Renewable energy development zone 5 (Phase 1)	*Kimberley*	*Large scale wind and solar photovoltaic energy facilities*
Renewable energy development zone 6 (Phase 1)	*Vryburg*	*Large scale wind and solar photovoltaic energy facilities*
Renewable energy development zone 7 (Phase 1)	*Upington*	*Large scale wind and solar photovoltaic energy facilities*
Renewable energy development zone 8 (Phase 1)	*Springbok*	*Large scale wind and solar photovoltaic energy facilities*

The three Phase 2 REDZs were gazetted on 26 February 2021 (Gazette No. 44191, Notice 142 pg. 65-68, Notice 144 pg. 72-74 and Notice 145 pg. 75-79, page 92-96)

Renewable energy development zone 9 (Phase 2)	Emalahleni	*Large scale wind and solar photovoltaic energy facilities*
Renewable energy development zone 10 (Phase 2)	Klerksdorp	*Large scale wind and solar photovoltaic energy facilities*
Renewable energy development zone 11 (Phase 2)	Beaufort West	*Large scale wind and solar photovoltaic energy facilities*

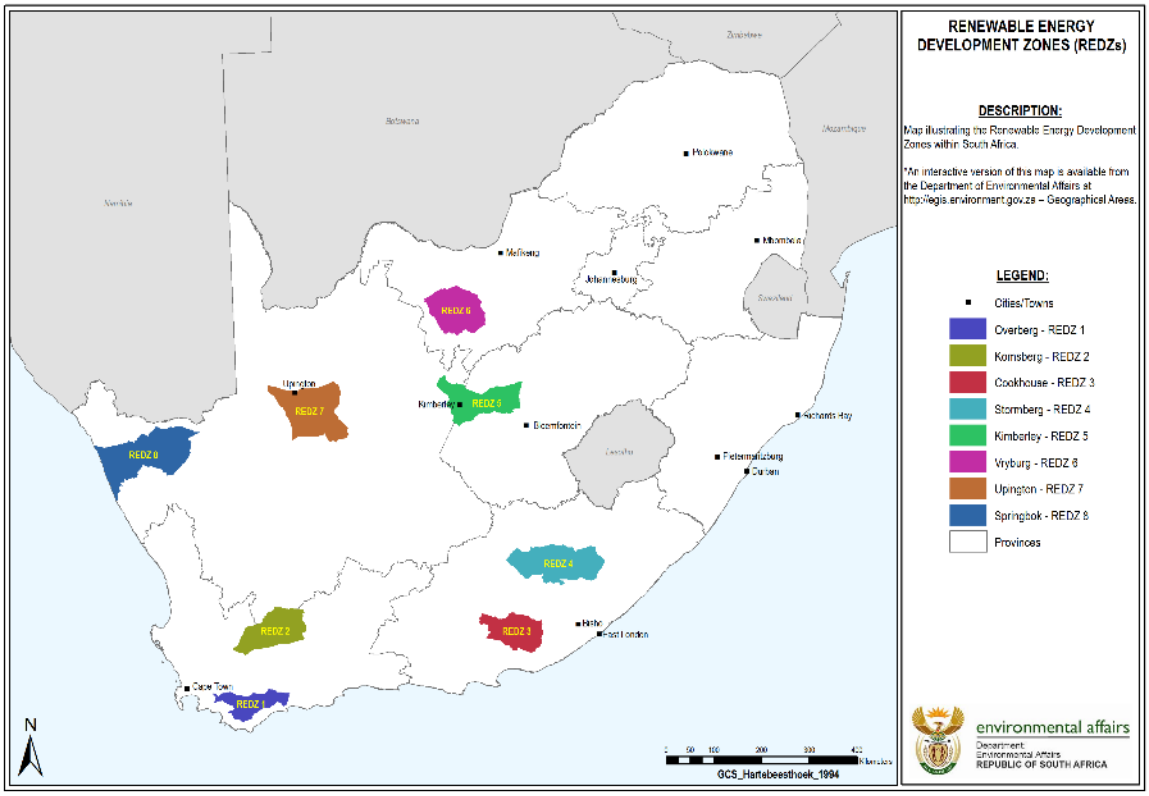


Figure 6.1: The figure above shows the Phase 1 Renewable Energy Development Zones and the Project falls outside of all the REDZs as gazetted February 2018.

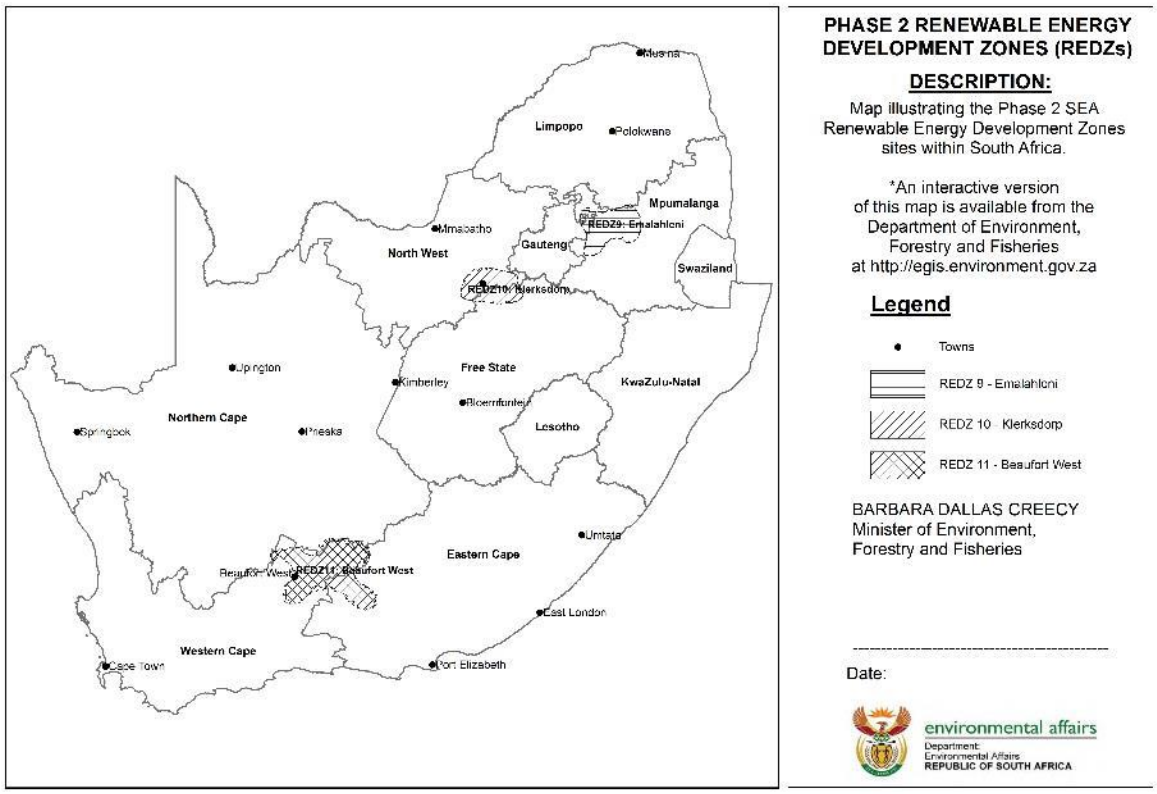


Figure 6.2: The figure above shows the Phase 2 Renewable Energy Development Zones and the Project falls outside of all the REDZs as gazetted February 2021.

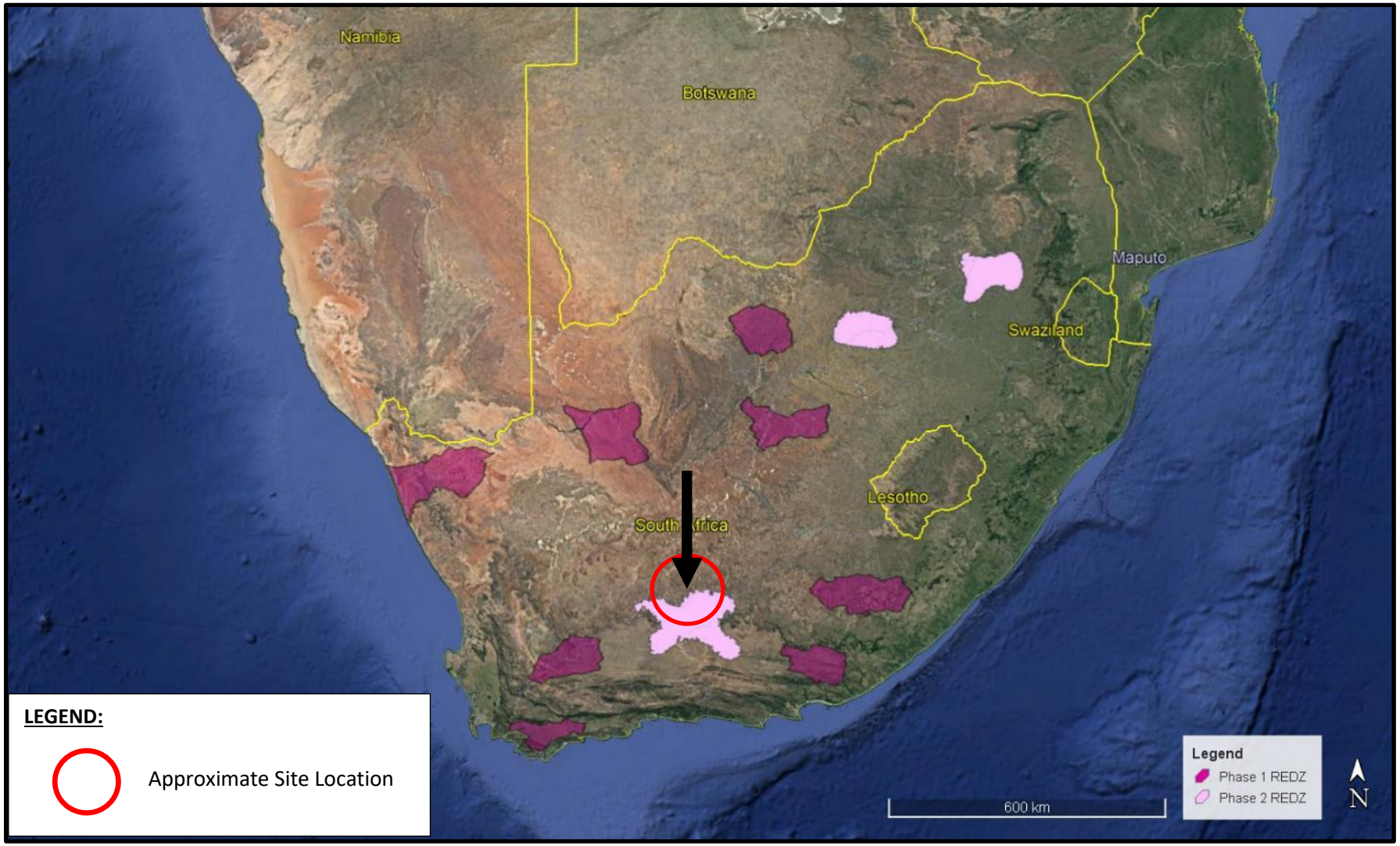


Figure 6.3: This figure shows the regional location of the Noblesfontein Wind Energy Facility relative to all Renewable Energy Development Zones (REDZ).

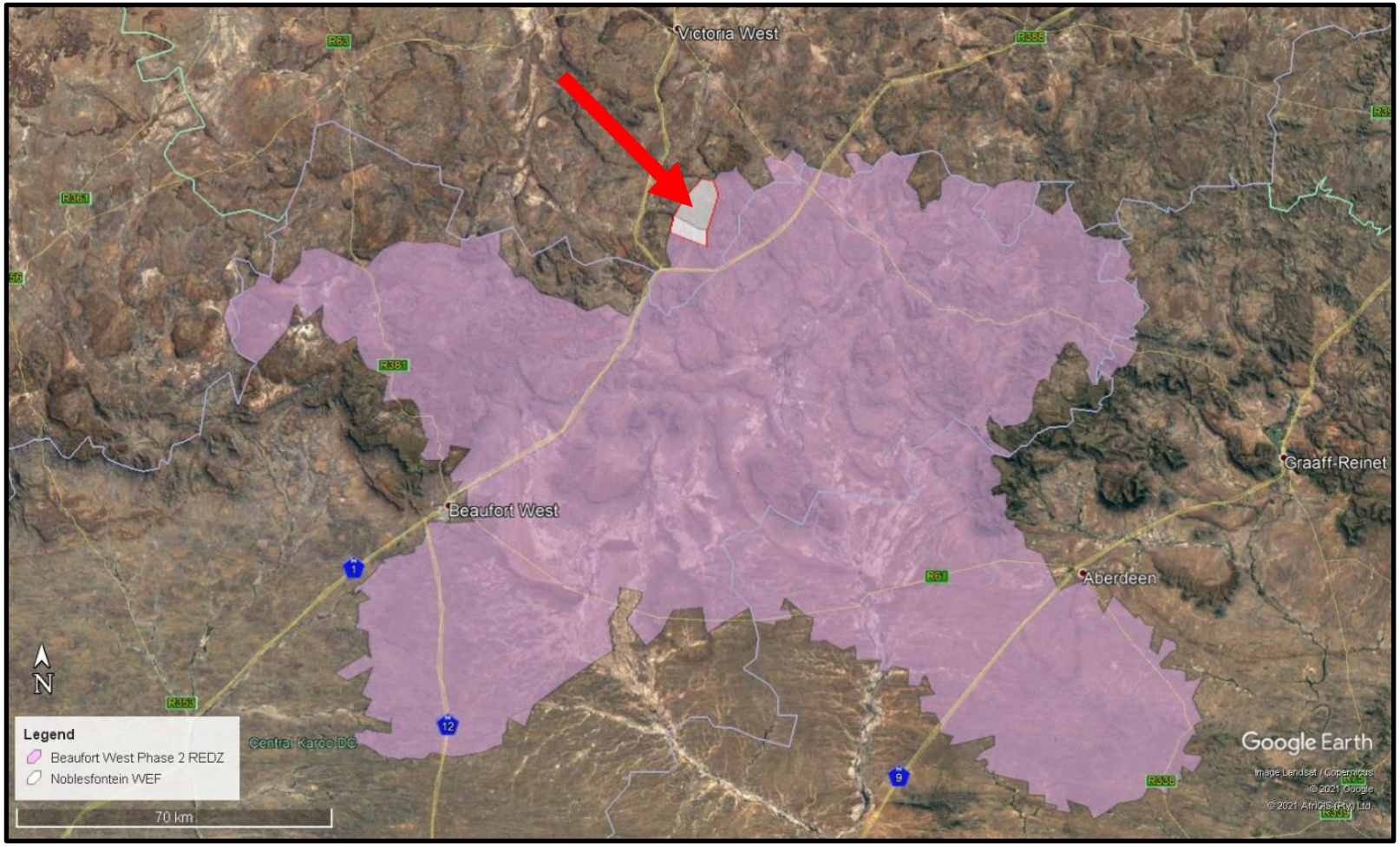


Figure 6.4: This figure shows the location of the Noblesfontein Wind Energy Facility (Red Arrow) adjacent to the REDZ 11, Beautfort West.

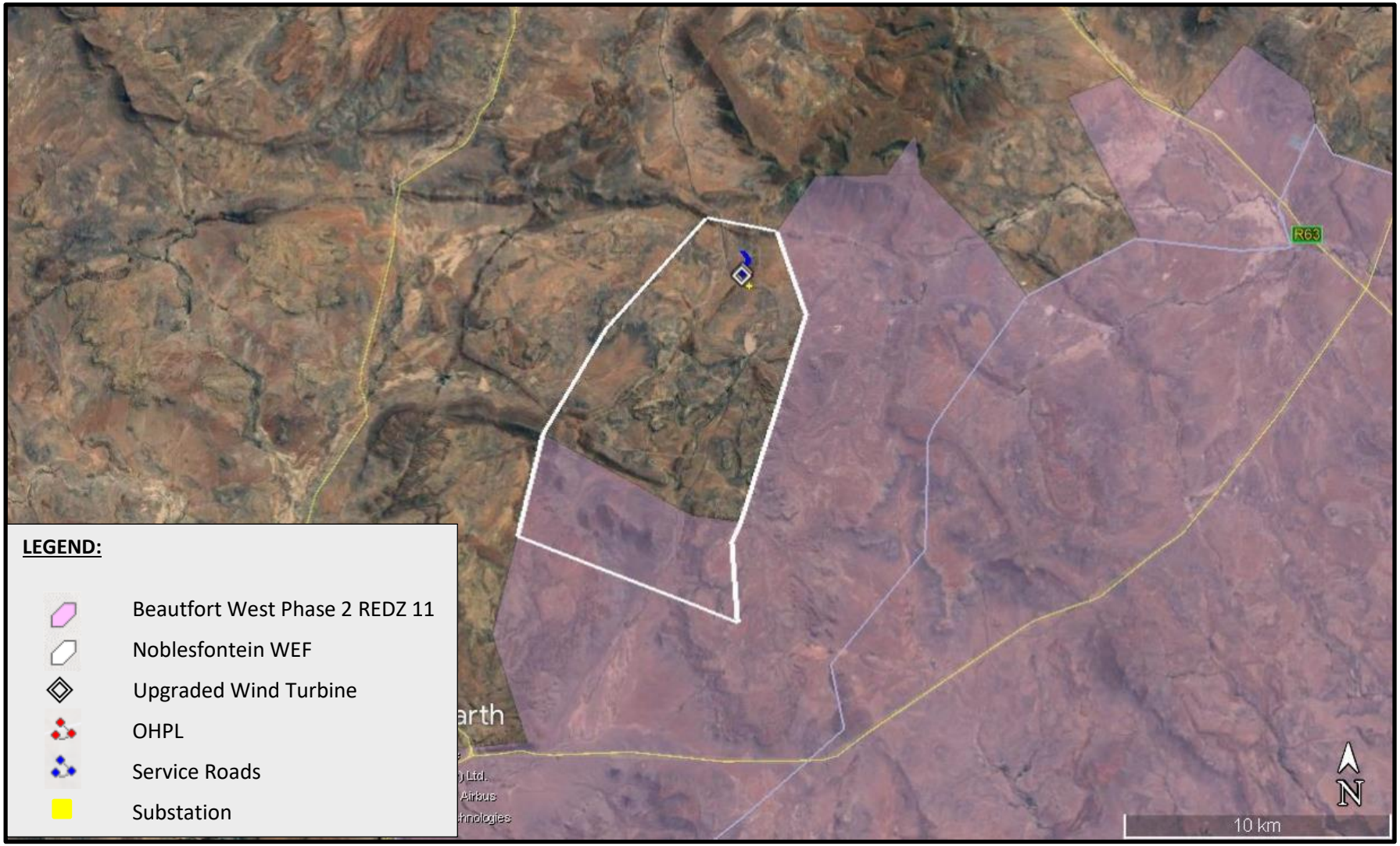


Figure 6.5: This figure shows the intersect between the Noblesfontein WEF and REDZ 11, Beautfort Wes. Only the Southern portion of the WEF intersects with the REDZ. The structures assessed in this Basic Assessment are located on the Northern end of the WEF and therefore fall outside of the REDZ.

6.2 PROVINCIAL AND MUNICIPAL LEVEL POLICY AND PLANNING

6.2.1 Northern Cape Provincial Development Plan

The Northern cape Province Spatial Development Framework (NCPSDF) makes reference to the need to ensure the availability of inexpensive energy. The section notes that in order to promote economic growth in the Northern Cape, the availability of electricity to key industrial users at critical localities at rates that enhance the competitiveness of their industries must be ensures. At the same time, the development of new sources of energy through the promotion of the adoption of energy applications that display synergy with the province's natural resource endowments must be encouraged. In this regard the NCPSDF notes "the development of energy sources such as wind energy, the natural gas fields, bio-fuels, etc., could be some of the means by which new economic opportunity and activity is generated in the Northern Cape". The NCPSDF also highlights the importance of close co-operation between public and private sectors in order for the economic development potential of the Northern Cape to be realised

6.2.2 Pixley ka Seme District Municipality Integrated Development Programme (IDP)

The Pixley ka Seme IDP covers the five-year period 20172022. A SWOT Analysis (strengths, weaknesses, opportunities, and threats) conducted by the municipality identified solar and wind farms as potential opportunities. The proposed development is therefore in line with the IDP.

Note that the municipality does have an outdated Spatial Development Framework published in 2007.

6.2.3 Ubuntu Local Municipality IDP

The IDP of the Ubuntu Local Municipality covers the five-year period 2017 – 2022. The IDP aims to be a blueprint for the future development trajectory of the municipality.

One of the challenges that the district aims to confront is ensuring that all citizens have access to basic services such as water, sanitation, electricity, and housing. In this regard, electricity infrastructure construction and maintenance is a key component of the municipality's strategic objective of the provision of sustainable basic services. The establishment of additional electrical infrastructure, such as the proposed WEF, is therefore in line with the IDP.

6.3 OTHER LEGISLATION AND POLICIES

Title of legislation, policy or guideline	Applicability to the project	Administering Authority	Date
NATIONAL LEVEL ENVIRONMENTAL LEGISLATION			
National Environmental Management Act (Act No. 107 of 1998)	An Application for Environmental Authorization has been submitted in terms of the NEMA EIA Regulations (2014, as amended) and the relevant provisions of these Regulations have been taken into account through the compilation of this	DEA	1998

	Report and the assessment of the Application by the Independent EAP.		
Regulations in terms of Chapter 5 of the NEMA, 1998. (NEMA EIA Regulations 2014, as amended)	An Application for Environmental Authorization has been submitted in terms of the NEMA EIA Regulations (2014, as amended) and the relevant provisions of these Regulations have been taken into account through the compilation of this Report and the assessment of the Application by the Independent EAP.	DEA	2014 (as amended in April 2017)
National Water Act (Act No. 36 of 1998)	A WULA was submitted to the Department of Water and Sanitation (DWS) in terms of the NWA.	DWS	1998
National Heritage Act (Act No. 25 of 1999)	An NID was submitted to Heritage Eastern Cape (HEC) and SAHRA.	SAHRA and HEC	1999
Civil Aviation Act (Act No. 13 Of 2009)	Approval from the South African Civil Aviation Authority (SACAA) and the South African Air Force (SAAF) was obtained as the Project could potentially affect the operations of the above Authorities.	SACAA and SAAF	2009
NATIONAL LEVEL ENERGY POLICY AND LEGISLATION			
National Energy Act (Act No 34 of 2008)	The proposed Project is for the establishment of an overhead powerline that will be connected to a Wind Energy Facility which is a renewable resource Project, which this Act makes direct reference to. Please refer to Section 6.3.2 below.	DoE	2008
White Paper on the Energy Policy of the Republic of South Africa	The proposed Project will facilitate the generation and use of electricity and therefore this Policy refers. Please refer to Section 6.3 below.	DoE	1998
White Paper on Renewable Energy	The proposed Project is for the establishment of an overhead powerline that will be connected to a Wind Energy Facility which is a renewable resource Project. Please refer to Section 6.3 below.	DoE	2003
National Integrated Resource Plan for Electricity (2010-2030)	The proposed Project is for the establishment of an overhead powerline that will be connected to a Wind Energy Facility, which will involve the generation and use of electricity in a sustainable manner. Please refer to Section 6.3 below.	DoE	2011
National Development Plan (NDP)	The proposed Project aims at enhancing economic growth, which the NDP is striving towards. Please refer to Section 6.3.6 below.	DEA	2013
National Infrastructure Plan	The proposed Project aims at enhancing economic growth, which the NIP is also striving towards. Please refer to Section 6.3.7 below.	DEA	2012

Title of legislation, policy or guideline	Applicability to the project	Administering Authority	Date
PROVINCIAL LEVEL POLICY AND PLANNING			
Land Use Planning Ordinance, 1978	Consent use is required from the Landowners on which the Wind Energy Facility is proposed to be established.	Local Municipality	1978
Environmental Impact Assessment Guideline for Renewable Energy Projects	These guidelines have been considered in order to ensure that the environmental management legal framework applicable to renewable energy operations and all the role players in the sector have been appropriately actioned.	DEA	2015
DEA&DP Guideline Document: Guideline on Public Participation, August 2013	The public participation process, summarized in Section C of this report, has been undertaken in accordance with this guideline.	DEA&DP	2013
DEA Guideline on Need and Desirability, April 2017	The approach to alternatives which has been adopted in this process is consistent with this guideline.	DEA	2017

6.4 KEY AUTHORITIES FOR THIS ENVIRONMENTAL APPLICATION

Based on a review of the applicable statutory permitting requirements, the following Authorities will form the key decision makers for the Project:

- NEMA EIA Regulations (2014, as amended) Environmental Application – The National Department of Fisheries, Forestry and the Environment (DFFE)
- National Department of Water and Sanitation
- National Department of Energy
- National Department of Fisheries, Forestry and Agriculture - Agricultural
- Provincial Department of Agriculture - Agriculture
- Provincial Department of Environmental Affairs and Nature Conservation: Northern Cape
- Provincial Department of Finance, Economic Affairs and Tourism: Northern Cape
- Provincial Department of Social Development: Northern Cape
- Department of Transport, Roads and Public Works
- Department of Agriculture, Land Reform and Rural Development
- Ubuntu Local Municipality
- Pixley Ka Seme District Municipality
- South Africa Heritage Resource Association - Heritage
- Northern Cape Heritage Authority / Ngwao Boswa Kapa Bokoni
- Civil Aviation Authority - Aviation
- South African Air Force - Aviation
- ESKOM
- WESSA
- Geoscience

6.5 INTERNATIONAL STANDARDS

6.5.1 International Finance Corporation Performance Standards

The Applicant is committed to complying with the International Finance Corporation (IFC) Performance Standards (PS) on social and environmental sustainability. These were developed by the IFC and were last updated on 1st January 2012.

The overall objectives of the IFC PS are:

- To fight poverty;
- To do no harm to people or the environment;
- To fight climate change by promoting low carbon development;
- To respect human rights;
- To promote gender equity;
- To provide information prior to project development, free of charge and free of external manipulation;
- To collaborate with the project developer to achieve the PS;
- To provide advisory services; and
- To notify countries of any Transboundary impacts as a result of a Project.

The PS comprise of eight performance standards, namely:

- Performance Standard 1: Assessment and Management of Environmental and Social Risks and
- Impacts;
- Performance Standard 2: Labour and Working Conditions;
- Performance Standard 3: Resource Efficiency and Pollution Prevention;
- Performance Standard 4: Community Health, Safety and Security;
- Performance Standard 5: Land Acquisition and Involuntary Resettlement;
- Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources;
- Performance Standard 7: Indigenous Peoples; and
- Performance Standard 8: Cultural Heritage.

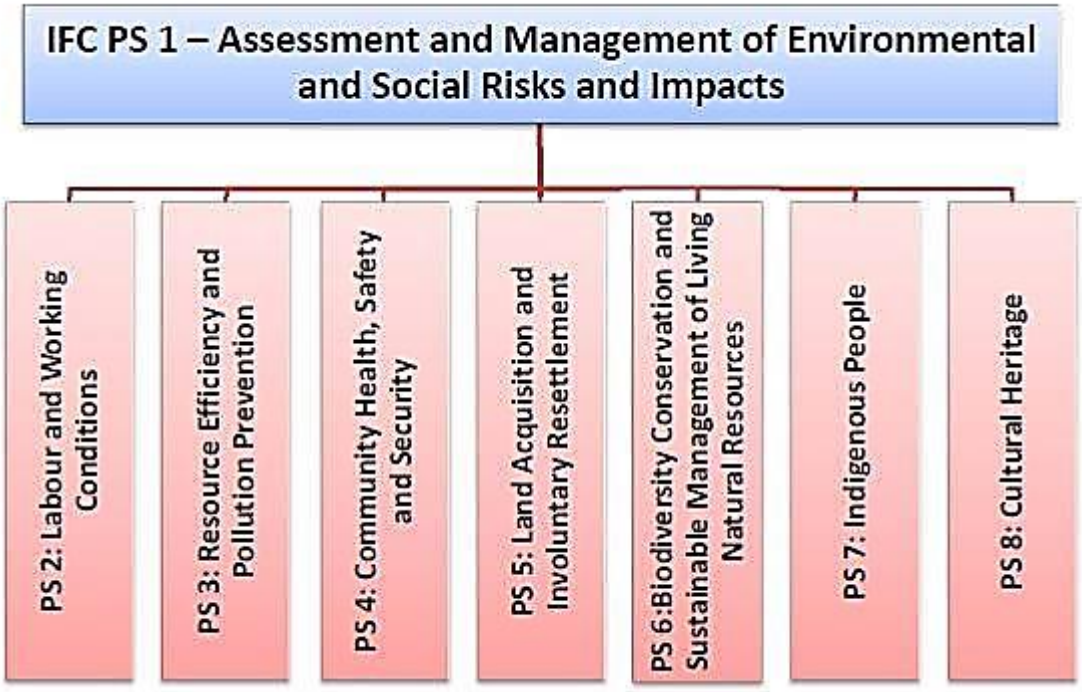


Figure 6.6: This Figure shows the PS Framework as extracted from the IFC PSs

The PS framework is presented above.

PS 1 establishes the importance of:

i. integrated assessment to identify the social and environmental impacts, risks, and opportunities of projects;
ii. effective community engagement through disclosure of project-related information and consultation with local communities on matters that directly affect them; and
iii. the management of social and environmental performance throughout the life of a project through an effective Environmental and Social Management System (ESMS).

PS 1 is the overarching standard to which all the other standards relate. The ESMS should be designed to incorporate the aspects of PS 2 to 8 as applicable.

PS 2 through to 8 establish specific requirements to avoid, reduce, mitigate or compensate for impacts on people and the environment, and to improve conditions where appropriate. While all relevant social and environmental risks and potential impacts should be considered as part of the assessment, PS 2 through 8 describe potential social and environmental impacts that require particular attention in emerging markets. Where social or environmental impacts are anticipated, the developer is required to manage them through its ESMS consistent with PS 1.

6.5.2 Equator Principles

The Equator Principles (EPs) is a credit risk management framework for determining, assessing and managing environmental and social risk in Project Finance transactions. Project Finance is often used to fund the development and construction of major infrastructure and industrial projects. The EPs are adopted by financial institutions and are applied where total project capital costs exceed US$10 million. The EPs are primarily intended to provide a minimum standard for due diligence to support responsible risk decision-making.

The EPs are based on the IFC PS 2012 and on the World Bank Group Environmental, Health and Safety Guidelines (EHS Guidelines).

The Equator Principles Financial Institutions (EPFIs) have consequently adopted these Principles in order to ensure that the projects they finance are developed in a manner that is socially responsible and reflect sound environmental management practices.

EPFIs will only provide loans to projects that conform to the following principles:

- Principle 1: Review and Categorisation;
- Principle 2: Social and Environmental Assessment;
- Principle 3: Applicable Social and Environmental Standards;
- Principle 4: Action plan and Management;
- Principle 5: Consultation and Disclosure;
- Principle 6: Grievance Mechanism;
- Principle 7: Independent review;
- Principle 8: Covenants;
- Principle 9: Independent Monitoring and Reporting; and
- Principle 10: EPFI Reporting

6.5.3 The World Bank Group Environmental Health and Safety (EHS) Guidelines

The EHS Guidelines (World Bank Group, 2007) are technical reference documents with general and industry specific (i.e. mining) examples of Good International Industry Practice (GIIP). Reference to the EHS guidelines is required under IFC PS 3.

The EHS Guidelines contain the performance levels and measures normally acceptable to the IFC and are generally considered to be achievable in new facilities at reasonable cost. When host country regulations differ from the levels and measures presented in the EHS Guidelines, Projects are expected to achieve whichever standard is more stringent.

This BAR is broadly aligned with the various Standards discussed above.

7 MOTIVATION FOR NEED AND DESIRABILITY FOR THE PROPOSED ACTIVITY

*In accordance with **Appendix 1 Regulation 3(f) of GN No. R.326 of the NEMA EIA Regulations (2014, as amended)**: the following information is presented in Section 6*

- *A motivation for the need and desirability for the proposed development including the need and desirability of the activity in context of the preferred location.*

The need and desirability of the authorised Noblesfontein WEF was thoroughly assessed in the original EIA Report dated May 2011, and approved by the Competent Authority, the DEA, on 22nd February 2012 (DFFE Ref: 12/12/20/1993/1).

This section outlines the purpose of considering the activity "need" and "desirability" in accordance with the National Environmental Management Principles in terms of NEMA which serve as a guide for the interpretation, administration and implementation of NEMA and the NEMA EIA regulations (2014, as amended).

7.1 LEGISLATIVE FRAMEWORK

The National Environmental Management Principles specifically require, *inter alia,* the following:

- *"Environmental Management must place people and their needs at the forefront of its concern and equitably serve their interests;*
- *"Environmental Management must be integrated, acknowledging that all elements of the environment are linked and interrelated, and it must take into account the effects of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental option;*
- *"Environmental justice must be pursued so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person; and*
- *"Decisions must take into account the interests, needs and values of all interested and affected parties;*
- *"The Environment is held in public trust for the people, the beneficial use of environmental resources must serve the public interest and the environment must be protected as the people's common heritage."*

Need and Desirability must thus be considered in the context of **sustainable development** which is underpinned by social, economic and environmental considerations and takes a long-term strategic view to environmental management.

Please note that the Noblesfontein WEF has already been authorised by the National Department of Environment, Forestry and Fisheries (DFFE) and therefore the general need and desirability of the activity has already been motivated for and agreed to by the DFFE through the Environmental Authorisation (dated 22/02/2012 with DFFE Ref: 12/12/20/1993/1)

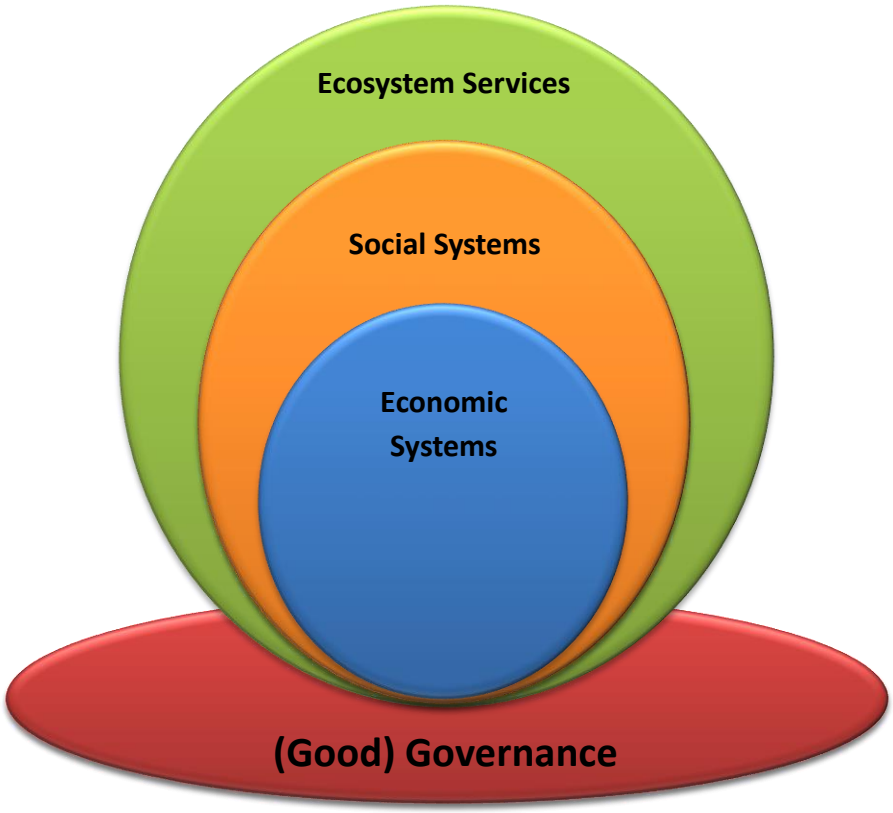
Further, the proposed change in technical specification **does not warrant any additional considerations in terms of the need and desirability** of the project as the WEF will occur within the already authorised development footprint and the proposed changes are deemed acceptable by the professional team of independent specialists.

Further, the proposed additional 123 kV OHPL and substation do not warrant any additional considerations in terms of the need and desirability of the Project as they are **essential for the functioning of the upgraded turbines, which cannot operate without them**.

7.2 SUSTAINABLE DEVELOPMENT

Sustainable development is best summarised by an extract from the United Nations World Commission on Environment and Development (WCED) and reads as follows:

"*Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs… As such it requires the promotion of values that encourage consumption standards that are within the bounds of the ecologically possible and to which all could reasonably aspire.*" (Our Common Future, WCED, 1987).[10]



The widely accepted inter-dependence model of sustainability recognises that social and economic systems **have never been and can never be independent of the natural system**.

This model further supports the belief that **interactions** between and within component systems will result in **feedback** throughout the system.

Endorsed by the National DEA

(Mebratu, 1998)

It is thus important that the BAR carefully considers and assesses the broad principles of sustainable development in order to clearly demonstrate the need and desirability of the proposed activity in the context of NEMA.

[10] *United Nations. 1987."Report of the World Commission on Environment and Development." General Assembly Resolution 42/187, 11 December 1987*

7.3 NOBLESFONTEIN WEF UPGRADES NEED AND DESIRABILITY

7.3.1 National Need and Desirability

The National Development Plan (NDP) (see section 5.1.9) recognises that the South African economy is "electricity intensive" and is in need of greater power generation capacity in order to avoid energy crises such as the one experienced in 2008 and to ensure long-term economic growth and development. It therefore promotes the development of additional energy facilities to ensure that sufficient electricity is supplied to the national grid to meet the country's demand.

Coupled with the need for a greater energy supply is the exigency to rely on cleaner energy resources. Eskom's *Coal Report* makes the following observation: "Air pollution caused by Eskom's coal power stations in two provinces is killing at least 20 people a year and could jump to 617, with 25 000 people hospitalised, once all its stations are up and running. These would include the giant Medupi and Kusile power stations in Mpumalanga and Limpopo."[11]

In an increasingly carbon constrained world already facing climate change impacts, South Africa has to reduce greenhouse gas emission intensity decidedly and soon.[12] To this end, managing the transition towards a low carbon national economy is identified as one of the nine key national challenges in the NDP. Furthermore, with imminent carbon fines and ever decreasing coal reserves, the economic risk of relying on fossil fuels continues to rise. Investment in renewable energy and energy efficiency is therefore paramount in reducing the negative economic, social and environmental impacts of energy production and consumption in South Africa.[13]

Readily available renewable energy sources are thus a viable solution to reconcile essential economic development with the need to keep carbon emissions in check.[14] Wind as an energy source is only practical in areas that have strong and steady winds. The authorised and existing Noblesfontein WEF indicated suitability and high wind energy potential of the area.

Essential to improving the country's electricity supply is improved access to renewable sources of energy. The NDP identifies the need for South Africa to invest in a strong network of economic infrastructure designed to support the country's medium- and long-term economic and social objectives. The NDP prioritises 'improvements to infrastructure' to ensure increased access to electricity and a 'transition to a low-carbon economy.' A critical component is energy infrastructure, which underpins all economic activity and facilitates growth. The NDP requires the development of 10,000 MWs of additional electricity capacity by 2025.

In conclusion, the construction of the proposed Noblesfontein WEF upgrades contributes to South Africa's overarching goal of sustainable development through promoting a greener economy,

[11] *http://mg.co.za/article/2014-06-19-power-stations-are-deadly-internal-report-reveals*
http://www.iol.co.za/business/companies/eskom-pollution-is-now-major-issue-1.1814603
http://earthlife.org.za/2015/02/joint-media-release-another-five-years-of-toxic-pollution-by-eskom/
http://www.news24.com/Green/News/Eskom-coal-is-a-killer-new-study-says-20140702
[12] Pegels, A (2010) *Renewable Energy in South Africa: Potentials, barriers and options for support*
[13] Winkler, H (2005) *Renewable Energy Policy in South Africa: Policy options for renewable electricity*
[14] Deichamnn et al. (2011) *The economics of renewable energy expansion in rural Sub-Saharan Africa*

improving access to critical resources and developing a greater network of essential infrastructure in places where it is most needed.

7.3.2 Regional Need and Desirability Motivation

The Noblesfontein WEF is an already authorised and operational WEF, borders a REDZ and is located in a region earmarked for a number of surrounding WEF developments. The proposed Noblesfontein WEF upgrades represent a technical specification upgrade to the existing WEF to implement new and more efficient turbine technology, as well as to increase power generation capacity. As such the need and desirability of WEF infrastructure within the regional context has already been assessed an approved.

The Northern cape Province Spatial Development Framework (NCPSDF) makes reference to the need to ensure the availability of inexpensive energy. The section notes that in order to promote economic growth in the Northern Cape, the availability of electricity to key industrial users at critical localities at rates that enhance the competitiveness of their industries must be ensures. At the same time, the development of new sources of energy through the promotion of the adoption of energy applications that display synergy with the province's natural resource endowments must be encouraged. In this regard the NCPSDF notes "the development of energy sources such as wind energy, the natural gas fields, bio-fuels, etc., could be some of the means by which new economic opportunity and activity is generated in the Northern Cape". The NCPSDF also highlights the importance of close co-operation between public and private sectors in order for the economic development potential of the Northern Cape to be realised.

7.3.3 Motivation for the Proposed Noblesfontein WEF Upgrades and Infrastructure

The Noblesfontein WEF upgrades are a result of changes and improvements in the technologies available wind energy facilities. As such, should authorisation not be granted, the latest, most efficient wind energy technologies will not be available to the developer for implementation. This could mean that the applicant would need to install the original number of turbines as opposed to installing less turbines with the newer turbine technology. This will result in a loss of the WEF's efficiency.

The need and desirability for the additional 132kV OHPL and substation must be considered as part of the Noblesfontein WEF turbine upgrades, as the existing transmission infrastructure cannot support the increased production capacity of the larger upgraded turbines, necessitating the additional OHPL and substation, without which the upgraded turbines will not be able to function or supply power into the National Grid.

Please note that the Noblesfontein WEF has already been authorised by the DFFE and therefore the general need and desirability of the activity has already been motivated for and agreed to by the DFFE through the Environmental Authorisation (dated 22/02/2012 with DFFE Ref: 12/12/20/1993/1)

Further, the proposed change in technical specification **does not warrant any additional considerations in terms of the need and desirability** of the project as the WEF will occur within the already authorised development footprint and the proposed changes are deemed acceptable by the professional team of independent specialists.

Further, the proposed additional 123kV OHPL and substation do not warrant any additional considerations in terms of the need and desirability of the Project as they are **essential for the functioning of the upgraded turbines, which cannot operate without them**.

7.4 GUIDELINES ON NEED AND DESIRABILITY

This BAR has carefully considered and applied the *DEA (2017), Guideline on Need and Desirability, Department of Environmental Affairs (DEA), Pretoria, South Africa*.

Based on the information presented within this guideline, we believe that the proposed Noblesfontein WEF upgrades are aligned with the requirements of the Guidelines. Need and desirability relates to the nature, scale and location of the development being proposed, as well as wise use of land. The definitions of need and desirability refer to time and place respectively and should be considered holistically.

Importantly, the Guidelines recognise the importance of considering "the status of our ecosystem services" when pursuing economic development. To this end, the development has been informed by the assessments of the Professional Team and are summarised in Sections 8 and 12 in this Report. The Professional Team's assessments and the EAPs overall opinion is that the proposed Noblesfontein WEF upgrades will secure ecological sustainable development and use of natural resources and will not adversely affect the receiving environment if the recommended mitigation measures are implemented.

Further, based on the Professional Team's assessments and providing that the Applicant adheres to all the mitigation measures prescribed by the Professional Team, the proposed overhead powerline will promote justifiable economic and social development.

NEED AND DESIRABILITY CHECKLIST

Please refer to the questions below based on the Need and Desirability Guidelines, which demonstrate that the proposed development is underpinned by the principles therein and consistent with the relevant policies and strategies.

These were approved by the Competent Authority, the DFFE, on 22nd February 2012 (DFFE Ref: 12/12/20/1993/1).

7.4.1 Need ('Timing')

Need and desirability	
Need (''timing'')	
Question	**Response**
1. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority? (i.e. is the proposed development in line with the Projects and Programmes identified as priorities within the credible IDP).	Yes, the Noblesfontein WEF was authorised by DFFE on 22 February 2012, Ref No: 12/12/20/1993/1) The proposed Noblesfontein WEF upgrades replace 3 authorised turbines.
2. Should the development, or if applicable, expansion of the town/area concerned in terms of this land use (associated with the activity being applied for) occurs here at this point in time?	Yes, the proposed turbine upgrades will allow the Noblesfontein WEF to add an additional 11.6MW of generating capacity to the existing 82MW, all within the authorized 132MW limit. The additional infrastructure is essential for the upgraded turbines to operate, and as such the upgrades cannot be performed in isolation.
3. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? This referred to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate).	The community is specifically in need of renewable energy activities like this project as the local area will benefit from this activity through job creation and increased access to electricity. This is a national priority for the national and local need (See section 7.3 and 7.4).
4. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development?	Based on the available information, it is evident that all necessary services with adequate capacity are currently available and no additional capacity is required.
5. Is the development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)?	The upgraded wind turbines, OHJPL and additional substation are all infrastructure associated with the existing Noblesfontein WEF. The proposed upgrades and infrastructure will not have a significant impact on the infrastructure planning of the municipality. The purpose of the project is to provide renewable electricity and therefore connecting to the closest electrical power station forms part of the entire application.
6. Is the project part of a national programme to address an issue of national concern or importance?	Yes. As per the authorised development and therefore applicable for the proposed upgrades and additional infrastructure.

7.4.2 Desirability ('Placing')

Need and desirability	
Desirability (''placing'')	
Question	**Response**
1. Is the development the best practicable environmental option for this land/site?	Yes, the Noblesfontein WEF (Project site) was authorised by DFFE on 22 February 2012, Ref No: 12/12/20/1993/1) The project site is located in a very arid region of Northern Cape where agricultural potential is very low, but there is high wind resource availability for renewable energy generation. The proposed upgrades are to implement the latest and most efficient wind turbine technology available, to maximise efficiency and minimise turbine number.
2. Would the approval of this application compromise the integrity of the existing approved and credible municipal IPD and SDF as agreed to by the relevant authorities?	No. The Noblesfontein WEF upgrades are part of the larger authorised Noblesfontein WEF and aligns with the Ubuntu Local Municipality's IDPs which recognises the need for renewable energy.
3. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area (e.g. as defined in the EMFs), and if so, can it be justified in terms of sustainability considerations?	No. The proposed upgrades and additional infrastructure fall within the authorised Noblesfontein WEF site. Furthermore, if all recommendations are followed from the relevant Authorities and Professional Team, then it can be justified that all environmental management priorities were considered.
4. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its boarder context).	Yes. The proposed turbine upgrades and additional supporting infrastructure fall within the authorised Noblesfontein WEF and provides support to the authorised activity (Renewable energy generation).
5. How will the activity or land use associated with the activity applied for, impact on sensitive natural and cultural areas (Built and rural/natural environment)	Based on the available information, Impact Assessments undertaken by the professional team and site assessments undertaken by the EAP and the professional team, it is reasonable to suggest that the Noblesfontein WEF upgrades will have minimal impacts on the built and natural environment. The construction of three further wind turbines is already authorised for the existing Noblesfontein WEF, with these three turbines being replaced by the two proposed upgraded turbines.

	Specialist assessments found that the proposed Noblesfontein WEF upgrade will have no significant impact relative to these authorised turbines, and that any impacts will be able to be mitigated to an acceptable level.
6. How will the development impact on people's health and wellbeing (e.g. in terms of noise, odours, visual character and sense of place, etc.)?	Based on the available information, the Impact Assessments undertaken by the Professional Team and the site assessments undertaken the EAP and Professional Team, it is reasonable to suggest that the proposed Noblesfontein WEF upgrades are unlikely to have an impact on people's health and wellbeing. The upgraded turbines will have potential visual impacts in certain areas, but these will be minimised as far as possible.
7. Will the proposed activity or the land use associated with the activity applied for result in unacceptable opportunity costs?	No. Based on the available information, the Assessments undertaken by the professional team and the site assessments undertaken by the EAP and the professional team, it is reasonable to suggest that the establishment of the OHPL will not result in unacceptable opportunity costs The project also realises a national need and priority and will contribute to a greater network of efficient electrical infrastructure and increased access to electricity. Furthermore the proposed upgrades fall within the already authorised Noblesfontein WEF, on land that has been seemed unsuitable for any agricultural applications.
8. Will the proposed land use result in unacceptable cumulative impacts?	Based on the available information, the assessments undertaken by the professional team and the site assessments undertaken by the EAP and the professional team, it is reasonable to suggest that minimal and mitigatable cumulative impacts are expected. The proposed Noblesfontein WEF upgrades are not likely to result in unacceptable cumulative impacts and affects are unlikely to exceed those of the authorised No-Go Alternative.

Based on the above, and the available information, it is evident, through the findings of the Professional Team and this Basic Assessment Report that the proposed development broadly meets the DEA "need and desirability" criteria, and the development proposal is therefore considered, for the purposes of this application, to be acceptable in terms of these criteria.

8 SPECIALIST STUDY FINDINGS AND SUMMARY OF ENVIRONMENTAL ATTRIBUTES

*In accordance with **Appendix 1 Regulation 3(h)(iv), (m) and (k) of GN No. R. 326 of the NEMA EIA** Regulations (2014, as amended):*

> ***3(h) (iv)** – The environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;*
>
> ***3(m)** - Based on the assessment, and where applicable, recommendations from specialist reports, the recording of proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMPr;*
>
> ***3(k)** - Where applicable, a summary of the findings and recommendations of any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final assessment report;*

The following specialist assessments were undertaken for the BAR, as determined by the EAP, the Client and in consultation with the Competent Authority:

- Agricultural Assessment – Agri Informatics C/O Francois Knight (19 May 2021)
- Avifaunal Assessment – Arcus C/O Owen Davies (12 May 2021)
- Bat Assessment – Arcus C/O Ashlin Bodasig (18 May 2021)
- Botanical Assessment – Nick Helme Botanical Surveys C/O Nick Helme (12 May 2021)
- Heritage Assessment – CTS Heritage C/O Jenna Lavin (11 May 2021)
- Noise Assessment – Enviro Acoustic Research C/O Morné de Jager (5 May 2021)
- Traffic Assessment – Innovative Transport Solutions C/O C. Krogscheepers, P. Arangie & T. Neels (10 May 2021)
- Visual Assessment – Environmental Planning and Design C/O Jonathan Marshall (12 May 2021)

Please note all potential <u>impacts</u> have been summarised in this Section and a full Impact Assessment is depicted in Section 12 of this Report. Please note that all Specialist Reports and statements for this BAR are attached in Appendix D and form part of the BAR for a 30-day PPP.

It should be noted that the **receiving environment consists of an already authorised and operational WEF**.

On 4 May 2021 a **pre-application meeting** was held with the competent authority, who indicated that the proposed changes to turbine specifications (i.e. turbine dimension and number) and supporting infrastructure (service roads, OHPL and substation) required a **Basic Assessment process** to be undertaken, and **not a Part Two Amendment Process**.

It was confirmed that the **logic and the specialist findings** could be presented in a BAR format.

As such, the specialist findings presented assess the turbine upgrades and associated infrastructure as part of and relative to the authorised and operational Noblesfontein WEF, and not as independent structures. **The EAP has had to infer and interpret impacts for the proposed upgrades and structures alone.**

Furthermore, as the receiving environment consists of an **already authorised and operational WEF**, the **nature and suitability of the receiving environment has already been assessed**. Specialist Findings will therefore focus on the **impact of the Noblesfontein WEF Upgrades relative to** the Authorised No-Go Alternative (**The 3 unbuilt turbines that fall into the Authorised Noblesfontein WEF**).

8.1 AGRICULTURAL IMPACT ASSESSMENT

The original Basic Assessment for the authorised and existing Noblesfontein WEF did not include an agricultural assessment, as the specialist found that prevailing unfavourable climatic conditions for arable agriculture as well as prevalence of soils with limited depth precluded the need for an Agricultural Impact Assessment. Furthermore, the Screening Tool Report (STR) indicated that the Noblesfontein WEF upgrade site had a Low Agricultural Sensitivity (Appendix D). This was amended to a 'Very Low Sensitivity' in the Site Sensitivity Verification Report (SSVR) (Appendix D) as the site is unlikely to ever be suitable or productive enough for large scale agriculture.

With regards to the upgrades discussed in this BAR, TMG, on behalf of the Applicant, appointed Agri Informatics C/O Francois Knight to undertake a basic Agricultural Assessment.

The Agricultural Specialist indicated in his assessment that the two additional turbines, despite being larger in generation capacity, will have a smaller footprint than the three previously approved and thus a proportionally reduced impact on the agro-ecosystems. In addition, the access road follows a section of old (unused) railway line, while the overhead powerline and sub-station is also situated on low potential agricultural land and will induce negligible impact on the farming activities.

As such a full Agricultural Impact Assessment (EIA) was not conducted.

A discussion of the receiving environment is therefore presented below but **no impact table or specific mitigations exist for this theme**.

Based on the findings of the STR, SSVR and comments from the Agricultural Specialist:

No full Agricultural Impact Assessment is required.

No Potential Agricultural Impacts, Impact Table or Mitigation Measures have been presented.

For the full Specialist report please refer to Appendix D.

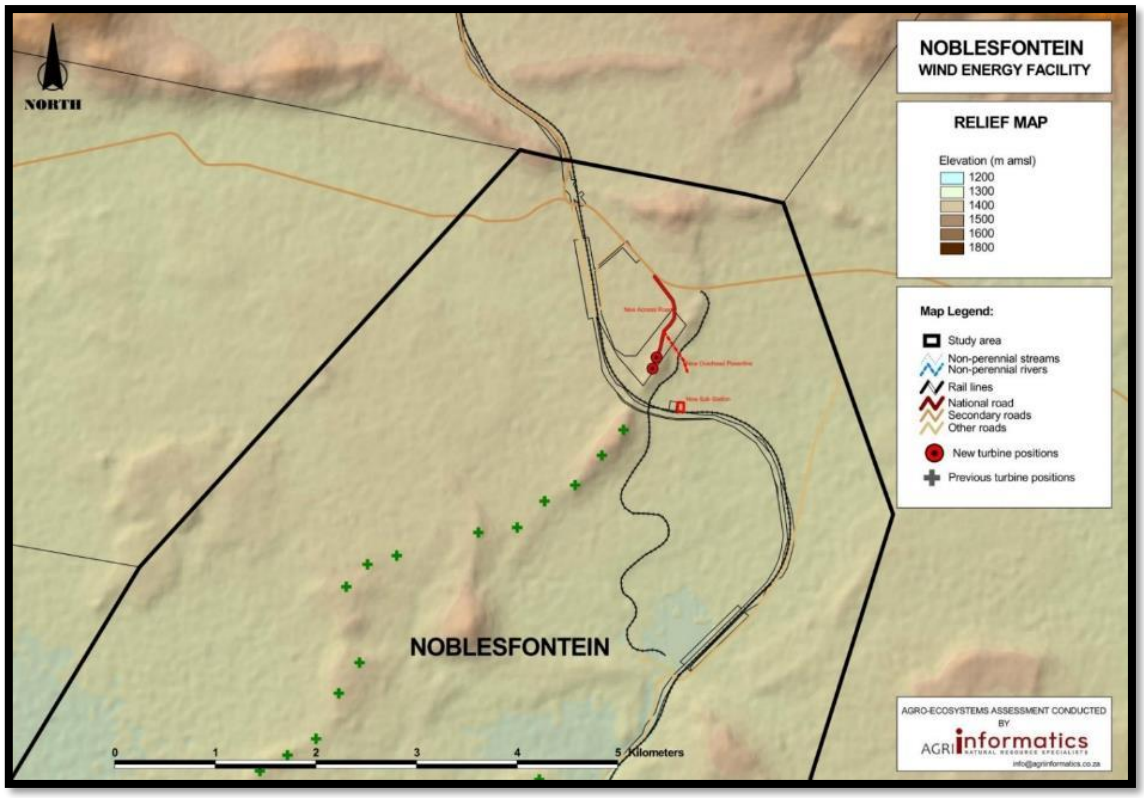


Figure 8.1: Relief Map showing the position of the existing (Green) and proposed (Red) structures along the non-arable ridgelines of the Noblesfontein site.

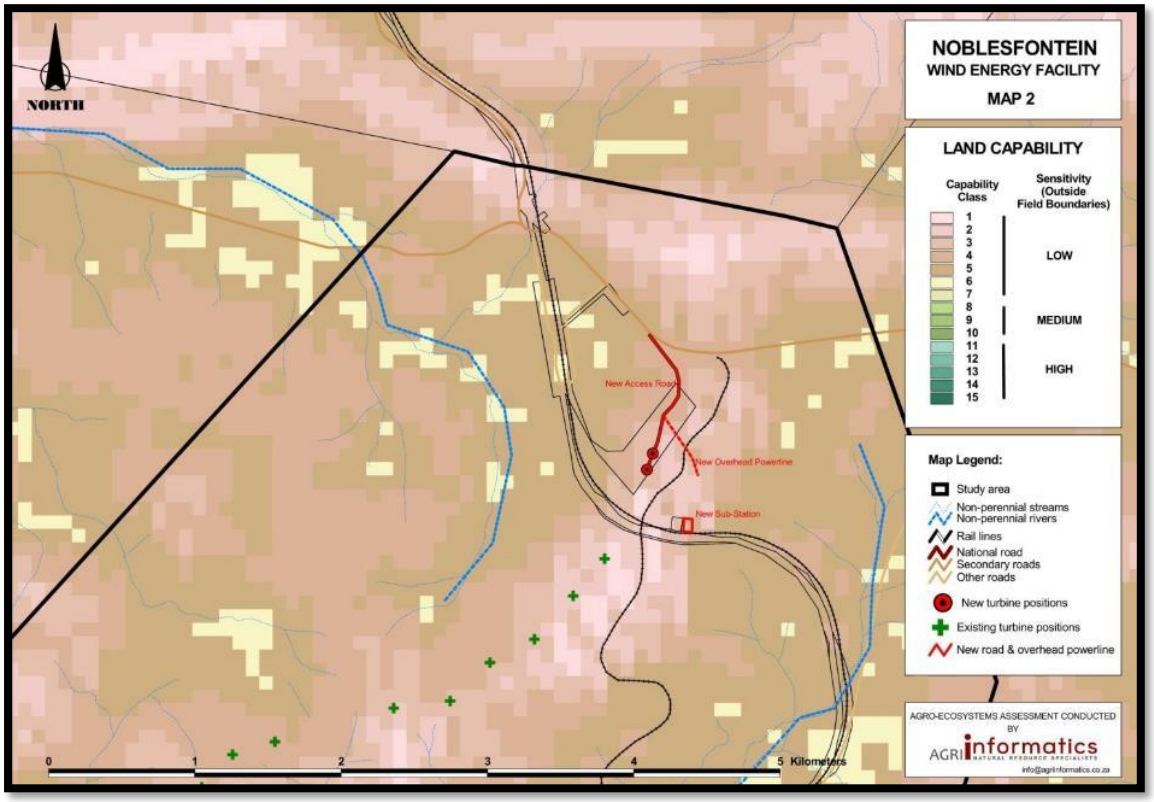


Figure 8.2: This figure shows the agricultural land capability.

8.2 AVIFAUNAL IMPACT ASSESSMENT

TMG, on behalf of the Applicant appointed Arcus C/O Owen Davies to undertake an Avifaunal Impact Assessments for the Noblesfontein WEF upgrades.

8.2.1 Receiving Environment

It should be noted that the **receiving environment consists of an already authorised and operational WEF**, and the suitability of the environment has therefore already been assessed and approved.

8.2.2 The Avifaunal Specialist's Assessment

The original Avifaunal assessment for the authorised Noblesfontein WEF (Avisense Consulting (2012) concluded that the main negative impact is likely to be on the resident and breeding populations of Verreaux's Eagle (Aquila verreauxii) and Martial Eagle (Polemaetus bellicosus), seasonal influxes of Ludwig's Bustard (Neotis ludwigii) and the resident population of Blue Crane (Anthropoides paradiseus) through disturbance/displacement and/or collision mortalities with turbines and ancillary power infrastructure.

In order to assess the impact of the proposed Noblesfontein WEF Upgrades, the Preferred Alternative (larger turbines, fewer turbines, additional supporting infrastructure) was compared to the authorised No-Go Alternative.

The primary consideration relevant to the proposed development is the potential effects that the proposed changes to turbine specifications (i.e. turbine dimension and number) may have on the collision risk posed to avifauna compared to the original authorisation.

8.2.2.1 Turbine Number and Dimensions

The reduction in the number of turbines from three to two translates into 33% **fewer obstacles** in the landscape and fewer spinning blades. The increased hub height translates into an increase in maximum blade tip height, however this also translates into an increase in the minimum blade tip height from 30 m to 55 m. The **increase in the minimum blade tip height is relevant here as it may reduce the collision risk** to smaller passerine species such as displaying larks as well as to Verreaux's Eagle. While Verreaux's Eagle flight activity near the proposed turbine locations was generally low, the flights that were recorded in this area were at low altitude, between 40 – 50m, a height that would be within the RSA of the smaller authorised turbines but below the RSA of the proposed turbines. The known colony of Rock Hyrax in the vicinity of turbines 1 – 6 (BioInsight 2018) may also predict the flight behaviour of Verreaux's Eagle along this particular turbine string as they have a habit of flying at low heights and at high speed over rocky terrain while foraging for this type of prey (pers. obs.). It is therefore likely that an increase in minimum blade tip height at this specific location would **reduce the probability of Verreaux's Eagle collision**.

8.2.2.2 Turbine Layout

The proposed positions of the turbines are outside the 3km nest buffers recommended by the Verreaux's Eagle Guidelines and also outside of the larger 5.2km nest buffers recommended by Murgatroyd et al. (2021). The closest known Verreaux's Eagle nest is approximately 5.7 km from the nearest proposed turbine location [Figure 8.3]. Low levels of flight activity have been recorded near the proposed turbine location despite apparent prey availability, possibly as a result of the fact that no nests are located nearby, and more efficient foraging areas exist elsewhere. As the location of the turbines proposed are in the north, in an area with lower flight activity and outside of a 5.2km buffer applied to the nearest known nest locations, the probability of Verreaux's **Eagle collisions occurring at these turbines is reduced**.

8.2.2.3 OHPL and Substation

The overhead power line is relatively short (< 0.5km) and **unlikely to result in a significant negative impact to avifauna** following the implementation of mitigation measures. Similarly, the substation is relatively small and positioned alongside an existing substation and existing transmission infrastructure and a railway, the substation is therefore **unlikely to contribute additional significant negative impacts** on avifauna above those that are already present on the site.

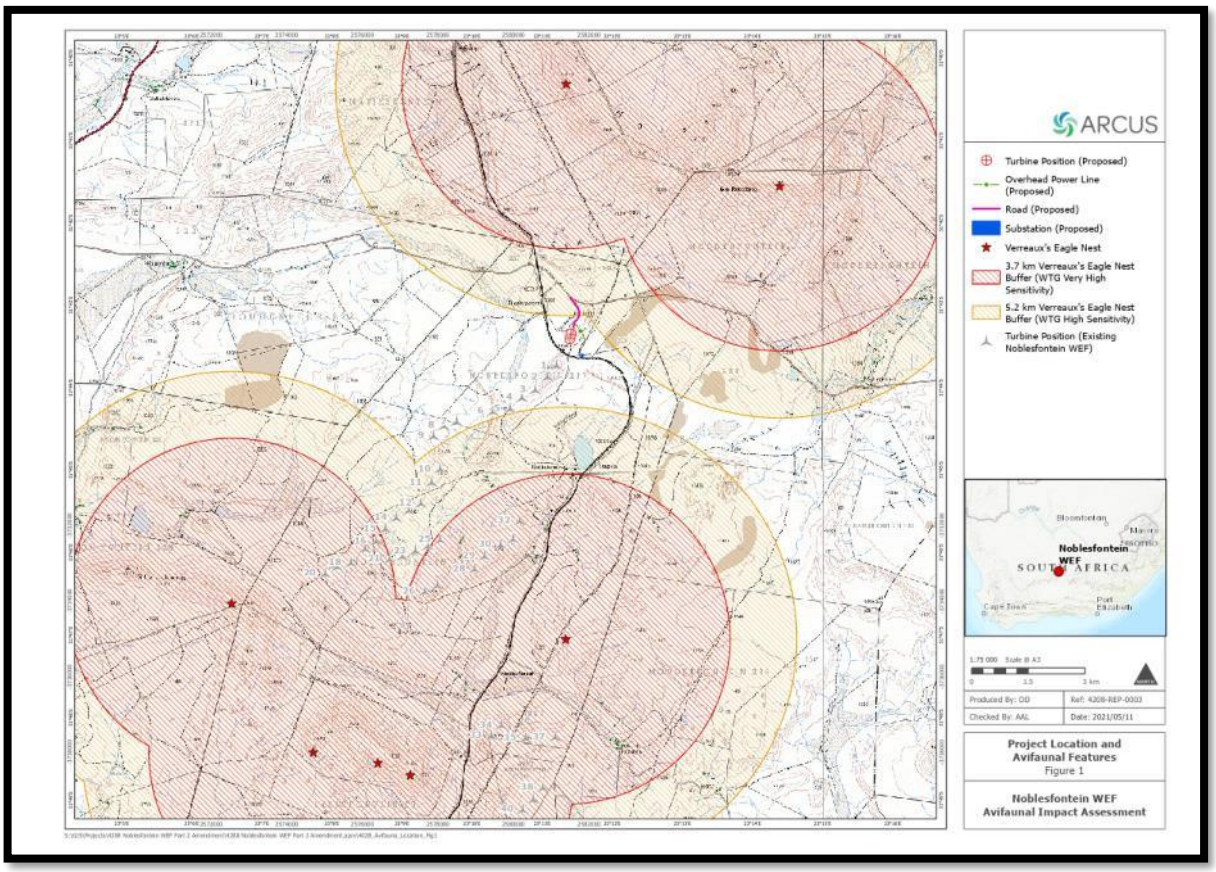


Figure 8.3: This figure shows the avifaunal opportunities and constraints for the upgraded turbines and supporting infrastructure, notably the buffers around the Verreaux's Eagle nesting sites.

8.2.2.4 Potential Impacts Identified

The impacts identified in the assessment included disturbance and habitat loss during the construction phase, and disturbance and mortality (collision) during the operational phase. All impacts were listed as "medium-high" before mitigation and "medium" after mitigation, with the exception of disturbance during the construction phase, which was listed as "medium" both before and after mitigation. Additionally, it was noted that the areas surrounding the locations or habitats most frequently used by Verreaux's Eagles (Aquila verreauxii) and Martial Eagles (Polemaetus bellicosus) should be considered as being highly sensitive areas of high sensitivity due to the presence of Verreaux's Eagle in the immediate area.

None of these were found to change as a result of the proposed Noblesfontein WEF upgrades, as indicated in Section 2.4.1.

Original Noblesfontein WEF Avifaunal Mitigation Measures:

(i) Demarcate 'no-go' areas identified during pre-construction monitoring (see below) to minimise disturbance impacts associated with the construction of the facility.

(ii) Schedule maintenance activities to avoid disturbances in sensitive areas (identified through operational monitoring).

(iii) Excluding development from:

   a. Within 500 m of any cliff lines or elevated ridges within the development area to reduce collision risk, primarily for slope soaring raptors.

   b. Within 1500 m of any known or suspected Verreaux's Eagle nest sites to reduce disturbance and collision risk for this species.

(iv) Painting one blade of each turbine black to maximize conspicuousness to oncoming birds. The evidence for this as an effective mitigation measure is not conclusive, but it is suggestive. It might be best to adopt an experimental approach to blade marking, identifying a sample of pairs of potentially high-risk turbines in pre-construction monitoring, and marking the blades on one of each pair. Post construction monitoring should allow empirical testing of efficacy, which would inform subsequent decisions about the need to mark blades more widely in this and other wind energy facilities.

(v) Ensuring that lighting on the turbines is kept to a minimum, and is coloured (red or green) and intermittent, rather than permanent and white, to reduce confusion effects for nocturnal migrants.

(vi) Minimizing the length of any new power lines installed, and ensuring that all new lines are marked with bird flight diverters (Jerkins et al. 2010), and that all new power infrastructure is adequately insulated and bird friendly in configuration (Lehman et al. 2007). The relatively low cost of marking the entire length of a new line during construction, especially quite a short length of line in an area frequented by collision prone birds, more than offsets the risk of not marking the correct sections, causing unnecessary mortality of birds, and then incurring the much greater cost of retro situations where new lines run in parallel with existing, unmarked

power lines, this approach has the added benefit of reducing the collision risk posed by the older line.

(vii) Carefully monitoring the local avifauna pre- and post-construction, and implementing appropriate additional mitigation as and when significant changes are recorded in the number, distribution or breeding behaviour of any of the priority species listed in this report, or when collision or electrocution mortalities are recorded for any of the priority species listed in this report. An essential weakness of the EIA avifauna study, given the time constraints, is the dearth of knowledge about the actual movements of key species (bustards, cranes, eagles, other raptors, flamingo's, storks) through the impact area. Such knowledge must be generated as quickly and as accurately as possible in order for this and other wind energy proposals in the area to proceed in an environmentally sustainable way. Radar tracking systems, however expensive, may be the best and most practical solution to this problem.

(viii) Ensure that the results of pre-construction monitoring are applied to project-specific impact mitigation in a way that allows for the potential cumulative effects on the local/regional avifauna of any other wind energy projects proposed for this area.

(ix) Additional mitigation might include re-scheduling construction or maintenance activities on site, shutting down problem turbines either permanently or at certain times of year or in certain conditions, or installing a 'DeTect' or similar radar tracking system to monitor bird movements and institute temporary shut-downs as and when required.

(x) Committing this project for inclusion in a Birds & Wind Energy Specialist Group (BAWESG)/FitzPatrick Institute research programme, including exploration of the use of remote-controlled gliders to map slope soaring potential of ridges targeted for wind energy development, and the long long-term behavioural and demographic impacts of wind energy developments on Verreaux's Eagle populations.

<u>The Avifaunal Specialist's additional mitigation measures for avifauna:</u>

The proposed development presents an opportunity to prescribe updated mitigation measures from those in the original authorisation that must be implemented based on an improved understanding of impacts WEFs pose to avifauna, by defining unambiguous thresholds that trigger action.

These include:

- Steps should be taken to ensure that Verreaux's Eagle's primary prey (i.e. Rock Hyrax), does not become more abundant as a result of the wind farm construction, by ensuring that excavated rocks are removed from site, and any animal carcasses found on site should be promptly removed.
- An additional post-construction carcass searching programme covering the turbines considered by this assessment must be implemented immediately upon commissioning of the turbines.
- A threshold of zero Verreaux's Eagle and Martial Eagle fatalities associated with the turbines considered by the assessment must be adopted. Should it be reasonably determined that one or more fatalities of these species can be attributed to turbine collision then the operation of the turbine(s) responsible must be halted until additional mitigation measures such as observer and/or radar assisted shut-down-on-demand, blade painting (or any future appropriate mitigation measures that may be available at the time) are implemented.

- Only once additional mitigation measures are implemented can the operation of the turbine responsible be resumed.
- All spans of overhead power lines to be constructed require the installation of appropriate markings or bird flight diverters to reduce the probability of collisions occurring.
- All pylons associated with overhead power lines must be of a bird-friendly design that incorporates suitable perches to reduce the probability of electrocutions occurring.

8.2.3 Conclusion

The proposed development is unlikely to result in an increase the overall impact significance to avifauna identified by the existing authorisation. The proposed development may reduce the probability and/or severity of the impacts identified in the original authorisation, however the degree to which the impacts may be reduced is insufficient to reduce the existing impact significance ratings.

Based on the evidence before the EAP, it is clear that the **appointed specialist has not identified any fatal flaws** with the project proposal, and it is reasonable to suggest that the Noblesfontein WEF upgrades are **acceptable and implementable** from an Avifaunal perspective.

For the full Specialist report please refer to Appendix D.

8.3 BAT IMPACT ASSESSMENT

Consultation with the information presented by the DFFE screening tool report for the proposed Noblesfontein WEF upgrades, revealed that Noblesfontein WEF **does not trigger any environmental sensitivities for the bat community on site**. Due to potential data deficiencies that may be associated with the relevant screening tool report, and the potentially at risk of collision induced bat mortality (OHPL and turbines), TMG on behalf of the Applicant appointed Arcus C/O Ashlin Bodasig to undertake a Bat Impact Assessments for the Noblesfontein WEF upgrades, to consider the impacts to bats and proposed mitigation measures to possibly reduce risk, if any.

8.3.1 Receiving Environment and Bat Sensitivity

It should be noted that the **receiving environment consists of an already authorised and operational WEF**, and the suitability of the environment has therefore already been assessed and approved.

The Noblesfontein WEF site contains numerous sensitive features, particularly relating to the presence of potential roosting structures for bats, such as buildings, large trees, rocky outcrops and steep cliffs. Other sensitive features considered potentially important, particularly for their suitability for foraging activities, are farm dams/reservoirs, drainage lines, rivers, wetlands and cultivated fields.

However, the project site should be considered to have a "**low**" sensitivity on the local bat community, with certain roosting features to be of a high sensitivity.

It should be noted that these buffers apply only to turbines and not associated infrastructure such as roads and powerlines. Both proposed turbines fall within bat sensitive areas – particularly that related to relevant 1,000m roosting buffers. (Figure 8.4)

It should also be noted however that three turbines are already authorised for the Noblesfontein WEF roughly sharing the same footprint as two of the proposed upgraded turbines.

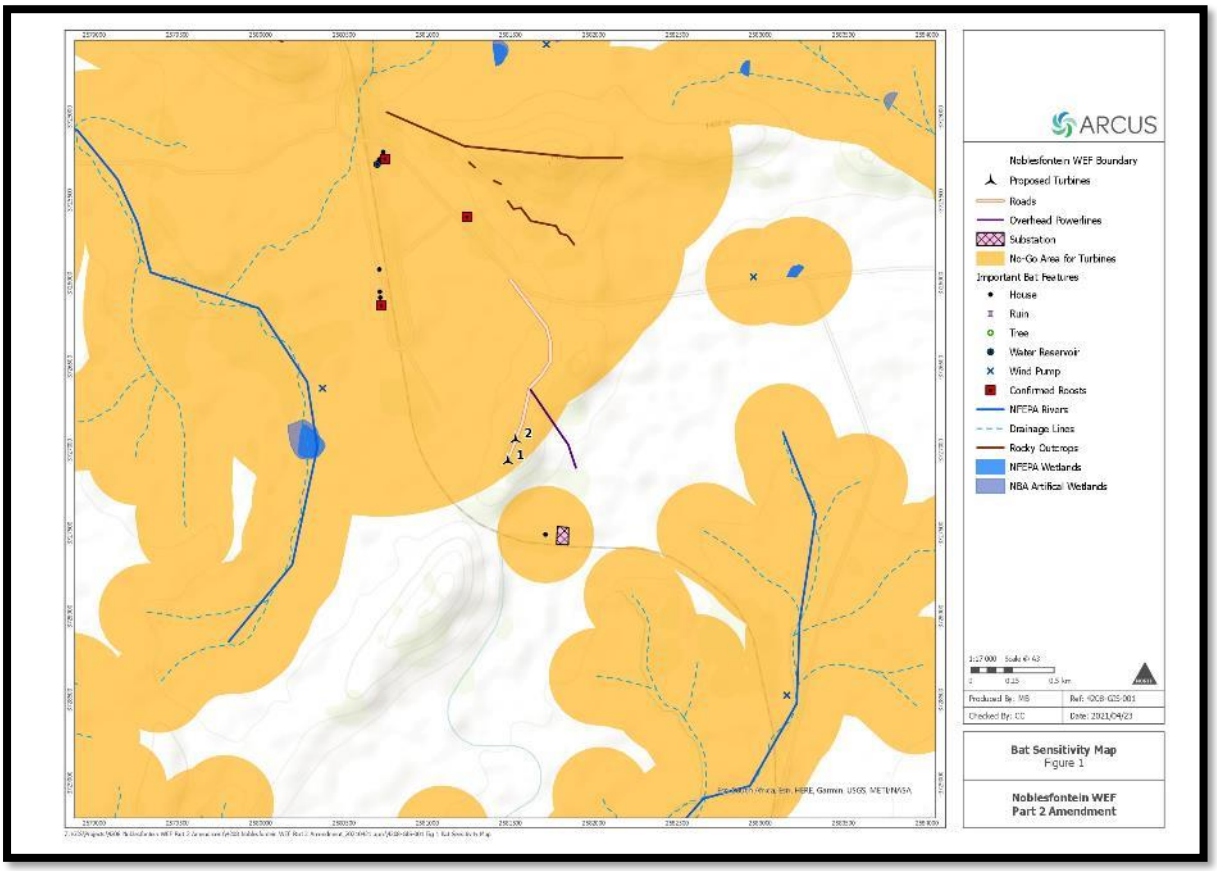


Figure 8.4: This figure shows the bat opportunities and constraints for the upgraded turbines and supporting infrastructure.

8.3.2 Potential Impact Identified

In terms of impacts being identified, only mortality of species due to collision with turbine blades or barotrauma, and cumulative impacts are being considered relevant for this assessment.

Turbine collision and barotrauma induced mortality.

Compared to the current turbine layout and dimensions of Noblesfontein WEF, it is likely that the addition of the two turbines would (without mitigation) slightly increases mortality impacts on bats. This is primarily because of an increased overall rotor swept area relative to that which is currently present at Noblesfontein WEF, with the additional blades extending higher into the air, as well as the location of turbines in bat sensitive areas – placing bats (particularly those using open spaces for commuting and foraging) at a higher risk.

It should be noted that the Specialist makes this comparison to the absence of turbines. The Noblesfontein WEF is however already authorised for a further 3 turbines.

The key initial mitigation measure that should be implemented at the Noblesfontein WEF would be adherence to the updated sensitivity map (Figure 8.4), and for all high bat sensitive areas to be avoided from turbine placement. Due to technical constraints, these turbines cannot be micro-sited out of the sensitivity area. As this is not specifically a no-go it is the specialist opinion that these turbines can be placed in this area with specific mitigation measures. As a result of the above, it is recommended maximising the ground clearance and minimising the tip height (i.e. the distance between the ground and the blade tip at its highest point) as much as possible. More specifically, it is not recommended for the lowest blade tips to encroach any lower than 30m above ground, as turbines with a lower ground clearance run the risk of reaching the fatality thresholds sooner. Additionally, due to the presence of the two turbines in high sensitive areas, it is recommended that strict mitigation measures, which includes curtailment, to be defined and subsequently implemented as soon as the turbines are erected.

Based on bat activity and fatality levels, as assessed from post-construction monitoring data, impacts to bats are likely to be of a medium significance before mitigation and low after mitigation.

Cumulative impacts.

The cumulative impacts will depend on the number of WEF in the region, the species involved, the levels of bat mortality and mitigation measures implemented at each wind energy facility. Bats reproduce slowly (Barclay and Harder 2003) and their populations can take long periods of time to recover from disturbances so the cumulative impacts can be high if appropriate management and mitigation is not implemented. There are approximately three wind energy facilities planned within a 30km radius of the Noblesfontein WEF.

Cumulative impacts are likely to be of a high significance before mitigation and medium after mitigation.

Mitigation measures

- All currently proposed mitigation measures proposed in the Noblesfontein WEF EMPr / EA should be adhered to.[15] This includes adhering to the updated sensitivity map (Figure 8.4) which will require repositioning turbines (and their blades) that intrude into sensitive buffers. These buffers are regarded as no-go areas for turbine components only, and other infrastructure (roads, cables etc) are permissible. These areas include 1000m around all confirmed roosts, 500m around all cliff lines and 200m around all other important bat features.
- Should it not be possible to relocate these turbines, then certain strict mitigation measures, which includes curtailment, should be defined and implemented as soon as turbines are erected.
- In the event that turbines can be micro-sited, then a bat specialist must map the final turbine layout before micro-siting and assess whether all turbines are appropriately sited in such a way that their blades do not encroach into any bat sensitive buffers.
- All mitigation measures to protect bats proposed in the Noblesfontein WEF EMPr (Savannah 2012) must be adhered to.

[15] Please note that the Specialist makes reference to the mitigation measures in the existing Noblesfontein WEF EMPr / EA. There was however no Bat Specialist or mitigation measures in this original EA, though operational bat monitoring was conducted following construction to assess impacts and inform mitigation measures.

Additional mitigation measures

- The impacts presented can be mitigated by using turbines which maximise the ground clearance as much as possible, and by minimising the tip height (i.e. the distance between the ground and the blade tip at its highest point). The lowest tip should not encroach any lower than 30m above ground, in order to reduce the risk of bat mortalities from reaching the specified estimated threshold limits of 44.3 bats per annum.
- Additionally, a full operational phase monitoring campaign, inclusive of fatality monitoring and estimates, is to commence as soon as the wind turbines are erected, and in accordance with latest version of the bat monitoring guidelines. This is to take place for the entire Noblesfontein WEF. Based on results from this monitoring campaign, should the estimated bat fatalities for the entire Noblesfontein WEF exceed the threshold of 44.3 bats per annum, then strict curtailment measures will need to be implemented – to be defined and monitored by an appropriate bat specialist.

8.3.3 Conclusion

If all mitigation measures listed in this report are strictly adhered to, then it is not anticipated for any change in impacts, relative to that currently taking place at the authorised WEF, to be significant. Therefore, from a bat perspective, the proposed development considered can proceed, provided that all mitigation measures are adhered to.

Based on the evidence before the EAP, it is clear that the **appointed specialist has not identified any fatal flaws** with the project proposal and it is reasonable to suggest that the Noblesfontein WEF upgrades are **acceptable and implementable** from a Bat perspective, **provided all mitigation measures are adhered to.**

For the full Specialist report please refer to Appendix D.

8.4 BOTANICAL IMPACT ASSESSMENT

TMG, on behalf of the Applicant appointed Nick Helme Botanical Surveys C/O Nick Helme to undertake a Botanical Impact Assessment for the Noblesfontein WEF upgrades

8.4.1 Receiving Environment

It should be noted that the **receiving environment consists of an already authorised and operational WEF**, and the suitability of the environment has therefore already been assessed and approved.

The study area lies within the Nama Karoo biome and the Upper Karoo bioregion (Mucina & Rutherford 2006) and is outside the Greater Cape Floristic Region (GCFR). The Nama Karoo is a large biome (19% of the country) but is relatively species poor (although the total figure is unknown), and has very few local few endemics and no centres of endemism (Mucina & Rutherford 2006). Because the entire biome is semi-arid, with unpredictable rainfall and almost no surface water, agriculture is limited to extensive stock farming (mostly sheep), with very limited irrigated agriculture (using groundwater), and this means that habitat transformation and loss has been low – much lower than for most other biomes, but overgrazing is a problem in at least 60% of the area (Mucina & Rutherford 2006).

Conservation Status

The latest conservation planning products for the area (Oosthuysen & Holness 2017) indicate that the study area is classified as an ONA (Other Natural Area), a relatively low conservation rating. No higher-level Critical Biodiversity Areas (CBAs) are mapped within the study area. Activities that do not impinge on ecological functioning and water quality are permissible within ESAs and ONAs (Holmes et al 2012).

No plant Species of Conservation Concern1 (SoCC: previously known as Red Data or Red Listed species; Raimondo et al 2009) were confirmed by Hoare from the nearby Modderfontein WEF the study area (Hoare 2011), and the likelihood of any occurring within the study area is deemed to be low. Few SoCC are generally found within the Upper Karoo Hardeveld, at least in comparison to many other habitats.

Despite this,

Many legally protected species are present in the project area, and in fact as many as 30% of all plants in the area may be legally protected (Provincial Gazette for Northern Cape 2012, and CapeNature Ordinance 2000). This means that any disturbance or loss of these species requires the relevant permit from the relevant authority (DENC or CapeNature).

Botanical Sensitivity

About 50% of the road route and both the turbines are located within an area assessed as being of Medium - High sensitivity, and this area includes most of the dolerite ridges and plateaus [Figure 8.5]. The remainder of the infrastructure is located within an area deemed to be of Low to Medium botanical sensitivity.

Terrestrial Faunal Sensitivity

Key terrestrial faunal species potentially in the area include various reptiles and the Riverine Rabbit (Critically Endangered), which has been confirmed from within 20km of this site, and is certainly the most threatened of any of the potential faunal species in the area. Riverine Rabbits require alluvial areas with soft soils and scattered vegetation, but there do not appear to be any suitable alluvial habitats within this study area, and the species is thus unlikely to occur here. In terms of reptile sensitivities, none of the species that could occur in the area are of significant conservation concern.

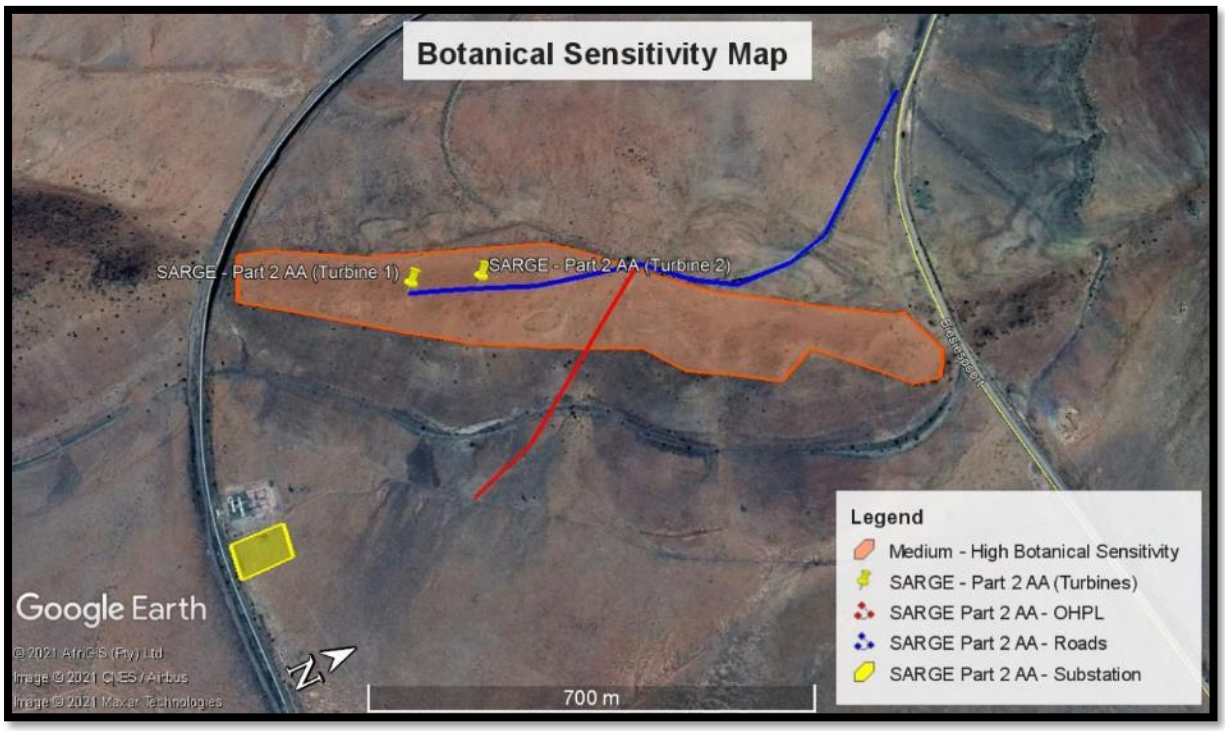


Figure 8.5: This figure shows the Botanical Sensitivity map (desktop based) of the study area. Unshaded areas within the study areas are of Low - Medium botanical sensitivity.[16]

8.4.2 Likely Terrestrial Faunal and Botanical Impacts

In terms of the construction of the proposed infrastructure on this site the following potentially negative ecological issues have been identified:

- Direct, permanent loss of the existing natural vegetation and animal habitat during the construction phase (cable trenches, substation, turbine footprints, roads). Temporary direct impacts will also arise at the construction phase. No plant SoCC are likely to be impacted, but up to 3ha of plant habitat will be lost.
- Possible construction phase impact (loss of habitat and individuals) on certain less mobile terrestrial animal species (cable trenches, turbine footprints, substation, roads), potentially

[16] This is a desktop-based assessment. As no site survey was undertaken it should be noted that the accuracy of this sensitivity mapping is relatively low. The Botanical Sensitivity and Terrestrial Faunal Sensitivity maps are identical. As such, only the Botanical map is given.

including Braack's pygmy gecko (rather unlikely to occur in area) and Karoo dwarf tortoise (may occur in low numbers).

- Indirect, permanent ecological impacts at the operational phase. The main negative impact is likely to be a degree of habitat fragmentation and partial disruption of the current ecological connectivity across the site, with secondary issues likely to be the introduction or facilitated spread of various invasive alien plant species.

No significant positive direct ecological impacts are expected to be associated with this project.

The Preferred Alternative vs the No-Go Alternative

The two-turbine amended layout (Preferred Alternative) may disturb up to 25% more habitat in the two targeted turbine positions than would the approved turbine layout, and thus the amended layout is likely to have a very slightly greater botanical and faunal impact than the authorised layout overall, but the difference is marginal.

Original Noblesfontein WEF Mitigation Measures:

All mitigation and EMPr requirements outlined in the original EA should also be required for the amended layout, if authorised.

These include:

Control alien invasive plants.

- Avoid creating conditions in which alien plants may become established:
    a. Keep disturbance of indigenous vegetation to a minimum.
    b. Rehabilitate disturbed areas as quickly as possible.
    c. Do not import soil from areas with alien plants.
- Establish an ongoing monitoring programme to detect and quantify any alien species that may become established and identify the problem species (as per Conservation of Agricultural Resources Act).
- Immediately control any alien plants that become established using registered control methods.

Control loss of indigenous natural vegetation.

- The construction impacts must be contained to the footprint of the infrastructure.
- Internal access roads and underground cables should be aligned as much as possible along existing linear disturbances, eg. Roads on site, or the edges of cultivated lands, and away from steep slopes and drainage lines as much as possible.
- Unnecessary impacts on surrounding natural vegetation must be avoided.
- Rehabilitate any disturbed areas immediately to stabilize landscapes.

The Botanical Specialist's additional mitigation measures:

Additional mitigation required is as follows:

- During construction, any cable and foundation trenches should be closed up as soon as possible, and the ECO must survey all open trenches three times a day and remove any animals that have fallen into these holes.
- Roads, turning areas and cable trenches must avoid all rocky outcrops, and where this is not possible impact on outcrops must be minimised.

8.4.3 Conclusion

If all mitigation measures listed above are strictly adhered to, then it is not anticipated for any change in impacts, relative to that currently taking place at the authorised WEF, to be significant.

Based on the evidence before the EAP, it is clear that the **appointed specialist has not identified any fatal flaws** with the project proposal, and it is reasonable to suggest that the Noblesfontein WEF upgrades are **acceptable and implementable** from a Botanical and Ecological (Terrestrial Faunal) perspective.

For the full Specialist report please refer to Appendix D.

8.5 HERITAGE IMPACT ASSESSMENT

TMG, on behalf of the Applicant appointed CTS Heritage C/O Jenna Lavin to undertake Heritage Impact Assessment for the Noblesfontein WEF upgrades.

8.5.1 Receiving Environment

It should be noted that the **receiving environment consists of an already authorised and operational WEF**, and the suitability of the environment has therefore already been assessed and approved.

With reference to the broader Noblesfontein WEF:
In March 2011, Binneman et al. (SAHRIS ID 7035) (Original EIA for the Noblesfontein WEF) completed an archaeological impact assessment which identified surface scatters of Middle Stone Age (MSA) artefacts throughout the farm, primarily located in flat floodplain areas. These scatters of MSA had no other associated archaeological material, were found to occur in a disturbed context, and are likely associated with water runoff and erosion. The report also identified the shard remains of a single broken Khoe pot, as well as limited occurrences of Later Stone Age artefacts on the Noblesfontein property as well as a number of rock art sites as well as boulders with rock engravings. There are likely more examples of rock art and rock engravings on the Noblesfontein property that have not been located in the assessments completed to date. These kinds of resources, the rock art and rock engravings, are rare and generally have high heritage significance. Three stone structures of unknown origin were also found and human remains eroding out of a donga on the farm were located. (SAHRIS ID 34749). From the description provided, it seems that these remains are relatively modern. In their comments, SAHRA has indicated the actions required for the human remains that are older than 60 years that are exposed.

Subsequent assessments identified additional occurrences of MSA artefact scatters associated with rocky outcrops and koppies in addition to some ostrich eggshell pieces associated with Late Stone Age (LSA) artefact scatters, an additional stone wall complex consisting of eight additional structures and a further informal burial ground. Additional historic artefacts dated to the early 20th century were also found.

Palaeontological Sensitivity

According to the SAHRIS Palaeosensitivity Map, the area under assessment is underlain by sediments of zero and very high palaeontological sensitivity. The palaeontologically sensitive sediments underlying the development area include sediments of the Karoo Supergroup assigned to the Beaufort group, within the Poortjie Member of the Teekloof Formation of the Adelaide Subgroup (Council of GeoScience Map 3122, Victoria West). Rossouw (2011) conducted a desktop Palaeontological Assessment for an area that includes the area assessed in this report (SAHRIS ID 8943). According to Rossouw, the Teekloof Formation bedrock sediments located in this area have high palaeontological significance for the potential to impact on terrestrial tetrapods. Plants, silicified wood and trace fossils. Rossouw (2011) further notes that Quaternary alluvial deposits in the area, especially near water

courses and drainage lines, are of medium palaeontological sensitivity and have the potential to yield microfossils and fossil mammal remains as well as Early Stone Age artefacts.

Furthermore, according to the PalaeoBio Database (a non-governmental, non-profit public resource for palaeontological data), a palaeontological collection called the Modderfontein Fossil Collection is known from the neighbouring farm […] The Modderfontein Fossil Collection speaks to the high palaeontological sensitivity of this farm.

The Paleosensitivity map for the Noblesfontein WEF upgrade site is shown in Figure 8.6.

Archaeology and other Heritage Sensitivities

Although it is unclear if Binneman (2011) assessed the area proposed for the new infrastructure, **no known heritage resources are located near the proposed development**.

All of the heritage resources identified within the proximity of the proposed Noblesfontein WEF upgrades are mapped in Figure 8.7.

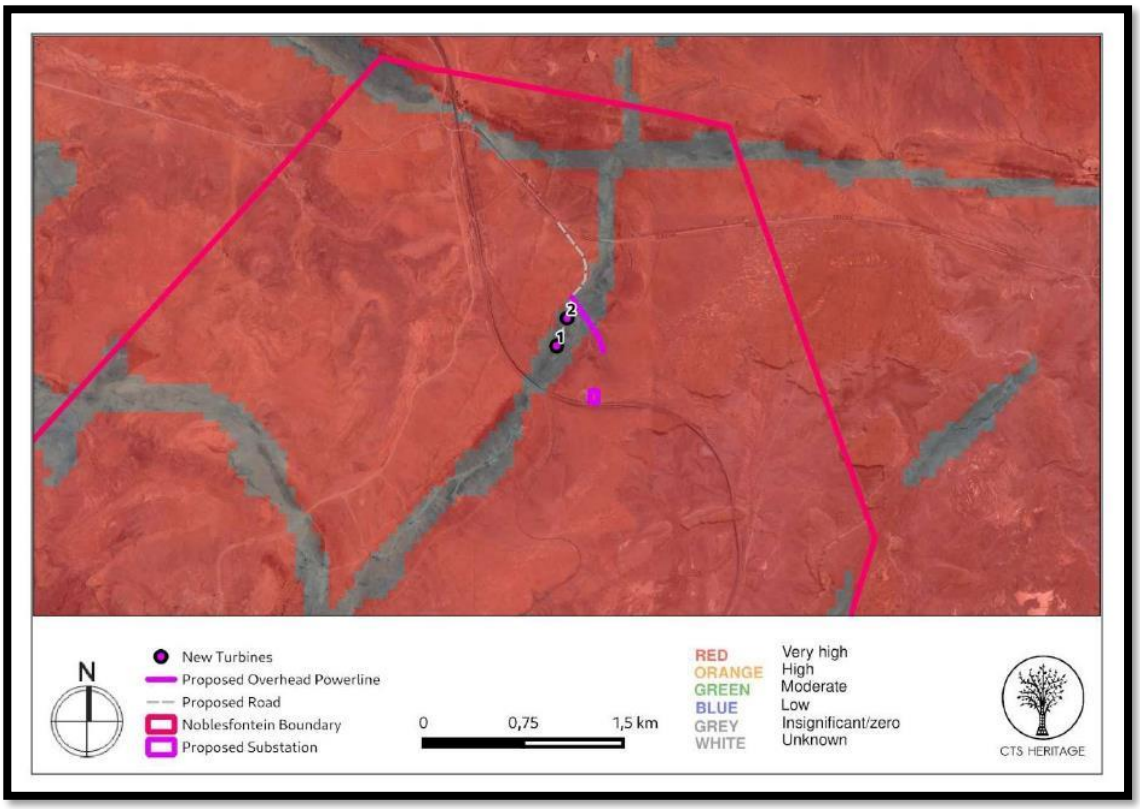


Figure 8.6: Palaeosensitivity Map indicating fossil sensitivity underlying the study area.

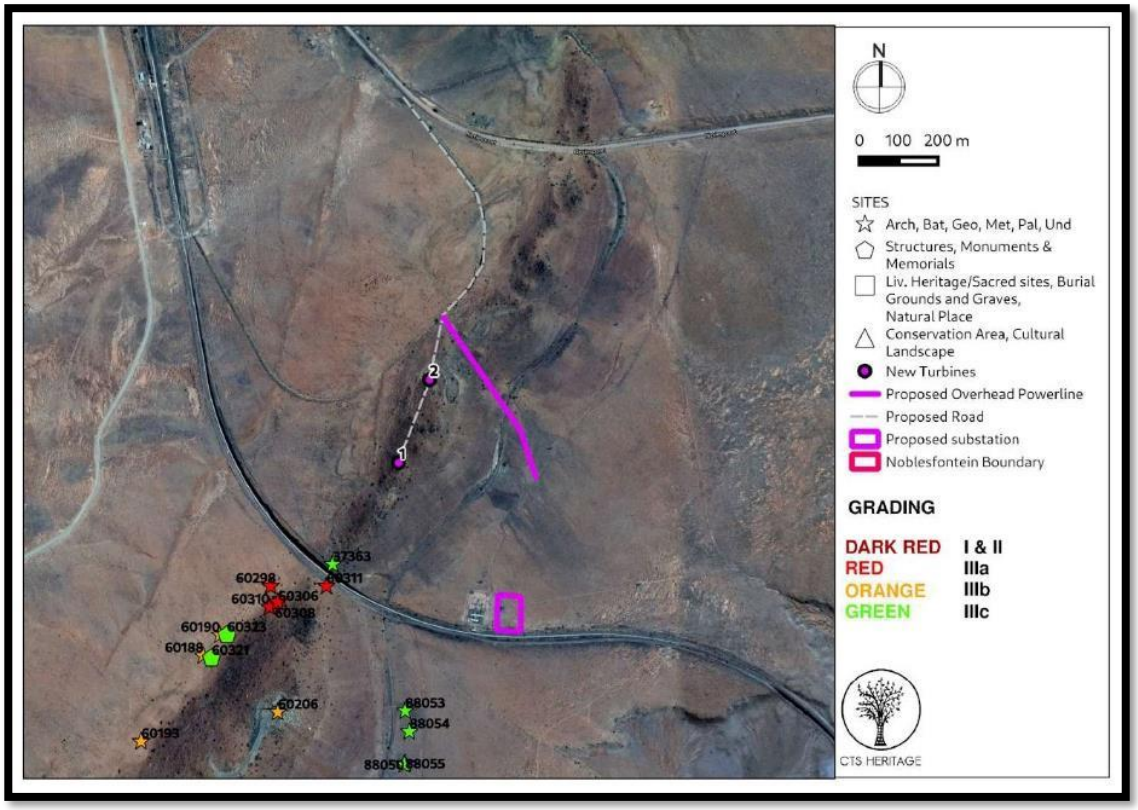


Figure 8.7: Heritage Resources Map for all heritage resources located in proximity to the proposed upgraded turbines, road, OHL and substation.

8.5.2 Potential Impacts Identified

Potential Archaeology and other Heritage Impacts

Furthermore, most of the proposed road is located along an existing road alignment. The proposed new turbines and the remaining section of the road are located on top of a small dolerite koppie. As such, due to the high archaeological significance of the resources known from this farm, there is a possibility that the development of the two new turbines, proposed road and overhead line will negatively impact on significant archaeological heritage in the form of rock or engravings associated with the dolerite outcrop.

Mitigation Measures

- No construction activities may take place within 100m of the documented rock shelters containing rock paintings and boulders containing rock engravings.
- The ridges and rocky outcrops surrounding the locations of the turbines must be investigated prior to construction to establish whether undocumented rock shelters contain rock paintings and rocky outcrops contain boulders with rock engravings. If any are encountered the recommendations in point 1 must be implemented.
- No construction activities may take place within 100m of the documented stonewall structures.
- If it is inevitable that construction activities must take place within 100m of any documented and undocumented rock shelters containing paintings, rocky outcrops with boulders containing rock engravings and stone-wall structures a perimeter fence must erected to protect the sensitive area from any possible negative impact.
- It is possible that in situ archaeological sites/remains, and human remains may be uncovered during construction. Therefore, a professional archaeologist should be appointed during the vegetation removal and construction phases of the development. This includes the construction of new roads for heavy vehicles for the transport of the wind turbines, solar panels, and other infrastructure.

The Heritage Specialist did not indicate any new mitigation measures that are needed.

8.5.3 Conclusion

It is possible that the proposed development of two turbines and associated road and OHL will negatively impact significant archaeological heritage and as such, it is recommended that the area proposed for development as part of this amendment application is assessed for significant archaeological heritage such as rock art and rock engravings associated with the dolerite outcrop ***prior to construction activities****. It is further recommended that the attached Palaeontological Chance Finds Procedure be implemented for the duration of construction activities.*

Based on the evidence before the EAP, it is clear that the **appointed specialist has not identified any fatal flaws** with the project proposal and it is reasonable to suggest that the Noblesfontein WEF upgrades are **acceptable and implementable** from a Heritage perspective, **provided the appropriate mitigation measures are followed.**

For the full Specialist report please refer to Appendix D.

8.6 TRAFFIC IMPACT ASSESSMENT

TMG, on behalf of the Applicant appointed Innovative Transport Solutions C/O C. Krogscheepers, P. Arangie & T. Neels (to undertake the Traffic Impact Assessments for the Noblesfontein WEF upgrades.

8.6.1 Receiving Environment

It should be noted that the **receiving environment consists of an already authorised and operational WEF**, and the suitability of the environment has therefore already been assessed and approved.

Existing Roadways

Roads included in this study are the National Roads (N1 & N12), the R63 and other provincial roads in the site vicinity. The existing roadway characteristics are summarised in Table 8.1.

Table 8.1: Existing Roadway Facilities

Roadway	*Type of Road*	*Posted Speed (km/h)*	*Road Surface*
N1	*National Road*	*120*	*Paved/Tar*
N12	*National Road*	*120*	*Paved/Tar*
R63	*Provincial Trunk Road*	*120*	*Paved/Tar*
Biesiespoort Road	*Provincial Divisional Road*	*Not posted Assumed 60*	*Gravel*

Existing Cross Sections and Surface Conditions

In the vicinity of the proposed development, the N1 and the N12 have a typical rural formation of a National Road, paved with one lane per direction of travel with paved shoulders along both sides of the road. The lanes are 3.7m wide with 2m wide shoulders. The typical cross section for the R63 is 3.4m wide lanes with gravel shoulders. All paved (tarred) roads in the site vicinity have good surface conditions. Biesiespoort Road is an 8m wide gravel road and the gravel surface is in fair condition with some poor sections.

The typical cross-section of the roads in the site vicinity can be found in the Specialist's report (Appendix D).

Existing Traffic Volumes

The existing traffic conditions are based on the traffic volumes extracted from the SANRAL Comprehensive Traffic Observation (CTO) Stations and Provincial count stations in the area. The table below illustrates the current annual average daily traffic volumes (AADT), the annual daily truck traffic volumes and the peak hour volumes on the road network in the wind farm site vicinity.

Table 8.2: Traffic Volumes

Road	*AADT*	*Peak Hour Volume*	*% Heavy Vehicles*
N1	*3724*	*271*	*49%*
N12	*755*	*135*	*43%*
R63	*118*	*10*	*25%*
Biesiespoort Road	*<50*	*<10*	*30%*

The existing traffic volumes along the surrounding road network are low and the existing traffic volumes will not be any reason for concern in terms of the expected transport impact associated with the proposed development.

SITE ACCESSES

Construction access to the wind turbine locations will be via existing access roads off the Biesiespoort Road as illustrated on the proposed Site Layout Plan [See Figure 9.1]. The public road network in the site vicinity should be maintained during the construction period and once the construction phase is completed, any damage to the surrounding Provincial Road Network should be repaired to an acceptable standard.

8.6.2 Potential Impacts Identified

The expected effects of traffic that would be generated by the proposed development during peak hours were analysed as follows:

- The background traffic volumes were determined for the study network in the vicinity of the site. These are the traffic volumes that would be on the road network in the absence of the proposed development (No go Alternative).
- A growth factor was applied to account for regional growth.
- Construction Phase Traffic.
- Site-generated trips were estimated for the proposed development.
- The construction phase traffic and the assigned site-generated traffic from the proposed development were added to the background traffic volumes to determine the total traffic conditions during the construction phase and with the development completed.

Year 2026 Background Traffic Conditions (No go alternative)

For the purposes of this study, year 2025 background traffic volumes were developed by applying a 3.0 percent annual traffic growth rate to the existing traffic volumes on the major links. This estimated growth rate was assumed to allow for the additional traffic volumes that will be generated by other in-process and future developments in the vicinity of the proposed development.

Due to the low traffic volumes along the surrounding road network, it is expected that the road network will continue to operate at acceptable levels-of-service during the background conditions. The roads in the site vicinity are in a fair condition and no major maintenance will be required in the near future.

Construction Phase

A large amount of traffic will be generated during the construction phase. The following activities will probably occur during the construction phase:

- Construction of the internal access roads.
- Stripping and stockpiling of topsoil.
- Excavation and construction of the foundations for the wind turbines.
- Construction of the operations building.
- Erection/Assembly and disassembly of the cranes.
- Assembly of the towers, nacelles and blades.
- Trenching for cabling.
- Reinstatement of the site.

The internal access roads to the two turbines will be constructed mainly of local materials sourced on site if the material is suitable, otherwise material will be imported from commercial sites. These roads will be retained and used for inspection and maintenance of the wind turbines.

The tower foundations are large reinforced concrete footings. It is assumed that the material removed during excavation will be utilised within the site to create hardstand areas for the cranes and in reinstating the site after construction. It is assumed that the concrete will be mixed on site and the raw materials will be transported to the site via the existing road network. It is assumed that up to 75 truckloads will be required for each foundation.

Approximately 20 heavy truck loads are required on site to assemble and disassemble the cranes. The components of the wind turbines will be transported to the site from Coega, Saldanha or Cape Town harbours and approximately 12 abnormal truck loads are required per wind turbine.

Proposed Road Network Upgrades

Based on the expected number of construction trips generated by the proposed development the existing road network has sufficient capacity to accommodate the additional trips from an operational perspective. During construction it is expected that road surfaces of the gravel roads might require maintenance to prevent damage to the road structure.

Operational Phase

The operational phase of this project is not expected to generate significant traffic volumes. The typical day-to-day activities will probably only be service vehicles undertaking general maintenance at the site. It is not expected that the two additional wind turbines will require additional permanent staff on site. Hence the two additional wind turbines will not result in additional site traffic during the operational phase.

Mitigation Measures

- All deliveries with abnormal loads will operate under an approved transportation plan with the necessary traffic routes and traffic accommodation plans in place.
- It is recommended that construction and abnormal load traffic should be limited to outside the typical traffic peaks in build-up areas and through towns.

8.6.3 Conclusion

The current demand on the existing road network in the site vicinity is low and the road network and intersections operate at acceptable levels of service.

Based on the evaluation as discussed in this report the existing road network has sufficient spare capacity to accommodate the proposed two additional wind turbines without any road upgrades required to the existing road infrastructure. It is recommended that the proposed Noblesfontein WEF Basic Assessment be approved from a transport impact perspective.

It should be noted that the bulk of the construction phase traffic impact will be associated with the construction of the two upgraded wind turbines. If the Noblesfontein WEF upgrades are not authorised, the applicant may still construct the three remaining authorised turbines. The traffic impacts discussed will therefore occur for either alternative, and abnormal loads associated with a reduced number of turbines will likely result in decreased traffic impacts associated with the Preferred Alternative.

Based on the evidence before the EAP, it is clear that the **appointed specialist has not identified any fatal flaws** with the project proposal, and it is reasonable to suggest that the Noblesfontein WEF upgrades are **acceptable and implementable** from a traffic perspective.

For the full Specialist report please refer to Appendix D.

8.7 NOISE IMPACT ASSESSMENT

TMG, on behalf of the Applicant appointed Enviro Acoustic Research C/O Morné de Jager to undertake the Noise Impact Assessments for the Noblesfontein WEF upgrades.

8.7.1 Receiving Environment

It should be noted that the **receiving environment consists of an already authorised and operational WEF**, and the suitability of the environment has therefore already been assessed and approved.

The area surrounding the proposed site consists predominantly of wilderness and agricultural activities (game and sheep farming). Consequently, there is very little if any noise generated from existing activities. The operational Noblesfontein WEF is located to the south-west of the proposed WTG.

Ambient sound levels were measured during 4 – 5 February 2011. The area in general is very quiet with few sounds of anthropogenic origin. Two vehicles were encountered over an eight-hour period during the daytime sampling run, with 5 trains using the railroad. No vehicles or trains were encountered during the night-time sampling run (Approximately 4 hours).

All the data indicates a site with a soundscape typical of a rural noise district.

Noise Sensitivity – Potential Noise-sensitivity Receptors

There are a number of structures located within 2,000m from the proposed WTG, with the only structure used for residential purposes located further than 1,000 m from the proposed wind turbines. (See Figure 8.8)

- NSD1, a dwelling used for residential purposes by Mr. Jan Kuyler (a project employee). The noise levels due to the addition of the WTGs was calculated at 35.8 dBA.
- NSD 2, number of derelict structures, projected noise level 37.1 dBA.
- NSD 3, an old dam and a number of derelict structures, projected noise level 32.9 dBA.
- A substation area.

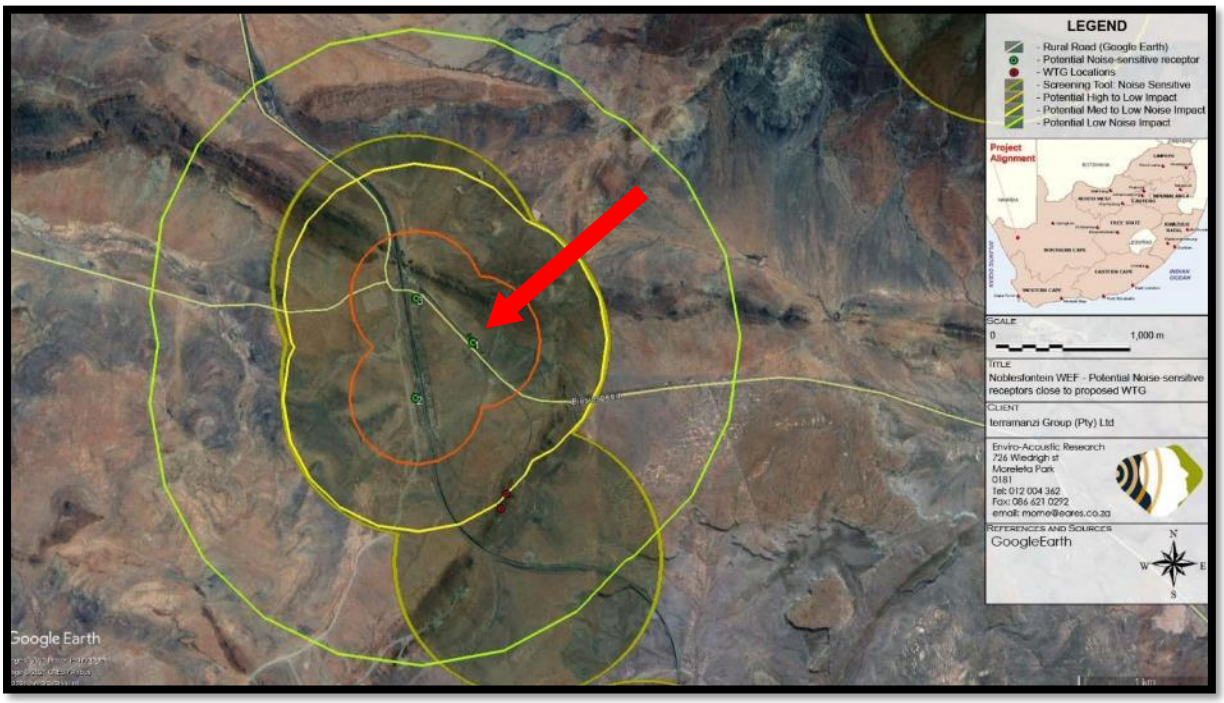


Figure 8.8: This figure shows the Potential Noise Sensitive Areas and identified receptors. Site Sensitivity Verification found that only a single occupied residential dwelling/receptor exists (Red Arrow).

8.7.2 Potential Impacts Identified

There is therefore no risk from a potential noises impact from the addition of the WTG (and further acoustical investigations would not be required) when considering:

- The low projected noise levels from the proposed addition of the WTGs.

The distance between the proposed WTGs and closest NSA **Mitigation Measures:**

Despite no potential impacts being identified by the specialist, all mitigation and EMPr requirements outlined in the original EA should also be required for the proposed Noblesfontein WEF upgrades.

These are outlined below.

CONSTRUCTION PHASE

Management options to reduce the noise impact during the construction phase include:

- Route traffic as far as practical possible from potentially sensitive receptors.
- Ensure a good working relationship between the developer and all potentially sensitive receptors. Communication channels should be established to ensure prior notice to the sensitive receptor if work is to take place close to them. Information that should be provided to the potential sensitive receptor(s) include:
    - Proposed working times.
    - How long the activity is anticipated to take place.

    - What is being done, or why the activity is taking place.
    - Contact details of a responsible person where any complaints can be lodged should there be an issue of concern.
- When working near (within 500m – potential construction of access roads and trenches) to a potential sensitive receptor(s), limit the number of simultaneous activities to the minimum.
- When working near to potentially sensitive receptors, coordinate the working time with periods when the receptors are not at home where possible. An example would be to work within the 08h00 to 14h00 timeslot to minimise the significance of the impact because:
    - Potential receptors are most likely at school or at work, minimising the probability of an impact happening.
    - Normal daily activities will generate other noises that would most likely mask construction noises, minimising the probability of an impact happening.

Technical solutions to reduce the noise impact during the construction phase include:

- Using the smallest/quietest equipment for the particular purpose. For modelling purposes, the noise emission characteristics of large earthmoving equipment (typically of mining operations) were used, that would most likely over-estimate the noise levels. The use of smaller equipment therefore would have a significantly lower noise impact.
- Ensuring that equipment is well-maintained and fitted with the correct and appropriate noise abatement measures.

Monitoring:

- Twice annual noise monitoring during construction period by an Acoustic Consultant or Approved Noise Inspection Authority. Noise monitoring to be conducted downwind from all noisy activities or at PSRs when work is taking place within 1,000m from a potentially sensitive receptor. Monitoring to take place every time that a noise complaint is registered.

<u>OPERATIONAL PHASE</u>

- Design and implement a noise monitoring programme.
    - Quarterly noise monitoring by an Acoustic Consultant or Approved Noise Inspection Authority for the first year of operation. Monitoring should take place over a 24-hour period in 10-minute bins, with the results co-ordinated with the 10m wind speed. Noise monitoring programme to be developed and implemented at the start of operation.
    - Add additional noise monitoring points at any complainants that registered a noise complaint relating to the operation of the WEF.

8.7.3 Conclusion

It is therefore recommended that the addition of the two WTGs at the authorised Noblesfontein WEF project be approved from a noise perspective.

Based on the evidence before the EAP, it is clear that the **appointed specialist has not identified any fatal flaws** with the project proposal, and it is reasonable to suggest that the Noblesfontein WEF upgrades are **acceptable and implementable** from a noise perspective.

For the full specialist report please refer to Appendix D.

8.8 VISUAL IMPACT ASSESSMENT

TMG, on behalf of the Applicant appointed Environmental Planning and Design C/O Jonathan Marshall to undertake the Visual Impact Assessments for the Noblesfontein WEF upgrades.

8.8.1 The Receiving Environment

It should be noted that the **receiving environment consists of an already authorised and operational WEF**, and the suitability of the environment has therefore already been assessed and approved.

Visual Sensitivity

Possible landscape and visual implications include:

a) Due to the larger size of turbines, it is possible that they may be visible over a wider area than the smaller authorised structures (extent of visibility).
b) Due to the larger size of turbines, it is possible that they may be more obvious than the smaller authorised structures (assessment of impact zones).
c) Due to the larger size of turbines, it is possible that they may affect a greater number of stakeholders with shadow flicker than the smaller authorised structures (shadow flicker).

There are discussed further below.

8.8.2 Potential Impacts Identified

Extent of Visibility

Zones of Theoretical Visibility (ZTV) are defined as "a map, usually digitally produced, showing areas of land within which a development is theoretically visible"[17].

Map 3 [Figure 8.9] indicates the relative ZTV of two 3MW turbines (authorised specification) relative to the proposed two larger turbines, as proposed by the Applicant.

[17] UK Guidelines

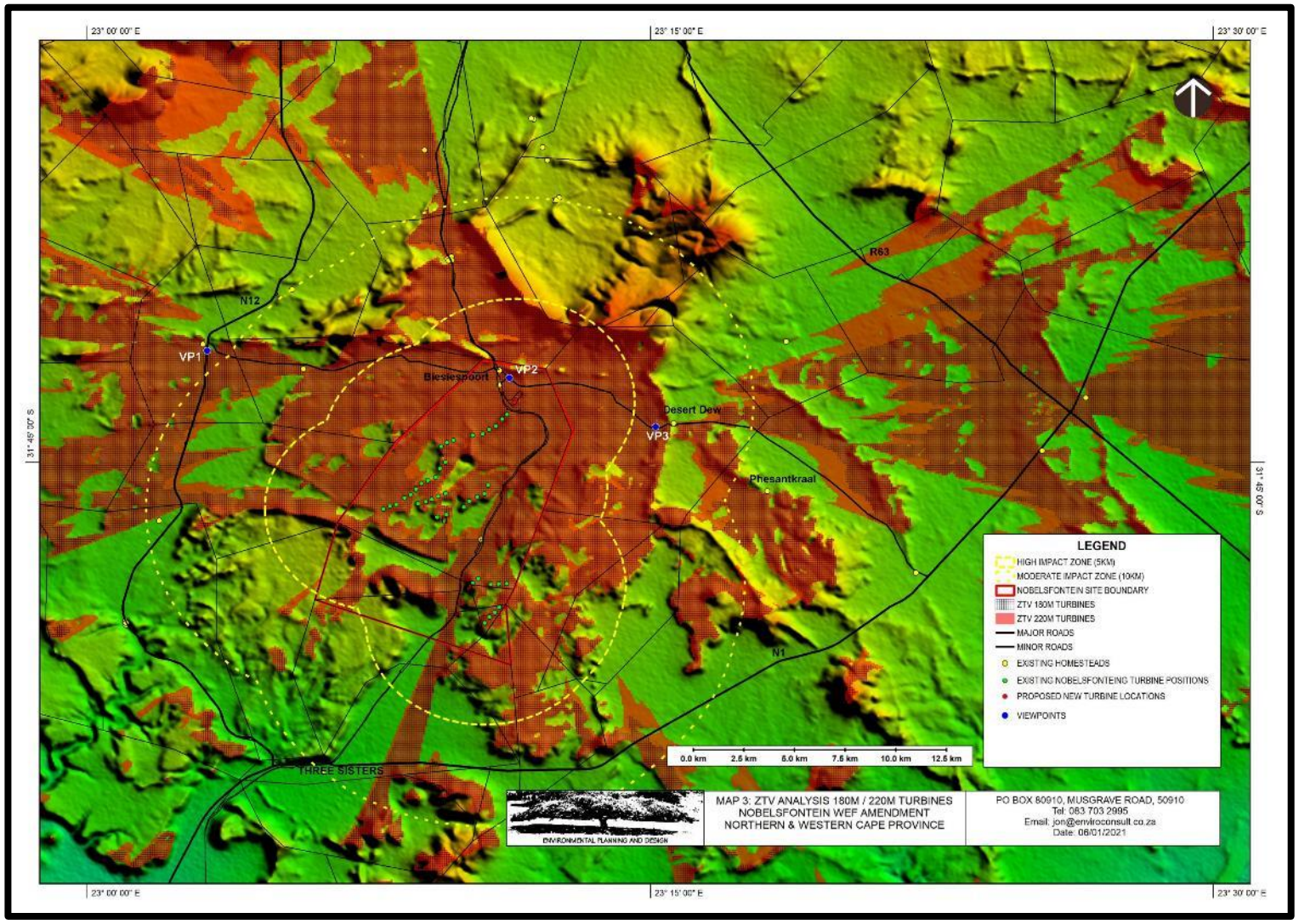


Figure 8.9: Map showing the relative Zones of Theoretical Visibility (ZTV) of two 3MW turbines (authorised specification, up to 125m in height) relative to the proposed larger turbines (technical specification upgrade, up to 137.5m in height). Viewpoints are also indicated.

The ZTV of the proposed turbines compared with the ZTV of the authorised turbines highlights the fact that due to their additional height, the proposed turbines are likely to be visible over a slightly greater distance.

Assessment of Impact Zones

In order to investigate the level of visual impact associated with the two proposed turbines, simulations were prepared from each of the impact zones.

From the simulations the level of visual impact from the Moderate Impact Zone and the Low Impact Zone is not considered significant, and is similar in nature to the impact associated with the existing approved 3MW turbines.

Locations of the viewpoints (VPs) simulated are indicated on Map 3 (Figure 8.9).

From the simulations the following conclusions can be drawn:

From VP1 which is located outside the Moderate Impact Zone as identified by the Original VIA, The proposed […] turbines are unlikely to have any significant visual impact.

From VP2 which is located within the High Impact Zone as identified by the Original VIA, The proposed […] turbines will be more visually imposing than the existing 3MW turbines, however they are only likely to be slightly more imposing than the authorised 3MW turbines in the same position.

From VP3 which is located within the Moderate Impact Zone as identified by the Original VIA, The proposed […] turbines are only likely to be slightly more visually imposing than the existing 3MW turbines.

Shadow Flicker

The Original VIA indicates that shadow flicker could impact on the Biesiespoort homesteads. The assessment indicates that impacts on these homesteads are improbable and are likely to have an impact of low significance with and without mitigation.

The closest Biesiespoort homestead is approximately 1.13km from the closest proposed 5.6MW turbine. This is outside the adjusted buffer area as recommended in the Original VIA.

The proposed amendment is therefore unlikely to change the level of impact as assessed in the Original VIA.

Mitigation Measures

No additional mitigation measures were suggested or recommended by the specialist. All appropriate mitigation and EMPr requirements outlined in the original EA should also be required for the proposed Noblesfontein WEF upgrades.

These include:

Roads

Layout and construction of roads and infrastructure with due cognisance of the topography.

- Post-construction rehabilitation of the surrounding environment

Construction

- Reduce the construction period through careful planning and productive implementation of resources.
- Plan the placement of lay-down areas and temporary construction camps in order to minimise visual impact.
- Restrict the activities and movement of construction workers and vehicles to the immediate construction site.
- Ensure that rubble, litter and disused construction materials are managed and removed regularly.
- Ensure that all infrastructure and the site and general surrounds are maintained in a neat and appealing way.
- Reduce and control construction dust through the use of approved dust suppression techniques.
- Restrict construction activities to daylight hours (if possible) in order to negate the visual impact associated with lighting.

8.8.3 Conclusion

The review indicates that the proposed change will not significantly increase levels of visual impact compared with those assessed by the original VIA.

Therefore, from a visual impact perspective, there is no reason why the proposed amended layout and change to the turbine specification should not be authorised.

Based on the evidence before the EAP, it is clear that the **appointed specialist has not identified any fatal flaws** with the project proposal, and it is reasonable to suggest that the Noblesfontein WEF upgrades are **acceptable and implementable** from a noise perspective.

For the full Specialist report, including further images from the viewpoints discussed, please refer to Appendix D.

9 PROCESS FOLLOWED TO REACH THE PROPOSED PREFERRED ACTIVITY, SITE AND LOCATION WITHIN THE SITE

In accordance with ***Appendix 1 Regulation 3(h) (i, x and v); of GN No. R. 326 of the NEMA EIA Regulations (2014, as amended)****:*

2(h) *– A full description of the process followed to reach the proposed development footprint within the approved site, including:*

2(h) i *– Details of the alternatives considered*

2(h) x*- If no alternatives, including alternatives location for the activity were investigates the motivation for not considering such*

2 (h) v *–The impact and risks identified of each alternative including the nature, significance, consequence, extent, duration and probability of impacts including the degree to which these impacts-*

(aa)*- can be reversed*

(bb) *– May cause irreplaceable loss of resources; and*

(cc) *– Can be avoided, managed or mitigated*

9.1 LEGISLATIVE REQUIREMENTS

The Western Cape Province NEMA EIA Guidelines (2013) on Alternatives require that a "*description of any feasible and reasonable alternatives identified*" must be provided and define alternatives as the following:

In terms of the NEMA EIA Regulations (2014, as amended) all BARs, Scoping Reports and Environmental Impact Reports must contain a description of any feasible and reasonable alternatives that have been identified, including a description and comparative assessment of the advantages and disadvantages that the proposed activity and alternatives will have on the environment and on the community that may be affected by the activity.

Every EIA process must therefore identify and investigate alternatives, **with feasible and reasonable alternatives** to be comparatively assessed.

Alternatives are defined in the NEMA EIA Regulations as "*different means of meeting the general purpose and requirements of the activity*".

The "*feasibility*" and "*reasonability*" of and the need for alternatives must be determined by considering, *inter alia*, (a) the general purpose and requirements of the activity, (b) need and desirability, (c) opportunity costs, (d) the need to avoid negative impact altogether, (e) the need to minimise unavoidable negative impacts, (f) the need to maximise benefits, and (g) the need for equitable distributional consequences.

"***Alternatives***" in the context of an activity may include alternatives to:

- The "***property***" on which or location where it is proposed to undertake the activity;
- The type of "***activity"*** to be undertaken;

- The "***design or layout"*** of the activity;
- The "***technology"*** be used in the activity; and
- The "***operational"*** aspects of the activity.

The "No-Go" alternative must also be assessed.

An illustrative table is provided below, describing alternatives that are typically referred to during an EIA process, which are strongly influenced by the development opportunities and constraints identified during the process.

Table 9.1: Illustration of some typical alternatives assessed during an Environmental Application process.

TYPE OF ALTERNATIVE	EXPLANATION/EXAMPLES
Location	Refers to both alternative properties as well as alternative sites on the same property. **Note:** In terms of the Minimum Requirements for Waste Disposal by Landfill, location alternatives must considered during the EIA process.
Activity	Incineration of waste rather than disposal at a landfill site/ Provision of public transport rather than increasing the capacity of roads.
Design or Layout	Design: E.g. Different architectural and or engineering designs Site Layout: Consideration of different spatial configurations of an activity on a particular site (e.g. Siting of a noisy plant away from residences).
Technological	Consideration of such alternatives is to include the option of achieving the same goal by using a different method or process (e.g. 1000 megawatt of energy could be generated using a coal-fired power station or wind turbines.
Demand	Arises when a demand for a certain product or service can be met by some alternative means (e.g. the demand for electricity could be met by supplying more energy or using energy more efficiently by managing demand).
Input	Input alternatives are applicable to applications that may use different raw materials or energy sources in their process (e.g. Industry may consider using either high sulphur coal or natural gas as a fuel source).
Routing	Consideration of alternative routes generally applies to linear developments such as power line servitudes, transportation and pipeline routes.
Scheduling and Timing	Where a number of measures might play a part in an overall programme, but the order in which they are scheduled will contribute to the overall effectiveness of the end result.
Scale and Magnitude	Activities that can be broken down into smaller units and can be undertaken on different scales (e.g. for a housing development there could be the option 10, 15 or 20 housing units. Each of these alternatives may have different impacts).
"No-Go Option"	This is the option of not implementing the activity.

The NEMA Principles states that sustainable development requires the consideration of all relevant factors including the following:

- *That the disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied;*
- *that pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied;*

- *that the disturbance of landscapes and sites that constitute the nation's cultural heritage is avoided, or where it cannot be altogether avoided, is minimised and remedied;*
- *that waste is avoided, or where it cannot be altogether avoided, minimised and re-used or recycled where possible and otherwise disposed of in a responsible manner;*
- *that the use and exploitation of non-renewable natural resources is responsible and equitable, and takes into account the consequences of the depletion of the resource;*
- *that the development, use and exploitation of renewable resources and the ecosystems of which they are part do not exceed the level beyond which their integrity is jeopardised;*
- *that a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions; and*
- *that negative impacts on the environment and on people's environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied.*

Based on the available information the following feasible and reasonable alternatives for the Project have been identified and, in conjunction with reference to various specialist opinions have considered that the following alternatives, should be comparatively assessed, during the EIA Phase of the Project:

1. Property Alternative
2. Activity Alternative
3. Design or Layout Alternative
4. Technology Alternatives
5. Operational Alternative
6. The “No-Go” consideration (this is a mandatory option)

Based on the contextual information presented above, and described in detail below, there is no evidence to suggest that other alternatives should be investigated for the proposed activity.

9.1.1 The Property “Site” Alternative

No property or “site” alternative was assessed as part of the Report as the proposed turbine upgrades and additional supporting infrastructure are **part of the authorised and existing Noblesfontein WEF.** It is therefore neither feasible nor reasonable to assess any other properties, as this would not meet the general purpose and need of the proposed activity. Furthermore, the independent specialists that have assessed the property have not identified any fatal flaws at the specific upgrade site. **As such, no alternative sites were investigated for the purpose of this BAR**.

9.1.2 The “Activity” Alternative

The purpose of the activity applied for is very specific, which is to implement technical specification upgrades to the three remaining unbuild turbines for the Noblesfontein WEF, replacing them with two larger and more efficient wind turbines. These two larger turbines (in size and power generating capacity) cannot be supported by the existing infrastructure and therefore require the construction of an additional OHPL and substation.

The expert assessments for the site did not find any reason to suggest that an activity alternative is required to be investigated. Based on the above, at this stage there is no reason to suggest that activity alternatives are investigated as these would not meet the general purpose and need of the proposed activity. **Therefore, no activity alternatives were investigated for the purpose of this BAR.**

9.1.3 The "Design or Layout" Alternative

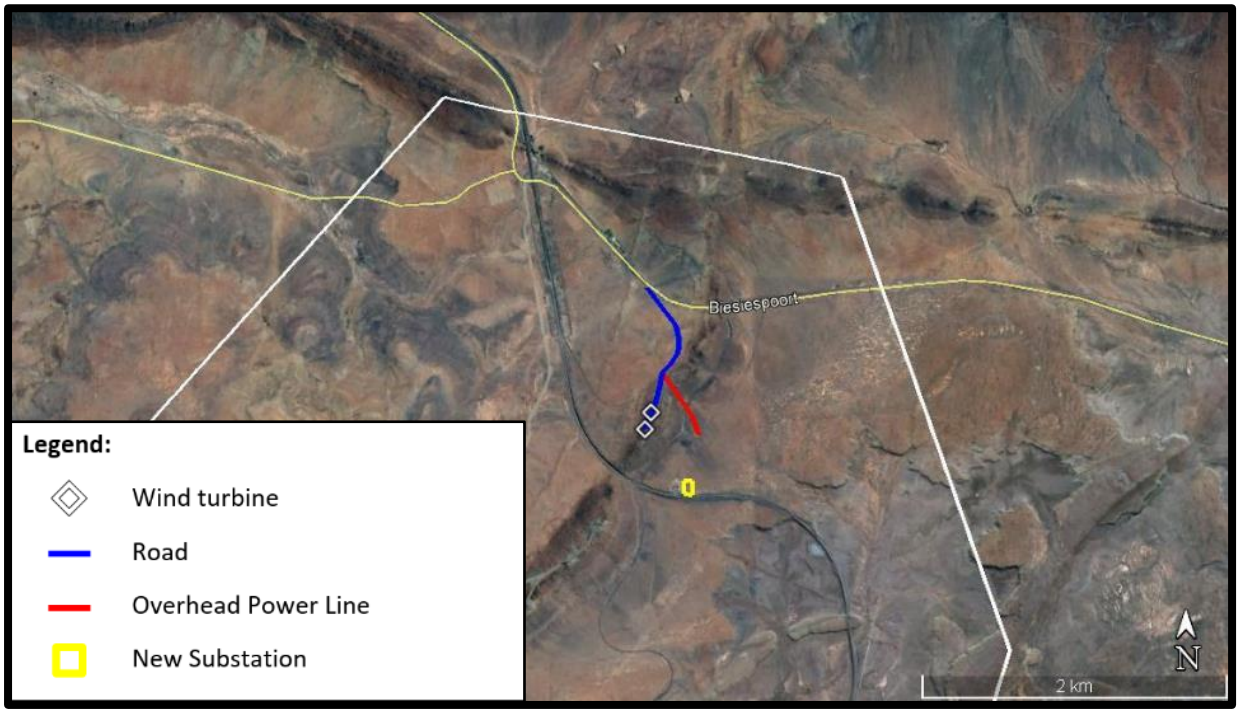


Figure 9.1: This shows the Preferred Alternative Layout, which has been assessed within this Basic Assessment Report. The proposed upgraded wind turbines, service roads (blue), OHPL (red) and substation (yellow), are shown relative to the Noblesfontein Site boundary (White).

No "design or layout" alternative was assessed as part of the BAR as the proposed turbine upgrades and additional supporting infrastructure are **part of the authorised and existing Noblesfontein WEF.** The turbine locations have already been assessed for the original Noblesfontein WEF EIA. The service roads and OHPL represent the shortest, most direct and least impactful routes, as determined by the surrounding topography and as assessed and informed by the independent specialists. The additional substation is located directly adjacent to the existing substation and the existing Hutchinson/Blesiespoort-1 132kV line into which it will feed. It is therefore neither feasible nor reasonable to assess any other Layout Alternatives, as this would not meet the general purpose and need of the proposed activity, while minimising both cost and environmental impact. Furthermore, the independent specialists that have assessed the property have not identified any fatal flaws at the specific upgrade site. **As such, no alternative Layouts were investigated for the purpose of this BAR**.

9.1.4 Sustainable "Technology" Alternatives

The proposed turbine upgrades intend to replace the 3MW turbine design already implemented for 41 turbines on the Noblesfontein WEF with the new and more efficient **V150-4.2 MW™ IEC IIIB/IEC S**

model turbines from Vestas. These represent the latest and most efficient technology available at this current time and are the industry's highest producing onshore low wind turbine, designed for a broad range of wind and site conditions.

The OHPL designs presented are also the current industry standard, considered the most appropriate technology and are compliant with Eskom specifications and best international practice. The tower structures proposed for this project have been selected to result in the least impact on avifauna, wet areas, natural vegetation and visual landscapes.

Alternative technologies have not been considered as the technology to be used is already considered the most appropriate technology.

Based on the information presented within this Basic Assessment Report, it is reasonable to suggest that above-mentioned technology alternatives have been investigated and comprise the Preferred Alternative.

9.1.5 The "Operational "Alternative

No operational phase alternative was assessed as part of the BAR as the upgrades are part of the existing Noblesfontein WEF and the independent specialists that have assessed the site have not identified any fatal flaws at the specific upgrade site, as has been summarised through the opportunities and constraints maps, which will be used to inform micro-siting of infrastructure. Based on the above, at this stage, there is no reason to suggest that alternative operational alternatives are required to be investigated at this stage of the process as these would not meet the general purpose and need of the proposed activity. **Therefore, no alternative sites were investigated for the purpose of this BAR**.

9.1.6 The "No Go" Option (Mandatory Option)

The "no-go" option would result in the proposed activities not being implemented and the remaining three smaller turbines for the existing Noblesfontein authorisation being constructed.

Should the No-Go option be implemented, this will result in a loss of opportunity for the Applicant and the greater Pixley ka Seme District, Northern Cape Province and South Africa as a whole as it is recognised as a national priority for 'improvements to infrastructure' to ensure increased access to electricity and a 'transition to a low-carbon economy' as set out in the NDP. No construction of the more efficient turbines able to generate a greater energy output, and at a lower cost, would be possible and this would not fulfil the requirements of the Northern Cape Province Spatial Development Framework (NC PSDF), which recognises the need to invest in renewable energy and aims to ensure access to affordable, reliable, sustainable and modern energy for all through building resilient infrastructure.

The No-Go Alternative usually implies the continuation of the status quo in terms of development potential, zoning and management. The No-Go Alternative would not achieve the general purpose

and requirements of the activity, which is to increase the power generating capacity of the Noblesfontein WEF and to implement the latest and most efficient turbine technology.

9.2 CONCLUDING STATEMENT INDICATING PREFERRED ALTERNATIVE (SITE, LAYOUT, LOCATION)

*In accordance with **Appendix 1 Regulation 3(g) and (h)(xi) of GN No. R. 326 of the NEMA EIA Regulations (2014, as amended**):*

> ***3(g)** – A motivation for the **preferred development footprint** within the approved site.*
>
> ***3(h) xi** – A concluding statement indicating the **preferred alternative development location** within the approved site*

The Preferred Alternative for this Project is described as follows:

- This BAR is for upgrades to existing infrastructure. As such the reasonable and feasible alternatives were limited with only a single Preferred Alternative being assessed by the independent specialists.
- Based on this and the outcome of the Specialist Impact Assessments, it is evident that the Preferred Layout Alternative is the only reasonable and feasible layout alternative, which can be implemented on the site.
- The construction of the two upgraded wind turbines (technical specification upgrade) as well as the supporting overhead powerline and substation addresses a national and regional need for the generation of clean, renewable energy and greater access to electricity through the construction of necessary infrastructure. This goal is reflected in national plans and policies as well as regional SDFs, IDPs and Development Programmes. The project site has been earmarked and authorised for renewable energy generation and its associated infrastructure, with the existing Noblesfontein WEF already consisting of 41 operational wind turbine generators.

The Preferred Alternative is the most feasible and reasonable alternative and has been comparatively assessed against the No-Go Alternative in this Report. Please kindly refer to Section 12 for the impact assessment.

Therefore, the **Preferred Alternative** for the purposes of this BAR refers to a Project alternative that takes into consideration and implements the findings and recommendations of the professional team, which have been noted above in terms of operational, layout and technology alternatives considered to date, and which have all been informed through independent expert assessments.

In conclusion and based on:

- the Specialist Study Findings undertaken by the Professional Team appointed to this this Project and represented in Section 8 of this Basic Assessment Report.
- the assessment undertaken by the EAP in conjunction with the Specialist Findings and represented in Section 08 and 11 of the Basic Assessment Report.
- the motivation of Alternatives in Section 9.

Based on the evidence presented by the independent specialists and the findings of this BAR, it is reasonable to suggest the overall impact associated with the Noblesfontein WEF upgrades (upgraded wind turbine generators and additional supporting infrastructure) will be mitigated to an acceptable environmental level and therefore **the Preferred Alternative can be considered acceptable and implementable. There is no reason to suggest that the Competent Authority should not authorise the preferred alternative.**

10 SITE MATRIX BASED ON SENSITIVE AREAS ON SITE

*In accordance with **Appendix 1 Regulation 3(h) (ix); of GN No. R. 326 of the NEMA EIA Regulations (2014, as amended)**:*

***3(h) ix** – the outcome of the site matrix*

In terms of Regulation 3 (h) and (ix) of GNR 326 of the NEMA EIA Regulations (2017, as amended) Appendix 1, a matrix is required to form part of this Basic Assessment Report.

This is in order to determine which areas of the site are:

- **Developable** in this BAR means areas that do not have any development constraints.
- **Acceptable** in this BAR means areas that have some development constraints and that the development in these areas can proceed, however, the specialist's recommended mitigation measures must be adhered to by the Applicant.
- **Not preferred** in this BAR means areas, which are unfavourable for the development and are fatally flawed and cannot be developed.

NOTE: The Noblesfontein property has already been deemed developable, with the majority of the Noblesfontein WEF having already been constructed.

Please refer to Section 8 for the Site Sensitivities and Buffer Zones as well as how they have been addressed.

11 METHODOLOGY FOR ASSESSMENT OF POTENTIAL IMPACTS

*In accordance with **Appendix 1 Regulation 3(h) (vi) of GN No. R. 326 of the NEMA EIA Regulations (2014, as amended**):*

> ***3(h) vi** – The methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives,*

The assessment of the potential impacts has been based on extensive experience related to environmental impact assessment as well as informed by specialist assessments and inputs, where applicable on the basis of professional judgement.

In this BAR, the types of potential impacts (direct, indirect, and cumulative) have been considered along with the nature and magnitude (severe, moderate, and low), extent and location of the potential impacts.

A prediction has been made of the timing (construction, operation or decommissioning phase) and duration (short, long term, intermittent or continuous) of the potential impact. A prediction has also been made of the likelihood or probability of impacts occurring and an estimation of the significance of the potential impact (local, regional or global scale).

Mitigation measures have been identified that are required to be implemented to lessen the potential impacts to acceptable levels and an evaluation of the predicted significance of residual impacts after mitigation is put into place, has been made. The assessment of the potential impacts will be carried out in a methodology that has been adapted from best practice guidelines disseminated from the Competent Authority.

These impacts have been identified based on the following:

- Inspection of the site and surroundings (current environmental conditions).
- Discussions with members of the project team.
- Discussions with relevant authorities.
- Previous investigations in the area.
- Independent specialist studies.
- Determining future changes to the environment as a result of the proposed activity.

Table 11.1: Definition of terminology

ITEM	DEFINITION
EXTENT	
Local	Extending only as far as the boundaries of the activity, limited to the site and its immediate surroundings
Regional	Impact on the broader region
National	Will have an impact on a national scale or across international borders
DURATION	
Short-term	0-5 years
Medium-Term	5-15 years
Long-Term	>15 years, where the impact will cease after the operational life of the activity
Permanent	Where mitigation, either by natural process or human intervention, will not occur in such a way or in such a time span that the impact can be considered transient.
MAGNITUDE OR INTENSITY	
Low	Where the receiving natural, cultural or social function/environment is negligibly affected or where the impact is so low that remedial action is not required.
Medium	Where the affected environment is altered, but not severely and the impact can be mitigated successfully and natural, cultural or social functions and processes can continue, albeit in a modified way.
High	Where natural, cultural or social functions or processes are substantially altered to a very large degree. If a negative impact then this could lead to unacceptable consequences for the cultural and/or social functions and/or irreplaceable loss of biodiversity to the extent that natural, cultural or social functions could temporarily or permanently cease.
PROBABILITY	
Improbable	Where the possibility of the impact materialising is very low, either because of design or historic experience
Probable	Where there is a distinct possibility that the impact will occur
Highly Probable	Where it is most likely that the impact will occur
Definite	Where the impact will undoubtedly occur, regardless of any prevention measures
SIGNIFICANCE	
Low	Where a potential impact will have a negligible effect on natural, cultural or social environments and the effect on the decision is negligible. This will not require special design considerations for the project
Medium	Where it would have, or there would be a moderate risk to natural, cultural or social environments and should influence the decision. The project will require modification or mitigation measures to be included in the design
High	Where it would have, or there would be a high risk of, a large effect on natural, cultural or social environments. These impacts should have a major influence on decision making.
Very High	Where it would have, or there would be a high risk of, an irreversible negative impact on biodiversity and irreplaceable loss of natural capital that could result in the project being environmentally unacceptable, even with mitigation. Alternatively, it could lead to a major positive effect. Impacts of this nature must be a central factor in decision making.
STATUS OF IMPACT	
Whether the impact is positive (a benefit), negative (a cost) or neutral (status quo maintained)	
DEGREE OF CONFIDENCE IN PREDICTIONS	
The degree of confidence in the predictions is based on the availability of information and specialist knowledge (e.g. low, medium or high)	
MITIGATION	
Mechanisms used to control, minimise and or eliminate negative impacts on the environment and to enhance project benefits Mitigation measures should be considered in terms of the following hierarchy: (1) avoidance, (2) minimisation, (3) restoration and (4) off-sets.	

To comparatively rank the impacts, each impact has been assigned a score using the scoring system outlined in Table 4 below. This scoring system allows for a comparative, accountable assessment of the indicative cumulative positive or negative impacts of each aspect assessed. A summary of the various impact scores is presented in Table 11.2 below to allow for easy reference and comparison of the various alternatives scoring.

Table 11.2: Scoring System for Impact Assessment Ratings

IMPACT PARAMETER	SCORE	
Extent (A)	**Rating**	
Local	1	
Regional	2	
National	3	
Duration (B)	**Rating**	
Short term	1	
Medium Term	2	
Long Term	3	
Permanent	4	
Probability (C)	**Rating**	
Improbable	1	
Probable	2	
Highly Probable	3	
Definite	4	
IMPACT PARAMETER	**NEGATIVE IMPACT SCORE**	**POSITIVE IMPACT SCORE**
Magnitude/Intensity (D)	**Rating**	**Rating**
Low	-1	1
Medium	-2	2
High	-3	3
SIGNIFICANCE RATING (F) = (A*B*D)*C	**Rating**	**Rating**
Low	0 to - 40	0 to 40
Medium	- 41 to - 80	41 to 80
High	- 81 to - 120	81 to 120
Very High	> - 120	> 120

The above significance bands have been determined through calculating a maximum potential score of 156 (e.g. positive or negative) using the above methodology. This was then subdivided into broad bands as indicated above to provide a comparative assessment of all impacts in relation to the maximum possible significance score. The overall status of the impact (after mitigation) for the preferred

12 POTENTIAL IMPACTS ASSOCIATED WITH THE ACTIVITY

*In accordance with **Appendix 1 Regulation 3(h)(vii and viii) and Regulation 3 (i) and (j)of GN No. R. 326 of the NEMA EIA Regulations (2014, as amended**):*

> ***3(h) vii** – Positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects*
>
> ***3(h) viii** – The possible mitigation measures that could be applied and level of residual risk,*

***Regulation 3(i)** - A full description of the process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including-*

> ***3(i) (i)** – A description of all environmental issues and risks that were identified during the environmental impact assessment process; and*
>
> ***3(i) (ii)** – An assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures*

***Regulation 3 (j)** – An assessment of each identified potentially significant impact and risk, including*

> ***3(j) (i)** – Cumulative impacts;*
>
> ***3(j) (ii)** – The nature, significance, and consequences of the impact and risk*
>
> ***3(j) (iii)** – The extent and duration of the impact and risk*
>
> ***3(j) (iv)** – The probability of the impact and risk occurring*
>
> ***3(j) (v)** – The degree to which the impact and risk can be reversed*
>
> ***3(j) (vi)** – The degree to which the impact and risk may cause irreplaceable loss of resources; and*
>
> ***3(j) (vii)** - -The degree to which the impact and risk can be mitigated*

The intention of this chapter is to raise awareness about **potential** impacts that are evident through the establishment and operation of the Project and associated infrastructure.
Potential environmental impacts and issues that may be associated with the construction, operational and decommissioning phases of the proposed project and a summary of these have been identified and are listed below. Further please refer to the Figure below for a lifecycle depiction of the Project. The applicability and degree and extent of these impacts are anticipated to vary depending on the lifecycle stage of the development.

The **potential** impacts listed below have been assessed based on available information and through specialist recommendations, which have provided mitigation measures to ensure that the impacts associated with the activity are mitigation to acceptable levels.

As part of this Environmental Permitting Process, an EMPr will be compiled for the various project life cycle stages to ensure that these impacts are minimised and/or eliminated where feasible.

Anticipated Project Life Cycle Phases:

12.1 POTENTIAL CONSTRUCTION / DECOMMISSIONING IMPACTS:

Based on the information assessed within this BAR the following construction and decommissioning impacts are likely to be prevalent during the construction and/or decommissioning phase of the Project.

The Preferred Alternative will be comparatively assessed against the No-Go Alternative as this is the most feasible and reasonable alternative, in terms of the impacts assessed by the professional team, taking into account all necessary mitigation measures, which ensure the least impact on the environment.

The potential construction and decommissioning impacts, have been assessed and all mitigation measures pertaining to the impacts identified, are detailed in the EMPr, which is attached for ease of reference as Appendix F.

In addition, the potential impacts have been assessed in terms of the required criteria, which requires the assessment of *"positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects".*

12.1.1 Agricultural Impacts

A full agricultural assessment was deemed unnecessary, as discussed in Section 8. As such, no impact tables exist for this theme.

12.1.2 Avifaunal Impacts

Based on the available information and the avifaunal assessment, the following impacts have been assessed in this BAR:

Construction Phase Impacts

- Disturbance
- Habitat loss

Operational Phase Impacts

- Disturbance
- Mortality

12.1.2.1 Avifaunal Impact 1 – Disturbance (Construction Phase)

Based on the available information it is reasonable to suggest that this impact has a **low negative** impact.

IMPACT NATURE	**Disturbance (Construction Phase)**		**STATUS**	**NEGATIVE**
Impact Description	Noise, movement and temporary occupation of habitat during the building process.			
Impact Source(s)	Construction personnel and equipment/machinery.			
Receptor(s)	All birds in the area to some extent, but sensitive, sedentary and/or habitat specific species will be most adversely affected.			
PARAMETER	**WITHOUT MITIGATION**	**SCORE**	**WITH MITIGATION**	**SCORE**
EXTENT (A)	Preferred Alternative:	1	Preferred Alternative:	1
	No-Go Alternative:	1	No-Go Alternative:	1
DURATION (B)	Preferred Alternative:	1	Preferred Alternative:	1
	No-Go Alternative:	1	No-Go Alternative:	1
PROBABILITY (C)	Preferred Alternative:	4	Preferred Alternative:	4
	No-Go Alternative:	4	No-Go Alternative:	4
INTENSITY OR MAGNITUDE (D)	Preferred Alternative:	-2	Preferred Alternative:	-2
	No-Go Alternative:	-2	No-Go Alternative:	-2
SIGNIFICANCE RATING (F) = (A*B*D)*C	Preferred Alternative:	**-8**	Preferred Alternative:	**-8**
	No-Go Alternative:	**-8**	No-Go Alternative:	**-8**
CUMULATIVE IMPACTS	Yes, given the existing operational Noblesfontein WEF, and that at least one other large WEF project is proposed for the adjacent property to the East.			
CONFIDENCE	High			
MITIGATION MEASURES	• Abbreviating construction time • Scheduling activities around avian breeding and/or movement schedules (timing to be determined after pre-construction monitoring, in conjunction with information from existing Noblesfontein WEF monitoring) • Lowering levels of associated noise where possible • Reducing the size of the inclusive development footprint			

12.1.2.2 *Avifaunal Impact 2 – Destruction of Habitat (Construction Phase)*

Based on the available information it is reasonable to suggest that this impact has a **low negative** impact.

IMPACT NATURE	**Habitat Loss (Construction Phase)**		**STATUS**	**NEGATIVE**
Impact Description	Destruction of habitat for priority species, either temporary or permanent			
Impact Source(s)	Temporary – resulting from construction activities peripheral to the build area. Permanent – the area occupied by the completed development.			
Receptor(s)	All birds in the area to some extent, but sensitive, sedentary and/or habitat specific species will be most adversely affected.			
PARAMETER	**WITHOUT MITIGATION**	**SCORE**	**WITH MITIGATION**	**SCORE**
EXTENT (A)	Preferred Alternative:	1	Preferred Alternative:	1
	No-Go Alternative:	1	No-Go Alternative:	1
DURATION (B)	Preferred Alternative:	4	Preferred Alternative:	4
	No-Go Alternative:	4	No-Go Alternative:	4
PROBABILITY (C)	Preferred Alternative:	4	Preferred Alternative:	4
	No-Go Alternative:	4	No-Go Alternative:	4
INTENSITY OR MAGNITUDE (D)	Preferred Alternative:	-2	Preferred Alternative:	-2
	No-Go Alternative:	-2	No-Go Alternative:	-2
SIGNIFICANCE RATING (F) = (A*B*D)*C	Preferred Alternative:	**-32**	Preferred Alternative:	**-32**
	No-Go Alternative:	**-32**	No-Go Alternative:	**-32**
CUMULATIVE IMPACTS	Yes, more renewable energy developments in the area will increase habitat loss exponentially. At least one large facility is proposed for neighbouring properties.			
CONFIDENCE	High			
MITIGATION MEASURES	• Minimising habitat destruction caused by construction of the facility by keeping the lay-down areas as small as possible • Building as few temporary roads as possible • Reducing the final extent of the developed area to a minimum			

12.1.2.3 *Avifaunal Impact 3 – Disturbance (Operational Phase)*

Based on the available information it is reasonable to suggest that this impact has a **low negative**[18] impact.

IMPACT NATURE	**Disturbance (Operational Phase)**		**STATUS**	**NEGATIVE**
Impact Description	Noise and movement generated by operating turbines and maintenance activities associated with the turbines is sufficient to disturb priority species, causing displacement from the area, adjustment to commute routes with energetic costs, or otherwise affecting nesting success or foraging efficiency.			
Impact Source(s)	Noise and movement from wind turbines blades, power lines, and new power infrastructure, as well as maintained personnel and activity.			
Receptor(s)	All birds in the area to some extent, but priority species are of greatest concern.			
PARAMETER	**WITHOUT MITIGATION**	**SCORE**	**WITH MITIGATION**	**SCORE**
EXTENT (A)	Preferred Alternative:	1	Preferred Alternative:	1
	No-Go Alternative:	1	No-Go Alternative:	1
DURATION (B)	Preferred Alternative:	4	Preferred Alternative:	4
	No-Go Alternative:	4	No-Go Alternative:	4
PROBABILITY (C)	Preferred Alternative:	3	Preferred Alternative:	3
	No-Go Alternative:	3	No-Go Alternative:	3
INTENSITY OR MAGNITUDE (D)	Preferred Alternative:	-2	Preferred Alternative:	-2
	No-Go Alternative:	-2	No-Go Alternative:	-2
SIGNIFICANCE RATING (F) = (A*B*D)*C	Preferred Alternative:	**-24**	Preferred Alternative:	**-24**
	No-Go Alternative:	**-24**	No-Go Alternative:	**-24**
CUMULATIVE IMPACTS	Considerable potential, especially given there is at least one large project proposed for the same operational area.			
CONFIDENCE	High			
MITIGATION MEASURES	• Abbreviating maintenance times • Scheduling activities in relation to avian breeding and/or movement schedules (timing to be determined after pre-construction monitoring, in conjunction with information from existing Noblesfontein WEF monitoring) • Lowering levels of associated noise where possible*			

[18] Please note that due to the scoring methods used the impact is rated as **low** with regards to the impact table, but indicated as **medium** by the Specialist.

12.1.2.4 *Avifaunal Impact 4 – Mortality (Operational Phase)*

Based on the available information it is reasonable to suggest that this impact has a **low negative** impact.

IMPACT NATURE	**Mortality (Operational Phase)**		**STATUS**	**NEGATIVE**
Impact Description	Collision of priority species with the wind turbine blades, power lines, or electrocution of the same on new power infrastructure.			
Impact Source(s)	Wind turbine blades, power lines, and new power infrastructure.			
Receptor(s)	All birds in the area to some extent, but priority species are of greatest concern.			
PARAMETER	**WITHOUT MITIGATION**	**SCORE**	**WITH MITIGATION**	**SCORE**
EXTENT (A)	Preferred Alternative:	1	Preferred Alternative:	1
	No-Go Alternative:	1	No-Go Alternative:	1
DURATION (B)	Preferred Alternative:	4	Preferred Alternative:	4
	No-Go Alternative:	4	No-Go Alternative:	4
PROBABILITY (C)	Preferred Alternative:	4	Preferred Alternative:	4
	No-Go Alternative:	4	No-Go Alternative:	4
INTENSITY OR MAGNITUDE (D)	Preferred Alternative:	-3	Preferred Alternative:	-2
	No-Go Alternative:	-3	No-Go Alternative:	-2
SIGNIFICANCE RATING (F) = (A*B*D)*C	Preferred Alternative:	**-48**	Preferred Alternative:	**-32**
	No-Go Alternative:	**-48**	No-Go Alternative:	**-32**
CUMULATIVE IMPACTS	Yes, if more turbines and power lines are built in the same general area (which seems likely), more collisions are likely, and mortality rates may increase exponentially.			
CONFIDENCE	High			
MITIGATION MEASURES	• Careful siting of turbines • Painting turbine blades • Bird friendly power hardware • Monitoring priority bird movements and collisions* • Turbine managements sensitive to these data – radar assisted if necessary			

For mitigations to be included in EMPr see Section 8.2.

12.1.3 Bat Impacts

Based on the available information and the Bat Assessment, the following impacts have been assessed in this Basic Assessment Report:

Construction Phase Impacts

- Roost disturbance
- Roost destruction
- Habitat modification

Operational Phase Impacts

- Light pollution

12.1.3.1 Bat Impact 1 – Mortality (Operational Phase)

Based on the available information it is reasonable to suggest that this impact has a **low negative**[19] impact.

IMPACT NATURE	**Mortality (Operation Phase)**		**STATUS**	**NEGATIVE**
Impact Description	Mortality of bats due to collision with turbine blades or barotrauma caused by turbine operation.			
Impact Source(s)	Collusions with wind turbine blades, power lines and/or substation. Barotrauma from wind turbine operation.			
Receptor(s)	Bats in flight.			
PARAMETER	**WITHOUT MITIGATION**	**SCORE**	**WITH MITIGATION**	**SCORE**
EXTENT (A)	Preferred Alternative:	1	Preferred Alternative:	1
	No-Go Alternative:	1	No-Go Alternative:	1
DURATION (B)	Preferred Alternative:	3	Preferred Alternative:	3
	No-Go Alternative:	3	No-Go Alternative:	3
PROBABILITY (C)	Preferred Alternative:	3	Preferred Alternative:	3
	No-Go Alternative:	3	No-Go Alternative:	3
INTENSITY OR MAGNITUDE (D)	Preferred Alternative:	-2	Preferred Alternative:	-1
	No-Go Alternative:	-2	No-Go Alternative:	-1
	Preferred Alternative:	**-18**	Preferred Alternative:	**-9**

[19] Please note that due to the scoring methods used the impact is rated as **low** with regards to the impact table, but indicated as **medium** by the Specialist.

SIGNIFICANCE RATING (F) = (A*B*D)*C	No-Go Alternative:	**-18**	No-Go Alternative:	**-9**
CUMULATIVE IMPACTS	See Cumulative Impact Table Below.			
CONFIDENCE	Not indicated by the specialist			
MITIGATION MEASURES	Mitigation measures • All currently proposed mitigation measures proposed in the Nobelsfontein WEF EMPr / EA must be adhered to. This includes adhering to the updated sensitivity map (Figure 8.4) which will require repositioning turbines (and their blades) that intrude into sensitive buffers. These buffers are regarded as no-go areas for turbine components only, and other infrastructure (roads, cables etc) are permissible. These areas include 1000m around all confirmed roosts, 500m around all cliff lines and 200m around all other important bat features. • Should it not be possible to relocate these turbines, then certain strict mitigation measures, which includes curtailment, should be defined and implemented as soon as turbines are erected. • In the event that turbines can be micro-sited, then a bat specialist must map the final turbine layout before micro-siting and assess whether all turbines are appropriately sited in such a way that their blades do not encroach into any bat sensitive buffers. • All mitigation measures to protect bats proposed in the EMPr (Savannah 2012) must be adhered to. Additional mitigation measures • The impacts presented can be mitigated by using turbines which maximise the ground clearance as much as possible, and by minimising the tip height (i.e. the distance between the ground and the blade tip at its highest point). The lowest tip should not encroach any lower than 30m above ground, in order to reduce the risk of bat mortalities from reaching the specified estimated threshold limits of 44.3 bats per annum. To be included in the EA: • A minimum buffer **to blade tip** for all bat buffer zones is required. • A full operational phase monitoring campaign, inclusive of fatality monitoring and estimates, is to commence as soon as the wind turbines are erected, and in accordance with latest version of the bat monitoring guidelines. This is to take place for the entire Noblesfontein WEF. • Based on results from this monitoring campaign, should the estimated bat fatalities for the entire Noblesfontein WEF exceed the threshold of 44.3 bats per annum, then strict curtailment measures will need to be implemented – to be defined and monitored by an appropriate bat specialist.			

Note that the score for all No-Go alternative parameters are based off the Specialist's assessment of unchanged impacts, as they are not explicitly listed by the specialist.

12.1.3.2 *Bat Impact 2 – Cumulative Impacts*

Based on the available information it is reasonable to suggest that this impact has a **low negative**[20] impact.

IMPACT NATURE	**Cumulative Impacts**		**STATUS**	**NEGATIVE**
Impact Description	Cumulative mortality of bats due to collision with turbine blades or barotrauma caused by turbine operation across multiple wind energy facilities. The cumulative impacts will depend on the number of wind energy facilities in the region, the species involved, the levels of bat mortality and mitigation measures implemented at each wind energy facility. Bats reproduce slowly (Barclay and Harder 2003) and their populations can take long periods of time to recover from disturbances so the cumulative impacts can be high if appropriate management and mitigation is not implemented. There are approximately three wind energy facilities planned within a 30 km radius of the Noblesfontein WEF. The assessment below assumes all three facilities implement appropriate mitigation measures.			
Impact Source(s)	Surrounding wind energy facilities.			
Receptor(s)	Bats			
PARAMETER	**WITHOUT MITIGATION**	**SCORE**	**WITH MITIGATION**	**SCORE**
EXTENT (A)	Preferred Alternative:	2	Preferred Alternative:	2
	No-Go Alternative:	2	No-Go Alternative:	2
DURATION (B)	Preferred Alternative:	3	Preferred Alternative:	3
	No-Go Alternative:	3	No-Go Alternative:	3
PROBABILITY (C)	Preferred Alternative:	4	Preferred Alternative:	3
	No-Go Alternative:	4	No-Go Alternative:	3
INTENSITY OR MAGNITUDE (D)	Preferred Alternative:	-3	Preferred Alternative:	-2
	No-Go Alternative:	-3	No-Go Alternative:	-2
SIGNIFICANCE RATING (F) = (A*B*D)*C	Preferred Alternative:	**-72**	Preferred Alternative:	**-36**
	No-Go Alternative:	**-72**	No-Go Alternative:	**-36**
CUMULATIVE IMPACTS	Refer to rest of table.			
CONFIDENCE	Not indicated by the specialist			

[20] Please note that due to the scoring methods used the impact is rated as **medium** (without mitigation) and **low** (with mitigation) with regards to the impact table but indicated as **high** (without mitigation) and **medium** (with mitigation) by the Specialist.

MITIGATION MEASURES	Mitigation measures • All currently proposed mitigation measures proposed in the Noblesfontein WEF EMPr / EA should be adhered to. This includes adhering to the updated sensitivity map (Figure 8.4) which will require repositioning turbines (and their blades) that intrude into sensitive buffers. These buffers are regarded as no-go areas for turbine components only, and other infrastructure (roads, cables etc) are permissible. These areas include 1000m around all confirmed roosts, 500m around all cliff lines and 200m around all other important bat features. • Should it not be possible to relocate these turbines, then certain strict mitigation measures, which includes curtailment, should be defined and implemented as soon as turbines are erected. • In the event that turbines can be micro-sited, then a bat specialist must map the final turbine layout before micro-siting and assess whether all turbines are appropriately sited in such a way that their blades do not • encroach into any bat sensitive buffers. • All mitigation measures to protect bats proposed in the Noblesfontein WEF EMPr (Savannah 2012) must be adhered to. Additional mitigation measures • Maximise the turbine blade ground clearance as much as possible, and minimising the maximum blade tip height (i.e. the distance between the ground and the blade tip at its highest point). • The lowest tip should not encroach any lower than 30m above ground, in order to reduce the risk of bat mortalities from reaching the specified estimated threshold limits of 44.3 bats per annum. • A full operational phase monitoring campaign, inclusive of fatality monitoring and estimates, is to commence as soon as the wind turbines are erected, and in accordance with latest version of the bat monitoring guidelines. • Based on results from this monitoring campaign, should the estimated bat fatalities for the entire Noblesfontein WEF exceed the threshold of 44.3 bats per annum, then strict curtailment measures will need to be implemented – to be defined and monitored by an appropriate bat specialist.

12.1.4 Botanical Impacts

Based on the available information and the Botanical Assessment, the following impacts have been assessed in this BAR:

Construction and Operational Phase Impacts

- Loss or fragmentation of indigenous natural vegetation (construction phase)
- Establishment and spread of declared weeds and alien invader plants (construction and operational phase)

12.1.4.1 Botanical Impact 1 – Loss or fragmentation of indigenous natural vegetation (Construction Phase)

Based on the available information it is reasonable to suggest that this impact has a **low negative** [21] impact.

IMPACT NATURE	**Loss or fragmentation of indigenous natural vegetation (Construction Phase)**		**STATUS**	**NEGATIVE**
Impact Description	Removal and loss of indigenous vegetation as a result of both construction activities and the completed structures.			
Impact Source(s)	Construction activities and completed structures.			
Receptor(s)	Vegetation types are classified as Least Threatened. Terrestrial vegetation on site is therefore not considered to be of high conservation value.			
PARAMETER	**WITHOUT MITIGATION**	**SCORE**	**WITH MITIGATION**	**SCORE**
EXTENT (A)	Preferred Alternative:	1	Preferred Alternative:	1
	No-Go Alternative:	1	No-Go Alternative:	1
DURATION (B)	Preferred Alternative:	5	Preferred Alternative:	5
	No-Go Alternative:	5	No-Go Alternative:	5
PROBABILITY (C)	Preferred Alternative:	4	Preferred Alternative:	4
	No-Go Alternative:	4	No-Go Alternative:	4
INTENSITY OR MAGNITUDE (D)	Preferred Alternative:	-1	Preferred Alternative:	-1
	No-Go Alternative:	-1	No-Go Alternative:	-1
SIGNIFICANCE RATING (F) = (A*B*D)*C	Preferred Alternative:	**-20**	Preferred Alternative:	**-20**
	No-Go Alternative:	**-20**	No-Go Alternative:	**-20**

[21] Please note that the original Noblesfontein impact is listed as medium, but for the full WEF. It has been reduced to low as the extent of the proposed upgrades and infrastructure covers a much smaller area.

CUMULATIVE IMPACTS	Soil erosion and alien invasions may all lead to additional loss of habitat that will exacerbate this impact.
CONFIDENCE	High
MITIGATION MEASURES	• Avoid unnecessary impacts on natural vegetation surrounding the wind turbines, substation, and the servitude of the overhead powerlines. • Impacts should be contained, as much as possible, within the footprint of the infrastructure.

12.1.4.2 *Botanical Impact 2 – Establishment and spread of declared weeds and alien invader plants (Construction and Operation Phase)*

Based on the available information it is reasonable to suggest that this impact has a **low negative**[22] impact.

IMPACT NATURE	**Establishment and spread of declared weeds and alien invader plants (Construction and Operation Phase)**		**STATUS**	**NEGATIVE**
Impact Description	Introduction of invasive alien flora to the site.			
Impact Source(s)	Construction materials and activities, as well as possible introduction during maintenance activities.			
Receptor(s)	The impact will occur at the site of the proposed construction activities, but could potentially spread into the surrounding landscape, depending on the habitat and the alien species that could potentially invade the site.			
PARAMETER	**WITHOUT MITIGATION**	**SCORE**	**WITH MITIGATION**	**SCORE**
EXTENT (A)	Preferred Alternative:	1	Preferred Alternative:	1
	No-Go Alternative:	1	No-Go Alternative:	1
DURATION (B)	Preferred Alternative:	4	Preferred Alternative:	4
	No-Go Alternative:	4	No-Go Alternative:	4
PROBABILITY (C)	Preferred Alternative:	3	Preferred Alternative:	1
	No-Go Alternative:	3	No-Go Alternative:	1
INTENSITY OR MAGNITUDE (D)	Preferred Alternative:	-2	Preferred Alternative:	-1
	No-Go Alternative:	-2	No-Go Alternative:	-1
SIGNIFICANCE RATING (F) = (A*B*D)*C	Preferred Alternative:	**-24**	Preferred Alternative:	**-4**
	No-Go Alternative:	**-24**	No-Go Alternative:	**-4**
CUMULATIVE IMPACTS	Soil erosion and habitat loss may all lead to impacts that will exacerbate this impact.			
CONFIDENCE	High			
MITIGATION MEASURES	• Keep disturbance of indigenous vegetation to a minimum • Rehabilitate disturbed areas as quickly as possible			

[22] Please note that the original Noblesfontein impact is listed as medium, but for the full WEF. It has been reduced to low as the extent of the proposed upgrades and infrastructure covers a much smaller area.

	• Do not translocate soil stockpiles from areas with alien plants • Control any alien plants immediately to avoid establishment of a soil seed bank that would take decades to remove • Establish an ongoing monitoring programme to detect and quantify any aliens that may become established

12.1.5 Heritage Impacts

The heritage specialist did not identify or assess any specific impacts.

12.1.6 Traffic Impacts

The Traffic specialist did not identify or assess any specific impacts.

12.1.7 Noise Impacts

Please note that the Specialist Report (May 2021) assessed the change in impact between the Preferred Alternative and the No-Go Alternative (Authorised turbines) and found that no significant changes in impact would occur. The individual impacts were not assessed however, and as such the impact tables below are extracted from the original Noblesfontein Noise Impact Assessment (2011), and where necessary scores have been inferred for the No-Go and Preferred Alternatives based off of:

a) the alternatives being considered (three authorised vs two upgraded turbines, and not the full 44 Noblesfontein WEF turbines originally assessed), as well as
b) the latest Specialist findings.

Based on the available information and the Noise Assessment, the following impacts have been assessed in this Basic Assessment Report:

Construction Phase Impacts

- Construction Activities

Operational Phase

- Operational Noise

12.1.7.1 *Noise Impact 1 – Construction Activities*

Based on the available information it is reasonable to suggest that this impact has **low negative** impact.

IMPACT NATURE	**Construction Activities (Construction Phase)**		**STATUS**	**NEGATIVE**
Impact Description	Numerous simultaneous construction activities that could impact on potential sensitive receptors (PSRs)			
Impact Source(s)	Construction activities			
Receptor(s)	Nearby residences, Fauna			
PARAMETER	**WITHOUT MITIGATION**	**SCORE**	**WITH MITIGATION**	**SCORE**
EXTENT (A)	Preferred Alternative:	2	Preferred Alternative:	Not assessed
	No-Go Alternative:	2	No-Go Alternative:	Not assessed
DURATION (B)	Preferred Alternative:	3	Preferred Alternative:	Not assessed
	No-Go Alternative:	3	No-Go Alternative:	Not assessed
PROBABILITY (C)	Preferred Alternative:	1	Preferred Alternative:	Not assessed
	No-Go Alternative:	1[23]	No-Go Alternative:	Not assessed
INTENSITY OR MAGNITUDE (D)	Preferred Alternative:	-1	Preferred Alternative:	Not assessed
	No-Go Alternative:	-1[24]	No-Go Alternative:	Not assessed
SIGNIFICANCE RATING (F) = (A*B*D)*C	Preferred Alternative:	**-6**	Preferred Alternative:	Not assessed
	No-Go Alternative:	**-6**	No-Go Alternative:	Not assessed
CUMULATIVE IMPACTS	This impact is cumulative with existing ambient background noises as well as other noisy activities conducted in the same area.			
CONFIDENCE	Not indicated by specialist			

[23] "Improbable to possible" - Original Noise IA, 2011
[24] "Low to very high", however this if for the full Noblesfontein WEF – Original Noise IA, 2011

MITIGATION MEASURES	Management options to reduce the noise impact during the construction phase include: • Route traffic as far as practical possible from potentially sensitive receptors. • Ensure a good working relationship between the developer and all potentially sensitive receptors. Communication channels should be established to ensure prior notice to the sensitive receptor if work is to take place close to them. Information that should be provided to the potential sensitive receptor(s) include: o Proposed working times. o How long the activity is anticipated to take place. o What is being done, or why the activity is taking place. o Contact details of a responsible person where any complaints can be lodged should there be an issue of concern. • When working near (within 500 meters – potential construction of access roads and trenches) to a potential sensitive receptor(s), limit the number of simultaneous activities to the minimum. • When working near to potentially sensitive receptors, coordinate the working time with periods when the receptors are not at home where possible. An example would be to work within the 08h00 to 14h00 timeslot to minimize the significance of the impact because: o Potential receptors are most likely at school or at work, minimizing the probability of an impact happening. o Normal daily activities will generate other noises that would most likely mask construction noises, minimizing the probability of an impact happening. Technical solutions to reduce the noise impact during the construction phase include: • Using the smallest/quietest equipment for the particular purpose. For modelling purposes, the noise emission characteristics of large earthmoving equipment (typically of mining operations) were used, that would most likely over-estimate the noise levels. The use of smaller equipment therefore would have a significantly lower noise impact. Ensuring that equipment is well-maintained and fitted with the correct and appropriate noise abatement measures.

12.1.7.2 *Noise Impact 2 – Operational Noise*

Based on the available information it is reasonable to suggest that this impact has a **low negative** impact.

IMPACT NATURE	**Operational Noise (Operational Phase)**		**STATUS**	**NEGATIVE**
Impact Description	Numerous turbines operating simultaneously during a period when a quiet environment is desired.			
Impact Source(s)	Operational Wind Turbines			
Receptor(s)	Nearby residences, Fauna			
PARAMETER	**WITHOUT MITIGATION**	**SCORE**	**WITH MITIGATION**	**SCORE**
EXTENT (A)	Preferred Alternative:	1	Preferred Alternative:	Not assessed
	No-Go Alternative:	1	No-Go Alternative:	Not assessed
DURATION (B)	Preferred Alternative:	4	Preferred Alternative:	Not assessed
	No-Go Alternative:	4	No-Go Alternative:	Not assessed
PROBABILITY (C)	Preferred Alternative:	2	Preferred Alternative:	Not assessed
	No-Go Alternative:	2[25]	No-Go Alternative:	Not assessed
INTENSITY OR MAGNITUDE (D)	Preferred Alternative:	-1	Preferred Alternative:	Not assessed
	No-Go Alternative:	-1	No-Go Alternative:	Not assessed
SIGNIFICANCE RATING (F) = (A*B*D)*C	Preferred Alternative:	**-8**	Preferred Alternative:	Not assessed
	No-Go Alternative:	**-8**	No-Go Alternative:	Not assessed
CUMULATIVE IMPACTS	This impact is cumulative with existing ambient background noise.			
CONFIDENCE	Not indicated by specialist			

[25] "possible" - Original Noise IA, 2011

MITIGATION MEASURES	Impacts can be mitigated, though it is not deemed necessary due to the low projected impact. A list of mitigation options is still presented that could further reduce the potential impact on the potentially sensitive receptors. • Operate all, or selected turbines in a different mode. Most manufacturers allow their turbines to be operated in different modes. This allows the wind turbine generator to operate more silently with a slight reduction of electrical power generation capability. • Problematic wind turbines could also be disabled, or the rotational speeds significantly decreased during periods when a quieter environment is desired (and complaints registered) • The developer must implement a line of communication where complaints could be lodged.

12.1.8 Visual Impacts

Please note that the Specialist Report (May 2021) assessed the change in impact between the Preferred Alternative and the No-Go Alternative (Authorised turbines) and found that no significant changes in impact would occur.

The review indicates that the proposed change will not significantly increase levels of visual impact compared with those assessed by the Original VIA.

The individual impacts were not assessed however, and all ten impact tables for the original Noblesfontein WEF EIA are with regards to the much larger wind farm development. As the impact for only the turbines in question would need to be inferred, and from this the impact of the Preferred Alternative, given that the level of impact does not change, the impact tables have not been included in this BAR.

12.2 SUMMARY OF POTENTIAL IMPACTS

Summary table of overall Significance (for each impact identified):

DESCRIPTION OF IMPACT	Overall Significance (With Mitigation)		Effect of proposed upgrades on significance with mitigation relative to No-Go Alternative
	No-Go Alternative	Preferred Alternative	
Construction Phase			
Avifaunal Impact 1 – Disturbance	Low -	Low -	No Change
Avifaunal Impact 1 – Habitat Loss	Low -	Low -	No Change
Botanical Impact 1 – Loss or fragmentation of indigenous natural vegetation	Low -	Low -	No Change
Botanical Impact 2 – Establishment and spread of declared weeds and alien invader plants (Construction and Operation Phase)	Low -	Low -	No Change
Noise Impact 1 - Construction Activities (Construction Phase)	Low -	Low -	No Change
Visual Impact 1 – Construction Activities*	Low -	Low -	No Change
Operational Phase			
Avifaunal Impact 3 – Disturbance	Medium -	Medium -	No Change
Avifaunal Impact 4 – Mortality	Low -	Low -	No Change
Bat Impact 1 – Mortality	Low -	Low -	No Change
Noise Impact 2 - Operational Noise (Operational Phase)	Low -	Low -	No Change
Visual Impact 2 – Combined Operational Phase Impacts*	High -	High -	No Change
Cumulative Impacts			
Bat Impact 2 – Cumulative Impacts	Low -	Low -	No Change

* Cumulative Overall Findings as inferred from the Specialist Report. The highest impact level identified by the specialist is used.

13 BULK SERVICES (E.G. SEWAGE, WATER, ELECTRICITY AND SOLID WASTE)

13.1 ROADS

Maximum use of both the existing servitudes and the existing roads shall be made in order to gain access to construction sites and the servitude. Any area outside the servitude area required to facilitate access, construction activities, construction camps or material storage areas, shall be negotiated with the affected Landowner and written agreements shall be obtained. All activities are proposed for land owned by the applicant, so it is unlikely additional access will be required.

13.2 WATER

No access to bulk water services are required.

13.3 ELECTRICITY

Based on the available information, it is evident that electricity services are already in place and are located on site. Should additional electricity be required during the construction phase, the Applicant has advised that generator sets will be placed on site.

13.4 SEWAGE

Based on the available information, bulk sewage services are not required on site. During the construction phase, portable/chemical toilets will have to be established in order to ensure that enough hygienic facilities will be made available for all workers employed on the site.

13.5 SOLID WASTE

Based on the available information, the proposed Noblesfontein WEF upgrades will not require access to bulk solid waste services for operation, and will also operate as part of the existing Noblesfontein WEF. During construction, the Applicant has confirmed that any solid waste accumulated will be disposed off site by a licensed contractor into a legal and licensed landfill site.

14 PUBLIC PARTICIPATION PROCESS

*In accordance with **Appendix 1 Regulation 2(h)(ii, iii) of GN No. R. 326 of the NEMA EIA Regulations (2014, as amended**), the following information is presented in Section 12:*

> ***2(h) ii** – Details of the Public Participation Process undertaken in terms of Regulation 41 of the Regulations, including copies of the supporting documents and inputs*
> ***2(h) iii** – A summary of the issues raised by interested and affected parties and an indication of the manner in which the issues were incorporated or the reasons for not including them.*

14.1 OBJECTIVES OF THE PUBLIC PARTICIPATION PROCESS

The public consultation process is required by the NEMA EIA Regulations (2014, as amended) GNR 326 Regulation 41. The Regulation aims to ensure that all information pertaining to this Environmental Permitting Process is adequately circulated to all Interested and Affected Parties (I&APs) and further provides the I&APs with timeframes within which to provide feedback throughout the Basic Assessment process. This PPP thus aims at providing organisations and individuals with an opportunity to raise concerns and make comments and suggestions regarding the proposed Project. By being part of the assessment process, stakeholders have the opportunity to influence the Project layout and design as well as the plan of study of the BAR.

The principles for the BAR that determine communication with all I&APs at large are included in the principles of the NEMA and are further highlighted in the DEA&DP EIA Guideline and Information Document Series (March 2013) which states that: "*Public participation process means a process by which potential interested and affected parties are given an opportunity to comment on, or raise issues relevant to an application*."

The purpose of the Public Participation Process (PPP) is to provide sufficient and accessible information, in an objective manner.

<u>To enable I&APs to:</u>

- Understand the context of the Amendment Report.
- Become informed and educated about the proposed project and its potential impacts.
- Raise issues of concern and suggestions for enhanced benefits.
- Contribute relevant local information and traditional knowledge to the environmental assessment.

14.2 STEPS TAKEN TO NOTIFY POTENTIALLY INTERESTED AND AFFECTED PARTIES

Identification of Stakeholders

A stakeholder database, compliant with Regulation 42 of the EIA Regulations, already exists from the authorised Noblesfontein WEF Scoping and Full Environmental Impact Assessment from May 2011. The contact details of these stakeholders have been verified (through phone calls and emails) and these registered stakeholders will be notified via written notice (email) of the Basic Assessment process and the availability of the Draft Basic Assessment Report for a 30-day comment period. In terms of the NEMA EIA Regulations (2014, as amended), notification of directly adjacent landowners and occupiers is required. The EAP is satisfied that the Public Participation Process will be consistent with the requirements of Regulations.

Communication with Stakeholders

- In terms of the NEMA EIA Regulations (2014, as amended), potential I&APs must be given 30 calendar days within which to register as an I&AP (initial notification) and provide comment.
- Further, registered I&APs must be given an opportunity to comment on reports that will be submitted to the relevant authority.
- The initial commenting period commences on 30 June 2021 and concludes on 29 July 2021.
- All issues and concerns raised by I&APs during the above-mentioned commenting period will be recorded and addressed in the Comments and Responses Report in the BAR for Decision.
- Site notice boards (with minimum dimensions of 60cm X 42cm) in English and Afrikaans will be erected on the project site boundary (at strategic viewable locations).
- Newspaper advertisements (in English and Afrikaans) will be placed in two local newspapers: The Messenger* (Victoria West) on 26 June 2021, and The Courier on 24 June 2021.
- The draft BAR for public comment will be made available to registered stakeholders through an online electronic link (One Drive or similar). If there are any registered stakeholders that cannot access the electronic report, hard copies or CDs will be couriered to them upon request. For hard copies/CDs, strict COVID measures will be implemented to ensure that the documentation is sanitized prior to distribution.
- Please refer to Appendix E for copies of the contents of these documents.
- Please refer to Appendix E for a full account of stakeholders notified as part of this public participation period.
- The final BAR for decision-making purposes will be submitted to the Competent Authority during August 2021, providing that no contentious issues are raised during PPP.

* Due to the unavailability of Messenger (Victoria West) on the required dates, the Newspaper Advertisements were instead published in the 'Karoo Stem', a larger regional Newspaper with greater reach.

14.3 AUTHORITY CONSULTATION

The following Commenting Authorities have been consulted with on the project as part of the BAR for the PPP:

- NEMA EIA Regulations (2014, as amended) Environmental Application – The National Department of Fisheries, Forestry and the Environment
- National Department of Water and Sanitation
- National Department of Energy
- National Department of Fisheries, Forestry and Agriculture - Agricultural
- Provincial Department of Agriculture - Agriculture
- Provincial Department of Environmental Affairs and Nature Conservation: Northern Cape
- Provincial Department of Finance, Economic Affairs and Tourism: Northern Cape
- Provincial Department of Social Development: Northern Cape
- Department of Transport, Roads and Public Works
- Department of Agriculture, Land Reform and Rural Development
- Ubuntu Local Municipality
- Pixley Ka Seme District Municipality
- South Africa Heritage Resource Association - Heritage
- Northern Cape Heritage Authority / Ngwao Boswa Kapa Bokoni
- Civil Aviation Authority - Aviation
- South African Air Force - Aviation
- ESKOM
- WESSA
- Geoscience

14.4 PROOF OF NOTIFICATION

Proof of notification will be made available in the final BAR as this proof is not available yet.

A copy of the contents of the site notices, adverts and notification letters is contained in Appendix E.

14.5 LIST OF REGISTERED INTERESTED AND AFFECTED PARTIES (I&AP'S)

A list containing contact details of all persons initially notified is contained in Appendix E (Public Participation Information).

15 NEXT STEPS IN THE ENVIRONMENTAL APPLICATION PROGRAMME

Once the statutory 30-day PPP has completed for this BAR for comment, the BAR for decision-making purposes will be finalised and will contain a Comments and Responses Report, which addresses and registers all comments raised during this initial PPP. BAR for decision-making purposes will be submitted for a decision to the Competent Authority.

This BAR is anticipated to be submitted to the Competent Authority for decision in July 2021.

16 REQUIRED INFORMATION REQUESTED BY THE COMPETENT AUTHORITY

In accordance with ***Appendix 1 Regulation 3(t) of GN No. R. 326 of the NEMA EIA Regulations (2014, as amended****):*

Any specific information that may be required by the competent authority

No specific information request has been received for inclusion in this section.

17 ASSUMPTIONS, UNCERTAINTIES AND GAPS IN KNOWLEDGE

In accordance with ***Appendix 1 Regulation 3(o) of GN No. R. 326 of the NEMA EIA Regulations (2014, as amended****):*

A description of any assumptions, uncertainties and gaps in knowledge which relate to the assessment and mitigation measures proposed;

Based on the available information assessed during the Scoping Phase, it is reasonable to suggest that the following assumptions and limitations have been used throughout this Report:

- That the information provided by the specialists, Applicant and developer are true and correct.
- That the applicant will act in a responsible manner and take appropriate and prompt action when incidents occur at the site, in order to (1) determine the cause of the incident and, (2) rectify the cause of the problem.
- That the development will be used for the activities proposed.
- That the information provided by the applicant and the specialists are deemed accurate and unbiased.
- That the applicant will adhere to the mitigation measures presented in this BAR and EMPr.
- That the full recommendations of the specialist studies are implemented.
- That the monitoring and auditing programmes suggested are implemented.
- That decommissioning activity, should this be required, will be conducted by experienced person/s (contractors and principle agents).
- That an experienced independent environmental control officer (ECO) will be appointed for the construction phase of this project and that regular ECO site visits will occur to ensure that the EMPr is complied with and that every effort is made to minimise environmental impacts.

18 EAP OPINION AND RECOMMENDATIONS AND CERTAIN CONDITIONS ADOPTED AS PART OF THE ENVIRONMENTAL AUTHORISATION

*In accordance with **Appendix 1 Regulation 3(n), 3(p) and 3(q) of GN No. R. 326 of the NEMA EIA Regulations (2014, as amended**):*

> ***3(n)** - Any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation*
>
> ***3(p)** - A reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation;*
>
> ***3(q)** - Where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required and the date on which the activity will be concluded and the post construction monitoring requirements finalised;*

The investigation of potential environmental impacts associated with the proposed Noblesfontein WEF upgrades indicates that, whilst there are several negative environmental impacts associated with the proposed development, there are **no significant changes or increased impacts** resulting from the turbine upgrades and the additional supporting infrastructure (OHPL, substation and service road). Where **negative impacts have been identified these have been suitably mitigated**. The proposed Noblesfontein WEF upgrades do represent **a number of significant positive opportunities**, notably an increase to the overall power generation capabilities and efficiency of the Noblesfontein WEF.

18.1 EAP OPINION AND RECOMMENDATION

Based on the information presented in this BAR, as informed by the statutory requirements, independent expert studies, public consultation, commenting authorities and the competent authority, the findings of this Basic Assessment indicate that the project, in the form of the preferred alternative, (read strictly in conjunction with the mitigation measures stipulated in Section 18.2 of this BAR as well as the attached EMPr, which must form part of the conditions of the EA) **will not result in unacceptable negative impacts.**

The Preferred Alternative for this project is described as follows:

- This BAR is for upgrades to existing infrastructure. As such the reasonable and feasible alternatives were limited with only a single Preferred Alternative being assessed by the independent specialists.
- Based on this and the outcome of the specialist impact assessments, it is evident that the Preferred Layout Alternative is the only reasonable and feasible layout alternative, which can be implemented on the site.
- The construction of the two upgraded wind turbines (technical specification upgrade) as well as the supporting overhead powerline, substation and access roads address a national and regional need for the generation of clean, renewable energy and greater access to electricity through the construction of necessary infrastructure. This goal is reflected in national plans and policies as well as regional SDFs, IDPs and Development Programmes. The project site has

been earmarked and authorised for renewable energy generation and its associated infrastructure, with the existing Noblesfontein WEF already consisting of 41 operational wind turbine generators.

The Preferred Alternative is the most feasible and reasonable alternative and has been comparatively assessed against the No-Go Alternative in this Report. Please kindly refer to Section 12 for the impact assessment.

In conclusion and based on:

i. the Specialist Study Findings undertaken by the professional team appointed to this this Project and represented in Section 8 of this BAR.
ii. the assessment undertaken by the EAP in conjunction with the specialist findings and represented in Section 08 and 12 of the BAR.
iii. the motivation of Alternatives in Section 9.

It is reasonable to suggest the overall impact associated with the overhead powerline route and associated infrastructure will be mitigated to an acceptable environmental level and **therefore it is reasonable to suggest that there is no reason why the Competent Authority should not authorise the preferred alternative.**

18.2 CERTAIN CONDITIONS TO FORM PART OF THE ENVIRONMENTAL AUTHORISATION

General recommendations that should be considered by the relevant authority are listed below:

- The EMPr must be followed for the lifecycle of the development and the decommissioning phase must be monitored by a suitably experienced ECO.
- The area of the dolerite outcrop proposed for development must be assessed for rock art and rock engravings (significant archaeological heritage prior to construction activities.
- Regular auditing (e.g. every 12 months) by an experienced, suitably qualified, independent environmental professional must be undertaken to ensure that the conditions of the EMPr, which are related to the key findings of the specialists and this EIA, are implemented. This will ensure that the design intent of the development is carried through the lifecycle of the development. This should include, but not necessarily be limited to, provision for specialist consultation in the case of water quality monitoring, visual impact monitoring and wetland environments monitoring.

Please refer to the Sections 8 and 12, as well as the EMPr, for specific mitigation measures.

Based on the environmental permitting process and rigorous professional assessments undertaken for this project to date, there is no reason to suggest that the Preferred Alternative cannot be authorised for implementation.

Further, this BAR and supporting documentation is considered to be adequate in meeting the requirements of the relevant legislation and those of the Competent Authority and the EAP believes that sufficient information is presented for the purposes of decision-making.

In this regard, no further studies are envisaged.

Reviewed by the following individuals:

- Evan Milborrow
- Monique Sham
- Fabio Venturi

19 OATH OF EAP UNDERTAKING ASSESSMENT

*In accordance with **Appendix 1 Regulation 3(r) of GN No. R. 326 of the NEMA EIA Regulations (2014, as amended**), the following information is presented in Section 19.*

***R3(r)** – An undertaking under oath of affirmation by the EAP in relation to:*

***R3(r) (i)** – The correctness of the information provided in the reports*

***R3(r) (ii)** – The inclusion of comments and inputs from stakeholders and I&APs*

***R3(r) (iii)** – The inclusion of inputs and recommendations form the specialist reports where relevant; and*

***R3(r) (iv)** – Any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested or affected parties.*

DECLARATION OF THE EAP

I, Monique Terese Sham, declare that –

- I act as the independent environmental assessment practitioner in this application;
- I have expertise in conducting environmental impact assessments, 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 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 will take into account, to the extent possible, the matters listed in Regulation 14 of the Regulations when preparing the application and any report relating to the application;
- 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, unless access to that information is protected by law, in which case it will be indicated that such information exists and will be provided to the Competent Authority;
- I will perform all obligations as expected from an environmental assessment practitioner in terms of the Regulations; and
- I am aware of what constitutes an offence in terms of Regulation 48 and that a person convicted of an offence in terms of Regulation 48(1) is liable to the penalties as contemplated in Section 49B of the Act.

Disclosure of Vested Interest (delete whichever is not applicable)

- I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Regulations;

- ~~I have a vested interest in the proposed activity proceeding, such vested interest being:~~

Signature of the environmental assessment practitioner

Terramanzi Group (Pty) Ltd

Name of company:

27 May 2021

Date

REVEREND TRISTAN MILES JENSEN
MARRIAGE OFFICER : BD49182
P.O. Box 1116, Sun Valley, 7985
CERTIFIED AS A TRUE COPY OF THE ORIGINAL ON THE: 27/05/2021

UNDERTAKING UNDER OATH/ AFFIRMATION

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

Signature of the environmental assessment practitioner

Terramanzi Group (Pty) Ltd

Name of company

27 May 2021

Date

Signature of the commissioner of oaths

27/05/2021

Date

REVEREND TRISTAN MILES JENSEN
MARRIAGE OFFICER : BD49182
P.O. Box 1116, Sun Valley, 7985
CERTIFIED AS A TRUE COPY OF THE ORIGINAL ON THE: 27/05/2021