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FINAL ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE 140MW SUTHERLAND 2 WIND ENERGY FACILITY AND ASSOCIATED INFRASTRUCTURE, NORTHERN CAPE PROVINCE (12/12/1782/3/AM5)

NOVEMBER 2022

DOCUMENT DETAILS

Applicant	:	Sutherland 2 Wind Farm (Pty) Ltd
Title	:	Final Environmental Management Programme (EMPr) for the 140MW Sutherland 2 Wind Energy Facility and associated infrastructure, Northern Cape Province (12/12/1782/3/AM5)
Authors/EAP	:	Nala Environmental (Pty) Ltd Arlene Singh (SACNASP) Norman Chetsanga (SACNASP) Justin Jacobs
Purpose of Report	:	Final Environmental Management Programme to be submitted for public participation and to DFFE for approval.
Date	:	November 2022

DEFINITIONS AND TERMINOLOGY

The following definitions and terminology may be applicable to this project and may occur in the report below:

Alien species: A species that is not indigenous to the area or out of its natural distribution range.

Alternatives: Alternatives are different means of meeting the general purpose and need of a proposed activity. Alternatives may include location or site alternatives, activity alternatives, process or technology alternatives, temporal alternatives or the 'do nothing' alternative.

Ambient sound level: The reading on an integrating impulse sound level meter taken at a measuring point in the absence of any alleged disturbing noise at the end of a total period of at least 10 minutes after such meter was put into operation.

Assessment: The process of collecting, organising, analysing, interpreting and communicating information which is relevant.

Biological diversity: The variables among living organisms from all sources including, terrestrial, marine and other aquatic ecosystems and the ecological complexes they belong to.

Commence: The start of any physical activity, including site preparation and any other activity on site furtherance of a listed activity or specified activity, but does not include any activity required for the purposes of an investigation or feasibility study as long as such investigation or feasibility study does not constitute a listed activity or specified activity.

Construction: Construction means the building, erection or establishment of a facility, structure or infrastructure that is necessary for the undertaking of a listed or specified activity as per the EIA Regulations. Construction begins with any activity which requires Environmental Authorisation.

Cumulative impacts: The impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.

Decommissioning: To take out of active service permanently or dismantle partly or wholly, or closure of a facility to the extent that it cannot be readily re-commissioned. This usually occurs at the end of the life of a facility.

Development area: the identified area (located within the study area) where the supporting infrastructure is planned to be located.

Development footprint: the defined area (located within the development area) where the various supporting infrastructure is planned to be constructed. This is the actual footprint of the infrastructure, and the area which would be disturbed.

Direct impacts: Impacts that are caused directly by the activity and generally occur at the same time and at the place of the activity (e.g., noise generated by blasting operations on the site of the activity). These impacts are usually associated with the construction, operation, or maintenance of an activity and are generally obvious and quantifiable.

Disturbing noise: A noise level that exceeds the ambient sound level measured continuously at the same measuring point by 7 dB or more.

'Do nothing' alternative: The 'do nothing' alternative is the option of not undertaking the proposed activity or any of its alternatives. The 'do nothing' alternative also provides the baseline against which the impacts of other alternatives should be compared.

Ecosystem: A dynamic system of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.

Endangered species: Taxa in danger of extinction and whose survival is unlikely if the causal factors continue operating. Included here are taxa whose numbers of individuals have been reduced to a critical level or whose habitats have been so drastically reduced that they are deemed to be in immediate danger of extinction.

Endemic: An "endemic" is a species that grows in a particular area (is endemic to that region) and has a restricted distribution. It is only found in a particular place. Whether something is endemic or not depends on the geographical boundaries of the area in question and the area can be defined at different scales.

Environment: the surroundings within which humans exist and that is made up of:

i. The land, water and atmosphere of the earth;
ii. Micro-organisms, plant and animal life;
iii. Any part or combination of (i) and (ii) and the interrelationships among and between them; and
iv. The physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

Environmental Authorisation (EA): means the authorisation issued by a competent authority (Department of Environmental Affairs) of a listed activity or specified activity in terms of the National Environmental Management Act (No 107 of 1998) and the EIA Regulations promulgated under the Act.

Environmental Assessment Practitioner (EAP): An individual responsible for the planning, management and coordinating of environmental management plan or any other appropriate environmental instruments introduced by legislation.

Environmental Control Officer (ECO): An individual appointed by the Owner prior to the commencement of any authorised activities, responsible for monitoring, reviewing and verifying compliance by the EPC Contractor with the environmental specifications of the EMPr and the conditions of the Environmental Authorisation

Environmental impact: An action or series of actions that have an effect on the environment.

Environmental impact assessment: Environmental Impact Assessment, as defined in the NEMA EIA Regulations, is a systematic process of identifying, assessing and reporting environmental impacts associated with an activity.

Environmental management: Ensuring that environmental concerns are included in all stages of development, so that development is sustainable and does not exceed the carrying capacity of the environment.

Environmental Management Programme (EMPr): A plan that organises and co-ordinates mitigation, rehabilitation and monitoring measures in order to guide the implementation of a project or facility and its ongoing maintenance after implementation.

Environmental Officer (EO): The Environmental Officer (EO), employed by the Contractor, is responsible for managing the day-to-day on-site implementation of this EMPr, and for the compilation of regular (usually weekly) Monitoring Reports. The EO must act as liaison and advisor on all environmental and related issues and ensure that any complaints received from the public are duly recorded and forwarded to the Site Manager and Contractor.

Habitat: The place in which a species or ecological community occurs naturally.

Hazardous waste: Any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological characteristics of that waste, have a detrimental impact on health and the environment.

Indigenous: All biological organisms that occurred naturally within the study area prior to 1800.

Incident: An unplanned occurrence that has caused, or has the potential to cause, environmental damage.

Indirect impacts: Indirect or induced changes that may occur because of the activity (e.g., the reduction of water in a stream that supply water to a reservoir that supply water to the activity). These types of impacts include all the potential impacts that do not manifest immediately when the activity is undertaken, or which occur at a different place because of the activity.

Interested and affected party: Individuals or groups concerned with or affected by an activity and its consequences. These include the authorities, local communities, investors, work force, consumers, environmental interest groups, and the public.

Method Statement: a written submission by the Contractor in response to the environmental specification or a request by the Site Manager, setting out the plant, materials, labour and method the Contractor proposes using to conduct an activity, in such detail that the Site Manager is able to assess whether the Contractor's proposal is in accordance with the Specifications and/or will produce results in accordance with the Specifications.

Pre-construction: The period prior to the commencement of construction, which may include activities which do not require Environmental Authorisation (e.g. geotechnical surveys).

Pollution: A change in the environment caused by substances (radio-active or other waves, noise, odours, dust or heat emitted from any activity, including the storage or treatment or waste or substances.

Rare species: Taxa with small world populations that are not at present Endangered or Vulnerable, but are at risk as some unexpected threat could easily cause a critical decline. These taxa are usually localised within restricted geographical areas or habitats or are thinly scattered over a more extensive range. This category was termed Critically Rare by Hall and Veldhuis (1985) to distinguish it from the more generally used word "rare."

Red Data Species: Species listed in terms of the International Union for Conservation of Nature and Natural Resources (IUCN) Red List of Threatened Species, and/or in terms of the South African Red Data list. In terms of the South African Red Data list, species are classified as being extinct, endangered, vulnerable, rare, indeterminate, insufficiently known or not threatened (see other definitions within this glossary).

Significant impact: An impact that by its magnitude, duration, intensity, or probability of occurrence may have a notable effect on one or more aspects of the environment.

Study area: Portion 1 of Tonteldoonsfontein Farm 152,

Vulnerable species: A taxon is Vulnerable when it is not Critically Endangered or Endangered but is facing a high risk of extinction in the wild in the medium-term future.

Waste: as per the NEM: Waste Amendment Act, 2014 (Act No. 26 of 2014)

(a) any substance, material or object, that is unwanted, rejected, abandoned, discarded or disposed of, or that is intended or required to be discarded or disposed of, by the holder of that substance, material or object, whether or not such substance, material or object can be re-used, recycled or recovered and includes all wastes as defined in Schedule 3.

(b) any other substance, material or object that is not included in Schedule 3 that may be defined as a waste by the Minister by notice in the *Gazette,*

but any waste or portion of waste, referred to in paragraph (a) and (b), ceases to be a waste –

(i) once an application for its re-use, recycling or recovery has been approved or, after such approval, once it is, or has been re-used, recycled or recovered;

(ii) where approval is not required, once a waste is, or has been re-used, recycled or recovered;

(iii) where the Minister has, in terms of section 74, exempted any waste or a portion of waste generated by a particular process from the definition of waste; or

(iv) where the Minister has, in the prescribed manner, excluded any waste stream or a portion of a waste stream from the definition of waste.

ABBREVIATIONS

The following abbreviations may be applicable to this project and may occur in the report below:

BGIS	Biodiversity Geographic Information System
BESS	Battery Energy Storage System
CDSM	Chief Directorate Surveys and Mapping
CEMP	Construction Environmental Management Plan
DFFE	Department of Forestry, Fisheries and the Environment
NC DAERDLD	Northern Cape Department: Agriculture, Environmental Affairs, Rural Development and Land Reform
DMRE	Department of Mineral Resources and Energy
EAP	Environmental Assessment Practitioner
EHS	Environmental, Health and Safety
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
EMPr	Environmental Management Programme
GPS	Global Positioning System
HIA	Heritage Impact Assessment
I&APs	Interested and Affected Parties
IDP	Integrated Development Plan
IFC	International Finance Corporation
IPP	Independent Power Producer
KOP	Key Observation Point
kV	Kilo Volt
LLRC	Low Level River Crossing
LUDS	Land Use Decision Support
LUPO	Land Use Planning Ordinance
MW	Mega Watt
NEMA	National Environmental Management Act
NEMAA	National Environmental Management Amendment Act
NEMBA	National Environmental Management: Biodiversity Act
NERSA	National Energy Regulator of South Africa
NHRA	National Heritage Resources Act
NSBA	National Spatial Biodiversity Assessment
NWA	National Water Act
PIA	Paleontological Impact Assessment
PM	Post Meridiem; "Afternoon"
SACAA	South African Civil Aviation Authority
SAHRA	South African National Heritage Resources Agency
SANBI	South Africa National Biodiversity Institute
SANS	South Africa National Standards
SDF	Spatial Development Framework
SMME	Small, Medium and Micro Enterprise
SAPD	South Africa Police Department

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SECTION 1: INTRODUCTION AND BACKGROUND TO THE ENVIRONMENTAL AUTHORISATION

1.1 Introduction

Sutherland 2 Wind Farm (Pty) Ltd received Environmental Authorisation, dated 22 February 2012, from the (then) National Department of Environmental Affairs (DEA), (now Department of Forestry, Fisheries and the Environment, (DFFE)) to construct and operate the Sutherland Renewable Energy (REF) with a collective generation capacity (wind and solar) of 747MW (DEA Reference: 12/12/20/1782). On the 6 October 2015, DFFE approved an amendment process to extend the validity of the Environmental Authorisation, the holder of the Environmental Authorisation, change in land portion names, exclusion of land portions, inclusion of listed activities and change in project name to extend the megawatt range from 747MW to 1137MW (DEA Reference: 12/12/20/1782/AM1). In 2016, an amendment was undertaken to split the Environmental Authorisation into three separate projects so that each wind energy facility has a generation capacity of 140MW, the three projects (namely the 140MW Sutherland Wind Energy Facility, 140MW Rietrug Wind Energy Facility and the **140MW Sutherland 2 Wind Energy Facility**[1]) were subsequently granted separate Environmental Authorisations. The 140MW Sutherland 2 Wind Energy Facility received a separate Environmental Authorisation (DEA Ref: 12/12/20/1782/3) on 10 November 2016. This EMPr relates to the 140MW Sutherland Wind Energy Facility.

The following amendments to the Environmental Authorisation were undertaken for the 140MW Sutherland 2 Wind Energy Facility:

- An amendment to the applicable listed activities for the Sutherland 2 Wind Energy Facility was undertaken in 2016. (DEA Ref:. 12/12/20/1782/3/AM1);
- The turbine specifications and technical details for the Sutherland 2 Wind Energy Facility were amended in 2017. (DEA Ref:. 12/1220/1782/3/AM2);
- The holder of the Environmental Authorisation and changes to the project description were amended in 2020. (DEA Ref:. 12/12/20/1782/3/AM3);
- A correction to the project name was granted via an amendment in 2020. (DEA Ref:. 12/12/1782/3/AM4); and
- An extension to the validity period of the Environmental Authorisation was granted in 2021. (DEA Ref:. 12/12/1782/3/AM5).

This final EMPr is prepared as a comprehensive and updated version to the following:

- The original EMPr (July 2016), prepared by Council for Scientific and Industrial Research (CSIR) Environmental Management Services for the split of the wind energy facilities;
- The amended EMPr (November 2019) prepared by CSIR Environmental Management Services for the amendment of turbine specifications;

This Final EMPr considers all the aspects adopted during the life cycle of the environmental authorisation of the Sutherland 2 Wind Energy Facility project, including the final layout of the wind energy facility and specialist pre-construction walkthroughs and surveys undertaken prior to the commencement of construction on the project as per the conditions of the Environmental Authorisation. The EMPr seeks to adopt all the mitigation measures and recommendations from the original EMPr (November 2019) as prepared by CSIR and updated to include all other additional measures and recommendations made by the various specialists after the walkthrough surveys they had undertook. This EMPr will be submitted for public review and comment prior to being submitted to the Department of Forestry, Fisheries and the Environment (DFFE) for approval.

The following changes were made to the original EMPr following the completion of the relevant walkthrough surveys:

(1) The project team for the compilation of the final EMPr and final layout is included in Table 2.1
(2) The environmental sensitivity map has been updated (Figure 4)

[1] This EMPr has been prepared for the 140MW Sutherland 2 Wind Energy Facility

(3) The tables in section 6 have been updated with additional mitigation measures provided by the specialists on the project team and from comments to be received by authorities and stakeholders following the commenting period on this EMPr.
(4) Section 6 will be updated with comments received from stakeholders during the public participation and review period and the changes underlined.
(5) CV of EAP has been updated and shown in Appendix A.

SECTION 2: PROJECT INFRASTRUCTURE AND ACTIVITIES

The project life-cycle activities can generally be divided into four phases (see below) and can be outlined as follows:

- Pre-construction;
- Construction;
- Operation (including maintenance and repair); and
- Rehabilitation and
- Decommissioning.

A description of each phase and the associated activities is provided below.

Pre-Construction

The layout may undergo minor adjustments based on geotechnical constraints onsite and input from pre-construction monitoring, however, any adjustments will be within the acceptable areas as defined by the EIA process.

Construction

The duration of the construction and commissioning phase of the project is estimated to be approximately 24 months to complete. Construction activities will include: Site preparation, including subcontractor mobilisation, erection of fencing or suitable barriers, where required to protect sensitive habitat and archaeological sites, construction of site compound and lay down areas;

- Upgrading and construction of external and internal roads, water crossings, including laying of cables;
- Site clearance;
- Establishment of borrow pits;
- Laying of turbine foundations;
- Turbine delivery and installation
- Completion of internal electrical connections;
- Turbine function testing to verify proper operation of the facility; and
- Commissioning.

Operation

Once the WEF construction is completed and it becomes operational, it is expected that the facility will have a minimum life span of 20 years. Regular maintenance will be required to ensure the turbines are kept in optimal working order. The wind turbines will operate at all times provided wind speeds are suitable with the exception of downtime required for maintenance activities. For the most part, day to day facility operations will be done remotely through the use of computer networks. The WEF can operate in parallel with any daily farming activities due to the relatively small footprint of the turbines.

Rehabilitation

All activities that are relevant for rehabilitation of disturbed areas or land will commence from the operation phase and in some cases while Operation phase is in progress. The Rehabilitation will continue right up to the Decommissioning phase.

Decommissioning

Once the facility has reached the end of its life cycle, the turbines may be refurbished or replaced and continue operating as a power generating facility or the facility will be closed and decommissioned. If decommissioned all components, excluding turbine foundations and some roads, of the renewable energy facility will be removed and the site will be rehabilitated. The concrete pedestals of the turbine foundations will be cut down and concrete removed to below finished ground level and covered with topsoil. Some roads will be removed, covered with soil and replanted to allow for a return to agricultural land use (cultivation and grazing). The components proposed to form part of the WEF are detailed in Table 2.1 below.

Table 2.1: Project details for the proposed Sutherland 2 WEF.

	General	
Closest town:	Sutherland	
Local Municipality:	Karoo Hoogland Local Municipality	
District Municipality	Namakwa District Municipality	
Province	Northern Cape Province	
	Project specific information	
Sutherland 2 WEF	Portion 1 of Tonteldoonsfontein Farm 152	
Proposed infrastructure	Component	Description/Demission
	Wind turbine generators	Up to 25 wind turbines 140 MW with a hub height of up to 200 m and rotor diameter of up to 200 m.
	Internal and external electrical Connections	The wind turbines will be connected to another by means of medium voltage cables. The cables will be buried approximately 1m below ground level
	Internal Roads	• An internal gravel road network will be constructed to facilitate movement between turbines on site. • Internal roads will be 15 m wide including drainage and cabling and 4 km in length. • Some existing public roads may need to be upgraded to facilitate the turbine transport
	Additional infrastructure	• A hard standing laydown area of a maximum of 10,000m^2 will be constructed. • A site compound area will be constructed for all contractors, this would be approximately 5 000m^2 in size. • A number of borrow pits may be distributed around the site. These will be backfilled as far as possible once construction is complete. • An O&M Building with a footprint of 100m x 100m in extent

SECTION 3: PURPOSE AND OBJECTIVES OF THE EMPr

3.1 APPROACH TO PREPARING THE EMPr

3.1.1 Compliance of this EMPr with the NEMA and EIA Regulations

This EMPr satisfies the requirements of Section 24N of the National Environmental Management Act (NEMA) (Act 107 of 1998), as well as Appendix 4 of the 2014 NEMA Environmental Impact Assessment (EIA) Regulations (GN R326), as amended in 2017. An overview of where these requirements are met in this EMPr is presented in Table 3.1 below:

Table 3.1: Requirements of an EMPr as defined in terms of NEMA (Act 107 of 1998) and Appendix 4 of the 2014 EIA Regulations (GN R326).

Appendix 4 of the EIA Regulations	Requirements for a EMPr in terms of Appendix 4 of the 2014 NEMA EIA Regulations (GN R982)	Location in this EMPr
(1) (a)	Details of –(i) the EAP who prepared the EMPr; and (ii) the expertise of the EAP to prepare an EMPr, including a curriculum vitae;	Appendix A Section 3.13
(1) (b)	a detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description	Section 3.1.5
(1) (c)	a map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that any areas that should be avoided, including buffers;	Section 3.1.6; Figure 4
(1) (d)	A description of the impact management objectives, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including (i) planning and design; (ii) pre-construction activities; (iii) construction activities (iv) rehabilitation of the environment after construction and where applicable post closure; and (v) where relevant, operation activities;	Section 3.1.3, Section 3.1.4, Section 3.1.5 Section 6
(1) (e)	a description and identification of impact management outcomes required for the aspects contemplated in paragraph (d);	Section 6
(1) (f)	a description of proposed impact management actions, identifying the manner in which the	Section 6

	impact management objectives and outcomes contemplated in paragraphs (d) and (e) will be achieved, and must, where applicable, include actions to – (i) avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation; (ii) comply with any prescribed environmental management standards or practices; (iii) comply with any applicable provisions of the Act regarding closure, where applicable (iv) comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable;	
(I) (g)	the method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Section 6
(I) (h)	the frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Section 6
(I) (i)	an indication of the persons who will be responsible for the implementation of the impact management actions;	Section 6
(I) (j)	the time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	Section 6
(I) (k)	the mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	Section 6
(I) (l)	a program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;	Section 6
(I) (m)	an environmental awareness plan describing the manner in which (i) the applicant intends to inform his or her employees of any environmental risk which may result from their work; and (ii) risks must be dealt with in order to avoid pollution or the degradation of the environment; and	Section 3.6; Section 6
(I) (n)	any specific information that may be required by the competent authority.	Section 6 Section 7

3.1.2 Compliance to the requirements of the Environmental Authorisations

The EA dated 10 November 2016 (DEA Ref: 12/12/20/1782/3) indicated in Condition 14,18 and 19 that the applicable management plans must be included within the EMPr. The table below details the requirement, as contained within the EA as well as a cross reference to where this is included within this EMPr.

Table 3.2: Content requirements of the EMPr as contained in the EA and subsequent amendments.

Condition	Requirements for a the EMPr as per the conditions of the Environmental Authorisation	Location in this EMPr
14.	The applicant must compile a socio-economic report with the specific programmes and project for the entire life of the proposed development that will benefit the community.	Appendix N
18.	The Environmental Management Programme (EMPr) submitted as part of the EIAr is not approved and must be amended to include measures as dictated by the final site layout -out map and micro-siting and the provision of this environmental authorisation. The EMPr must be made available for comments by registered Interested and Affected Parties and the holder of this environmental authorisation must consider such comments. Once amended, the final EMPr must be submitted to the Department for written approval prior to commencement of the activity. Once approved the EMPr must be implemented and adhered to.	This EMPr represents the Final EMPr that is available for I&AP's and stakeholders for comment. The Final EMPr considered all comments received will be submitted to the DFFE for review and approval.
19	The EMPr amendment must include the following:	
19.1	The requirements and conditions of this authorisation.	Noted, this EMPr has been produced to include these measures
19.2	All recommendations and mitigation measures recorded in the EIAr.	Noted, this EMPr has been produced to include these measures
19.3	All mitigation measures as listed in the specialist reports must be included in the EMPr and implemented.	Section 6
19.4	The final site layout map.	Section 3.1.6, Figure 3
19.5	An alien invasive management plan to be implemented during construction and operation of the facility. The plan must include mitigation measures to reduce the invasion of alien species and ensure that the continuous monitoring and removal of alien species is undertaken.	Appendix C
19.6	A plant rescue protection plan which allows for the maximum transplant of conservation important species from areas to be transformed. This plan must be compiled by a vegetation specialist familiar with the site in consultation with the ECO and be implemented prior to commencement of the construction phase.	Appendix D
19.7	A re-vegetation and habitat rehabilitation plan to be implemented during the construction and operation of the facility. Restoration must be undertaken as soon as possible after the completion of construction activities to reduce the amount of habitat converted at any one time and to speed up the recovery to natural habitats.	Appendix E
19.8	A traffic management plan for the site access roads to ensure that no hazards would result from the increased truck traffic and that traffic flow would not be adversely impacted. This plan must include measures to minimize impacts on local commuters e.g. limiting construction vehicles travelling on public roadways during the morning and late afternoon commute time and avoid using roads through densely populated built up areas so as to not disturb existing retail and commercial operations.	Appendix J

19.9	A storm water management plan to be implemented during the construction and operation of the facility. The plan must ensure compliance with applicable regulations and prevent off-sire migration of contaminated storm water or increased soil erosion. The plan must include the construction of appropriate design measures that allow surface and subsurface movement of water along drainage line so as to not impede natural surface and subsurface flows. Drainage measures must promote the dissipation of storm water run-off.	Appendix G
19.10	An erosion management plan for monitoring and rehabilitation erosion events associated with the facility. Appropriate erosion mitigation must form part of this plan to prevent and reduce the risk of any potential erosion.	Appendix F
19.11	An effective monitoring system to detect any leakage or spillage of all hazardous substances during their transportation, handling, use and storage. This must include precautionary measures to limit the possibility of oil and other toxic liquids from entering the soil or storm water systems.	Appendix I
19.12	Fire management plan to be implemented during the construction and operational phases.	Appendix I
19.13	Measures to protect hydrological features such as streams, rivers, pans, wetlands, dams and their catchments, and other environmental sensitive areas from construction impact including the direct or indirect spillage of pollutants.	Appendix G
19.14	An environmental sensitivity map indicating environmental sensitive areas and features identified during the EIA process.	Section 3.1.6; Figure 4
19.15	A map combing the final layout map superimposed (overlain) on the environmental sensitivity map. This map must reflect the proposed location of the turbine as stated in the EIAr and this authorisation.	Section 3.1.6; Figure 4

3.1.3 Goals for environmental management

The overall goal for environmental management for the development of the supporting infrastructure to the Sutherland 2 WEF is to construct and operate the project in a manner that achieves the goals presented in Figure 3.1

Figure 3.1 Environmental management goals for the proposed project

3.1.4 Mitigation hierarchy

This EMPr strives to recommend avoidance, management, mitigation and monitoring actions towards enhancing positive impacts, and avoiding damage or loss of ecosystems and services that they provide, and where they cannot be avoided, to reduce and mitigate potential impact. Offsets to compensate for loss of habitat are regarded as a last resort, after all efforts have been made to avoid, reduce and mitigate. The mitigation hierarchy is described in Figure 3.2.

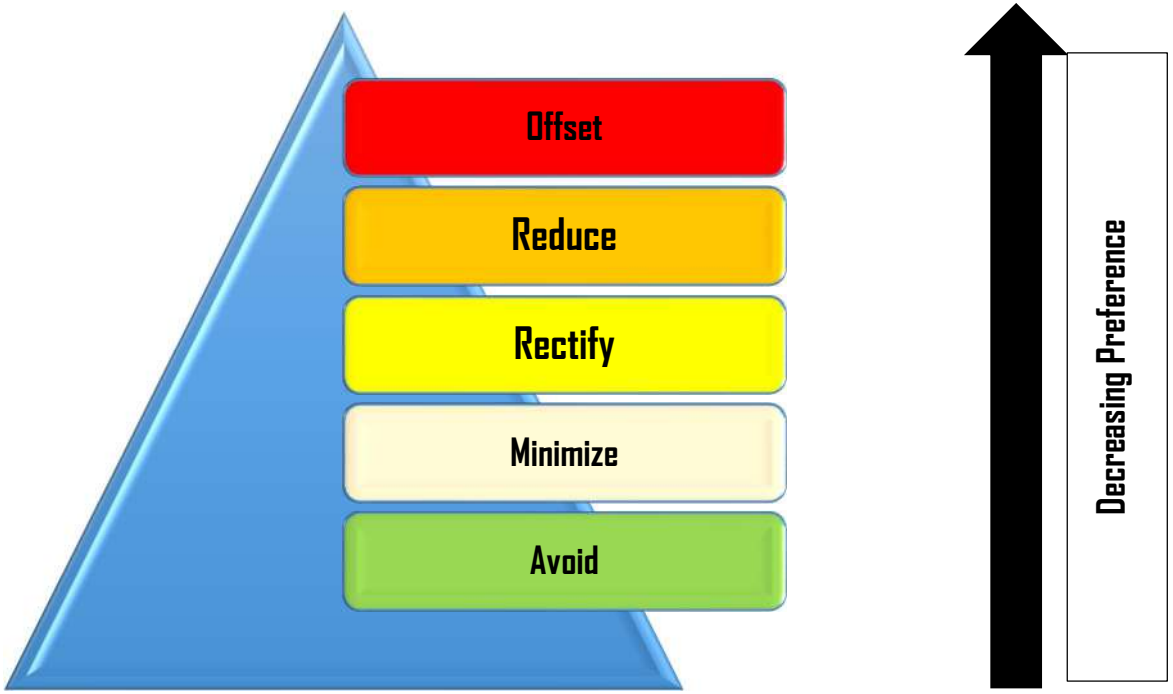

Figure 3.2: Mitigation Hierarchy for the proposed project

3.1.5 Contents of the EMPr

Where applicable, this EMPr addresses the five phases of the project cycle: (1) Project Design phase; (2) Construction phase; (3) Operational phase; (4) Rehabilitation phase and (5) Decommissioning phase.

The draft EMPr follows an approach of identifying an over-arching goal and objectives, accompanied by management actions that are aimed at achieving these objectives. The management actions are presented in a table format in order to show the links between the goal and associated objectives, actions, responsibilities, monitoring requirements and targets. The management leak for the design, construction, operational and decommissioning phases consist of the following components:

- **Impact**: The potential positive or negative impact of the development that needs to be enhanced, mitigated or eliminated;
- **Mitigation/Management action**: The actions needed to achieve the objectives of enhancing, mitigating or eliminating impacts;
- **Monitoring:** The key monitoring actions required to check whether the objectives are being achieved, taking into consideration methodology, frequency and responsibility.

This Final Environmental Management Programme (EMPr) is prepared for the authorised 140MW Sutherland 2 WEF and all its associated structures, as part of the requirements of the 2014 EIA Regulations promulgated under the National Environmental Management Act (NEMA, Act 107 of 1998). The project team involved in preparing this EMPr for approval is listed in Table 3.3. This team includes a number of specialists which have provided input throughout the EIA process and subsequent walkthroughs as they were being undertaken for the proposed development of the Sutherland 2 WEF, and all its associated structures.

3.1.6 Environmental sensitivities and preferred layout

Based on the walkthrough surveys undertaken as mentioned above and the findings thereof, an updated environmental sensitivity map has been produced (Figure 4) to show all the environmental features and their respective buffers (where applicable), also taking into consideration all sensitivities that were identified by the various specialists to inform the final layout for the wind energy facility and associated infrastructure. The walkthrough surveys aimed to confirm the environmental features and sensitivities previously identified and any new features based on the final layout map.

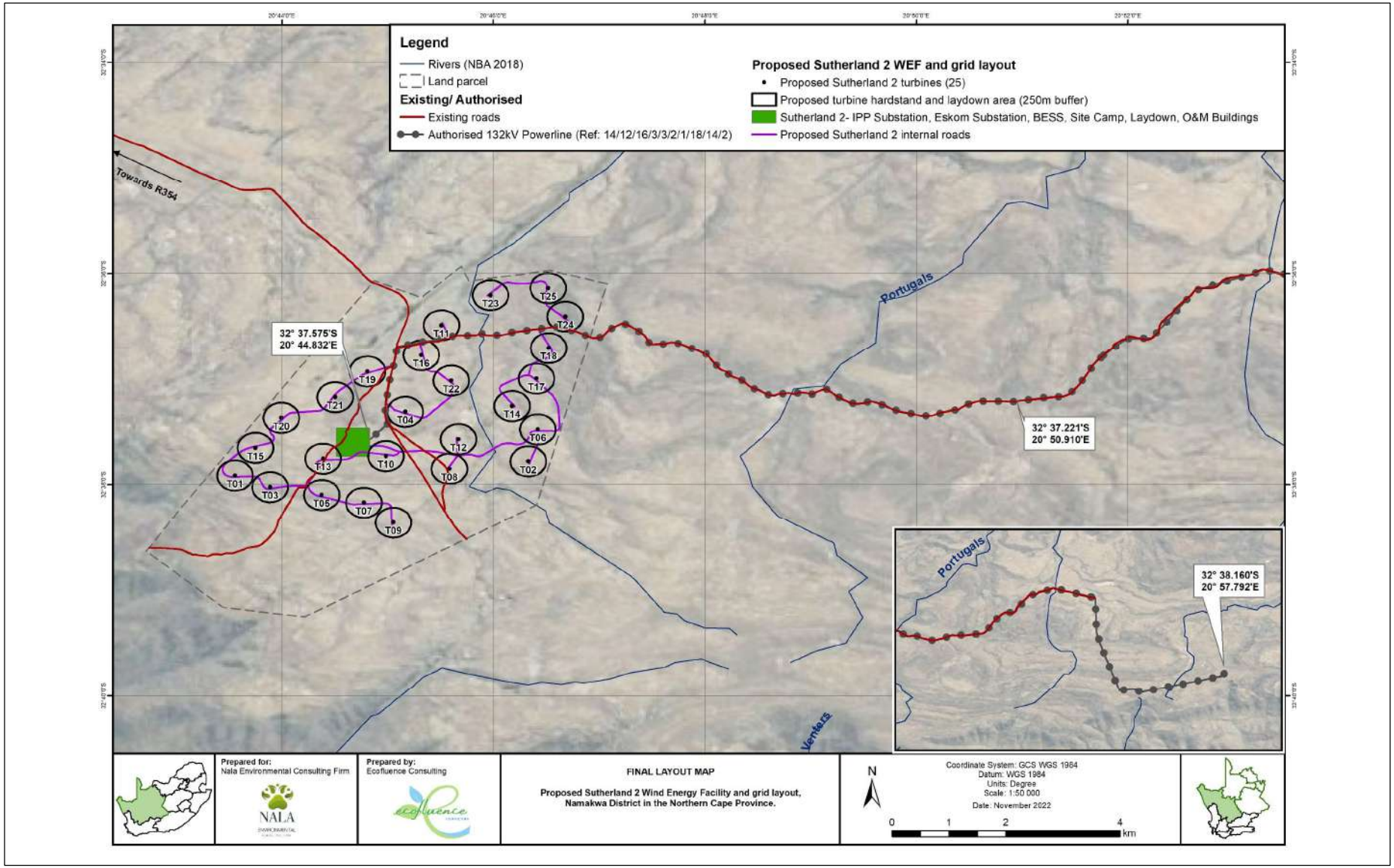

Figure 3: Final Layout Map of the Sutherland 2 Wind Energy Facility and associated infrastructure.

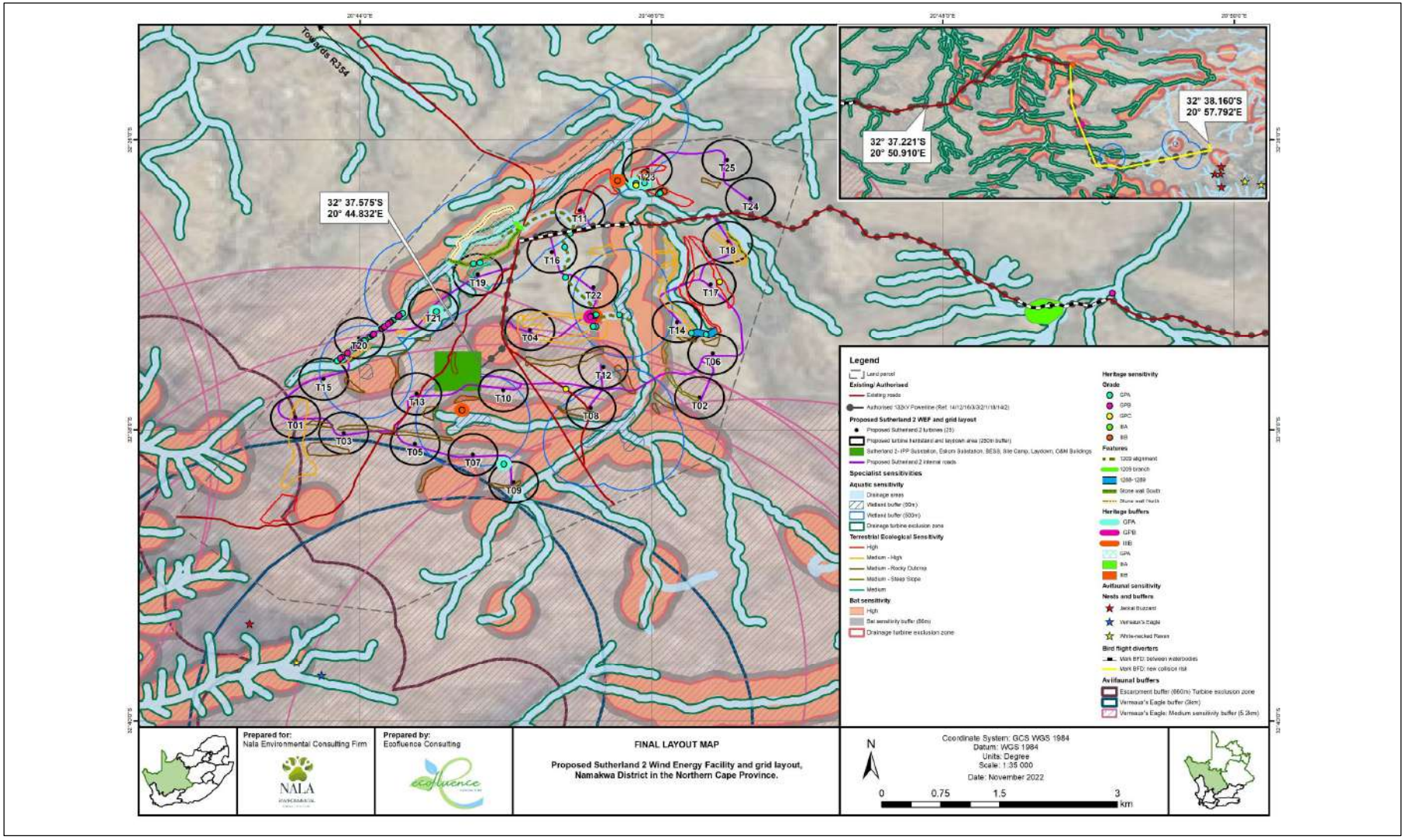

Figure 4: Updated Environmental Sensitivity map showing environmental features and their respective buffers (where applicable) that were identified by the various specialist studies and walkthrough surveys that informed the final layout for the Sutherland 2 Wind Energy Facility.

3.2 EMPr ADMINISTRATION

Copies of this EMPr must be kept at the site office/s during the operation phase. All senior personnel must be required to familiarise themselves with the contents of this document. Any revisions to the EMPr document must be approved by DFFE before the revised EMPr is implemented. The Operations Manager must be responsible for the implementation and distribution of any "approved" revisions to the EMPr during the operation phase.

3.3 INFORMATION BOARDS

The Contractor must be responsible for erecting a general information board during the construction phase. The general information board must, as a minimum, provide the name and contact number of the Environmental Officer (EO) on site, to ensure that the public has access to the EO to request information and/or to lodge any complaints.

3.4 STAKEHOLDER ENGAGEMENT

Sutherland 2 Wind Farm (Pty) Ltd should continue to engage with stakeholders throughout project construction and operation. Communication with local communities and other local stakeholders will be a key part of this engagement process and is one where Sutherland 2 Wind Farm (Pty) Ltd and the contractor will need to work closely together during the construction period. Development of a Community Engagement Plan (CEP) is important to facilitate this communication.

The objectives of communication and liaison with local communities are the following:

1. To provide residents in the vicinity (e.g. Sutherland residents and neighbours) and other interested stakeholders, with regular information on the progress of work and its implications.
2. To monitor implementation of mitigation measures and the impact of construction on communities via direct monitoring and feedback from those affected in order to ensure that mitigation measures are implemented, and the mitigation objectives achieved.
3. To manage any disputes between Sutherland 2 Wind Farm (Pty) Ltd, the contractors, and local people.

3.5 METHOD STATEMENTS (MS)

The Contractor must submit written MS to the Principal Agent and ECO for all environmentally sensitive aspects of the work during the construction phase. An MS Control Sheet, signed by the Contractor, must accompany each MS. An MS must cover applicable details with regard to:

- Construction procedures.
- Materials and equipment to be used.
- Getting equipment to and from site.
- How the equipment / material will be moved while on site.
- How and where material will be stored.
- The containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur.
- Timing and location of activities.
- Compliance / non-compliance with the Specifications.
- Any other information deemed necessary by the Proponent / ECO.

An MS must be submitted to the Principal Agent and ECO at least five (5) days prior to the commencement of the construction activities for which the MS is required. It should be noted that an MS must contain sufficient information and detail to enable the Principal Agent and ECO to apply their minds to the potential impacts of the works on the environment. The Contractor will also need to thoroughly understand what is required of them in order to undertake the works.

Work must not commence until the MS have been approved by the Principal Agent. Failure to submit an MS may cause the Principal Agent to order the Contractor to suspend part or all of the works concerned until an MS has been submitted and approved. Failure to submit an MS at least five days prior to commencing the relevant activity may result in a fine (see Section 3.10). Any damage caused to the surrounding environment by work done without prior approval must be rehabilitated at the Contractor's cost.

As a minimum the following MSs are required:

- MS for indicating the location, preparation and layout of the construction camps and laydown areas.
- MS for the containment, handling, storage, and disposal of hazardous substances.
- MS for handling accidental leaks and spills.
- MS for management of hazardous waste.
- MS for management of general waste.
- MS for management of wastewater.
- MS for dust control.
- MS for management of cement and concrete batching.
- MS for erosion and sedimentation control.
- MS for traffic accommodation and diversions.
- MS for fire prevention and control.
- Ms for wind turbine component storage.
- MS for site rehabilitation.

The Principal Agent and/or the ECO must specify any additional MS that may be required. Where relevant the MSs indicated above can be combined on agreement with the Principal Agent / ECO.

3.6 ENVIRONMENTAL AWARENESS TRAINING

Environmental awareness is defined as '*the growth and development of awareness, understanding and consciousness toward the biophysical environment and its problems, including human interactions and effect'. It is further stated that it is 'the educational process that deals with the human interrelationships with the environment and that utilizes an interdisciplinary problem-solving approach with value clarification'.*

As part of continual improvement in environmental management performance, environmental as well as health and safety awareness training should be provided to all employees in order to promote the effective implementation of the EMPr actions.

Prior to the commencement of any work on site, the Contractor's site management staff must attend an environmental awareness training course presented by the ECO. The Contractor must liaise with the ECO prior to the commencement of construction to fix a date and venue for the course. The Contractor must provide a suitable venue with facilities and ensure that the specified employees attend the course.

The information presented at the course must be communicated by the Contractor to the rest of his employees on the site, to any new employees coming onto site after the initial training course and to his / her suppliers as appropriate. The presentation must be conducted, as far as is possible, in the employees' language of choice. As a minimum, training must include:

- Explanation of the importance of complying with the EMPr.
- Discussion of the potential environmental impacts of construction activities.
- Employees' roles and responsibilities, including emergency preparedness.
- Explanation of the mitigation measures that must be implemented when carrying out their activities.
- Explanation of the specifics of this EMPr and its specification (no-go areas, etc.).
- Discussion of waste awareness and provision of training to ensure proper waste management is implemented when carrying out their activities.

- Explanation of the management structure of individuals responsible for matters pertaining to the EMPr.

The Contractor must keep records of all environmental training sessions, including names of attendees, dates of their attendance and the information presented to them.

3.7 MEETINGS

The ECO must meet with the Principal Agent on a monthly basis, or more frequently as required during the initial stages of the project. The ECO must attend scheduled construction site meetings on a monthly basis throughout the contract period.

3.8 INSPECTION PROCEDURES

The day-to-day monitoring and verification that the EMPr is being adhered to must be undertaken by the ED. The ECO must visit and inspect the site at least on a fortnightly basis to ensure that correct procedures are being implemented and that the Contractor is complying with the environmental specifications in the EMPr. Additional site inspections by the ECO may be needed during the initial stages of the project. The ECO must address any queries to the Proponent. If the queries cannot be resolved at this level, they must be referred to the Principal Agent and, if necessary, to DFFE.

3.9 RECORD OF ACTIVITIES

The ED must keep a record of activities on site, including but not limited to meetings attended, MSs received and approved, issues arising on site, cases of non-compliance with the EMPr, penalties / fines issued, and corrective action taken to solve problems that arise, and any complaints received and how they were addressed.

The ED must undertake photographic monitoring for the duration of the construction phase. This must include a photographic record of all areas that will be impacted by the construction activities prior to construction activities commencing. The ED must monitor all sensitive work environments, which may also include photographic monitoring.

3.10 FINES

A system of fines must be implemented to ensure compliance with the EMPr. Where the Contractor inflicts non-repairable damage upon the environment or fails to comply with any of the environmental specifications of the EMPr this would constitute a breach of contract for which the Contractor may be liable to pay a fine. The Contractor is deemed not to have complied with the EMPr if, amongst others:

- There is evidence of contravention of the EMPr specifications, including any non-compliance with an approved MS.
- Construction activities take place outside the defined boundaries of the site.
- Environmental damage ensues due to negligence.
- The Contractor fails to comply with corrective or other instructions issued by the Principal Agent within a specific time period.
- The Contractor fails to respond adequately to complaints from the public.

If excessive infringement with regard to any of the above is registered, then the Principal Agent reserves the right to fine the Contractor, or in the extreme event terminate the Contractor's contract. The system of fines must be implemented in the following way:

- Fines must be issued per incident at the discretion of the Principal Agent.
- Fines must be issued in addition to any remedial costs incurred as a result of non-compliance with the environmental specifications.
- The Principal Agent must inform the Contractor of the contravention and the amount of the fine and will deduct the amount from the Contractor's monthly Payment Certificates.

- Fines, including but not limited to those activities presented in Appendix E, must be imposed by the Principal Agent on the Contractor, his staff and/or the Sub-contractors' staff for contravention of the environmental specifications. Where there are ranges, the amount must depend on the severity and extent of the damage done to the environment.

Should a fine be issued, the Principal Agent must, in conjunction with the ECO, identify an appropriate environmental-focussed non-profit organisation in the area to which to donate the money.

Failure by any employee of the Contractor or their sub-contractors to show adequate consideration to the environmental aspects of the contract must be considered sufficient cause for the Principal Agent to have that employee removed from the site. The ECO may, through the Principal Agent, also order the removal of equipment that is causing continual environmental damage.

3.11 INTERNAL REVIEW AND AUDITING

The Contractor must establish an internal review procedure to monitor the progress and implementation of the EMPr during the construction phase. Where necessary, and upon the recommendation of the Principal Agent and/or the ECO, procedures that require modification will be changed to improve the efficiency of the EMPr. All modifications to the EMPr must be approved by DFFE before, if possible, any changes or adjustments to the EMPr are implemented. Any changes or adjustments to the EMPr must be registered in the daily records of the Principal Agent. Adjustment and update of the original EMPr document is not required when these ad hoc changes are made.

At the conclusion of the construction phase an environmental audit report must be compiled and submitted to DFFE. This report must be compiled by the ECO, in collaboration with the Principal Agent and the EO. It must, as a minimum, outline the implementation of the EMPr during the construction phase, and highlight any problems and issues that arose during the construction period to report, on a formal basis, the lessons learned from this project.

3.12 EXTERNAL REVIEW AND AUDITING

The Proponent must, for the period during which the EA and EMPr remain valid, ensure compliance with the conditions of the EA and EMPr is audited. The environmental audit report must be prepared by an independent person, with the relevant environmental auditing expertise and be submitted to DFFE upon completion, or within six months of completion of the construction phase. The environmental audit report must contain all the information required as presented in Appendix 7 of the EIA Regulations, 2014 (as amended).

The Proponent, within seven days of the submission of the environmental audit report to DFFE, must notify all interested and affected parties of the submission and make the report available to anyone on request and on a publicly accessible website (if applicable).

Access to the site must be granted and the environmental audit reports, ECO reports and other relevant documentation must be produced to any authorised official representing the Competent Authority who requests to see it for the purposes of assessing and/or monitoring compliance with the conditions contained therein.

6.13. Expertise of Environmental Assessment Practitioners

This Final EMPr was compiled by Nala Environmental (Pty) Ltd. Nala Environmental is an environmental consultancy firm established in December 2020. The main line of business is the compilation of environmental impact assessments for a variety of industries. The Nala Environmental management team has a broad client base from both the private and government sectors which has developed over the past 10 years. Nala Environmental is experience in undertaking environmental impact assessments spans across South Africa, with significant experience in the Northern Cape, Western Cape, Eastern Cape, Mpumalanga and Kwa-Zulu Natal Provinces. The Environmental Assessment Practitioners (EAP) for this project are Arlene Singh

who is registered with the Environmental Assessment Practitioner's Association of South Africa (EAPASA) and the South African Council for Natural Scientific Professions (SACNASP) and Norman Chetsanga who is registered with the South African Council for Natural Scientific Professions (SACNASP). Refer to Appendix A for a Company Profile and condensed Curriculum Vitae of the EAP.

Table 3.3: The team consisting of Environmental Assessment Practitioners, and various specialists to provide technical expertise.

Name	Organisation	Role/Specialist Study
Environmental Assessment Practitioners		
Arlene Singh	Nala Environmental (Pty) Ltd	Environmental Assessment Practitioner (SACNASP) (EAPASA)
Norman Chetsanga	Nala Environmental (Pty) Ltd	Environmental Consultant (SACNASP)
Justin Jacobs	Nala Environmental (Pty) Ltd	Junior Environmental Consultant
Specialists (Final Pre-construction walkthroughs)	**Organisation**	**Role/Specialist Study**
Dr Jayson Orton	ASHA Consulting (Pty) Ltd	Archaeological Pre-construction Survey
Dr Brian Colloty	EnviroSci (Pty) Ltd	Aquatic Pre-construction Walkthrough
Dr Wynand Vlok	BioAssets Biological Assessments	Ecological Pre-construction Walkthrough
Mr John E. Almond	Natura Viva cc	Paleontological Pre-construction Survey and walkthrough
Mr Chris Van Rooyen	Chris van Rooyen Consulting	Avifauna Pre-construction Walkthrough
Mr Werner Marais	Animalia Consulting	Bat Pre-construction Walkthrough

SECTION 4: LEGISLATIVE OVERVIEW

4.1 GENERAL

The construction phase activities included as part of the EMPr are in respect of any future construction, upgrades, or expansions at the site. Construction and operation must be according to the best industry practices, as identified in the project documents. This EMPr, which forms an integral part of the contract documents, informs the contractor and operator as to their duties in the fulfilment of the project objectives, with particular reference to the prevention and mitigation of environmental impacts caused by construction activities associated with the project. The contractor should note that obligations imposed by the EMPr are legally binding in terms of this contract.

4.2 STATUTORY AND OTHER APPLICABLE LEGISLATION

The contractor and operator are deemed to have made themselves conversant with all legislation pertaining to the environment, including provincial and local government ordinances, which may be applicable to the contract. Major environmental legislation, as amended from time to time, includes but is not limited to the following:

4.2.1 The Constitution (No. 6 of 1996)

The Constitution states that everyone has the right to an environment that is not harmful to their health or well-being, and to have the environment protected through reasonable legislative and other measures to prevent pollution and ecological degradation; promote conservation and ensure ecologically sustainable development and use of natural resources.

4.2.2 Conservation of Agricultural Resources Act (No. 43 of 1983) (CARA)

This act provides for control over the utilisation of the natural agricultural resources of South Africa in order to promote the conservation of soil, water sources and vegetation, as well as combating weeds and invader plants.

4.2.3 Mineral and Petroleum Resources Development Act (No. 28 of 2002)

This act makes provision for equitable access to, and sustainable development of, minerals and petroleum resources.

4.2.4 National Environmental Management Act (NEMA), (No. 107 of 1998)

This act supports the Bill of Rights within the Constitution and highlights principles of sustainable development including preservation of ecosystems and biological diversity and avoidance, minimisation and remediation of pollution and environmental degradation. It also sets the stage for the control of listed activities and the procedural requirements for authorisation thereof through the Environmental Impact Assessment Regulations, 2014 (as amended). Environmental Authorisation must be obtained prior to the commencement of any activities listed in the EIA Regulation Listing Notices, 2014 (as amended).

4.2.5 National Environmental Management: Air Quality Act (No. 39 of 2004)

This act provides reasonable measures for the prevention of pollution and ecological degradation from activities with emissions to atmosphere; and provides for specific air quality measures; for national norms and standards regulating air quality monitoring, management, and control by all spheres of government.

4.2.6 National Environmental Management: Biodiversity Act (No. 10 of 2004) (NEMBA)

This act makes provisions to accomplish the objectives of the United Nations' Convention on Biological Diversity. COM may be required to apply for permits to conduct certain listed activities which, together with the listed threatened or protected species, may be identified by the Minister. Section 73 (3) of this act empowers a competent authority to direct a person to take steps to remedy any harm to biodiversity resulting from the actions of that person or as a result of occurrence of listed invasive species occurring on land on which that person is the owner.

4.2.7 National Environmental Management: Protected Areas Act (No. 57 of 2003)

This act provides for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity, natural landscapes, and seascapes.

4.2.8 National Environmental Management: Waste Act (No. 59 of 2008)

This act aims to regulate waste management practices through provision of national norms and standards, specific waste measures, licensing and control of waste activities, remediation of contaminated land as well as providing for compliance and law enforcement. It sets the stage for the control of listed waste management activities and the procedural requirements for authorisation thereof through the Environmental Impact Assessment Regulations, 2014 (as amended).

4.2.9 National Forests Act (No. 84 of 1998)

This act makes provision for promoting the sustainable management and development of forests, and for the protection of certain forests and trees for environmental, economic, educational, recreational, cultural, health and spiritual purposes.

4.2.10 National Heritage Resources Act No. 25 of 1999)

This act provides for an integrated and interactive system for identification, assessment, and management of South Africa's heritage resources, and empowers civil society to nurture and conserve their heritage resources. It provides for the control of specific activities that could impact heritage resources and for the procedural requirements for authorisation thereof from the heritage authority. Importantly, the Provincial Heritage Authority, Northern Cape Heritage Resources Authority, must be notified immediately if any items of cultural heritage importance are noted during construction activities.

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

This act makes provision for the protection of surface water and groundwater and their sustainable management for the prevention and remediation of the effects of pollution, as well as for the management of emergency situations. Authorisation is required for any activity which may compromise the water resource quality objectives.

SECTION 5: ROLES AND RESPOPNSIBILITIES

To achieve the goals set out in this EMPr there are responsibilities that need to be defined for the following key roles (Table 3):

- Competent Authority
- Project Developer;
- Developer's Project Manager
- Lead Contractor Environmental Control Officer (ECO); and
- Development Environmental Officer (dEO)
- Contractor Environmental Officer (cEO)

Table 4.1: Roles and responsibilities associated with the construction, operation and decommissioning of the proposed development of the supporting infrastructure in line with this EMPr.

Role	Responsibilities
Authority	Department of Forestry, Fisheries and the Environment (DFFE) is the designated authority responsible for authorising/approving this EMPr. DFFE has overall responsibility for ensuring that the Project Developer complies with the conditions of its Environmental Authorisation (EA) as well as this EMPr. DFFE must also be responsible for approving any amendments that may be required to the EMPr. In terms of Section 30 of NEMA, DFFE is to be notified immediately should there be an incident on site where the release of a hazardous substance was unexpected, sudden, and uncontrolled, including from a major emission, fire, or explosion, that causes, has caused, or may cause significant harm to the environment, human life, or property.
Project Developer (Sutherland 2 Wind Farm (Pty) Ltd)	The Project Developer is the 'owner' of the project and, as such, has the following responsibilities: • Be familiar with the recommendations and mitigation measures of this EMPr; • Ensure that the conditions of the Environmental Authorisation issued in terms of NEMA are fully adhered to; • Ensure that other necessary permits or licenses are obtained and complied with; • Appoint the ECO and the Lead Contractor. It is proposed that Sutherland 2 Wind Farm (Pty) Ltd will implement the Self-Build Option for the supporting electrical infrastructure to be constructed. Following the construction phase, the supporting electrical infrastructure will either be transferred into the ownership of Eskom or otherwise remain in the ownership of Sutherland 2 Wind Farm (Pty) Ltd. This entails that should Eskom take ownership of the electrical infrastructure, the operational, maintenance and decommissioning requirements will be their responsibility.
Developer's Project Manager (DPM)	The Project Developer is accountable for ensuring compliance with the EMPr and any conditions of approval from the competent authority (CA). Where required, an environmental control officer (ECO) must be contracted by the Project Developer to objectively monitor the implementation of the EMPr according to relevant environmental legislation, and the conditions of the environmental authorisation (EA). The Project Developer is further responsible for providing and giving mandate to enable the ECO to perform responsibilities, and he must ensure that the ECO is integrated as part of the project team while remaining independent. The responsibilities of the DMP's are to: • Be fully conversant with the conditions of the EA; • Ensure that all stipulations within the EMPr are communicated and adhered to by the Developer and its Contractor(s); • Issuing of site instructions to the Contractor for corrective actions required;

	• Monitor the implementation of the EMPr throughout the project by means of site inspections and meetings. Overall management of the project and EMPr implementation; and • Ensure that periodic environmental performance audits are undertaken on the project implementation.
Principal Agent	For the purposes of this document the "Principal Agent" refers to any person (such as the architect, engineer, or project manager) authorised by Sutherland 2 Wind Farm (Pty) Ltd to oversee the planning, design, and construction phases of the project. Any on-site decisions regarding environmental management are ultimately the responsibility of the Principal Agent, who will report to the Proponent. The responsibilities of the Principal Agent are to: • Ensure that the requirements as set out in this EMPr and by the relevant Authorities are adhered to and implemented. • Assist the ECO in ensuring that the conditions of the EMPr are being adhered to and promptly issuing instructions requested by the ECO, to the Contractor. All site instructions pertaining to environmental matters issued by the Principal Agent are to be copied to the ECO. • Ordering the removal of person(s) and/or equipment not complying with the specifications or issuing a stop works order (as required by the ECO or otherwise). • Issuing of penalties for transgressions of environmental site specifications. • Providing input into the ECO's ongoing internal review of the EMPr. • ▪raining of contractors on environmental matters • Management of the contractors in terms of the EMPr. • Review of contractor method statements.
Contractor	Contractor The Contractor and its sub-constructors are responsible for overall execution of the activities envisioned in the construction phase, including implementation and compliance with the recommendations and conditions specified in this EMPr. Furthermore, the Contractor's responsibilities are to: • Ensure that all appointed contractors and sub-contractors are aware of this EMPr and their responsibilities in relation to the plan; • Meet on-site with the Project Developer's ECO prior to the commencement of construction activities to confirm the construction procedure and designated activity zones; • Ensure that each subcontractor employ an ECO (or have a designated ECO function) to monitor and report on the daily activities on-site during the construction period; • Implement the overall construction programme, project delivery and quality control for the construction of the project; • Oversee compliance with the Health, Safety and Environmental Responsibilities specific to the project management related to project construction; • Promote total job safety and environmental awareness by employees, contractors and sub-contractors and stress to all employees and contractors and sub-contractors the importance that the project proponent attaches to safety and the environment; • Ensure that safe, environmentally acceptable working methods and practices are implemented and that sufficient plant and equipment is made available properly operated and maintained, to facilitate proper access and enable any operational to be carried out safely; • Ensure that all appointed contractors and sub-contractors repair, at their own cost, any environmental damage as a result of a contravention of the specifications contained in the EMPr, to the satisfaction of the Project Developer's ECO. • Implement the Traffic Management Plan set out in this EMPr (Appendix J, K); • Implement the Storm Water Management Plan set out in this EMPr (Appendix G).

Environmental Control Officer (ECO)	The ECO should have appropriate training and experience in the implementation of environmental management specifications. The primary role of the ECO is to act as an independent quality controller and monitoring agent regarding all environmental concerns and associated environmental impacts. In this respect, the ECO is to conduct periodic site inspections, attend regular site meetings, pre-empt problems and suggest mitigation and be available to advise on incidental issues that arise. The ECO is also required to conduct compliance audits, verifying the monitoring reports submitted by the cEO. The ECO provides feedback to the Project Manager regarding all environmental matters. The Contractor, cEO and dEO are answerable to the Environmental Control Officer for non-compliance with the Performance Specifications as set out in the EA and EMPr. The ECO provides feedback to the Project Manager, who in turn reports back to the Contractor and potential and Registered Interested &Affected Parties (RI&APs), as required. Issues of non-compliance raised by the ECO must be taken up by the Project Manager, and resolved with the Contractor as per the conditions of his contract. Decisions regarding environmental procedures, specifications and requirements which have a cost implication (i.e. those that are deemed to be a variation, not allowed for in the Performance Specification) must be endorsed by the Project Manager. The ECO must also, as specified by the EA, report to the relevant CA as and when required. Responsibilities of the ECO are to • Be aware of the findings and conclusions of all EA related to the development; • Be familiar with the recommendations and mitigation measures of this EMPr; • Be conversant with relevant environmental legislation, policies and procedures, and ensure compliance with them; • Undertake regular and comprehensive site inspections / audits of the construction site according to the generic EMPr and applicable licenses in order to monitor compliance as required; • Educate the construction team about the management measures contained in the EMPr and environmental licenses; • Compilation and administration of an environmental monitoring plan to ensure that the environmental management measures are implemented and are effective; • Monitoring the performance of the Contractors and ensuring compliance with the EMPr and associated Method Statements; • In consultation with the Developer Site Supervisor order the removal of person(s) and/or equipment which are in contravention of the specifications of the EMPr and/or environmental licenses; • Liaison between the DPM, Contractors, authorities and other lead stakeholders on all environmental concerns; • Compile a regular environmental audit report highlighting any non-compliance issues as well as satisfactory or exceptional compliance with the EMPr; • Validating the regular site inspection reports, which are to be prepared by the contractor Environmental Officer (cEO); • Checking the cEO's record of environmental incidents (spills, impacts, legal transgressions etc.) as well as corrective and preventive actions taken; • Checking the cEO's public complaints register in which all complaints are recorded, as well as action taken; and sub-contractors may have their own ECOs, or designate ECO functions to certain personnel.
Development Environmental Officer (dEO)	The dEOs will report to the Project Manager and are responsible for implementation of the EMPr, environmental monitoring and reporting, providing environmental input to the Project Manager and Contractor's Manager, liaising with contractors and the landowners as well as a range of environmental coordination responsibilities. Responsibilities of the dEO are to

	• Be fully conversant with the EMPr; • Be familiar with the recommendations and mitigation measures of this EMPr, and implement these measures; • Ensure that all stipulations within the EMPr are communicated and adhered to by the Employees, Contractor(s) ; • Confine the development site to the demarcated area; • Conduct environmental internal audits with regards to EMPr and authorisation compliance (on cEO); • Assist the contractors in addressing environmental challenges on site; • Assist in incident management: • Reporting environmental incidents to developer and ensuring that corrective action is taken, and lessons learnt shared; • Assist the contractor in investigating environmental incidents and compile investigation reports; • Follow-up on pre-warnings, defects, non-conformance reports; • Measure and communicate environmental performance to the Contractor; • Conduct environmental awareness training on site together with ECO and cEO; • Ensure that the necessary legal permits and/or licenses are in place and up to date; • Acting as Developer's Environmental Representative on site and work together with the ECO and contractor;
Contractor Environmental Officer (cEO)	Each Contractor affected by the EMPr should appoint a cEO, who is responsible for the on-site implementation of the EMPr (or relevant sections of the EMPr). The Contractor's representative can be the site agent; site engineer; a dedicated environmental officer; or an independent consultant. The Contractor must ensure that the Contractor's Representative is suitably qualified to perform the necessary tasks and is appointed at a level such that she/he can interact effectively with other site Contractors, labourers, the Environmental Control Officer and the public. As a minimum the cEO must meet the following criteria: Responsibilities of the cEO are to • Be on site throughout the duration of the project and be dedicated to the project; • Ensure all their staff are aware of the environmental requirements, conditions and constraints with respect to all of their activities on site; • Implementing the environmental conditions, guidelines and requirements as stipulated within the EA, EMPr and Method Statements; • Attend the Environmental Site Meeting; • Undertaking corrective actions where non-compliances are registered within the stipulated timeframes; • Report back formally on the completion of corrective actions; • Assist the ECO in maintaining all the site documentation; • Prepare the site inspection reports and corrective action reports for submission to the ECO; • Assist the ECO with the preparing of the monthly report; and • Where more than one Contractor is undertaking work on site, each company appointed as a Contractor will appoint a cEO representing that company

SECTION 6: EMPr FOR THE PROPOSED SUTHERLAND 2 WIND ENERGY FACILITY AND ALL ASSOCIATED INFRASTRUCTURE (PLANNING & DESIGN, CONSTRUCTION, OPERATIONAL, REHABILITATION AND DECOMMISSIONING PHASE)

PLANNING AND DESIGN PHASE

1. Site Establishment						
Impact Management Outcome: Impacts on the environment are minimised during site establishment and the development footprint are kept to demarcated development area.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Planning & Design Phase						
▪ A method statement must be provided by the contractor prior to any onsite activity that includes the layout of the construction camp in the form of a plan showing the location of key infrastructure and services (where applicable), including but not limited to offices, overnight vehicle parking areas, stores, the workshop, stockpile and lay down areas, hazardous materials storage areas (including fuels), the batching plant (if one is located at the construction camp), designated access routes, equipment cleaning areas and the placement of staff accommodation, cooking and ablution facilities, waste and wastewater management;	Contractor	Development of a method statements	Pre-Construction	dEO	Once, prior to construction	Method statement which complies with the minimum requirements listed

▪ Location of construction camps must be within approved area to ensure that the site does not impact on sensitive areas identified in the environmental assessment or site walk through; ▪ During the final design phase, any laydowns, temporary construction areas as well as the crane pads / hardstands should be located outside of any of the delineated systems, 50m delineated buffer around aquatic systems. This includes the internal road network, that should in particular avoid any of the wetland areas.	DPM	Place construction camps outside of sensitive areas All the proposed infrastructure development will avoid any of the delineated wetlands, including the 50m buffer.	Pre-Construction	dEO	Once, prior to construction	Layout and sensitivity map indicating avoidance of sensitive areas and aquatic buffers.
▪ Sites must be located where possible on previously disturbed areas. ▪ All No-Go areas as indicated per the specialist pre-construction walkthrough and approved final layout must be demarcated.	DPM	Place sites within previously disturbed areas where possible. The appropriate signage and fencing must be used to demarcated all no-go areas and buffer zones.	Pre-Construction	dEO	Once, prior to construction	Layout and sensitivity map indicating avoidance of sensitive areas. Proof of demarcation via photographic evidence in the monthly audit reports.
▪ The main contractor's camp layout must make provision for (where applicable): ▪ Access off the road network and visitor / staff parking facilities. ▪ Site office facilities and a structure to shelter security staff. ▪ Ablution facilities and a potable water source . ▪ Designated cooking or eating areas. ▪ Hazardous material / chemical storage and fuel storage. ▪ Equipment cleaning areas. ▪ Waste storage and wastewater management infrastructure.	DPM	Provide layout of construction camp with designated areas	Pre-Construction	dEO	Once, prior to construction	Layout map indicating designated areas

▪ Plant parking facilities and a vehicle refuelling/maintenance area/s. ▪ Emergency equipment storage areas including fire extinguishers and first aid kits. ▪ Laydown areas, batching plant and materials storage.						
▪ The camp must be fenced in accordance with Section 3 and28: Fencing and gate installation.	DPM	Fencing as per the requirements of Section 3 and 28; Fencing and gate installation	Pre-Construction	dEO	Once, prior to construction	Camp is fenced in accordance with Section 3 and 28: Fencing and gate installation
▪ The use of existing accommodation for contractor staff, where possible, is encouraged.	Not applicable – the development of new accommodation is not proposed.	Development of a method statement	Pre-Construction	dEO	Once, prior to construction	Method statement which complies with the minimum accommodation requirements listed
▪ All workers will agree to the Code of Conduct and be aware that contravention of the Code could lead to dismissal ▪ All directly affected and neighbouring farmers will be able to lodge grievances with Sutherland 2 Wind Farm (Pty) Ltd using the Grievance Procedure (Refer to Appendix B)	Project Developer DPM Contractor	Development of a grievance mechanism procedure and Code of Conduct.	Pre-Construction and Construction	Contractor	Prior to commencement of construction and on-going during construction	Signed of Code of Conduct by employees. Grievance mechanism procedure document. (Refer to Appendix B)

▪ Once the final outlay is completed, a pre-construction walk-through, the turbine footprints, the road infrastructure must be conducted before the initiation of the construction phase.	Project Developer	Demarcation of sensitive areas is to take place following the finalisation of the project layout and a walk through of the site.	Pre-Construction phase		Weekly	Undertake inspections and record all findings and document the inspection process (Refer to Appendices A1-E2).

2. Access roads						
Impact Management Outcome: Minimise impact to the environment through the planned and restricted movement of vehicles on site.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Planning & Design Phase						
▪ Access to the servitude and turbine positions must be negotiated with the relevant landowner and must fall within the assessed and authorised area;	DPM	Negotiations for access to the servitude and turbine positions with landowners affected by the grid connection corridor	Pre-construction Construction Operation	dEO	Ongoing	Written and signed agreements
▪ An access agreement must be formalised and signed by the DPM, Contractor and landowner before commencing with the activities;	DPM Contractor	Access agreements with the affected landowners.	Pre-construction	dEO	Once, prior to construction	Written and signed agreements
▪ The access roads to turbine positions must be signposted after access has been negotiated and before the commencement of the activities;	Contractor	Signs to indicate access for the project	Pre-construction	cEO	Once, prior to construction	Photographic record of signposted access roads

▪ All contractors must be made aware of all the access routes.	Contractor	Provide a map showing all access routes associated with the project	Pre-construction Construction Operation	dEO	Construction	Access routes map and final approved layout made available to contractors
▪ Maximum use of both existing servitudes and existing roads must be made to minimise further disturbance through the development of new roads;	Contractor	Existing access routes to be used must be specified and the development of new roads must be avoided	Pre-construction Construction Operation	dEO	Ongoing	Implement approved layout
▪ Access roads in flattish areas must follow fence lines and tree belts to avoid fragmentation of vegetated areas or croplands;	DPM Contractor	Design access roads to follow fence lines and avoid vegetated areas	Pre-construction	dEO	Once, prior to construction	Implement approved layout
▪ Access roads must only be developed on pre-planned and approved roads.	Contractor	Construction of access roads only on pre- planned and approved roads	Construction	dEO	Once, prior to construction	Implement approved layout
▪ All private roads used for access to the servitude must be maintained and upon completion of the works, be left in at least the original condition	Contractor	Undertake maintenance activities on private roads used for construction	Construction	dEO	Ongoing	Photographic record of access roads tracking condition
▪ Where roads pass right next to major water bodies, provision must be made for fauna such as toads to pass under the roads by using culverts or similar. ▪ Roads must be designed so that changes to surface water runoff are avoided and erosion is not initiated.	DPM Contractor	Design of access roads and water crossing points to make provision for passing fauna underneath the road/culvert to avoid road kill incidents. Bridge design must be such that it minimizes the impact to riparian areas with minimal alterations to waterflow and must be permeable to movement of fauna and flora.	Pre-construction Construction	dEO	Once, prior to construction	Implement approved layout Implement stormwater management programme.

3. Fencing and Gate installation						
Impact Management Outcome: Minimise impact to the environment and ensure safe and controlled access to the site through the erection of fencing and gates where required.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Planning & Design Phase						
▪ Use existing gates provided to gain access to all parts of the area authorised for development, where possible;	Contractor	Identify and inform all relevant staff of the existing gates to be used	Pre-construction & Construction	dEO	Monthly	Existing gates are utilised on a frequent basis and only limited new access gates are developed

4. Protection of watercourses						
Impact Management Outcome: Pollution and contamination of the watercourse environment and or estuary erosion are prevented.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Planning & Design Phase						
▪ Existing crossing points must be favoured over the creation of new crossings (including temporary access)	DPM	Develop a management plan or process for implementation, should a spill take place within a watercourse, and ensure continually monitoring	Pre- construction and construction	dEO	During the construction phase of the project.	Existing crossing points utilised, as opposed to new ones created, and no incidents reported of spillage of pollutants into watercourses
▪ When working in or near any watercourse, the following environmental controls and consideration must be taken: a) Water levels during the period of construction; No altering of the bed, banks, course or characteristics of a watercourse b) During the execution of the works, appropriate measures to prevent pollution and contamination of the riparian environment must be implemented e.g. including ensuring that construction equipment is well maintained; c) Where earthwork is being undertaken in close proximity to any watercourse, slopes must be stabilised using suitable materials, i.e. sandbags or geotextile fabric, to prevent sand and rock from	Contractor	Activities undertaken near watercourses must be in-line with and consider the specified environmental controls	Pre- construction and construction	dEO	Monthly, and as and when required	No degradation of the watercourses and no incidents of destruction reported

entering the channel; and d) Appropriate rehabilitation and re-vegetation measures for the watercourse banks must be implemented timeously. In this regard, the banks should be appropriately and incrementally stabilised as soon as development allows.						
▪ Sensitivity maps have been developed for the study area, indicating the freshwater environments, their relevant buffer zones (i.e., 50m buffers from aquatic systems) and regulatory zones in accordance with the National Environmental Management Act (Act 107 of 1998). It is recommended that these sensitivity maps be considered during all phases of the development and with special mention of the planning of infrastructure layout, to aid in the conservation of the freshwater habitats and environmental resources within the study area; ▪ The boundaries of footprint areas are to be clearly defined and it should be ensured that all activities remain within defined footprint areas; ▪ Planning of temporary roads and access routes should take the site. All areas of increased ecological sensitivity should be marked as such and be off limits to all unauthorised construction and maintenance vehicles and personnel; ▪ The applicant must apply to the Department of Water and Sanitation for a Water Use License (WUL) or General Authorisation should any development occur within the 500 m regulated area from the boundary of a wetland; ▪ The applicant must apply for a WUL should development falls within 100 m from a water course or 1:100 year floodline.	Relevant specialist in consultation with the Project Developer	Final layout finalised in consultation with aquatic specialist	Pre-construction	Project Developer	Once-Off prior to commencement of construction	Final layout indicating sensitivities of the site, buffers zones and no-go areas. Relevant WUL or GA on file.

▪ During the final design phase, any laydowns, temporary construction areas as well as the crane pads / hardstands should be located outside of any of the delineated systems 50m delineated buffer around aquatic systems. This includes the internal road network, that should in particular avoid any of the wetland areas. ▪ Stormwater from any access or internal roads must be managed so that this does not interfere with the regional hydrology and or create the potential for any erosion. ▪ As part of the project, water as a result of runoff at turbines and from roads must be well controlled, It must include effective dissipaters on slopes that are more susceptible to erosion. ▪ The roads must be constructed to allow for go water flow across the landscape	Relevant specialist in consultation with the Project Developer	Final layout finalised in consultation with aquatic specialist All the proposed infrastructure development will avoid any of the delineated wetlands, including the 50m buffer.	Pre-construction	Project Developer	Once-Off prior to commencement of construction	Final layout indicating sensitivities of the site, buffers zones and no-go areas. Relevant WUL or GA on file.
Impact Management Outcome: Destruction of freshwater resources.						
▪ Avoid loss of the integrity of freshwater features through use of developed sensitivity maps and do not plan for construction in the buffer region of the freshwater resources.	Relevant specialist in consultation with the Project Developer	Final layout finalised in consultation with aquatic specialist	Pre-construction	Project Developer	Once-Off prior to commencement of construction	Final layout indicating sensitivities of the site, buffers zones and buffer zones

5. Vegetation clearing						
Impact Management Outcome: Vegetation clearing is restricted to the authorised development footprint of the proposed infrastructure.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Planning & Design Phase						
▪ Search, rescue and replanting of all protected and endangered species likely to be damaged during project development must be identified by the relevant specialist and completed prior to any development or clearing; ▪ Individual plants, e.g. protected species, which can't be avoided during construction, must be mapped and the list send to the conservation authorities for action.	Relevant specialist in consultation with the Contractor	Develop and implement a Plant Search and Rescue Plan A suitably qualified terrestrial ecologist must be appointed to inform the permitting process for the relocation, removal or transportation of protected species and undertake a survey of the final approved layout prior to commencement of any site clearing activities. The specialist must identify areas suitable for relocation following the issuing of the relevant permits from the conservation authorities. If any red data species are found within the approved layout, these must be treated as per the recommendation	Pre-construction & Construction	dEO	Weekly, and as and when required	Implementation of the Plant Search and Rescue Plan and photographic evidence and notes of the implementation of the plan. Permits on file for the removal, relocation and transportation of protected species.

		and protocols from the conservation authorities and the appointed terrestrial ecologist. It is important to note that most of these plants are sensitive to relocation and in many instances don't survive relocation. A clear strategy must be developed following the guidance and input of the terrestrial ecologist and conservation authority into the rehabilitation plan and plant rescue and protection plan. It is recommended that all vegetation clearing within the development footprint is kept to a minimum and activities must be limited to the drier periods (late autumn and winter) to the extent which construction timelines permit for example, following rainfall events roads must be given adequate time to dry out before traversing with heavy equipment of machinery. This will ensure that accelerated erosion is mimimised.				

		All clearing of vegetation must be restricted to the footprint areas only – this will limit any further loss of undisturbed vegetation and loss of habitat. Any clearing or construction can only commence once the final permits are received.				
▪ The turbines should not be sited at points below the 1 600 m amsl to avoid the loss of Plant Species of Special Concern ▪ It is recommended that a terrestrial ecologists (botanical, faunal, water resources) must be consulted during the final layout determination and prior to the initiation of the construction phase of the turbines and roads.	Relevant specialist in consultation with the Project Developer	Turbine layout finalised in consultation with terrestrial ecologist. This must be conducted prior to commencement of construction of the project. This will be the most effective strategy to identify any protected or red data plants	Pre-construction	Project Developer	Once-Off prior to commencement of construction	Final turbine layout indicating turbine layout above 1 600m.
▪ Permits for removal must be obtained from the Department of Agriculture, Forestry and Fisheries (DAFF) or relevant competent authorities prior to the cutting or clearing of the affected species, and they must be filed;	DPM	Undertake the permitting process in order to obtain he relevant permits for the removal of protected species. Permits kept on file	Pre-construction	dEO	Once, prior to the commencement of the construction phase and removal of the protected species	Copy of permits on file

6. Protection of fauna, avifauna and bats						
Impact Management Outcome: Minimise disturbance to fauna and avifauna.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Planning & Design Phase						
▪ No interference with livestock must occur without the landowner's written consent and with the landowner or a person representing the landowner being present;	dEO / Contractor	Develop a procedure for dealing with livestock within the affected properties	Pre-construction & Construction	dEO	Once, prior to the commencement of construction and as and when required during the construction phase	Written consent provided by the landowner and proof of representation of the landowner during interference
▪ The breeding sites of raptors and other wild bird species must be taken into consideration during the planning of the development programme;	dEO / in consultation with the Contractor	Ensure that the planning and development programme considers breeding sites for wild bird species	Pre-construction & Construction	dEO	Once, prior to the commencement of construction and as and when required	The planning and development programme includes the consideration of breeding sites for wild bird species
▪ The applicant must ensure 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	dEO / Contractor	Ensure that lighting colour coding prescribed is adhered to	Pre-construction & Construction	dEO	During preconstruction and construction and as and when required	Proof of lighting requirements on the turbines complied to as required.
▪ The facility must be designed to discourage the use of infrastructure components as perching or roosting substrates by birds and bats	dEO / Contractor	The design of infrastructure components must be considered prior to construction and operation to	Pre-construction & Construction	dEO	During preconstruction and construction and as and when required	Photographic evidence and no evidence of perching or nesting on site infrastructure.

		deter perching or roosting of birds.				
▪ A 3km turbine exclusion zone must be implemented around identified Verreaux's Eagle nests, and a 660m turbine exclusion zone along the escarpment ▪ The results of the pre-construction bird monitoring programme must inform the final layout and the construction schedule of the energy facility. ▪ Reports regarding bird monitoring must be submitted to the relevant provincial environmental department, Birdlife South Africa, the Endangered Wildlife Trust (EWT), CapeNature and the DFFE on a quarterly basis. The report will assist all stakeholders in identifying potential and additional mitigation measures and to establish protocols for a bird monitoring programme for wind energy development in the country. ▪ The baseline data collected and documented during the survey must be shared with EWT, CapeNature and Birdlife South Africa for a better understanding of the distribution or breeding behaviour of any of the priority species. ▪ A programme of observer-based or automated Shutdown on Demand (SDoD) to reduce potential Verreaux's Eagle turbine collisions must be implemented within the 3 – 5.2km medium-risk buffer zone. ▪ Turbine exclusion zones are implemented around all sources of surface water as indicated by the bat and aquatic specialists, as a pre-cautionary measure against SCC and other priority species collisions ▪ All wind turbines within the 3 – 5.2km zone must have one blade painted in signal red. It is acknowledged that blade painting as a mitigation strategy is still in an experimental phase in South Africa	Relevant specialist in consultation with the Project Developer	Turbine layout finalised in consultation with avifauna specialist following pre-construction walkthrough and results of the pre-construction bird monitoring programme.	Pre-construction	Project Developer / Avifauna specialist	Once, prior to the commencement of construction	Final turbine layout indicating number of number of turbine, identified nests and all buffers and no-go areas. Proof of submission of the bird monitoring reports submitted to the competent authorities on file. Proof of submission of reports on a quarterly basis on file. Photographic evidence of blade painting as per the specialist recommendations.

▪ Minimise electrocution and collision resulting in mortality of avifauna	Contractor and ECO, cEO	Bird flight diverters are to be fitted to all internal overhead lines, as well as the sections of the 132kV grid connection according to the applicable Eskom Engineering Instruction	Pre-construction Construction	Contractor and ECO, cEO	Once off	Photographic evidence of installation of Bird Flight Diverters.
▪ All internal 33kV medium voltage cables are to be buried, if technically possible. ▪ Those sections where the 33kV medium voltage cable cannot be trenched due to technical or environmental reasons, but needs to run on overhead poles, the proposed pole designs must be approved by the avifaunal specialist, to ensure that the designs are raptor friendly. ▪ Bird flight diverters are to be fitted to all internal overhead lines, as well as the sections of the 132kV grid connection according to the applicable Eskom Engineering Instruction.	DPM and Contractor	Ensure that electrical collector lines are buried outside of high sensitivity areas as identified in the final layout.	Pre-construction & Construction	Project Developer	Once- off during pre-construction and on-going during construction	Proof of collector line routes buried as per final approved layout as per monthly audit reports.
▪ No Threatened or Protected species (ToPs) and/or protected fauna as listed according NEMBA (Act No. 10 of 2004) and relevant provincial ordinances may be removed and/or relocated without appropriate authorisations/permits.	DPM in consultation with the dEO	Undertake a permitting process to obtain the required permits	Pre-construction	Project Developer	Once, prior to the commencement of construction and as and when required	Permits for removal and/relocation must be kept on file
Impact Management Outcome: Bat fatalities due to collision or barotrauma						
▪ A bat specialist walk through, as deemed necessary by the specialist, prior to construction to confirm avoidance of priority species roost sites and appropriate buffer area ▪ Adhere to the bat sensitivity map as indicated in Figure 2.1 of the bat pre-construction walkthrough report (Appendix D1) and avoid development in the demarcated high sensitivity areas and buffers. Medium sensitivity areas and buffers	Relevant specialist in consultation with the Project Developer	Turbine layout finalised in consultation with Bat specialist following pre-construction walkthrough	Pre-construction	Project Developer	Once, prior to the commencement of construction	Proof of pre-construction walkthrough report undertaken (Appendix D1)

should preferably be avoided turbines within these areas may require priority (not excluding all other turbines) during post-construction studies, and in some instances, there is a higher likelihood that mitigation measures may need to be applied to them..						Final turbine layout and indicating high sensitivity and buffer areas
Impact Management Outcome: Bat fatalities due to collision or barotrauma						
▪ Minimise impact to bats and adhere to the bat sensitivity map	Relevant specialist in consultation with the Project Developer	Turbine layout finalised in consultation with avifauna specialist, following pre-construction walkthrough No turbine blades are allowed to intrude into the high bat sensitivity buffer areas, therefore based on a 100m blade length, all turbine bases must be 100m or more from the edge of the 200m high bat sensitivity buffers indicated in Figure 2.1 (Bat sensitivity map) of Bat Walkthrough report (Appendix D1). Based on a rotor diameter of 200m, no turbines or turbine blade overhang, are intruding into the high bat sensitivity areas or their buffers.	Pre-construction	Project Developer	Once, prior to the commencement of construction	Final turbine layout and indicating high sensitivity and buffer areas as per final walkthrough bat specialist report.
▪ Avoid creating artificial wetlands and open water sources in the turbine zones (closer than 300m from any turbine base)	Developer	Stormwater management must be implemented in a manner to avoid this as this	Pre-construction	Project Developer	Once, prior to the commencement of construction	Compliance to Stormwater management plan

▪ The likelihood of bats being killed by moving turbine blades increases significantly when they are attracted to their proximity when it has become an improved foraging airspace due to the presence of artificial light or artificial water sources.		will increase insect and bat activity around turbines.				No wetlands closer than 300m from any turbine base
Impact Management Outcome: Minimise disturbance to bats						
▪ Minimisation of light pollution and artificial habitat creation ▪ Keep artificial lighting to a minimum on the infrastructure (O&M buildings and on wind turbines), while still adhering to safety and security requirements.	Relevant specialist in consultation with the Project Developer	This can be achieved by having floodlights down-hooded, installing passive motion sensors onto lights around buildings and possibly utilising lights with lighting colours (also referred to as lighting temperatures) that attract fewer insects. During the planning phase for the WEF it must become mandatory to only use lights with low sensitivity motion sensors that switch off automatically when no persons are nearby, to prevent the creation of regular insect gathering pools, where practically possible without compromising security requirements.	Pre-construction	Project Developer	Once, prior to the commencement of construction and as and when required.	Proof of installation of passive motion sensors

		Aviation lights should remain as required by aviation regulations.				

7. Protection of heritage and palaeontolgoical resources						
Impact Management Outcome: Minimise impact to heritage resources.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Planning & Design Phase						
▪ Professional palaeontological surveys of project areas with recording and judicious collection / sampling of scientifically important fossil material. ▪ Specialist palaeontological walk-downs of project footprints in the pre-construction phase in sectors where a full, field-based palaeontological study has yet been conducted.	Project Developer/Specialist	Project Developer to appoint a qualified archaeologist and/or palaeontologist to do a pre-construction survey.	Pre-construction	Project Developer	Once, prior to the commencement of construction	Physical walkthrough findings demarcated. Proof of implementation of the chance find fossil procedure.
▪ The final layout, including all turbine hardstands areas and associated project components, must be examined from a desktop perspective in relation to known heritage resources and survey tracks already made in order to determine whether any further areas should be checked in the field (it is quite likely that some such localities will exist); ▪ The final authorised layouts of the WEF and its associated Grid Connection Infrastructure should be cross-checked	Project Developer/Specialist	Carry out desktop examination of projects components in relation to heritage resources	Pre-construction	Project Developer / Heritage Specialist	Once, prior to the commencement of construction	Proof of desktop examination of project components in relation to heritage resources and physical walkthrough findings demarcated.

against the known available palaeontological database. Residual, potentially sensitive, un-surveyed sectors of the western sector of the grid connection footprint – notably those between the Sutherland 2 WEF on-site substation and Sutherland / Rietrug WEF on-site substations - may need to be surveyed prior to the commencement of clearing activities by a professional palaeontologist, with recording and judicious sampling or collection of any scientifically valuable fossil material.						Proof of implementation of the chance find fossil procedure.
▪ Avoid disturbance or damage to buildings and structures older than 60 years by maintaining 500m buffers around the on-site dwellings. ▪ Avoid inland water bodies (100m buffer) and rivers (200m ▪ buffer). ▪ Maintain a 200m buffer zone around cemeteries or graves onsite. ▪ Maintain a 500m buffer around the onsite dwellings. ▪ A Heritage Walk-Down of all proposed locations of wind turbines, roads and all associated infrastructure not surveyed in the 2011 HIA must be completed prior to construction. ▪ The Heritage Walk-Down must be conducted by a qualified archaeologist and palaeontologist and a report detailing the results of the survey, including an assessment of impacts on identified heritage resources must be submitted to SAHRA for comment prior to construction. No construction may commence without comments from SAHRA; ▪ All identified heritage resources must be avoided with a 30 m buffer zone;	Relevant specialist in consultation with the Project Developer	Undertake a Heritage Walk-through Survey to spatially identify and demarcate areas of heritage significance as per the Heritage Impact Assessment and the Heritage Walk-through Report, and as per the requirements of Section 25: Access restricted areas (construction phase)	Pre-construction	Project Developer / Heritage Specialist	Once, prior to the commencement of construction and on-going during construction	Proof of avoidance of sensitive heritage features through details of avoidance and photographic records. Undertake Heritage Pre-construction Walkthrough (Appendix E1)

▪ A Conservation Management Plan (CMP) must be developed for heritage resources that are to be conserved in-situ. The CMP must be submitted to SAHRA for comment; ▪ Should it not be possible to retain heritage resources in-situ, relevant permits in terms of section 34, 35 and/or 36 of the National Heritage Resources Act must be applied for mitigation measures to be conducted after the walkdown has been completed. These permits must be applied for by a qualified archaeologist or palaeontologist depending on the heritage resources that require mitigation. No permits may be issued without the above requested walk-down report.						
▪ Wherever project infrastructure comes within 30 m of heritage resources, the infrastructure should be micro-sited to get the distance between the resource and infrastructure as close to 30 m as possible. This applies to waypoints 1176, 1184, 1194-1199 inclusive, 1301 and 1309; ▪ Any heritage sites located within 30 m of the final layout should be physically flagged on site as no-go areas. This applies to the waypoints listed above unless infrastructure is moved beyond 30 m; ▪ The ECO must regularly (suggest at least weekly) monitor the flagged sites to ensure that the no-go areas are complied with; ▪ No stones are to be removed from any heritage site; ▪ All construction work must occur within the demarcated project footprints and vehicles may not move outside of these areas; ▪ A Permit application must be lodged with SAHRA for any mitigation required; and	DPM and a suitably qualified specialist dEO / in consultation with the Contractor	Undertake a Heritage Walk-through Survey Spatially identify and demarcate areas of heritage significance as per the Heritage Impact Assessment and the Heritage Walk-through Report and as per the requirements of Section 25: Access restricted areas (Construction phase)	Pre-construction	Project Developer	Once, prior to the commencement of construction	Proof of avoidance of sensitive heritage features through details of avoidance including demarcation and photographic records

▪ If any archaeological material or human burials are uncovered during the course of development then work in the immediate area should be halted. The find would need to be reported to the heritage authorities and may require inspection by an archaeologist. Such heritage is the property of the state and may require excavation and curation in an approved institution. ▪ The list of finds made during the surveys of the Sutherland 2 (SL2) WEF site, as depicted in Table 2 of the specialist report (Appendix E1) must be complied with as recommended						
▪ Demarcate, avoid and protect all archaeological sites. Should this not be possible, then commission an archaeologist to study the sites, record the walling and sample the artefactual materials. An archaeologist should, in conjunction with the ECO, mark out the no-go areas around the archaeological sites with a minimum 5 m buffer where possible. If avoidance is not possible in any areas, then an archaeologist will need to be contracted to record the structure in detail as well as any artefacts associated with it. ▪ The palaeontologist responsible for any mitigation work in will need to apply for a Fossil Collection Permit from SAHRA for professional mitigation in the Northern Cape. ▪ All fieldwork and reporting should meet the standards of international best practice as well as those developed for PIA reports by SAHRA (2013) . Fossil material collected must be safeguarded and curated within an approved palaeontological repository (e.g. museum or university collection) with full collection data.	Project Developer	Project Developer to appoint a qualified archaeologist and/or palaeontologist to do a pre-construction survey.	During the design phase, prior to the commencement of construction	Project Developer	Once-off prior to construction and weekly during construction.	Archaeologist and/or palaeontologist appointed, report compiled / permit application and submitted to SAHRA.

▪ A Permit application must be lodged with SAHRA for all mitigation required in Northern Cape.						
• On-going Construction Phase monitoring for fossils of surface clearance and excavations by ECO / ESO.	Project Developer	Qualified Archaeologist and/or Palaeontologist to be appointed to provide training to ECO to identify potential fossil finds.	Prior to commencement of construction.	Project Developer	Once-off prior to construction and weekly during construction.	Archaeologist and/or palaeontologist appointed, report compiled and submitted to SAHRA. Fossil finds to be recorded and reported in in audit reports and proof of communication with SAHRA or specialist.
▪ Roadside crash barriers must be installed between the road and the edge of identified sites as part of the 5 m buffer recommended by the heritage specialist. These barriers must be monitored and replaced when damaged	Project Developer	Project Developer to appoint a qualified archaeologist and/or palaeontologist to do a pre-construction survey and assist in demarcation of the stone walling below the road and advise on the placement of the crash barrier.	During the design phase, prior to the commencement of construction	Project Developer	Once-off prior to commencement of construction and Ongoing during construction.	Archaeologist and/or palaeontologist appointed, report compiled and submitted to SAHRA and reporting on maintenance of the buffer during the construction in audit reports.
▪ Keep all expansion of the road surface in the area next to the river to above the existing carriageway to avoid damaging walling below the road, no work may take place east of the current road surface along the Riet River.	Project Developer	Project Developer to appoint a qualified archaeologist and/or palaeontologist to do a pre-construction survey and assist in demarcation of	During the design phase, prior to the commencement of construction	Project Developer	Once-off prior to commencement of construction and Ongoing during construction.	Archaeologist and/or palaeontologist appointed, report compiled and

		the stone walling below the road.				submitted to SAHRA and reporting on maintenance of the buffer during the construction in audit reports.
▪ Minimise cutting into the slope above the river.	Project Developer	Project Developer to appoint a qualified archaeologist and/or palaeontologist to do a pre-construction survey and provide recommendations on widening activities regarding the slope above the river and no-go areas.	During the design phase, prior to the commencement of construction	Project Developer	Once-off	Archaeologist and/or palaeontologist appointed, report and final plan to be compiled and submitted to SAHRA.

8. Safety of the public						
Impact Management Outcome: All precautions are taken to minimise the risk of injury, harm or complaints.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Planning & Design Phase						
▪ Identify fire hazards, demarcate and restrict public access to these areas as well as notify the local authority of any potential threats e.g. large brush stockpiles, fuels etc.;	dEO in consultation with the Contractor	Develop an Emergency Preparedness, Response and Fire Management Plan specific to the project	Pre-construction Construction	Project Developer	Once, prior to the commencement of construction and weekly during the construction phase	Compliance with the Emergency Preparedness, Response and Fire Management Plan

9. Sanitation						
Impact Management Outcome: Clean and well-maintained toilet facilities are available to all staff in an effort to minimise the risk of disease and impact to the environment						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Planning & Design Phase						
▪ The use of ablution facilities and or mobile toilets must be used at all times and no indiscriminate use of the veld for the purposes of ablutions must be permitted under any circumstances;	Contractor in consultation with the dEO	All site staff must be informed of this requirement during the Environmental Awareness Training and the consequences of not adhering to the requirement	Pe-construction & Construction	Project Developer	Monthly, and as and when required	No evidence of non-compliance identified

10. Prevention of disease						
Impact Management Outcome: All necessary precautions linked to the spread of disease are taken.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Planning & Design Phase						
▪ Ensure that the workforce is sensitised to the effects of sexually transmitted diseases, especially HIV/ AIDS, COVID 19;	dEO / Contractor in consultation with the Project Developer	The effects of sexually transmitted diseases and HIV/ AIDS and COVID 19 must be overed in the Environmental Awareness Training	Pre-construction & Construction	Project Developer	Once, prior to the commencement of construction and monthly during construction	Environmental awareness training material requirements checklist

▪ Information and education relating to sexually transmitted diseases to be made available to both construction workers and local community, where applicable;	dEO / Contractor in consultation with the Project Developer	Information and education of sexually transmitted diseases must be covered in the Environmental Awareness Training.	Pre-construction & Construction	Project Developer	Monthly	Environmental awareness training material requirements checklist

11. Emergency procedures						
Impact Management Outcome: All necessary precautions linked to the spread of disease are taken.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Planning & Design Phase						
▪ Compile an Emergency Response Action Plan (ERAP) prior to the commencement of the proposed project* **This can also be in the form of an Emergency Preparedness, Response and Fire Management Plan*	Contractor	Develop an Emergency Preparedness, Response and Fire Management Plan specific to the project	Pre-construction	Project Developer	Once, prior to the commencement of construction	Emergency Preparedness, Response and Fire Management Plan compiled (Appendix I)
▪ The Emergency Plan must deal with accidents, potential spillages and fires in line with relevant legislation;	Contractor	Develop an Emergency Preparedness, Response and Fire Management Plan specific to the project which covers accidents, potential spillages and fires	Pre-construction	Project Developer	Once, prior to the commencement of construction	Emergency Preparedness, Response and Fire Management Plan includes required specifications
▪ All staff must be made aware of emergency procedures as part of environmental awareness training;	dEO in consultation with the Project Developer	Develop environmental awareness training material which covers the relevant emergency procedures	Pre-construction	Project Developer	Prior to the commencement of the environmental awareness training	Environmental awareness training material

						requirements checklist

12. Hazardous substances						
Impact Management Outcome: Emergency procedures are in place to enable a rapid and effective response to all types of environmental emergencies						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Planning & Design Phase						
▪ The use and storage of hazardous substances to be minimised and non-hazardous and non-toxic alternatives substituted where possible;	dEO in consultation with the Contractor	Develop a strategy of how hazardous substances can be and should be minimised	Pre-construction & Construction	Project Developer	Once, prior to the commencement of construction and monthly during the construction phase	Contractor to provide evidence of substances used for proof of compliance
▪ All hazardous substances must be stored in suitable containers, as defined in the Method Statement;	Contractor	Develop a Method Statement for the storage of hazardous substances in suitable containers	Pre-construction & Construction	Project Developer	Once, prior to the commencement of construction and monthly during the construction phase	Photographic proof that hazardous substances are stored in suitable containers as per the requirements of the relevant Method Statements

▪ Containers must be clearly marked to indicate contents, quantities and safety requirements;	Contractor	Develop a Method Statement for the storage of hazardous substances in suitable containers	Pre-construction & Construction	Project Developer	Once, prior to the commencement of construction and monthly during the construction phase	Photographic proof that hazardous substances are stored in suitable containers as per the requirements of the relevant Method Statements
▪ All employees working with HCS must be trained in the safe use of the substance and according to the safety data sheet	dEO / Contractor	Provide training for personnel working with HCS	Pre-construction	Project Developer	Once, prior to the commencement of construction and as and when required	Record of training provided to personnel working with HCS
▪ Employees handling hazardous substances / materials must be aware of the potential impacts and follow appropriate safety measures. ▪ Appropriate personal protective equipment must be made available;	dEO / Contractor	Develop environmental awareness training material which covers the relevant impacts and safety measures. Provide appropriate training and personal protective equipment for the relevant personnel handling hazardous substances and materials equipment for the relevant personnel handling hazardous substances and materials	Pre-construction & Construction	Project Developer	Prior to the commencement of the environmental awareness training and monthly during the construction phase for personal protective equipment	Environmental awareness training material requirements checklist and all relevant personnel have undergone appropriate training and have access to personal protective equipment
▪ The responsible operator must have the required training to make use of the spill kit in emergency situations;	dEO and Contractor	Provide training on the use of spill kits to the relevant employees	Pre-construction	Project Developer	Once, prior to the commencement of construction	Proof of training to be provided by the contractor

13. Noise						
Impact Management Outcome: Unnecessary noise is prevented by ensuring that noise from construction activities is mitigated.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Planning & Design Phase						
▪ All wind turbines must be located at a setback distance of 500m from any homestead and a day / night noise criteria level at the nearest residents of 45dB(A) must be used to locate the turbines. The 500m setback distance can be relaxed if local factors: such as high ground between the noise source and the receiver, indicates that a noise disturbance will not occur.	dEO	Ensure turbines are located at a setback distance of 500m	Pre-construction and Construction	Project Developer	Monthly, and as and when required	Complaints register provided by the Ceo.
▪ The potential noise impact must again be evaluated, should the layout be changed where any wind turbines are located closer than 1000m from a confirmed NSD[2]. ▪ The Potential noise impact must again be evaluated, should the developer make use of a wind turbine with a sound power emission level exceeding 106dBA re 1pW.	DPM in consultation with a noise specialist	The potential noise impacts must be evaluated on the final turbine layout and turbine technology considered for development.	Pre-construction	DPM in consultation with the noise specialist	Once-off prior to commencement of construction	Confirmation of turbines selected with a sound power emission level below 106dBA re 1pW.

[2] It should be noted that the current layout has been designed so that no wind turbines are located closer than 1000m from a confirmed NSD

Noise pollution mitigation measures (specific to Komsberg Nature Reserve) ▪ Create a buffer between the wind turbines and site boundaries in order to ensure that the daytime residual sound level beyond the boundaries is not exceeded by 7dB or more. ▪ Remove or relocate turbines to at least 700 m from dwellings in order not to exceed the 33 dBA daytime residual sound level at dwellings by 7dB or more.	dEO	Ensure implementation of buffers between wind turbines, site boundaries and dwelling as reflected in the final layout.	Pre-construction and Construction	Project Developer	Once, prior to the commencement of construction	Evidence of applicable buffers as per the final layout map.
▪ Develop a Code of Conduct for the construction phase in terms of behaviour of construction staff. ▪ Operating hours as determined by the environmental authorisation are adhered to during the development phase. Where not defined, it must be ensured that development activities must still meet the impact management outcome related to noise management.	dEO and Contractor in consultation with the Project Developer	Compile a Code of Conduct for staff. Appropriate operating hours must be identified for the project.	Pre-construction and Construction	Project Developer	Once, prior to the commencement of construction	No complaints registered in this regard.

14. Fire prevention						
Impact Management Outcome: Prevention of uncontrollable fires.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Planning & Design Phase						
▪ Designate smoking areas where the fire hazard could be regarded as insignificant;	dEO / Contractor	Identify and demarcate through signage designated smoking areas	Pre-construction & Construction	Project Developer	Monthly	Photographic record of designated smoking area

▪ No fires to be lit on the site	dEO / Contractor	Inform through awareness training	Pre-construction & Construction	Project Developer	Monthly	Proof of awareness training
▪ The local Fire Protection Agency (FPA) must be informed of construction activities;	dEO in consultation with the Project Developer	Undertake formal consultation to inform the local FPA of the associated construction activities	Pre-construction	Project Developer	Once, during the commencement of the Construction Phase	Proof of consultation with the FPA
▪ Contact numbers for the FPA and emergency services must be communicated in environmental awareness training and displayed at a central location on site;	dEO / Contractor in consultation with the Project Developer	Develop environmental awareness training material which covers the contact numbers for the FPA and emergency services. Place the contact numbers for the FPA and emergency services at a visible and central location	Pre-construction & Construction	Project Developer	Prior to the commencement of the environmental awareness training and once during the construction phase	Environmental awareness training material requirements checklist and photographic record of contact numbers on display
▪ Two-way swop of contact details between ECO and FPA.	Project Developer	Consultation between the ECO and FPA in order to exchange contact details	Pre-construction	Not Applicable		

15. Stockpiling and stockpile areas						
Impact Management Outcome: Erosion and sedimentation as a result of stockpiling are reduced.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Planning & Design Phase						
▪ All material that is excavated during the project development phase (either during piling (if required) or earthworks) must be stored appropriately on site in order to minimise impacts to watercourses, watercourses and water bodies; ▪ Top- and subsoil stockpiles (used for road levelling and bank lifting) must not be stockpiled within 100m or within the 1:100 year floodplain of a watercourse. ▪ Naturally occurring vegetation removed by site clearance operations may be grubbed in with the topsoil for stockpiling.	Contractor	Identify and demarcate an appropriate location for the storage of excavated materials	Pre-construction & Construction	Project Developer	Monthly	Excavated material is not stored within sensitive environmental areas

16. Finalising Turbine positions						
Impact Management Outcome: Erosion and sedimentation as a result of stockpiling are reduced.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Planning & Design Phase						
▪ No vegetation clearing must occur during survey and pegging operations;	Contractor	Implement restrictions in terms of vegetation clearing during the survey and pegging operations	Pre- construction	Project Developer	Weekly	Contractor to provide photographic proof that no vegetation has been cleared
▪ No new access roads must be developed to facilitate access for survey and pegging purposes;	Contractor	Restrict the development of new access roads for survey and pegging purposes	Pre- construction	Project Developer	Weekly	Contractor to provide photographic proof that no new roads have been developed
▪ Project manager, botanical and ecological specialists, and contractor to agree on final turbine positions based on survey within assessed and approved areas; ▪ The final approved footprint of each turbine, as well as support infrastructure should be subject to specific evaluation by a qualified floral specialist. ▪ A terrestrial ecologist (botanical, faunal, water resources) must be consulted following the approval of the layout and prior to site clearing activities to ensure no red data species are located within the final footprint.	DPM, Suitably Qualified Specialist and Contractor	Undertake consultation between the relevant responsible people and finalise the tower positions for the power line	Pre- construction	Project Developer	Once the final tower positions have been finalised and agreed upon and approved.	Evaluation of final turbine positions to the Project Developer, as per the final pre-construction walkthrough reports.

▪ The surveyor is to demarcate (peg) access roads/tracks in consultation with ECO. No deviations will be allowed without the prior written consent from the ECO.	Surveyor in consultation with the Project Developer	Undertake consultation between the surveyor and the ECO	Pre- construction	Project Developer	Weekly	Consultation with the Project Developer regarding the distribution of pegs.
▪ Turbines must be positioned in such a way that shadow flicker does not affect any farm buildings.	DPM / Consultation with Visual Specialist	Ensure final layout adheres to the findings of the visual impact assessment. A shadow flicker study must be undertaken if turbines are to be placed with 10 blade lengths of a dwelling on site	Pre-construction	Project Developer	Once- off prior to construction	Adherence to the approved final layout.
▪ No turbines must be sighted at points below 1600m average mean sea level.	DPM / Surveyor	Undertake consultation between the DPM and Surveyor	Pre-construction	DPM / Surveyor	Once- off prior to construction	Proof within final approved layout.
▪ All turbines must be located at least 100m from the edge of any highly sensitive areas	DPM / Surveyor	Ensure final layout adheres to the findings of the specialists	Pre-construction	DPM / Surveyor	Once- off prior to construction	Adherence to the approved final layout

17. Assembly and erecting turbines						
Impact Management Outcome: No environmental degradation occurs as a result of assembly and erecting of towers.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Planning & Design Phase						
▪ The crane used for turbine assembly must be operated in a manner which minimises impact to the environment;	Contractor in consultation with the cEO and the Project Developer	Ensure that no impact to the environment is imposed during the operation of the crane	Pre-construction & Construction	Project Developer	Weekly	No environmental damages incurred as a result of the crane. Photographic evidence during and after crane use.
▪ The number of crane trips to each site must be minimised;	Contractor in consultation with the dEO and the Project Developer	Ensure that the utilisation of the crane is maximised when on site.	Pre-construction & Construction	Project Developer	Weekly	Few crane trips to each site observed.
▪ Wheeled cranes must be utilised in preference to tracked cranes;	Contractor	Ensure wheeled cranes are utilised.	Pre-construction & Construction	Project Developer	Weekly	Wheeled cranes observed on site.
▪ Only existing disturbed areas are utilised as spoil areas;	Contractor in consultation with the Project Developer	Identify, demarcate and use existing disturbed areas for spoil areas	Pre-construction & Construction	Project Developer	Weekly	Only identified disturbed areas are used as spoil areas

▪ Surface water runoff is appropriately channelled through or around spoil areas;	DPM and Contractor	Design and implement appropriate surface runoff measures for spoil areas	Pre-construction & Construction	Project Developer	Once, during the construction of the surface runoff measures	Implementation of surface runoff measures through and/or around spoil areas
▪ During backfilling operations, care must be taken not to dump the topsoil at the bottom of the foundation and then put spoil on top of that;	Contractor	Develop and implement backfilling procedures which ensures that topsoil is not placed at the bottom of foundations.	Pre-construction & Construction	Project Developer	Weekly	Backfilling operations are undertaken as per the procedures developed
▪ All electrical collector lines must be buried in a manner that minimizes additional surface disturbance.	DPM and Contractor	Ensure that electrical collector lines are buried outside of high sensitivity areas as identified in the final layout.	Pre-construction & Construction	Project Developer	Once- off during pre-construction and on-going during construction	Proof of collector line routes buried as per final approved layout as per monthly audit reports.

18. Visual						
Impact Management Outcome: Socio-economic development is enhanced.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Planning & Design Phase						
▪ Construction camps will be clearly defined and limited in size to that which is essential and located as per the approved layout, in accordance with the impact management actions included in Section 1, Site Establishment (Planning and design phase)	Contractor	Development a method statement	Pre-Construction	dEO	Once, prior to construction	Method statement which complies with the minimum

						requirements listed
▪ The substation and O&M buildings to be grouped together as far as possible to minimise the scatter of buildings across the site	Project Developer	Development a method statement	Pre-Construction	dEO	Once, prior to construction	Method statement which complies with the minimum requirements listed
▪ The design of the buildings to be compatible in scale and form with buildings of the surrounding rural area, and with the regional architecture.	Project Developer	Development a method statement	Pre-Construction	dEO	Once, prior to construction	Method statement which complies with the minimum requirements listed
Visual mitigation measures (specific to the Komsberg Nature Reserve) ▪ A visual buffer zone of 700 m for the wind turbines from farmsteads and other rural dwellings; ▪ A visual buffer of 500 m for the wind turbines from the local district roads and external farm boundaries; ▪ The substation and O&M buildings to ideally be grouped in the same location to avoid the scatter of facilities in the open landscape. ▪ Cables to be located underground as far as possible; ▪ The design of the buildings to be compatible in scale and form with buildings of the surrounding rural area, and with the regional architecture; ▪ The internal access roads will not be located in drainage courses.	Relevant specialist in consultation with the Project Developer	Turbine layout finalised in consultation with visual specialist recommendations	Pre-Construction	Project Developer	Once, prior to construction	Adherence to final turbine layout indicating high sensitivity, medium sensitivity and buffer areas in relation to the Komsberg Nature Reserve.

▪ The roads will generally follow the grain of the land, and their alignments fine-tuned to fit the topography; and ▪ Signage related to the enterprise to be discrete and confined to the entrance gates. No other corporate or advertising signage, particularly billboards, to be permitted.						
▪ A visual buffer zone of 500 m for the wind turbines from farmsteads and other rural dwellings will be established. ▪ It is recommended by the visual specialist that the original escarpment visual buffer of 500 m for the turbines should be proportionally increased to 660 m. ▪ A visual buffer of 250 m for the wind turbines from the local district roads and external farm boundaries will be established. ▪ A visual buffer zone of 500 m for the wind turbines along the main drainage courses. ▪ A 250 m setback or the wind turbines from farm boundaries should be observed. ▪ Cables to be located underground as far as possible. ▪ All yards and storage areas to be enclosed by masonry walls.	Relevant specialist in consultation with the Project Developer	Turbine layout finalised in consultation with visual specialist recommendations	Pre-Construction	Project Developer	Once, prior to construction	Final turbine layout and indicating high sensitivity, medium sensitivity and buffer areas.
▪ Reduce the visual impacts associated with glare and light trespass	Project Developer	A lighting engineer must be consulted to assist in the planning and placement of light fixtures in order to	Pre-Construction	Project Developer, dEO	Once, prior to construction	Proof of consultation with lighting engineer

19. Socio-economic						
Impact Management Outcome: Socio-economic development is enhanced.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Planning & Design Phase						
▪ Develop and implement communication strategies to facilitate public participation;	dEO	Identify and implement appropriate strategies for communication with the communities through consideration of the community needs	Pre-construction & Construction	Project Developer	Once, prior to the commencement of construction and monthly during the construction	Communication is undertaken as per the identified strategies and no complaints are submitted regarding communication
▪ Develop and implement a collaborative and constructive approach to conflict resolution as part of the external stakeholder engagement process;	Contractor	Development and implement a Grievance Mechanism which considers the community needs and provides procedures for conflict resolution	Pre-construction & Construction	Project Developer	Once, prior to the commencement of construction and monthly during the construction phase	Conflict resolution is undertaken in line with the requirements of the Grievance Mechanism. No complaints on conflict resolution is submitted by the community

▪ All abutting neighbours (or as required) must be notified of the proposed construction phase activities at least two weeks before they commence.	dEO	Notify neigbours to inform start date of construction	Pre-construction	Project Developer	Once, prior to the commencement of construction	Evidence of notifications
▪ Sustain continuous communication and liaison with neighbouring owners and residents	Contractor	Development and implement and Grievance Mechanism provides procedures for communication / liaison with neighbouring landowners and residents	Pre-construction & Construction	Project Developer	Once, prior to the commencement of construction and monthly during the construction phase	Communication / liaison with neighbouring landowners and residents are undertaken in line with the requirements of the Grievance Mechanism. No complaints on communication with neighbouring landowners and residents is submitted
▪ Undertake a 'locals first' policy with regard to construction labour needs and create work and training opportunities for local stakeholders	Contractor	Develop and implement a "locals first" policy for the provision of employment opportunities	Pre-construction & Construction	Project Developer	Once, prior to the commencement of construction and monthly during the construction phase	The "locals first" policy is considered in terms of the employment and training opportunities

▪ The Developer will establish a recruitment and procurement policy which sets reasonable targets for the employment of South African and local residents /suppliers (originating from the local municipality) and promote the employment women as a means of ensuring that gender equality is attained. Criteria will be set for prioritising, where possible, local (local municipal)residents/suppliers over regional or national people/suppliers. All contractors will be required to recruit and procure in terms of the developers recruitment and procurement policy. ▪ The Developer will work closely with relevant local authorities, community representatives and organisations to ensure that the use of local labour and procurement is maximised. ▪ Sutherland 2 Wind Farm (Pty) Ltd to work closely with the wind turbine suppliers to provide the requisite training to the workers. The training provided will focus of development of local skills. ▪ Ensure that the appointed project contractors and suppliers have access to Health, Safety, Environmental and Quality training as required by the project. This will help to ensure that they have future opportunities to provide services to the sector.	Project Developer	Development of a recruitment and procurement policy. Ensure that employment of local people is maximised and procurement of local, regional and national services is maximised Provision of training to workers to facilitate future opportunities in the sector.	Pre-construction & construction	Project Developer	Once, prior to the commencement of construction and monthly during the construction phase	Proof of recruitment and procurement policy documentation. Proof of training undertaken in the form of signed attendance registers.
▪ The Developer should continue, as is their stated intention, to explore ways to enhance local community benefits with a focus on broad-based BEE through mechanisms such as community shareholding schemes and trusts. At this preliminary stage, and in accordance with the relevant BEE legislation and guidelines, up to four percent (4%) of after tax profit could be used for community development over and above that associated with expenditure injections into the area.	Project Developer	The establishment of community trusts and development of a strategy for community development. Enhance benefits associated with the Community Development Trust	Pre-construction	Project Developer	Once, prior to commencement of construction	Trust deed and strategy document

20. Landscaping and Rehabilitation						
Impact Management Outcome: Minimise the risk of environmental impact during periods of site closure greater than five days.						
Impact Management Actions	Implementation				Monitoring	
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Planning & Design Phase						
▪ Sloped areas stabilised using design structures or vegetation as specified in the design to prevent erosion of embankments. The contract design specifications must be adhered to and implemented strictly;	Contractor	Stabilise slopes as per the design specifications	Pre-construction & Rehabilitation	Project Developer	Weekly	Slopes are stabilised as per the design specifications

21. Soil and Agricultural Potential						
Impact Management Outcome: Prevention of loss of agricultural land						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Planning Phase						
▪ Minimise disruption to agricultural activities and loss of agricultural land. ▪ Vegetation clearance must be restricted to area where the access road needs to be widened.	Project Developer	▪ Regular inspections around the constructed infrastructure to during construction phase.	During the entire construction and operational phases	Project Developer	Prior to construction and ongoing	Reporting in monthly audit reports.

CONSTRUCTION PHASE

22. General						
Impact Management Outcome: Compliance with the Environmental Management Programme						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Construction Phase						
▪ Ensure that the EMP is available at the site during installation. ▪ Ensure that equipment is in place to meet EMPr requirements. ▪ Signed commitment from subcontractors to compliance with EMPr.	Contractor	The approved EMPr is to be kept on file at the site offices. All equipment storage areas, laydown areas, construction camp, toilets must be located as per the EMPr and final layout. All contractors are required to sign for acknowledgement and commitment to the EMPr.	Construction	Contractor/ ECO	On-going during construction	Evidence of EMPr on site at the construction camp site offices. Placement of infrastructure and compliance as per photographic evidence provided by the ECO's audit reports. Proof of signed commitment to the EMPr to be kept on file at the construction camp

						site offices for auditing purposes.
▪ Sentech prior written consent must first be obtained before any construction activities underneath, along, across or within close proximity to Sentech infrastructure can begin and must comply with applicable Sentech guidelines relating to clearance between equipment and the proposed construction activity. ▪ Furthermore, the applicant will clearly adhere to, and ensure all installations must be fully compliant with the Occupational Health and Safety Act Bo. 85 of 1993.	Project Developer	Obtain written consent from Sentech for any construction activities in close proximity to Sentech infrastructure.	Pre-construction and Construction	Project Developer / Contractor / ECO	Once off- prior to commencement of construction and on-going during construction	Proof of written consent from Sentech and communication with Sentech to be kept on file for auditing purposes. Compliance with the Occupational Health and Safety Act Bo. 85 of 1993
▪ The contractor must, in carrying out any work or project, take all the necessary precautions for the safety of Sentech's employees, contractors, representatives and its property, including the radio transmitters and links on or near the site against damages as a result of construction of the applicant's energy project.	Contractor	Obtain written consent from Sentech for any construction activities in close proximity to Sentech infrastructure.	Pre-construction and Construction	Project Developer / Contractor / ECO	Once off- prior to commencement of construction and on-going during construction	Proof of written consent from Sentech and communication with Sentech to be kept on file for auditing purposes.

23. Health and Safety						
Impact Management Outcome: Ensure the health and safety of subcontractors and site users						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Construction Phase						

▪ A health and safety plan must be developed prior to the commencement of construction to identify and avoid work related accidents. This plan must be adhered to by the appointed construction contractors and meet Occupational Health and Safety Act (OHSAct), Act 85 of 1993, requirements. ▪ Appropriate PPE must be worn by construction personnel. ▪ Potentially hazardous areas must be clearly demarcated (i.e. unattended foundation excavations).	Project Developer / Contractor	The Health & Safety Plan must be implemented.	Construction	Contractor /ECO	Ongoing	Agreement of appointed contractors acceptance of Health & Safety plan as part of the contract.

24. Environmental Awareness Training						
Impact Management Outcome: All onsite staff are aware and understand the individual responsibilities in terms of this EMPr.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Construction Phase						
▪ All staff must receive environmental awareness training prior to commencement of the activities	ECO / cEO / dEO	Environmental awareness training workshops	Construction	ECO / dEO	Monthly and as and when required	Attendance register
▪ Environmental training should be undertaken in English and the second most spoken language of the project area.	ECO / cEO / dEO	An interpreter should be provided as required	Construction	ECO / dEO	Monthly and as and when required	Environmental awareness training material
▪ The Contractor must allow for sufficient sessions to train all personnel, with no more than 20 personnel attending each course;	Contractor	Scheduling of sufficient sessions through consultation with the ECO / cEO / dEO	Construction	ECO / dEO	Monthly and as and when required	Attendance register

▪ Refresher environmental awareness training is available, as and when required;	ECO / cEO / dEO	Refresher environmental awareness training workshops	Construction	ECO / dEO	Monthly and as and when required	Attendance register
▪ All staff are aware of the conditions and controls linked to the EA and within the EMPr, and made aware of their individual roles and responsibilities in achieving compliance with the EA and EMPr;	ECO / cEO / dEO	Ensure that the EA and EMPr is readily available	Construction	ECO / dEO	Monthly and as and when required	Attendance register
▪ The Contractor must erect and maintain information posters at key locations on site, and the posters must include the following information as a minimum: a) Safety notifications; and b) No littering	Contractor	Place appropriate posters at key locations	Construction	ECO / dEO	Monthly and as and when required	Photographic record
▪ Environmental awareness training must include as a minimum the following: a) Description of significant environmental impacts, actual or potential, related to their work activities; b) Mitigation measures to be implemented when carrying out specific activities; c) Emergency preparedness and response procedures; d) Emergency procedures; e) Procedures to be followed when working near or within sensitive areas; f) Wastewater management procedures; g) Water usage and conservation; h) Solid waste management procedures; i) Sanitation procedures;	ECO / cEO / dEO	Environmental awareness training material	Construction	ECO / dEO	Monthly and as and when required	Environmental awareness training material requirements checklist

j) Fire prevention; and k) Disease prevention.						
▪ A record of all environmental awareness training courses undertaken as part of the EMPr must be made available;	ECO / cEO / dEO	Filing system including all proof of training	Construction	ECO / dEO	Monthly and as and when required	File with environmental awareness training course material and proof of training
▪ Educate workers on the dangers of open and/or unattended fires;	ECO / cEO / dEO	Environmental awareness training material	Construction	ECO / dEO	Monthly and as and when required	Environmental awareness training material requirements checklist
▪ A staff attendance register of all staff to have received environmental awareness training must be available.	ECO / cEO / dEO	Filing system including all proof of training	Construction	ECO / dEO	Monthly and as and when required	File with proof of training
▪ Course material must be available and presented in appropriate languages that all staff can understand	ECO / cEO / dEO	Environmental awareness training material in the required languages	Construction	ECO / dEO	Monthly and as and when required	File with proof of training in appropriate languages

25. Access Restricted Areas						
Impact Management Outcome: Access to restricted areas prevented.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Construction Phase						
▪ Identification of access restricted areas is to be informed by the environmental assessment, site walk through and any additional areas identified during development;	ECO / cEO / dEO	Demarcate access restricted areas	Commencement and for the duration of the construction phase	ECO	Ongoing	Photographic evidence
▪ Access to the site must be limited and all construction staff and machinery must remain within the demarcated construction area.	ECO / cEO / dEO	Access control must be implemented	Commencement and for the duration of the construction phase	ECO	Ongoing	Access control register
▪ Erect, demarcate and maintain a temporary barrier with clear signage around the perimeter of any access restricted area, colour coding could be used if appropriate	ECO / cEO / dEO	Erect appropriate temporary barriers around access restricted areas	Commencement and for the duration of the construction phase	ECO	Ongoing	Photographic evidence
▪ Unauthorised access and development related activity inside access restricted areas is prohibited	ECO / cEO / dEO	Erect appropriate temporary barriers around access restricted areas	Commencement and for the duration of the construction phase	ECO	Ongoing	Photographic evidence

26. Access Roads						
Impact Management Outcome: Minimise impact to the environment through the planned and restricted movement of vehicles on site.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Construction Phase						
▪ Access to the servitude and turbine positions must be negotiated with the relevant landowner and must fall within the assessed and authorised area;	Contractor	Negotiations for access to the servitude and tower positions with landowners affected by the grid connection corridor	Pre-construction Construction Operation	ECO	Ongoing	Written and signed agreements
▪ All private roads used for access to the servitude must be maintained and upon completion of the works, be left in at least the original condition	Contractor	Undertake maintenance activities on private roads used for construction	Construction	cEO / ECO	Ongoing	Photographic record of access roads tracking condition
▪ All contractors must be made aware of all the access routes.	Contractor	Provide a map showing all access routes associated with the project	Pre-construction Construction Operation	ECO	Construction	Access routes map available
▪ Any access route deviation from that in the written agreement must be closed and re-vegetated immediately, at the contractor's expense;	Contractor	All access routes developed that are not in-line with the access route agreements must be closed and re-habilitated	Construction	ECO	Ongoing	Photographic record of the closure of access roads and re-vegetation

▪ Maximum use of both existing servitudes and existing roads must be made to minimise further disturbance through the development of new roads;	Contractor	Existing access routes to be used must be specified and the development of new roads must be avoided	Pre-construction Construction Operation	cEO / ECO	Ongoing	Implement approved layout
▪ In circumstances where private roads must be used, the condition of the said roads must be recorded in accordance with section 2 and 26: Access roads (photographic record); prior to use and the condition thereof agreed by the landowner, the DPM, and the contractor;	dEO / cEO	Record the conditions of private roads to be used as per the requirements of section 2 and 26: Access roads (photographic record) and agree on the required condition of the roads with the landowner, DPM and contractor	Construction	ECO	Prior to road use	Photographic record of the road conditions
▪ Access roads must only be developed on pre-planned and approved roads.	Contractor	Construction of access roads only on pre- planned and approved roads	Construction	ECO dEO	Once, prior to construction	Implement approved layout

27. Traffic						
Impact Management Outcome: Mitigate traffic impacts						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Construction Phase						
▪ The traffic management plan will be adhered to, including adherence to speed limits and 'rules of the road' ▪ All directly affected and neighbouring farmers and local residents will be able to lodge grievances with the Developer using the Grievance Procedure regarding dangerous driving or other traffic violations that could be linked to the project.	Project Developer/ Contractor	The traffic management plan and grievance mechanism procedure must be implemented	Construction	Contractor / ECO	Ongoing	Compliance reporting on the traffic management plan and evidence of incidents reports

						as per the grievance mechanism.
Impact Management Outcome: To avoid or reduce Traffic impact associated with the upgrading and widening of the Access Road						
▪ Reduce the construction period ▪ Make use of quarries in close proximity to the site ▪ Staff and general trips should occur outside of peak traffic periods. ▪ Regular maintenance of gravel roads by the Contractor during the construction phase	Project Developer	Regular inspections around the constructed infrastructure to during construction phase.	During construction phase and operational phase	ECO	Weekly	Undertake inspections and record all findings and document the inspection process.
Impact Management Outcome: To avoid or reduce dust generated by construction traffic						
▪ Dust Suppression of gravel roads during the construction phase, as required. ▪ Regular maintenance of gravel roads by the Contractor during the construction phase.	Project Developer	Regular inspections around the constructed infrastructure to during construction phase.	During construction phase and operational phase	ECO	Weekly	Undertake inspections and record all findings and document the inspection process.

28. Fencing and Gate Installation						
Impact Management Outcome: Minimise impact to the environment and ensure safe and controlled access to the site through the erection of fencing and gates where required.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Construction Phase						
▪ Use existing gates provided to gain access to all parts of the area authorised for development, where possible;	Contractor	Identify and inform all relevant staff of the existing gates to be used	Pre-construction & Construction	ECO	Monthly	Existing gates are utilised on a frequent basis and only limited new access gates are developed
▪ Existing and new gates to be recorded and documented in accordance with section 2 and 26: Access roads (photographic record)	ECO	Existing and new gates will be recorded and documented as per the requirements of section 2 and 26: Access roads (photographic record)	Construction	ECO	Once, when the construction of all new gates have been completed	Photographic record of the existing and new gates as per the requirements of section 2 and26: Access roads (photographic record)
▪ All gates must be fitted with locks and be kept locked at all times during the development phase, unless otherwise agreed with the landowner;	Contractor	Ensure all relevant gates are fitted with locks and are always locked	Construction and Operation	ECO	Ongoing	All gates are locked

▪ Care must be taken that the gates must be so erected that there is a gap of no more than 100 mm between the bottom of the gate and the ground;	Contractor	Install gates in a manner so that there is a gap of no more than 100mm between the bottom of the gate and the ground	Construction	cEO	Once, during the erection of the gates during the construction phase	New gates installed as per the requirement
▪ Where gates are installed in jackal proof fencing, a suitable reinforced concrete sill must be provided beneath the gate;	Contractor	Implement a reinforced concrete sill beneath gates installed for jackal proofing	Construction	cEO	Once, during the erection of the gates during the construction phase	New gates installed as per the requirement
▪ Original tension must be maintained in the fence wires;	Contractor	Maintain original tension of fences through required activities	Construction	ECO	Monthly	No tension reduction on fence wires
▪ All gates installed in electrified fencing must be re-electrified;	Contractor	Electrify gates installed in electrified fencing	Construction	ECO	Once, during the erection of the gates during the construction phase	Gates installed in electrified fencing is electrified
▪ All demarcation fencing and barriers must be maintained in good working order for the duration of overhead transmission and distribution electricity infrastructure development activities;	Contractor	Undertake maintenance activities on fences and barriers	Construction	ECO	Monthly	Photographic record of fences erected
▪ Fencing must be erected around the camp, batching plants, hazardous storage areas, and all designated access restricted areas, where appropriate and would not cause harm to the sensitive flora;	Contractor	Fence construction camps, batching plants, hazardous storage areas and access restricted areas. Avoid sensitive flora	Construction	ECO	Once during the erection of fencing	Photographic record of fences erected

▪ Fencing (e.g. palisade) must provide appropriate opening for animals to pass through (unless it is a confined area animals must not get into like the substation etc.)– bars placed 20cm apart should provide sufficient space for the movement of small animals whilst deterring humans;	Contractor	Ensure installation follows specified spacing requirements	Construction	ECO	Once during the erection of fencing	Photographic record of fences erected
▪ If not electrified, the bottom wire of perimeter fence must be at least 15cm from the ground, and above 20cm if electrified.	Contractor	Ensure installation follows specified heigh requirements	Construction	ECO	Once during the erection of fencing	Photographic record of fences erected
▪ The use of razor wire as fencing must be avoided as far as possible;	Contractor	Razor wire must not be sourced or used for the erection of fencing	Construction	ECO	To be monitored as fencing is erected during the construction phase	Fences erected do not make use of razor wire
▪ Fenced areas with gate access must remain locked after hours, during weekends and on holidays if staff is away from site. Site security will be required at all times;	Contractor	Ensure fenced areas are locked as required through the implementation of a formalised process. Appoint a security company	Construction	cECO	Weekly and as and when required	Fences are locked and no complaints from landowners are received. A security company is appointed
▪ On completion of the development phase, all temporary fences are to be removed;	Contractor	Removal of all temporary fences	Construction	ECO dECO	Once, following the completion of the construction phase	No temporary fences associated with the project is present following the completion of the construction phase

▪ The contractor must ensure that all fence uprights are appropriately removed, ensuring that no uprights are cut at ground level but rather removed completely.	Contractor	Appropriate removal of all fence uprights	Construction	ECO dEO	Once, following the completion of the construction phase	No fence uprights associated with the project is present following the completion of the construction

29. Terrestrial Ecology						
Impact Management Outcome: To avoid or reduce impact of Potential Impacts on vegetation and listed protected plant species (Construction Phase)						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Construction Phase						
▪ As part of the project, water as a result of runoff at turbine locations and from roads must be well controlled.	cEO and contractor	▪ This must include spreading the water over a large area in the landscape, i.e. prevent concentrated runoff that can cause erosion. ▪ It must include effective dissipaters on slopes that are more susceptible to erosion. ▪ The roads will perform as blockages or "weirs" with the result that water can penetrate below the root depth of	Construction and Operational	ECO Operation and maintenance team	Monthly, and as and when required	Free flow of water must be visible and erosion must be observed

		the plants immediately downstream of the roads. The roads must be constructed to allow for go water flow across the landscape. If this is not achieved, there is a distinct possibility that the vegetation downstream of the roads can be negatively impacted.				
▪ Any individuals of protected species affected by and observed within the development footprint during construction should be translocated under the supervision of the ECO and/or Contractor's Environmental Officer (EO). ▪ Pre-construction environmental induction for all construction staff on site to ensure that basic environmental principles are adhered to. This includes awareness to no littering, appropriate handling of pollution and chemical spills, avoiding fire hazards, minimising wildlife interactions, remaining within demarcated construction areas etc. ▪ Demarcate all areas to be cleared with construction tape or similar material where practical. However, caution should be exercised to avoid using material that might entangle fauna. ▪ ECO and/or Contractor's EO to provide supervision and oversight of vegetation clearing activities and other activities which may cause damage to the environment, especially at the initiation of the project, when the majority of vegetation clearing is taking place. ▪ All vehicles to remain on demarcated roads and no unnecessary driving in the veld outside these areas should be allowed.	Project Developer	▪ Regular inspections around the constructed infrastructure to during construction phase. ▪ ECO to undertake regular inductions keep record of inductions to new workers. ▪ Demarcation of sensitive areas is to take place following the finalisation of the project layout and a walk through of the site. ▪ The relevant permits must be obtained prior to removal and relocated ion protected species.	During construction phase and operational phase	ECO	Weekly	Undertake inspections and record all findings and document the inspection process. Proof of training and induction of employees is to be kept on file for auditing purposes. Proof of permits on file.

▪ Regular dust suppression during construction, if deemed necessary. ▪ No plants may be translocated or otherwise uprooted or disturbed for rehabilitation or other purpose without express permission from the ECO and or Contractor's EO. ▪ No fires should be allowed on-site.						
▪ All clearing of vegetation must be restricted to the footprint areas only – this will limit any further loss of undisturbed vegetation and loss of habitat.	Project Developer	No driving of any vehicles outside the demarcated roads and site footprints is to be allowed. It is recommended that all vegetation clearing within the development footprint is kept to a minimum and activities must be limited to the drier periods (late autumn and winter) to the extent which construction timelines permit.	During construction phase and operational phase	EO Operations and maintenance contractor	Weekly	Undertake inspections and record all findings and document the inspection process.
Vegetation Clearing						
▪ Restrict removal of natural vegetation, top soil and soil cover to the development footprint.	cEO and contractor	Demarcate areas of indigenous vegetation to be avoided before clearance is undertaken Prevent unnecessary disturbance and damage to	Construction and operation (i.e. for maintenance purposes)	ECO Operation and maintenance team	Weekly, and as and when required	No unnecessary clearance of indigenous vegetation is undertaken

		natural vegetation and topsoil loss				
▪ Indigenous vegetation which does not interfere with the development must be left undisturbed;	cEO and contractor	Demarcate areas of indigenous vegetation to be avoided before clearance is undertaken It is recommended that all vegetation clearing within the development footprint is kept to a minimum and activities must be limited to the drier periods (late autumn and winter) to the extent which construction timelines permit. This will ensure that accelerated erosion is minimised	Construction and operation (i.e. for maintenance purposes)	ECO Operation and maintenance team	Weekly, and as and when required	No unnecessary clearance of indigenous vegetation is undertaken
▪ Vegetation clearing should occur in in a phased manner in accordance with the construction programme to minimise erosion and/or run-off	cEO and contractor	Follow the phased approach in the construction programme	Construction and operation (i.e. for maintenance purposes)	ECO Operation and maintenance team	Weekly, and as and when required	Proof of audit of construction programme in line with vegetation clearing in a phased approach
▪ Prior to clearing the ECO must be notified in order to identify and demarcate any indigenous trees or plants, nesting sites or heritage sites that require protection or translocation	cEO and contractor	Notification of ECO	Construction and operation (i.e. for maintenance purposes)	ECO Operation and maintenance team	Weekly, and as and when required	Demarcation of indigenous trees or plants, nesting sites or heritage sites that require

						protection or translocation
▪ Protected or endangered species may occur on or near the development site. Special care should be taken not to damage such species;	Contractor	Demarcate areas containing protected or endangered species to be avoided by construction activities	Construction	ECO	Weekly, and as and when required	No clearance of protected or endangered species other than those permitted to be removed
▪ Search, rescue and replanting of all protected and endangered species likely to be damaged during project development must be identified by the relevant specialist and completed prior to any development or clearing activities;	Relevant specialist in consultation with the Contractor	Develop and implement a Plant Search and Rescue Plan	Pre-construction & Construction	ECO	Weekly, and as and when required	Implementation of the Plant Search and Rescue Plan and photographic evidence and notes of the implementation of the plan
▪ The Environmental Audit Report must confirm that all identified species have been rescued and replanted and that the location of replanting is compliant with conditions of approvals;	ECO / Terrestrial Ecologist	Ensure that the audit report indicates all species rescued and replanted and provides feedback in terms of compliance with the conditions of permits for replanting	Construction	ECO	Monthly	Proof of all species rescued and replanted with the input of the terrestrial ecologist
▪ Trees felled due to construction must be documented and form part of the Environmental Audit Report;	ECO	Ensure that the audit report documents the details of trees felled	Construction	ECO	Monthly	Proof of all trees felled with the input of the terrestrial ecologist including photographic evidence

▪ Rivers and watercourses must be kept clear of felled trees, vegetation cuttings and debris; ▪ Indigenous shrubs and trees that are that cleared must be shredded with a wood chipper and used as mulch in exposed areas (to stabilise exposed areas and seed bank for revegetation).	Contractor	Felled trees, vegetation cuttings and debris must be disposed of at a licensed waste disposal facility	Construction	ECO	Monthly	No felled trees, vegetation cuttings and debris are dumped in inappropriate locations and disposal certificates are available as proof of responsible disposal
▪ Only a registered pest control operator may apply herbicides on a commercial basis and commercial application must be carried out under the supervision of a registered pest control operator that is appropriately trained;	DPM and contractor	A suitably qualified pest control operator must be appointed	Construction and Operation	ECO	As and when the use of herbicides is required	Only registered pest control operators must be appointed and proof of their registration must be provided
▪ A daily register must be kept of all relevant details of herbicide usage;	Contractor	Develop a daily register for the documentation of the details of herbicide usage	Construction	ECO	Monthly	Daily register provided by the pest control operator
▪ All protected species e.g., Species of Special Concern and sensitive vegetation not removed must be clearly marked and such areas fenced off in accordance to Section25: Access restricted areas. (Construction phase)	Contractor in consultation with the cEO	Spatially demarcate protected species and sensitive vegetation and implement appropriate fencing where required as per section 25: Access restricted areas. (Construction phase)	Construction	ECO	Ongoing	Demarcation and fencing is undertaken in- line with the requirements of section 25: Access restricted areas. (Construction phase)

▪ Remove alien vegetation from disturbed areas	Contractor	Develop an alien invasive species management plan to be implemented	Construction	ECO	Monthly	Photographic evidence of alien vegetation clearing on a monthly basis and as per the ECO monitoring reports.
▪ No vegetation should be collected for fire wood.	Contractor	All employees are to be provided with environmental awareness training informing of the relevant environmental requirements, sensitive and no-area of the site.	Construction	ECO	Ongoing	ECO monitoring reports and evidence on any non-compliance and warning issued to employees for non-compliance
▪ During construction in areas classified as high sensitivity areas, a botanist or ecologist will be consulted to ensure micro-siting of turbines minimises damage to or loss of sensitive flora.	Contractor in consultation with relevant specialist	High-sensitivity and no -go areas as identified by the specialist and final layout are to be demarcated	Construction	ECO	Ongoing	Photographic evidence of demarcated areas throughout the site being maintained during ECO monitoring reports.
▪ Clear demarcation during the construction phase of all undisturbed sensitive areas that are not within the direct footprint of the WEF to ensure that there is no uncontrolled access by construction vehicles and labourers.	Contractor	High-sensitivity and no -go areas as identified by the specialist and final layout are to be demarcated	Construction	ECO	Ongoing	Photographic evidence of demarcated areas throughout the site being maintained during ECO monitoring reports.
▪ Temporary construction lay-down or assembly areas will be sited on transformed areas.	Contractor	Infrastructure placement at the site is to be informed by the final layout and all sensitive	Construction	ECO	Ongoing	Photographic evidence of demarcated areas throughout the site

		areas and no-area are to be demarcated.				being maintained during ECO monitoring reports
▪ Rehabilitation or ecological restoration during and after the construction phase will be undertaken with indigenous plants with input from a botanist with experience in restoration of arid Karoo areas	Contractor	Implementation of the rehabilitation plan for the construction phase of the development The rehabilitation plan must include a stringent monitoring protocol. Part of the development must focus on a water distribution strategy to ensure that trampling is reduced and larger areas can be rested for recovery and restoration. The strategy must further ensure that selective grazing is minimised in order for the vegetation diversity to recover.	Construction	ECO	Ongoing	Photographic evidence of the progress on ongoing rehabilitation to be documented by the ECO in monitoring reports for the duration of the construction phase.
Clearance within servitudes						
▪ Where clearing for access purposes is essential, the maximum width to be cleared within the servitude must be in accordance to distance as agreed between the landowner and the EA holder	Contractor	Clearing for access must be undertaken as per the requirements provided by the landowner and the EA holder	Construction	ECO	Monthly, and as and when required	Proof must be provided that only agreed upon areas have been cleared
▪ Alien invasive vegetation must be removed according to a plan (in line with relevant municipal and provincial procedures, guidelines and recommendations) and disposed of at a recognised waste disposal facility;	Contractor	Undertake removal of alien invasive vegetation in accordance with the relevant guideline relevant to the project area and ensure the	Construction and Operation	ECO Operation and maintenance team	Monthly, and as and when required	Proof must be provided that alien invasive vegetation has been cleared in accordance to the

▪ Cleared alien vegetation must not be dumped on adjacent intact vegetation during clearing but should be temporarily stored in a demarcated area.		vegetation is disposed of at a licensed waste disposal facility A site-specific eradication and management programme for alien invasive plants must be included in the Environmental Management Programme (EMPr).				relevant guideline and as per the alien invasive management plan and disposed of at a licensed waste disposal facility
▪ Vegetation must be trimmed where it is likely to intrude on the minimum vegetation clearance distance (MVCD) or will intrude on this distance before the next scheduled clearance. MVCD is determined from SANS 10280;	Contractor	Develop a procedure for the trimming of vegetation in terms of the with the listed requirements	Construction and operation	ECO Operation and maintenance team	Monthly, and as and when required	Proof must be provided that vegetation is trimmed in accordance with the listed requirements
▪ Debris resulting from clearing and pruning must be disposed of at a recognised waste disposal facility, unless the landowners wish to retain the cut vegetation	Contractor	Dispose of the debris in accordance with the waste management plan	Construction and operation	ECO Operation and maintenance team	Monthly, and as and when required	Proof must be provided that the debris has been disposed of at a licensed waste disposal facility
Impact Management Outcome: To avoid or reduce potential increased alien plant invasion during construction on site						
▪ Regular monitoring by the operation and maintenance team for alien plants within servitude must occur and could be conducted simultaneously with erosion monitoring. ▪ When alien plants are detected, these must be controlled and cleared using the recommended control measures for each species to ensure that the problem is not exacerbated or does not re-occur and increase to problematic levels. ▪ Clearing methods must aim to keep disturbance to a minimum	Contractor	▪ Regular inspections around the constructed infrastructure to during construction phase. ▪ The alien invasive management plan set out in the EMP must be implented	During construction phase and operational phase	ECO	Weekly	Undertake inspections and record all findings and document the inspection process.

		and monitored on an ongoing basis				

30. Stormwater, Groundwater and waste water management						
Impact Management Outcome: Impacts to the environment caused by stormwater and wastewater discharges during construction are avoided						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Construction Phase						
- Reduce risk of groundwater contamination via the following: • Septic tanks and mobile toilets, fuel or chemical storage areas must be kept away (100m) from any borehole well head. • Any The borehole should not be located in a depression where it could become inundated . • There should be no standing / open water immediately around the wellhead. • Any stationary plant used around the well head, or anywhere, should make use of a drip tray during re-fuelling or dispensing of liquids. Proper non-drip dispensing equipment and spill kits should also be used. • A designated fuel storage and dispensing areas should have sufficient ground protection to prevent and contain leaks and spills. • Refuelling and servicing of plant and equipment in field should be avoided. • Runoff must go through an oil/grease trap before being discharged, no soaps can be introduced in this system.	Contractor and cEO	Implement measures for the control and management of stormwater and contaminated runoff	Construction	ECO	Ongoing	No mismanagement of runoff or contaminated water and stormwater

Refer to Sections 12, 41, and 58: Hazardous substances for specifications relating to fuels storage and re-fuelling areas.						
▪ Runoff from the cement / concrete batching areas must be strictly controlled, and contaminated water must be collected, stored and either treated or disposed of off-site, at a location approved by the project manager;	Contractor	Implement measures for the control and management of runoff	Construction	ECO	Ongoing	No mismanagement of runoff or contaminated water due to the temporary concrete batching plant
▪ Rainwater that collects in bunded areas must be promptly removed and dealt with as water containing waste	Contractor	Implement measures for the control and management of runoff	Construction	ECO	Ongoing	No mismanagement of runoff or contaminated water
▪ All spillage of oil onto concrete surfaces must be controlled by the use of an approved absorbent material and the used absorbent material disposed of at an appropriate waste disposal facility;	Contractor and cEO	Obtain approved absorbent material and make use of licensed waste disposal facilities for disposal of oil	Construction	ECO	Ongoing	Availability of approved absorbent material at the construction site and proof of disposal of oil at licensed disposal facilities
▪ Natural stormwater runoff not contaminated during the development and clean water can be discharged directly to watercourses and water bodies, subject to the Project Manager's approval and support by the ECO;	DPM in consultation with the ECO	Consultation between the DPM and the ECO to determine if water can be discharged directly into water bodies (where present). The necessary water quality testing must be undertaken prior to discharge	Construction	ECO	As and when the need arises to discharge natural stormwater runoff and clean water	Proof of consultation between the DPM and ECO and the outcomes thereof to be provided. Proof of water quality testing and the results thereof.
▪ Rehabilitate any areas where erosion occurred and amend the stormwater run-off control measures, if required.	Contractor	Implement erosion control measures	Construction	ECO	Monthly	Photographic proof of rehabilitation of areas that were eroded

▪ Washing and cleaning of equipment must be done in designated wash bays, where rinse water is contained in evaporation/sedimentation ponds (to capture oils, grease cement and sediment). ▪ Washing and cleaning of equipment should also be done in berms or bunds, in order to trap any cement and prevent excessive soil erosion.	Contractor	Implement measures for the control and management of runoff	Construction	ECO	Ongoing	No mismanagement of runoff or contaminated water
▪ Water that has been contaminated with suspended solids, such as soils and silt, may be released into watercourses or water bodies only once all suspended solids have been removed from the water by settling out these solids in settlement ponds. The release of settled water back into the environment must be subject to the Project Manager's approval and support by the ECO.	DPM in consultation with the ECO	Consultation between the DPM and the ECO to determine if water can be discharged directly into water bodies (where present). The necessary water quality testing must be undertaken prior to discharge	Construction	ECO	As and when the need arises to discharge water	Proof of consultation between the DPM and ECO and the outcomes thereof to be provided. Proof of water quality testing and the results thereof.
▪ Site preparation should take place during the dry season wherever possible. Construction should stop during heavy rains. ▪ Vegetation clearing should be limited as much as possible and plants rescued for rehabilitation. ▪ Directing clean stormwater towards natural drainage lines, contours and dispersing over grassed, flat areas (preferably the existing watercourses). ▪ Vehicles and equipment must be kept outside of watercourse buffers and flood lines. ▪ Vehicles and equipment must be kept clean and serviced off site. ▪ Staff/workers on-site must be educated on identifying potential erosion areas and best practice guidelines. ▪ Through the Stormwater Management Plan, dirty water was identified as water containing sediments. Water would be attenuated, passed through attenuation structures to allow for the sediments to be contained.	Contractor / DPM / ECO	Implement Stormwater Management Plan. Regular checks should be made by the ECO and site manager. These measures should also be incorporated into the EMPr. Monitoring and follow up assessments are essential to maintaining the overall state and continued management of the watercourse system.	Construction	ECO	0-going	Proof of implementation of stormwater management plan via monthly audit report from ECO

▪ The engineer or contactor must ensure that only clean stormwater runoff enters the environment. i.e., Clean water should be kept clean, as far as possible, and be routed to a natural watercourse by a system separate from the dirty water system and should be allowed to pass through to downstream users, while preventing or minimising the risk of spillage of clean water into dirty water systems. ▪ All effort was made to ensure that PCD's are sized correctly to ensure that clean and dirty water are kept separated as far as possible. ▪ Drainage should be controlled to ensure that runoff from the project area does not culminate in off-site pollution, flooding or result in any damage to properties downstream, of any stormwater discharge points. ▪ Any temporary storage area must have the following: o Completely lined infrastructure (concrete bunded area), with the capacity to contain 120% of the total amount of petrochemicals stored; o Spills must be completely removed from the site; and o Fire extinguisher equipment installed within the facility.						

31. Solid and hazardous waste management						
Impact Management Outcome: Waste is appropriately stored, handled and safely disposed of at a recognised waste facility.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Construction Phase						
▪ All measures regarding waste management must be undertaken using an integrated waste management approach;	Contractor	Develop and implement a waste management plan	Construction	ECO	Monthly	Implementation of the waste management plan and proof of waste management through proof of responsible disposal
▪ Sufficient, covered waste collection bins (scavenger and weatherproof) must be provided;	Contractor	Provision of appropriate waste collection bins strategically placed throughout the site	Construction	ECO	Ongoing	Appropriate waste collection bins are available throughout the site
▪ A suitably positioned and clearly demarcated waste collection site must be identified and provided;	DPM and Contractor	Identify an appropriate location for the waste collection site which must be clearly demarcated through signage and temporary fencing	Construction	ECO	Once, prior to the commencement t of construction	A waste collection site is appropriately placed and demarcated
▪ The waste collection site must be maintained in a clean and orderly manner;	Contractor	Regular collection of waste and maintenance of the area must be undertaken as per the waste requirements for the project during construction	Construction	ECO	Ongoing	The waste collection site is maintained and clean

▪ Waste must be segregated into separate bins and clearly marked for each waste type for recycling and safe disposal;	Contractor	Provide separate and marked bins for the different waste types associated with the construction phase	Construction	cEO	Ongoing	Separate waste bins are available on site and waste generated is separated into the relevant bins
▪ Staff must be trained in waste segregation;	cEO / dEO in consultation with the ECO	Include waste segregation as part of the environmental awareness training material.	Construction	ECO	Monthly, and as and when required	Environmental awareness training material requirements checklist
▪ Bins must be emptied regularly;	Contractor	Bins must be emptied before reaching total capacity and on a regular basis as required for the project	Construction	ECO	Monthly	No mismanagement of bins.
▪ General waste produced onsite must be disposed of at registered waste disposal sites/ recycling company;	Contractor	Disposal of general waste at licensed waste disposal facilities must be undertaken as per the waste management plan	Construction	ECO	Monthly	Disposal certificates of disposal at licensed facilities to be provided
▪ No burning of solid waste is allowed	Contractor	Disposal of general waste at licensed waste disposal facilities must be undertaken as per the waste management plan	Construction	ECO	Monthly	Disposal certificates of disposal at licensed facilities to be provided
▪ Hazardous waste must be disposed of at a registered waste disposal site;	Contractor	Disposal of hazardous waste at licensed waste disposal facilities must be undertaken as per the waste management plan	Construction	ECO	Monthly	Disposal certificates of disposal at licensed facilities to be provided

▪ Certificates of safe disposal for general, hazardous and recycled waste must be maintained.	Contractor	Obtain certificates for safe disposal of waste	Construction	ECO	Monthly	Disposal certificates of disposal at licensed facilities to be provided and filed as part of the filing system

32. Protection of Watercourses						
Impact Management Outcome: Pollution and contamination of the watercourse environment and or estuary erosion are prevented.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Construction Phase						
▪ All watercourses must be protected from direct or indirect spills of pollutants such as solid waste, sewage, cement, oils, fuels, chemicals, aggregate tailings, wash and contaminated water or organic material resulting from the Contractor's activities;	Contractor	Contractor to undertake activities which can cause spills of pollutants outside of watercourses	Construction	ECO	Ongoing	No incidents reported of spillage of pollutants into watercourses
▪ In the event of a spill, prompt action must be taken to clear the polluted or affected areas;	Contractor and cEO	Develop a management plan or process for implementation should a spill take place	Construction	ECO	Ongoing	Feedback must be provided by the contractor in terms of how the spill was handled and photographic evidence of the feedback must be provided and kept on record

▪ Where possible, no development equipment must traverse any seasonal or permanent wetland	Contractor and cEO	Develop a Method statement on how to traverse any seasonal or permanent wetland All of the proposed infrastructure development will avoid any of the delineated wetlands, including the 50m buffer.	Construction	ECO	Ongoing	Feedback must be provided by the contractor in terms of how the spill was handled and photographic evidence of the feedback must be provided and kept on record
▪ Development of permanent watercourse crossing must only be undertaken where no alternative access to turbine position is available;	cEO, Contractor	Ensure that permeant crossings (access roads) are provided for access to the grid connection corridor if no alternative crossing is available.	Construction	ECO	Ongoing	Ensure that permeant crossings are developed if there is no alternative.
▪ Where roads and crossings are upgraded, the following applies: ▪ All pipe culverts must be removed and replaced with suitably sized box culverts, where road levels are raised. ▪ River levels, regardless of the current state of the river / water course must be reinstated thus preventing any impoundments from being formed . ▪ Where large cut and fill areas are required these must be stabilised and rehabilitated during the construction process, to minimise erosion and sedimentation. ▪ Suitable stormwater management systems must be installed along roads and other areas and monitored during the first few months of use. Any erosion / sedimentation must be resolved by using the appropriate additional	cEO, Contractor	Ensure that construction methods accommodate all requirements to ensure aquatic continuity	Construction	ECO	Monthly, and as and when required	Free flow of water must be visible and erosion must be observed

interventions (i.e. extension, energy dissipaters, spreaders, etc).						
▪ There must not be any impact on the long-term morphological dynamics of watercourses;	DPM, cEO	Develop a management plan or process for implementation should a spill take place within a watercourse and ensure continually monitoring	Construction	ECO, dEO	For all phases of the project life cycle (i.e. construction, operation, decommissioning)	No incidents reported of spillage of pollutants into watercourses
▪ Existing crossing points must be favoured over the creation of new crossings (including temporary access)	DPM, cEO	Develop a management plan or process for implementation should a spill take place within a watercourse and ensure continually monitoring	Pre- construction and construction	ECO, dEO	During the construction phase of the project.	Existing crossing points utilised as opposed to new ones created and no incidents reported of spillage of pollutants into watercourses
▪ When working in or near any watercourse, the following environmental controls and consideration must be taken: a) Water levels during the period of construction; No altering of the bed, banks, course or characteristics of a watercourse b) During the execution of the works, appropriate measures to prevent pollution and contamination of the riparian environment must be implemented e.g. including ensuring that construction equipment is well maintained; c) Where earthwork is being undertaken in close proximity to any watercourse, slopes must be stabilised using suitable materials, i.e. sandbags or geotextile fabric, to prevent sand and rock from entering the channel; and	Contractor	Activities undertaken near watercourses must be in-line with and consider the specified environmental controls	Pre- construction and construction	ECO	Monthly, and as and when required	No degradation of the watercourses and no incidents of destruction reported Rehabilitation and re-vegetation measures implemented

d) Appropriate rehabilitation and re-vegetation measures for the watercourse banks must be implemented timeously. In this regard, the banks should be appropriately and incrementally stabilised as soon as development allows.						
▪ Monitor and rehabilitate disturbed areas near drainage lines.	cEO and contractor	Monitoring program to be established by freshwater ecologist	Construction and Rehabilitation	ECO Operation and maintenance team	Monthly, and as and when required	Photographic evidence
▪ The stormwater control measures systems must be inspected on an annual basis to ensure these are functional.	cEO and contractor	Monitoring program to be established by engineer	Construction and Operational	ECO Operation and maintenance team	Annually	Photographic evidence
▪ An effective storm water management plan should be compiled by a suitable specialist and the effectivity of the plan should be regularly assessed and revised if necessary.	cEO and contractor	Ensure the inclusion of silt and sediment traps where needed and effective dissipater structures to reduce flow velocities. Suitable stormwater management features with erosion control measures (gabions) should also be installed in areas where concentrated flows are anticipated as indicated in the storm water management plan (SWMP)	Construction	EO Operation and maintenance team	Annually	Photographic evidence
▪ Proper drainage controls such as culverts, cut-off trenches will be used to ensure proper management of surface water runoff to prevent erosion.	cEO and contractor	Ensure that construction methods accommodate all requirements to ensure aquatic continuity	Construction and Operational	ECO Operation and maintenance team	Monthly, and as and when required	Free flow of water must be visible and erosion must be observed

▪ Fuel, oil and used oil storage areas will have appropriate secondary containment (i.e., bunds).	cEO and contractor	Develop a management plan or process for implementation should a spill take place within a watercourse and ensure continually monitoring	Pre- construction and construction	ECO, dEO	During the construction phase of the project.	Existing crossing points utilised as opposed to new ones created and no incidents reported of spillage of pollutants into watercourses
▪ No surface, ground or storm water may be polluted as a result of any activities on the site.	cEO and contractor	Develop a management plan or process for implementation and ensure continually monitoring to determine water quality in line with the WUL/GA requirements	Construction	ECO, dEO	During the construction phase of the project.	No degradation of the watercourses and no incidents of destruction reported
Impact Management Outcome: To avoid or reduce impact in sedimentation and erosion within the development footprint.						
▪ If possible, undertake construction activities in the dry season. ▪ Infrastructure footprint and associated area of disturbance should be minimised as far as practically possible ▪ Any storm-water within the site must be handled in a suitable manner, i.e. trap sediments, and reduce flow velocities ▪ Any erosion problems observed to be associated with the project infrastructure should be rectified as soon as possible and monitored thereafter to ensure that they do not re-occur. ▪ All bare areas, as a result of the development, should be revegetated with locally occurring species, to bind the soil and limit erosion potential.	Project Developer	▪ Regular inspections around the constructed infrastructure to during construction phase. ▪ Regular inspections around the constructed infrastructure to detect early signs of soil erosion developing Any waste generated during construction, must be stored into designated containers and removed from the site by the construction teams.	During construction phase and operational phase	ECO	Weekly	Undertake inspections and record all findings and document the inspection process.

▪ All cleared areas must be re-vegetated after construction has been completed ▪ Silt traps should be used where there is a danger of topsoil or material stockpiles eroding and entering streams and other sensitive areas. ▪ Topsoil should be removed and stored separately and should be re-applied where appropriate as soon as possible in order to encourage and facilitate rapid regeneration of the natural vegetation on cleared areas. ▪ Where practical, phased development and vegetation clearing should be applied so that cleared areas are not left un-vegetated and vulnerable to erosion for extended periods of time. ▪ Construction of gabions and other stabilisation features to prevent erosion, if deemed necessary. ▪ There should be reduced activity at the site after large rainfall events when the soils are wet. No driving off of hardened roads should occur immediately following large rainfall events until soils have dried out and the risk of bogging down has decreased.						
Impact Management Outcome: Reduce altered wetland hydrology due to interception/impoundment/diversion of flows (Construction Phase).						
▪ If possible, undertake construction activities in the dry season. ▪ Limit the extent of the construction servitude to as small an area as possible. ▪ Any storm-water within the site must be handled in a suitable manner, i.e. trap sediments, and reduce flow velocities ▪ Stormwater from any access or internal roads must be managed so that this does not interfere with the regional hydrology and or create the potential for any erosion	Project Developer	▪ Regular inspections around the constructed infrastructure to during construction phase.	During construction & operational phase	ECO	On-going during construction & operational phase	▪ Undertake inspections and record all findings and document the inspection process.

▪ The road crossing should be specifically designed not to impede or disrupt the direction and flow of the water where practically possible. ▪ Closure and rehabilitation of the areas around the watercourse crossing and underground power cables servitude should commence as soon as the construction of infrastructure/laying of underground power cables have been completed. ▪ Soils should be landscaped to the natural landscape profile with care taken to ensure that no preferential flow paths or berms remain. ▪ No vehicles are to re-fuel within the wetland.						

33. Soil and Agricultural Potential						
Impact Management Outcome: Prevention and management of soil erosion.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Construction Phase						
▪ Limit vegetation clearance to only the areas where the surface infrastructure will be constructed. ▪ Avoid parking of vehicles and equipment outside of designated parking areas. ▪ Plan vegetation clearance activities for dry seasons (late autumn, winter and early spring). ▪ Design and implement a Stormwater Management System where run-off from surfaced areas are expected. ▪ Re-establish vegetation along the access road to reduce the impact of run-off from the road surface.	Project Developer	Regular inspections around the constructed infrastructure to detect early signs of soil erosion developing Any waste generated during construction, must be stored into designated containers	During the entire construction and operational phases	ECO	Monthly	No visible signs of soil erosion around the project infrastructure

		and removed from the site by the construction teams When signs of erosion is detected, the areas must be rehabilitated using a combination of geo-textiles and re-vegetation to prevent the eroded area(s) from expanding.				
▪ Land clearance must only be undertaken immediately prior to construction activities and only within the development footprint; ▪ Unnecessary land clearance must be avoided; ▪ Regularly monitor the site to check for areas where signs of soil erosion may start to appear. ▪ Also monitor the area where the Riet River is in close proximity to the access road to detect early signs of sedimentation. ▪ Should any soil erosion be detected, it must be addressed immediately through rehabilitation and surface stabilisation techniques. ▪ Minimise erosion and loss of topsoil	Project Developer	Regular inspections around the constructed infrastructure to detect early signs of soil erosion developing Any waste generated during construction, must be stored into designated containers and removed from the site by the construction teams When signs of erosion is detected, the areas must be rehabilitated using a combination of geo-textiles and re-vegetation to prevent the eroded area(s) from expanding. All construction with a potential to remove top soil should be communicated to	During the entire construction and operational phases	ECO	Monthly	No visible signs of soil erosion around the project infrastructure

		the ECO before commencement				
Impact Management Outcome: Reduction of land with natural vegetation for livestock grazing						
▪ Vegetation clearance must be restricted to area where the access road needs to be widened. ▪ Materials and equipment must only be stored in the pre-determined laydown areas. ▪ Removal of obstacles to allow for access of construction vehicles must be kept to only where essential. ▪ Prior arrangements must be made with the landowner and neighbouring landowners to ensure that livestock are moved to areas where they cannot be injured by vehicles traversing the area. ▪ No boundary fence must be opened without the landowner or neighbouring landowners' permission. ▪ No open fires made by the construction teams are allowable during the construction phase.	Project Developer	Regular inspections around the constructed infrastructure to during construction phase.	During the entire construction and operational phases	ECO	Monthly	▪ Reporting in monthly audit reports.

34. Protection of fauna, avifauna and bats						
Impact Management Outcome: Minimise disturbance to fauna and avifauna.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Construction Phase						
▪ All construction vehicles should adhere to a low speed limit (30km/h) to avoid collisions with susceptible species such as snakes and tortoises.	dEO / cEO Contractor	Ensure speed limit signs are visible and speed is monitored.	Construction and Operation	ECO Operation and maintenance team	Monthly, and as and when required	No incident report relating to speeding.
▪ No interference with livestock must occur without the landowner's written consent and with the landowner or a person representing the landowner being present;	dEO / cEO Contractor	Develop a procedure for dealing with livestock within the affected properties.	Pre-construction & Construction	ECO	Once, prior to the commencement of construction and as and when required during the construction phase	Written consent provided by the landowner and proof of representation of the landowner during interference
▪ Any fauna directly threatened by the associated activities should be removed to a safe location by a suitably qualified person. ▪ The collection, hunting or harvesting of any plants or animals at the site should be strictly forbidden. Personnel should not be allowed to wander off the demarcated site.	Regular inspections around the constructed infrastructure to during construction phase.	During construction phase and operational phase	ECO	Weekly	Undertake inspections and record all findings and document the inspection process.	Regular inspections around the constructed infrastructure to during construction phase.
▪ No Domestic animals allowed on site.	dEO / cEO Contractor	Remove any domestic animal that may enter on site to nearest animal care facility e.g. SPCA.	Construction and Operation	ECO Operation and maintenance team	Monthly, and as and when required	No presence of domestic animals on site.

▪ The breeding sites of raptors and other wild bird species must be taken into consideration during the planning of the development programme;	dEO / cEO in consultation with the Contractor	Ensure that the planning and development programme considers breeding sites for wild bird species	Pre-construction & Construction	ECO	Once, prior to the commencement of construction and as and when required	The planning and development programme includes the consideration of breeding sites for wild bird species
▪ Breeding sites must be kept intact and disturbance to breeding birds must be avoided. Special care must be taken where nestlings or fledglings are present;	dEO / cEO in consultation with the Contractor	Avoid breeding sites and ensure that special care is taken in the presence of nestlings and fledglings	Construction and Operation	ECO Operation and maintenance team	Weekly, and as an when required during the construction. Monthly, and as and when required during operation	Photographic record of intact breeding sites
▪ Nesting sites in near vicinity of the development must documented;	dEO / cEO in consultation with the ECO	Walk-downs of the existing lines located parallel to the project must be undertaken and nests and the details thereof documented	Construction and Operation	ECO Operation and maintenance team	Quarterly, and as and when required	Details of walk- downs undertaken must be noted and kept on file and photographic records of nesting sites must be kept on file.
▪ Special recommendations of the avian specialist must be adhered to at all times to correct implementation of mitigation measures;	dEO / cEO in consultation with the Contractor	All mitigation measures recommended by the avifauna specialist must be implemented	Construction and Operation	ECO Operation and maintenance team	Weekly during construction and monthly during operation	Photographic record of compliance and successful implementation of the recommended measures
▪ No poaching must be tolerated under any circumstances. All animal dens in close proximity to the works areas must be marked as Access Restricted Areas;	dEO / cEO in consultation with the Contractor	All site staff must be informed of this requirement during the Environmental Awareness Training and the consequences of not adhering to the	Construction	ECO	Construction and Operation	ECO Operation and maintenance team

		requirement. These areas must be demarcated as Access Restricted Areas				
▪ No deliberate or intentional killing of fauna is allowed;	dEO / cEO in consultation with the Contractor	Implement and maintain snake deterrents on pylons in areas where snakes are abundant	Construction and Operation	ECO Operation and maintenance team	Once, during the construction of the pylons and as and when required. Monthly during operation	Photographic record of the implementation and maintenance of snake deterrents
▪ Maintain a log of fauna-related incidents or mortalities (incl. roadkill, electrocutions etc.). The log should be reviewed annually, and mitigations amended/implemented as data suggests.	dEO / cEO in consultation with the Contractor	Capture all incidents and mortalities of all fauna on site. An investigation of cause to each incident of mortality must be undertaken.	Construction and Operation	ECO Operation and maintenance team	Monthly, and as and when required	Report logging all fauna-related incidents or mortalities together with mitigation measures that are implemented.
▪ In areas where snakes are abundant, snake deterrents are to be deployed on the pylons to prevent snakes climbing up, being electrocuted and causing power outages; and	dEO / cEO in consultation with the Contractor	Implement and maintain snake deterrents on pylons in areas where snakes are abundant	Construction and Operation	ECO Operation and maintenance team	Once, during the construction of the pylons and as and when required. Monthly during operation	Photographic record of the implementation and maintenance of snake deterrents
▪ If possible, undertake construction activities in the dry season. ▪ Limit the extent of the construction servitude to as small an area as possible. ▪ For the water crossings, the engineering team must provide an effective means to minimise the potential upstream and downstream effects of sedimentation and erosion (erosion protection) as well minimise the loss of wetland vegetation.	Project Developer	▪ Regular inspections around the constructed infrastructure to during construction phase. ▪ Regular inspections around the constructed infrastructure to detect early signs of soil erosion developing Any waste generated during	During construction phase and operational phase	ECO	Weekly	Undertake inspections and record all findings and document the inspection process.

▪ All crossings over watercourses should be such that the flow within the channels is not impeded and should be constructed perpendicular to the river channel, ▪ Excavated soils should be stockpiled on the upslope side of the excavated trench so that eroded sediments off the stockpile are washed back into the trench. ▪ During the construction and operational / decommissioning phase, monitor these drainage features to see if erosion issues arise and if any erosion control is required. ▪ Any areas disturbed during the construction phase should be encouraged to rehabilitate as fast and effective as possible. ▪ All alien plant re-growth (mostly forbs) must be monitored, and should it occur, these plants should be eradicated. The scale of the operation does however not warrant the use of a Landscape Architect and / or Landscape Contractor ▪ Mitigation and follow up monitoring of residual impacts (alien vegetation growth and erosion) may be required ▪ Closure and rehabilitation of the areas around the watercourse crossings should commence as soon as the construction of infrastructure have been completed. ▪ Soils should be landscaped to the natural landscape profile with care taken to ensure that no preferential flow paths or berms remain. ▪ No vehicles to refuel within watercourses / riparian vegetation.		construction, must be stored into designated containers and removed from the site by the construction teams ▪ When signs of erosion is detected, the areas must be rehabilitated using a combination of geo-textiles and re-vegetation to prevent the eroded area(s) from expanding.				
Bats						
Impact Management Outcome: Minimise disturbance to bats						

▪ Limit the removal of vegetation (particularly trees) in order to limit direct vegetation loss and habitat fragmentation.	dEO / cEO in consultation with the Contractor	Limit vegetation removal to the construction footprint only	Construction	ECO	Once, prior to the commencement of construction and as and when required	Contractor to provide photographic proof that no vegetation has been cleared outside construction footprint
▪ Minimisation of light pollution and artificial habitat creation	dEO / cEO in consultation with the Contractor	Floodlights should be down-hooded and where possible, lights with a colour (lighting temperature) that attract less insects should be used	Construction	ECO	On-going during construction	Photographic evidence
▪ Adhere to the bat sensitivity map as indicated in Figure 2.1 of the bat report (Appendix D1) and avoid development in the demarcated high sensitivity areas and buffers. Medium sensitivity areas and buffers should preferably be avoided turbines within these areas may require priority (not excluding all other turbines) during post-construction studies, and in some instances, there is a higher likelihood that mitigation measures may need to be applied to them.,.	DPM and a suitably qualified specialist dEO / cEO in consultation with the Contractor and ECO	Monitoring of demarcated high-sensitivity areas and buffer zones as per the final layout	Construction	ECO	Weekly during construction	Contractor to provide evidence of demarcated high-sensitivity and no – areas throughout the construction phase.
▪ Install bat detectors at height as advised by the post construction bat specialist, preferably at hub height at the appropriate turbines, with the deployment of the turbines.	DPM and a suitably qualified specialist dEO / cEO in consultation with the Contractor and ECO	Installation of bat detectors at the advice of the specialist	Construction	ECO Operation and maintenance team	Once-off following completion of construction and maintenance on-going during operation.	Monitoring report following completion of construction and installation of bat detectors.

▪ Bats should be prevented as far as possible from entering any possible artificial roost structures (e.g. roofs of buildings, road culverts and wind turbines) by ensuring that they are appropriately sealed. A bat specialist must be consulted should bats start to colonise infrastructure. Buildings and road culverts must be monitored for any signs of roosting activity. ▪ Carefully monitoring collision incidence and investigate appropriate mitigation measures, when required ▪ Register must be maintained of injuries to bats queries received as well as any action taken.	DPM and a suitably qualified specialist dEO / cEO in consultation with the Contractor and ECO	Monitor and record roost and any roosting activities of bats	Construction and Operation	ECO Operation and maintenance team	Monthly, and as and when required	Photographic evidence and GPS co-ordinates of any roosts
Impact Management Outcome: Bat fatalities due to collision or barotrauma						
▪ Minimise impact to bats and adhere to the bat sensitivity map	Relevant specialist in consultation with the Project Developer	No turbine blades are allowed to intrude into the high bat sensitivity buffer areas, therefore based on a 100m blade length, all turbine bases must be 100m or more from the edge of the 200m high bat sensitivity buffers indicated in Figure 2.1 (Bat sensitivity map) of Bat Walkthrough report (Appendix D1) Based on a rotor diameter of 200m, no turbines or turbine blade overhang, are intruding into the high bat sensitivity areas or their buffers.	Pre-construction	Project Developer	Once, prior to the commencement of construction and during construction	Final turbine layout and indicating high sensitivity and buffer areas as per final walkthrough bat specialist report.

▪ Avoid creating artificial wetlands and open water sources in the turbine zones (closer than 300m from any turbine base) ▪ The likelihood of bats being killed by moving turbine blades increases significantly when they are attracted to their proximity when it has become an improved foraging airspace due to the presence of artificial light or artificial water sources.	Developer	Stormwater management must be implemented in a manner to avoid this as this will increase insect and bat activity around turbines.	Pre-construction	Project Developer	Once, prior to the commencement of construction	Compliance to Stormwater management plan No wetlands closer than 300m from any turbine base
Avifauna						
▪ Implement an avifaunal monitoring programme during construction and operational phases.	DPM and a suitably qualified specialist dEO / cEO in consultation with the Contractor and ECO	Implement avifaunal monitoring programme (Appendix M)	Construction and Operation	ECO Operation and maintenance team	Monthly, and as and when required	Photographic evidence and records of bird sightings
▪ A 3km turbine exclusion zone must be implemented around identified Verreaux's Eagle nests, and a 660m turbine exclusion zone along the escarpment	DPM and a suitably qualified specialist dEO / cEO in consultation with the Contractor and ECO	Ensure turbine free buffer zones and no-go areas are abided by as per the final layout and results of the pre-construction walkthrough report.	Construction	ECO Operation and maintenance team	Prior to commencement of construction and Monthly, and as and when required	Compliance with final layout buffer and no-go areas as per photographic evidence and compliance reports.
▪ Removal of vegetation must be restricted to a minimum.	cEO and contractor	Demarcate areas of indigenous vegetation to be avoided before clearance is undertaken	Construction and operation (i.e. for maintenance purposes)	ECO Operation and maintenance team	Weekly, and as and when required	No unnecessary clearance of indigenous vegetation is undertaken

▪ Habitat loss and disturbance can be mitigated during the construction phase by on-site demarcation of 'no-go' areas. These areas should be identified during pre-construction Monitoring. ▪ Construction activity should be restricted to the immediate footprint of the infrastructure, and in particular to the proposed road network. Access to the remainder of the site should be strictly controlled to prevent unnecessary disturbance of SCC. ▪ Construction of new roads should only be considered if existing roads cannot be upgraded.	ECO	Demarcation of no-go areas and implementation of monitoring programmes.	Construction	ECO Operation and maintenance team	Once-off prior to commencement of construction and monthly as and when required.	Evidence of demarcation being maintained through photographic records as per the final layout.

35. Protection of heritage and palaeontological resources						
Impact Management Outcome: Minimise impact to heritage resources.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Construction Phase						
▪ Carry out general monitoring of excavations for potential fossils, artefacts and material of heritage importance;	Suitably qualified specialist in consultation with the ECO	Appoint a suitably qualified specialist to carry out the monitoring of excavations for fossils, artefacts and important heritage material	Construction	ECO	During the undertaking of excavations of fossils, artefacts and heritage material	Proof of appointment of a suitably qualified specialist and photographic record of required monitoring by the specialist

▪ All work must cease immediately, if any human remains and/or other archaeological, palaeontological and historical material are uncovered. Such material, if exposed, must be reported to the nearest museum, archaeologist / palaeontologist (or the South African Police Services), so that a systematic and professional investigation can be undertaken. Sufficient time must be allowed to remove/collect such material before development recommences.	dEO / cEO in consultation with the Contractor and ECO	Develop and implement procedures for situations where human remains, archaeological, palaeontological or historical material are uncovered	Construction	ECO	Weekly, during the construction phase and as and when required	Proof of work ceased and the required procedures followed in cases where material is discovered.
▪ New fossil material encountered or exposed during the Construction Phase is best handled through the Chance Fossil Finds Protocol. This tabulated protocol should be incorporated into the EMPr for each development and fully implemented by the responsible Environmental Control Officer (ECO) / Environmental Site Officer (ESO). ▪ On-going Construction Phase monitoring for fossils of surface clearance and bedrock excavations by ECO / ESO. It should be emphasized that, providing appropriate mitigation is carried out, the majority of developments involving bedrock excavation can make a positive contribution to our understanding of local palaeontological heritage. ▪ Application of Chance Fossil Finds Protocol (Appendix P) during construction phase with recording and collection of significant new finds by qualified palaeontologist	Suitably qualified specialist in consultation with the ECO	Appoint a suitably qualified specialist to carry out the monitoring of excavations for fossils, artefacts and important heritage material and to train ECO to identify potential heritage resources that may be identified during construction activities. The implementation of the Change Find Fossil Procedure.	Construction	ECO/ Palaeontological Specialist	Weekly during the construction phase	Proof of appointment of specialist. Implementation of Chance Find Fossil Procedure and reporting in ECO monitoring reports.
▪ Before any major construction commences a thorough field survey of representative natural and artificial rock exposures within the study region should be undertaken by a qualified palaeontologist.	Suitably qualified specialist in consultation with the ECO	Appoint a suitably qualified specialist to carry out the monitoring of excavations for fossils, artefacts and important heritage material	Construction	ECO/ Heritage / Palaeontological Specialist	Once- off prior to commencement of construction and weekly during the construction phase	Proof of appointment of specialist. Records of liaison with SAHRA and

▪ Buffer zones around built structures should be maintained during the construction phase to prevent damage to structures of cultural heritage interest. ▪ Mitigation of the pre-colonial, colonial archaeology and avoidance of marked graves which may not have been identified during the site survey should involve micro-siting prior to construction. ▪ The palaeontologist will be required to apply for a Fossil Collection Permit from SAHRA for professional mitigation in the Northern Cape. All fieldwork and reporting should meet the standards of international best practice as well as those developed for PIA reports by SAHRA (2013). Fossil material collected must be safeguarded and curated within an approved palaeontological repository (e.g. museum or university collection) with full collection data. ▪ A fossil collection permit from SAHRA for professional mitigation in the Northern Cape. Fossil material collected must be safeguarded and curated within an approved palaeontological repository (e.g. museum or university collection) with full collection data.; ▪ If any archaeological material or human burials are uncovered during the course of development, work in the immediate area should be halted. The find would need to be reported to the heritage authorities and may require inspection by an archaeologist. Such heritage is the property of the state and may require excavation and curation in an approved institution. Should any human burials, archaeological or palaeontological materials (fossils, bones, artefacts etc.) be uncovered or exposed during earthworks or excavations, they must immediately be reported to SAHRA.		and to train ECO to identify potential heritage resources that may be identified during construction activities. The implementation of the Change Find Fossil Procedure.				implementation of Chance Find Fossil Procedure and reporting in ECO monitoring reports.

▪ The ECO / ESO responsible for the WEF and Grid Connection Infrastructure developments should be made aware of the possibility of important fossil remains (vertebrate bones, teeth and burrows, petrified wood, plant-rich horizons etc.) being found or unearthed during the construction phase of the projects. Monitoring for fossil material of all major surface clearance (including access roads) and deeper (>1m) excavations by the ESO on an on-going basis during the construction phase is therefore recommended. Significant fossil finds should be safeguarded, preferably in situ, and reported at the earliest opportunity SAHRA for recording and sampling by a professional palaeontologist. If triggered, these mitigation actions to conserve legally-protected fossil heritage are considered to be essential. ▪ The relevant Provincial Heritage Resources Agencies for these renewable energy developments is. SAHRA: 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Phone: +27 (0)21 462 4502. Fax: +27 (0)21 462 4509. Web:www.sahra.org.za). ▪ If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils (e.g. trace fossils or stromatolites) or other categories of heritage resources are found during the proposed development, SAHRA APM Unit (Natasha Higgitt/John Gribble 021 462 5402) must be alerted. If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves (BGG) Unit (Itumeleng Masiteng/Mimi Seetelo 012 320 8490), must be alerted immediately. Such heritage is the property of the state and may require excavation and curation in an approved institution.						

▪ A professional archaeologist or palaeontologist, depending on the nature of the finds, must be contracted as soon as possible to inspect the findings at the expense of the developer. If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required at the expense of the developer.						
▪ Do not dispose of cutting material down the slope towards the river. Excavated materials from the road cuttings should not be disposed of over the eastern edge of the road.	Contractor	Project Developer to appoint a qualified archaeologist and/or palaeontologist to do a pre-construction survey.	During the design phase, prior to the commencement of construction	ECO	During construction and operation.	The waste management procedure to be monitored and reported in audit reports.
▪ Minimise landscape scarring throughout the project area and ensure effective rehabilitation of areas not required during operation.	Contractor	Project Developer to implement and abide by rehabilitation plan.	During the construction phase and operational phase.	ECO	Ongoing throughout construction phase and operational phase	ECO to report of rehabilitation activities in audit reports.
▪ Monitoring during the rainy season of any runoff from the road into the identified sites must be conducted by the ECO and if any adverse impacts such as erosion occur, reports must be submitted to SAHRA for further comment and recommendations;	Contractor	Project Developer to abide by stormwater management plan and ensure run off from the road does not adversely affect the identified heritage sites.	During the construction phase and operational phase	ECO	Ongoing throughout construction phase and operational phase	ECO to report on condition of heritage sites within audit reports.
▪ The sites identified for avoidance must be avoided, where possible, or scheduled for mitigation as required (it is assumed that sites located far from the authorised layout will not be impacted, however, in the event that major	DPM and a suitably qualified specialist dEO / cEO in consultation	Undertake a Heritage Walk-through Survey Spatially identify and demarcate areas of heritage significance as per the Heritage Impact	Pre-construction	ECO	Once, prior to the commencement of construction	Proof of avoidance of sensitive heritage features through details of avoidance and photographic records

changes occur the developer must take cognisance of all previously recorded sites) ▪ Identify, demarcate and prevent impact to all known sensitive heritage features on site in accordance with the No-Go procedure in Section 25: Access restricted areas (Construction phase)	with the Contractor and ECO	Assessment and the Heritage Walk-through Report and as per the requirements of Section 25: Access restricted areas (Construction phase);				
▪ No infrastructure or construction activities are to be undertaken within 30m of heritage resources. This applies to waypoints 1176, 1184, 1194-1199 inclusive, 1301 and 1309; ▪ Any heritage sites located within 30 m of the final layout should be physically flagged on site as no-go areas and demarcated. This applies to the waypoints listed above unless infrastructure is moved beyond 30 m. ▪ No stones are to be removed from any heritage site ▪ The list of finds made during the surveys of the Sutherland 2 (SL2) WEF site as depicted in Table 2 of the specialist report (Appendix E1) must be complied with, as recommended.	Project Developer	The ECO must regularly (suggest at least weekly) monitor the flagged sites to ensure that the no-go areas are complied with. All construction work must occur within the demarcated project footprints and vehicles may not move outside of these areas	During the design phase, prior to the commencement of construction	ECO	Once-off prior to construction and weekly during construction.	Archaeologist and/or palaeontologist appointed, report compiled/ permit application and submitted to SAHRA. Proof of demarcation and maintenance of no-go buffers at each heritage resource site/waypoint.

36. Safety of the public						
Impact Management Outcome: All precautions are taken to minimise the risk of injury, harm or complaints.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Construction Phase						
▪ Identify fire hazards, demarcate and restrict public access to these areas as well as notify the local authority of any potential threats e.g. large brush stockpiles, fuels etc.;	cEO in consultation with the Contractor	Develop an Emergency Preparedness, Response and Fire Management Plan specific to the project	Pre-construction Construction	ECO	Once, prior to the commencement of construction and weekly during the construction phase	Compliance with the Emergency Preparedness, Response and Fire Management Plan
▪ All unattended open excavations must be adequately fenced or demarcated;	Contractor	Ensure that all excavations undertaken is fenced and demarcated within a reasonable timeframe and in instances where excavations will be open for long-periods of time	Construction	ECO	Weekly	Excavations are fenced where required and photographic proof can be provided
▪ Adequate protective measures must be implemented to prevent unauthorised access to and climbing of partly constructed structures and protective scaffolding;	Contractor	All staff must be easily identifiable and the climbing of towers and scaffolding must be undertaken by authorized personnel as managed by the Contractor	Construction	ECO	Monthly, and as and when required	No incidents of unauthorised climbing is reported
▪ Ensure structures vulnerable to high winds are secured;	Contractor	Ensure that sufficient stabilisation measures are implemented to secure structures vulnerable to high winds.	Construction	ECO	Weekly, and as and when required	No incidents of unstable structures due to high winds is reported

▪ Maintain an incidents and complaints register in which all incidents or complaints involving the public are logged.	cEO	Compile and regularly update as incidents and complaints are submitted from the public and indicate the actions taken to resolve the complaint	Construction	ECO	Monthly, and as and when required	The incidents and complaints register is complete and provides all the required details

37. Sanitation						
Impact Management Outcome: Clean and well-maintained toilet facilities are available to all staff in an effort to minimise the risk of disease and impact to the environment						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Construction Phase						
▪ Mobile chemical toilets are installed on site if no other ablution facilities are available;	Contractor	Mobile chemical toilets must be placed appropriately and in areas that avoid environmental sensitivities	Construction	ECO	Weekly	Mobile toilets are installed and avoid environmental sensitivities
▪ The use of ablution facilities and or mobile toilets must be used at all times and no indiscriminate use of the veld for the purposes of ablutions must be permitted under any circumstances;	Contractor in consultation with the cEO	All site staff must be informed of this requirement during the Environmental Awareness Training and the consequences of not adhering to the requirement	Pe-construction & Construction	ECO	Monthly, and as and when required	No evidence of non-compliance identified
▪ Where mobile chemical toilets are required, the following must be ensured: a) Toilets are located no closer than 100 m to any watercourse or water body;	Contractor in consultation with the cEO	The installation of the toilets by the Contractor must be as per the listed requirements	Construction	ECO	Weekly	No evidence of non-compliance identified

b) Toilets are secured to the ground to prevent them from toppling due to wind or any other cause; c) No spillage occurs when the toilets are cleaned or emptied and the contents are managed in accordance with the EMPr; d) Toilets have an external closing mechanism and are closed and secured from the outside when not in use to prevent toilet paper from being blown out; e) Toilets are emptied before long weekends and workers holidays, and must be locked after working hours; f) Toilets are serviced regularly and the ECO must inspect toilets to ensure compliance to health standards;						
▪ A copy of the waste disposal certificates must be maintained.	Contractor	Certificates obtained from the licensed waste disposal facility with the emptying of the toilets must be kept on file	Construction	ECO	Monthly, and as and when required	Certificates for waste disposal from the licensed waste disposal facility

38. Prevention of disease

Impact Management Outcome: All necessary precautions linked to the spread of disease are taken.

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Construction Phase						
▪ Undertake environmentally friendly pest control in the camp area;	Contractor	Only environmentally-friendly pest control must be used, when required	Construction	ECO	As and when pest control is required for the project	Contractor to provide proof of pest control used being environmentally-friendly

▪ Ensure that the workforce is sensitised to the effects of sexually transmitted diseases, especially HIV/ AIDS, COVID 19;	cEO / Contractor in consultation with the ECO	The effects of sexually transmitted diseases and HIV/ AIDS and COVID 19 must be covered in the Environmental Awareness Training	Pre-construction & Construction	ECO	Once, prior to the commencement t of construction and monthly during construction	Environmental awareness training material requirements checklist
▪ The Contractor must ensure that information posters on HIV/ AIDS, COVID 19 are displayed in the Contractor Camp area;	Contractor	Develop and place information posters on HIV/ AIDS and COVID 19	Construction	ECO	Weekly	Photographic evidence of poster placement
▪ Information and education relating to sexually transmitted diseases to be made available to both construction workers and local community, where applicable;	cEO / Contractor in consultation with the ECO	Information and education of sexually transmitted diseases must be covered in the Environmental Awareness Training.	Pre-construction & Construction	ECO	Monthly	Environmental awareness training material requirements checklist
▪ Free condoms must be made available to all staff on site at central points;	Contractor	Placement of free condoms in mobile toilets and at the construction camps	During the Construction Phase	ECO	Monthly	Proof of placement of free condoms by the contractor to be provided
▪ Medical support must be made available;	dEO / cEO in consultation with the Contractor	Ensure that designated personnel with first aid training are available on site and that first aid kits to provide medical support is readily available	Construction and Operations	ECO	Monthly	Check the availability of first aid trained personnel and medical kits (including if these are complete in terms of supplies)
▪ Provide access to Voluntary HIV and COVID 19 Testing and Counselling Services.	Contractor	Compile a HIV testing schedule and COVID 19 register, and provide counselling services where required	Construction	ECO	Quarterly, and as and when required	Voluntary testing schedules and proof of counselling (where undertaken)

39. Emergency Procedure						
Impact Management Outcome: Emergency procedures are in place to enable a rapid and effective response to all types of environmental emergencies						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Construction Phase						
▪ The relevant local authority must be made aware of a fire as soon as it starts;	Contractor in consultation with the ECO	Develop and include a procedure in the Emergency Preparedness, Response and Fire Management Plan for the event of a fire and the procedure to be followed for informing the local authority	Construction	ECO	As and when a fire occurs	The local authority was informed as per the relevant procedure set out in the Emergency Preparedness, Response and Fire Management Plan
▪ In the event of emergency, necessary mitigation measures to contain the spill or leak must be implemented (see Section 12, 41, and 58: Hazardous substances)	Contractor	Implement the required mitigation measures in the event of a spill or leak as per the requirements of Section 12, 41, and 58: Hazardous substances	Construction and Operations	ECO	As and when a spill or leak occurs	The mitigation measures included under Section 12, 41, and 58: Hazardous substances have been adhered to

40. Hazardous Substances						
Impact Management Outcome: :Emergency procedures are in place to enable a rapid and effective response to all types of environmental emergencies						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Construction Phase						
▪ The use and storage of hazardous substances to be minimised and non-hazardous and non-toxic alternatives substituted, where possible; ▪ It is important to prevent pollution and all hydrocarbons must therefore be stored off-site. Where small quantities are needed onsite, it must be stored in a well-managed and constructed hydrocarbon storage facility with impermeable floors and the appropriate bunding, sumps and roofing both for onsite and offsite facilities must be provided.	cEO in consultation with the Contractor	Develop a strategy of how hazardous substances can be and should be minimised	Pre-construction & Construction	ECO	Once, prior to the commencement of construction and monthly during the construction phase	Contractor to provide evidence of substances used for proof of compliance
▪ All hazardous substances must be stored in suitable containers as defined in the Method Statement; ▪ Hazardous and flammable substances must be stored and used in compliance to the applicable regulations and safety instructions.	Contractor	Develop a Method Statement for the storage of hazardous substances in suitable containers No chemical must be stored nor may any vehicle maintenance occur within 350m of the temporal zone of wetlands, a drainage line with or without an extensive floodplain or hillside wetlands	Pre-construction & Construction	ECO	Once, prior to the commencement of construction and monthly during the construction phase	Photographic proof that hazardous substances are stored in suitable containers as per the requirements of the relevant Method Statements Proof of compliance to applicable hazardous substances

						regulations and safety instructions.
▪ Containers must be clearly marked to indicate contents, quantities and safety requirements;	Contractor	Develop a Method Statement for the storage of hazardous substances in suitable containers	Pre-construction & Construction	ECO	Once, prior to the commencement of construction and monthly during the construction phase	Photographic proof that hazardous substances are stored in suitable containers as per the requirements of the relevant Method Statements
▪ All storage areas must be bunded. The bunded area must be of sufficient capacity to contain a spill / leak from the stored containers; ▪ All construction materials including fuels and oil should be stored in demarcated areas that are contained within berms / bunds to avoid spread of any contamination.	Contractor	Where hazardous waste is stored these must be clearly marked	During the Construction Phase	ECO	Monthly	Photographic proof that containers are marked as per the requirements
▪ Bunded areas to be suitably lined with a SABS approved liner;	Contractor	Where hazardous waste is stored these must be clearly marked Bunding made as per the requirements of SABS089:1999 Part 1	Construction	ECO	Monthly	Photographic proof that containers are marked as per the requirements Proof of compliance to requirements of SABS 089:1999 Part 1
▪ An Alphabetical Hazardous Chemical Substance (HCS) control sheet must be drawn up and kept up to date on an ongoing basis;	cEO / Contractor	Compile and update an Alphabetical Hazardous Chemical Substance (HCS) control sheet specific to the project	Construction	ECO	Monthly, and as and when required	Complete and up to date control sheet provided by the Contractor

▪ All hazardous chemicals that will be used on site must have Material Safety Data Sheets (MSDS);	cEO / Contractor	Keep a record of all hazardous chemicals and the respective MSDS	Construction	ECO	Monthly, and as and when required	Record of hazardous chemicals and the respective MSDS
▪ Employees handling hazardous substances / materials must be aware of the potential impacts and follow appropriate safety measures. ▪ Appropriate personal protective equipment must be made available;	cEO / Contractor	Develop environmental awareness training material which covers the relevant impacts and safety measures. Provide appropriate training and personal protective equipment for the relevant personnel handling hazardous substances and materials equipment for the relevant personnel handling hazardous substances and materials	Pre-construction & Construction	ECO	Prior to the commencement of the environmental awareness training and monthly during the construction phase for personal protective equipment	Environmental awareness training material requirements checklist and all relevant personnel have undergone appropriate training and have access to personal protective equipment
▪ The Contractor must ensure that diesel and other liquid fuel, oil and hydraulic fluid is stored in appropriate storage tanks or in bowsers	Contractor	Appropriate storage facilities must be constructed or obtained for the storing of diesel, other liquid fuel, oil and hydraulic fluid	Construction	ECO	Monthly, and as and when required	Storage tanks for the project are appropriate and no incidents are reported in this regard
▪ The tanks / bowsers must be situated on a smooth impermeable surface (concrete) with a permanent bund. The impermeable lining must extend to the crest of the bund and the volume inside the bund must be 130% of the total capacity of all the storage tanks / bowsers (110% statutory requirement plus an allowance for rainfall);	Contractor	Appropriate storage facilities must be constructed or obtained for tanks as per the requirements listed	Construction	ECO	Monthly, and as and when required	Storage areas for the tanks/ bowsers for the project are appropriate and no incidents are reported in this regard

▪ The floor of the bund must be sloped, draining to an oil separator;	Contractor	Appropriate storage facilities must be constructed as per the requirements listed	Construction	ECO	Once, during construction	Bunded storage areas are constructed according to the requirements
▪ Provision must be made for refuelling at the storage area, which is further than 100m of a river channel, by protecting the soil with an impermeable groundcover. Where dispensing equipment is used, a drip tray must be used to ensure small spills are contained; ▪ Mechanical plant and bowsers must not be refuelled or serviced within or directly adjacent to any channel. It is therefore suggested that all construction camps, lay down areas, batching plants or areas and any stores should be outside of any demarcated water courses ▪ Handle hydrocarbons carefully to limit spillage and ensure all vehicles used for the project are serviced regularly in order to limit any hydrocarbon leaks.	Contractor	Appropriately constructed refuelling facility must be developed as per the requirements. Drip trays must be provided for use This must include a designated single location on-site for refuelling and emergency maintenance (safe distance from any freshwater resource features) and a spill kit (onsite) to deal with any hydrocarbon leaks. Contaminated soils must be disposed of at an approved site for treatment and records of this must be kept.	Construction	ECO cEO	Ongoing	Soils at the refuelling facility are protected as required and drip trays are provided and used
▪ All empty externally dirty drums must be stored on a drip tray or within a bunded area;	Contractor	Ensure that empty dirty drums are stored appropriately according to a waste method statement	Construction	ECO cEO	Ongoing	Drip trays or bunded areas are used for the storage of dirty drums . Waste Method Statement on file

▪ No unauthorised access into the hazardous substances storage areas must be permitted;	Contractor	Ensure through the implementation of procedures that no unauthorised access is undertaken into the storage areas	Construction	ECO	Monthly	Proof of the implementation of the relevant procedure must be provided by the contractor
▪ No smoking must be allowed within the vicinity of the hazardous storage areas;	Contractor	Inform all employees of the requirement and develop and place relevant signage in the relevant areas	Construction	ECO cEO	Monthly Weekly	Photographic record of the signage placed must be provided
▪ Adequate fire-fighting equipment must be made available at all hazardous storage areas;	Contractor	Hazardous storage areas must be fitted with adequate fire-fighting equipment	Construction	ECO	Monthly	Adequate fire-fighting equipment is available and has been serviced
▪ Where refuelling away from the dedicated refuelling station is required, a mobile refuelling unit must be used. Appropriate ground protection such as drip trays must be used;	Contractor	Provide a mobile refuelling unit as well as suitable ground protection, where required	Construction	ECO	Monthly, and as and when required	A mobile refuelling unit and suitable ground protection is available for use
▪ An appropriately sized spill kit kept onsite relevant to the scale of the activity/s involving the use of hazardous substance must be available at all times;	Contractor	Provide an appropriate spill kit for the project for the use of hazardous substances	Construction	ECO	Monthly, and as and when required	Appropriate spill kits are available for use
▪ An appropriate number of spill kits must be available and must be located in all areas where activities are being undertaken;	cEO and Contractor	Provide an appropriate number of spill kits in relevant areas	Construction	ECO	Monthly	Proof of appropriate number of spill kits in appropriate areas to be provided by the contractor
▪ No hazardous waste may be buried or burned under any circumstances.	cEO and Contractor	Provide appropriate waste storage areas/containers before waste is removed from site	Construction	ECO	Monthly	Proof of correct storage

▪ In the event of a spill, contaminated soil must be collected in containers and stored in a central location and disposed of according to the National Environmental Management: Waste Act 59 of 2008 Refer to Sections 30 and 31: for procedures concerning storm and waste water management and for solid and hazardous waste management. ▪ Any temporary storage area must have the following: o Completely lined infrastructure (concrete bunded area), with the capacity to contain 120% of the total amount of petrochemicals stored; o Spills must be completely removed from the site; and o Fire extinguisher equipment installed within the facility. ▪ In the instance of a spill on site the following procedure must be followed: 1. Locate the source of the spill; 2. Stop the spill and prevent further spreading; 3. The appropriate oil sponge, absorbent or spill kit (e.g. DriZit) can then be used to clean and remove the spilled substance(s); 4. Spills from trucks must be contained within a lined site area and prevented from spreading; 5. Spilled petrochemicals can then be cleaned up and removed using the appropriate oil sponge, absorbent or spill kit (e.g. DriZit); 6. The spill must be reported to the site manager / supervisor and ECO; 7. Depending on the significance of the spill, the incident may also need to be reported to the DMR, DFFE and/or DWS.	cEO and Contractor	Storage and disposal of contaminated soil must be in accordance with the National Environmental Management: Waste Act and sections 6.30 and 6.31 for procedures concerning storm and waste water management and for solid and hazardous waste management. of this EMPr	During the Construction Phase	ECO	Monthly, and as and when required	Proof of storage and disposal in terms of the National Environmental Management: Waste Act must be provided. Certificates of disposal at licensed waste disposal facilities must be provided
▪ Appoint appropriate contractors to remove any residue from spillages from site. Handling, storage and disposal of excess or containers of potentially hazardous materials must be in accordance with the requirements of pertinent Regulations and Acts (e.g. Hazardous Substances Act, Number 15 of 1973).	cEO and Contractor	Contractors must provide appropriate registration certificates to undertake the work.	Construction	ECO	Monthly	Proof of contractors registrations certificates

Refer to. Sections 30 and 31: for procedures concerning storm and waste water management and for solid and hazardous waste management.						

41. Workshop, Equipment, Maintenance and storage						
Impact Management Outcome: Soil, surface water and groundwater contamination is minimised.						
Impact Management Actions	Implementation				Monitoring	
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Construction Phase						
▪ Where possible and practical, all maintenance of vehicles and equipment must take place in the workshop area;	Contractor	Demarcate specific areas for the maintenance of vehicles and equipment	Construction	ECO	Monthly	A dedicated area for the maintenance of vehicles and machinery is used.
▪ During servicing of vehicles or equipment, especially where emergency repairs are effected outside the workshop area, a suitable drip tray must be used to prevent spills onto the soil.	Contractor	Ensure that a drip tray is available for an emergency repairs required	Construction	ECO	Monthly	Contractor to provide evidence of drip tray use for emergency repairs
▪ Leaking equipment must be repaired immediately or be removed from site to facilitate repair;	Contractor	Ensure that where leaking equipment is identified it is repaired immediately or removed from site for repairs	Construction	ECO	Monthly	Contractor to provide details of equipment repaired or removed from site
▪ Workshop areas must be monitored for oil and fuel spills;	cEO	Undertake regular inspections of the workshop areas for oil and fuel spills and keep an updated	Construction	ECO	Monthly	Register of inspection

		register of inspection on site				
▪ Appropriately sized spill kit kept onsite relevant to the scale of the activity taking place must be available;	Contractor	Provide an appropriate spill kit for the project	Construction	ECO	Monthly, and as and when required	Appropriate spill kits are available for use
▪ The workshop area must have a bunded concrete slab that is sloped to facilitate runoff into a collection sump or suitable oil / water separator where maintenance work on vehicles and equipment can be performed;	Contractor	Ensure that the workshop area is sufficiently bunded in accordance with the required specification	Construction	ECO	Once, during the Construction Phase and as and when required	Workshop area is bunded in accordance with the required specification
▪ Water drainage from the workshop must be contained and managed in accordance with Section 30: Storm and waste water management.	Contractor	Ensure that water drainage from workshop area is managed as per the requirements of Section30: Storm and waste water management.	Construction	ECO	Monthly	Workshop drainage is managed in accordance with the requirements

42. Batching Plants						
Impact Management Outcome: Minimise spillages and contamination of soil, surface water and groundwater						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Construction Phase						
▪ Concrete mixing must be carried out on an impermeable surface;	Contractor	Provide impermeable surface for the mixing of concrete	Construction	ECO	Weekly	No concrete mixing is undertaken on open ground

▪ Bagged cement must be stored in an appropriate facility and at least 10 m away from any water courses, gullies and drains;	Contractor	Demarcate and provide a storage area for bagged cement in-line with the listed requirements	Construction	ECO	Weekly	Photographic proof of bagged cement stored within the demarcated area
▪ Suitable screening and containment must be in place to prevent wind-blown contamination from cement storage, mixing, loading and batching operations;	Contractor	Demarcate and provide screening	Construction	ECO	Weekly	Photographic proof of screened demarcated area
▪ A washout facility must be provided for washing of concrete associated equipment. Water used for washing must be restricted;	Contractor	Provide a washout facility for the washing of associated equipment. Enforce limitations on water use for washing of equipment	Construction	ECO	Weekly	No cement laden water is released into the environment. Only minimal water is used for washing
▪ Hardened concrete from the washout facility or concrete mixer can either be reused or disposed of at an appropriate licensed disposal facility;	Contractor	Make use of hardened concrete where possible or dispose of concrete in a suitable manner	Construction	ECO	Monthly	Certificates of disposal of concrete at licensed waste disposal facility
▪ Empty cement bags must be secured with adequate binding material if these will be temporarily stored on site;	Contractor	Bind empty cement bags and temporarily store it in an appropriate area on site	Construction	ECO	Monthly	Proof of binding of empty cement bags and storage in an appropriate are on site to be provided by the Contractor
▪ Mixed cement and empty bags are classified as hazardous waste and must be disposed of according to Section 31: for solid and hazardous waste management.	cEO and Contractor	Storage and disposal of hazardous substances must be in accordance with the National Environmental Management: Waste Act and section 31 for solid and hazardous waste management. of this EMPr	During the Construction Phase	ECO	Monthly, and as and when required	Proof of storage and disposal in terms of the National Environmental Management: Waste Act must be provided. Certificates of disposal at

						licensed waste disposal facilities must be provided
▪ Sand and aggregates containing cement must be kept damp to prevent the generation of dust (Refer to Section 44: Dust emissions(Construction phase)	Contractor	Ensure that sand and aggregates are kept damp or otherwise protected from dust generation	Construction	ECO	Monthly	Proof of damping (or alternative dust suppression) of sand and aggregates must be provided by the Contractor
▪ Any excess sand, stone and cement must be removed or reused from site on completion of construction period and disposed at a registered disposal facility;	Contractor	Ensure that all excess sand, stone and cement is removed or reused	Construction	ECO	Once, with the completion of construction	Certificates for the disposal of sand, stone and cement at licensed waste disposal facilities or proof of reuse must be provided

43. Dust Emissions						
Impact Management Outcome: Dust prevention measures are applied to minimise the generation of dust.						
Impact Management Actions	Implementation				Monitoring	
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Construction Phase						
▪ Take all reasonable measures to minimise the generation of dust as a result of project development activities to the satisfaction of the ECO;	Contractor	Apply dust suppressant	Construction	ECO	Weekly	Contractor to provide proof of use of dust suppressants , Dust Management Method Statement

▪ Avoid physical disturbance at structure point	Contractor	Proper planning for vegetation removal must be undertaken as well as for the associated rehabilitation Removal of vegetation must be avoided until such time as soil stripping is required and similarly exposed surfaces must be re- vegetated or stabilised as soon as is practically possible;	Construction and Rehabilitation	ECO	Weekly	Plan for implementation must be provided by the Contractor
▪ Excavation, handling and transport of erodible materials must be avoided under high wind conditions or when a visible dust plume is present;	Contractor	Ensure that specific limitations are placed on the transport and handling of erodible materials during high wind conditions or when a visible dust plume is present	Construction	ECO	Bi-weekly	No complaints submitted in this regard
▪ During high wind conditions, the ECO must evaluate the situation and make recommendations as to whether dust-damping measures are adequate, or whether working will cease altogether until the wind speed drops to an acceptable level;	ECO	ECO to provide adequate recommendation	Construction	Not Applicable		
▪ Where possible, soil stockpiles must be located in sheltered areas where they are not exposed to the erosive effects of the wind;	Contractor	Place soil stockpiles in areas less affected by wind	Construction	ECO	Bi-weekly	Soil stockpiles are not exposed to wind and have not been eroded
▪ Where erosion of stockpiles becomes a problem, erosion control measures must be implemented at the discretion of the ECO;	Contractor in consultation with the ECO	Contractor to implement erosion control measures	Construction	ECO	Weekly, until erosion is no longer a problem	Recommendations made by the ECO have

		as recommended and agreed with the ECO				been implemented by the Contractor
▪ Vehicle speeds must not exceed 40 km/h along dust roads or 20 km/h when traversing unconsolidated and non-vegetated areas; Vehicles are to be kept in good working order and serviced regularly to minimise emissions.	cEO / dEO / contractor	Inform all drivers of speed limits and place appropriate signage along the relevant roads. All vehicles are to be serviced regularly to ensure that they are in good working order.	Construction	ECO Operation and Maintenance team	Monthly	No complaints from community members are submitted
▪ Straw stabilisation must be applied at a rate of one bale/10 m^2 and harrowed into the top 100 mm of top material, for all completed earthworks;	Contractor	Ensure that straw stabilisation is undertaken as per the listed requirements	Construction	ECO	Monthly	Photographic record of all straw stabilisation undertaken
▪ For significant areas of excavation or exposed ground, dust suppression measures must be used to minimise the spread of dust.	Contractor	Appropriate dust suppressant measures are implemented	Construction	ECO	Weekly	Photographic record of measures being implemented and the results thereof
▪ Containers for dusty materials will be enclosed or covered by suitable tarpaulins / nets to prevent escape of dust during loading and transfer from site. ▪ Any complaints received from neighbours or site users must be reported to the Developers Project Manager and measures must be taken to limit dust.	Contractor	Contractor to implement erosion control measures as recommended and agreed with the ECO	Construction	ECO	Weekly	Recommendations made by the ECO have been implemented by the Contractor.

Blasting						
Impact Management Outcome: Impact to the environment is minimised through a safe blasting practice.						
Impact Management Actions	Implementation				Monitoring	
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Construction Phase						
▪ Any blasting activity must be conducted by a suitably licensed blasting contractor; and	Contractor	Recruit licensed blasting contractor	Construction	ECO	Monthly, and as and when required	License of blasting contractor
▪ None of the above activities may be carried out on Sundays or Public Holidays without the approval of all relevant authorities.	Contractor	No activities on Sundays, Public Holidays	Construction	ECO	Monthly, and as and when required	Approval of Authorities if blasting should occur on a Sunday or Public Holiday
▪ The Contractor must take all necessary precautions to prevent damage to special features and the general environment, which includes the prevention of any fly rock.	Contractor	Follow recommendations to be implemented in addition to normal health and safety requirements as stipulated in the Occupational Health and Safety Act (Act No. 85 of 1993).	Construction	ECO	Monthly, and as and when required	Incidence register
▪ Notification of surrounding landowners, emergency services site personnel of blasting activity 24 hours prior to such activity taking place on Site.	Contractor	Notify neighbours to inform times and dates of blasting	Construction	ECO	Monthly, and as and when required	Proof of notifications

Noise						
Impact Management Outcome: Unnecessary noise is prevented by ensuring that noise from construction activities is mitigated.						
Impact Management Actions	Implementation				Monitoring	
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Construction Phase						
▪ Noisy construction activities near receptors (i.e. within 2km) should be limited to 06:00 - 18:00 Monday to Saturday, with no work on Sundays or public holidays . ▪ Avoid disturbing surrounding land users ▪ Avoid disturbance to Noise Sensitive Developments	Contractor	Compile a Code of Conduct for staff. Appropriate operating hours must be identified for the project.	Construction	ECO	Monthly, and as and when required	No complaints registered in this regard.
▪ Equipment normally required for operation at night (Any plant and 19:00 - 07:00), e.g., generators, should be silenced or suitably shielded to ensure that the night-time lower threshold of 45 dB, LAeq would not be exceeded at the nearest noise-sensitive developments	Contractor	Provide and implement silencing technology	Construction	ECO	Monthly, and as and when required	No complaints registered in this regard. Silencing technology is utilised.
▪ The Contractor must keep noise level within acceptable limits. Restrict the use of sound amplification equipment for communication and emergency only;	Contractor	Ensure that noise limits do not exceed acceptable limits and avoid the use of amplification communication The applicant must ensure that the National Noise Control Regulations and SANS10103:2008 are adhered to and reasonable measures to limit noise from the work site are implemented.	Construction	ECO	Monthly, and as and when required	No complaints registered in this regard. No amplification equipment is used.

Noise pollution mitigation measures (specific to Komsberg Nature Reserve) ▪ Avoid disturbance to Noise Sensitive Developments ▪ The potential noise impact must again be evaluated should the layout be changed where any wind turbines are located closer than 1,000 m from a confirmed NSD. ▪ The potential noise impact must again be evaluated should the developer make use of a wind turbine with a sound power emission level exceeding 106 dBA re 1 pW ▪ Create a buffer between the wind turbines and site boundaries to ensure the daytime residual sound level beyond the boundaries is not exceeded by 7dB or more. ▪ Remove or relocate turbines to at least 700 m from dwellings in order not to exceed the 33 dBA daytime residual sound level at dwellings by 7dB or more.	cEO / Project Developer	Ensure implementation of buffers between wind turbines, site boundaries and dwelling as reflected in the final layout.	Construction	ECO Contractor	Avoid disturbance to Noise Sensitive Developments	Evidence of applicable sensitive developments not disturbed by noise
▪ All vehicles and machinery must be fitted with appropriate silencing technology and must be properly maintained;	Contractor	Provide and implement silencing technology	Construction	ECO	Monthly, and as and when required	No complaints registered in this regard. Silencing technology is utilised.
▪ Any complaints received by the Contractor regarding noise must be recorded and communicated. Where possible or applicable, provide transport to and from the site on a daily basis for construction workers; ▪ The Developer must investigate any reasonable and valid noise complaint if registered by a receptor staying within 2000m from the location where construction activities are taking place or operational wind turbine.	cEO	Update complaints register. Provide daily transport to and from site for employees	Construction	ECO	Monthly, and as and when required	Complaints register provided by the cEO and proof of transportation services provided

▪ All wind turbines must be located at a setback distance of 500m from any homestead and a day/night noise criteria level at the nearest residents of 45dB(A) must be used to locate the turbines. The 500m setback distance can be relaxed if local factors: such as high ground between the noise source and the receiver, indicates that a noise disturbance will not occur.	cEO	Ensure turbines are located at a setback distance of 500m	Pre-construction and Construction	ECO	Monthly, and as and when required	Complaints register provided by the cEO and proof of transportation services provided
▪ Develop a Code of Conduct for the construction phase in terms of behaviour of construction staff. Operating hours as determined by the environmental authorisation are adhered to during the development phase. Where not defined, it must be ensured that development activities must still meet the impact management outcome related to noise management.	cEO and Contractor in consultation with the ECO	Compile a Code of Conduct for staff. Appropriate operating hours must be identified for the project.	Pre-construction and Construction	ECO	Once, prior to the commencement of construction	No complaints registered in this regard.
▪ The developer must investigate any reasonable and valid noise complaint if registered by a receptor staying within 2,000 m from location where construction activities are taking place or operational wind turbine.	Project Developer	The Grievance Mechanism must be implemented	Construction	ECO	Ongoing	Evidence of non-compliance as reported by the local community or municipality as report by the grievance mechanism
▪ Vehicles and equipment used on site must be in good condition and serviced regularly.	Contractor	Vehicles and equipment are to be serviced regularly to ensure that they are in good working order	Construction	ECO	As required during construction	Proof of vehicle and equipment servicing and reporting of noise incidents
▪ Construction activities will be restricted to regular working hours, as far as possible.	Contractor	Construction activities are to be undertaken within the working hours as per the municipal by-laws	Construction	ECO	Ongoing	Evidence of non-compliance as reported by the local community or municipality as report by the grievance mechanism

▪ Mechanical equipment with lower sound power levels must be selected to ensure that permissible occupation noise-rating limit of 85 dBA is not exceeded.	Contractor	Ensure mechanical equipment as per the specified noise limits are used during construction	Construction	ECO / Contractor	Ongoing	Evidence in the form of incident reports by employees, local community or the surrounding landowners via the grievance mechanism
▪ Construction workers and personnel must wear hearing protection when required.	Contractor	All construction workers, subcontractors and visitors are to be provided with the appropriate PPE when accessing the site.	Construction	ECO/ Contractor	Ongoing	Worker and Employees signed in daily as per health and safety protocols.

44. Fire Prevention						
Impact Management Outcome: Prevention of uncontrollable fires.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Construction Phase						
▪ Designate smoking areas where the fire hazard could be regarded as insignificant;	cEO / Contractor	Identify and demarcate through signage designated smoking areas	Pre-construction & Construction	ECO	Monthly	Photographic record of designated smoking area
▪ No fires to be lit on the site	cEO / Contractor	Inform through awareness training	Pre-construction & Construction	ECO	Monthly	Proof of awareness training
▪ Firefighting equipment must be available on all vehicles located on site;	cEO / dEO in consultation with the Contractor	Provide all vehicles with firefighting equipment	Construction	ECO	Monthly	All vehicles are fitted with firefighting equipment and the

						details thereof are provided by the cEO
▪ Contact numbers for the FPA and emergency services must be communicated in environmental awareness training and displayed at a central location on site;	dEO / cEO / Contractor in consultation with the ECO	Develop environmental awareness training material which covers the contact numbers for the FPA and emergency services. Place the contact numbers for the FPA and emergency services at a visible and central location	Pre-construction & Construction	ECO	Prior to the commencement of the environmental awareness training and once during the construction phase	Environmental awareness training material requirements checklist and photographic record of contact numbers on display
45. Stockpiling and stockpiling areas						
Impact Management Outcome: Erosion and sedimentation as a result of stockpiling are reduced.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Construction Phase						
▪ All material that is excavated during the project development phase (either during piling (if required) or earthworks) must be stored appropriately on site in order to minimise impacts to watercourses, watercourses and water bodies;	Contractor	Identify and demarcate an appropriate location for the storage of excavated materials	Pre-construction & Construction	ECO	Monthly	Excavated material is not stored within sensitive environmental areas
▪ All stockpiled material must be maintained and kept clear of weeds and alien vegetation growth by undertaking regular weeding and control methods;	Contractor	Implement appropriate and sufficient maintenance on stockpiled material regularly	Construction	ECO	Bi-weekly (every second month)	Stockpiled material is maintained sufficiently and is clear of weeds and alien vegetation

▪ Topsoil stockpiles must not exceed 2 m in height;	Contractor	Enforce limitations for the height of topsoil stockpiles	Construction	ECO	Bi-weekly (every second month)	Topsoil stockpiles do not exceed 2m in height
▪ During periods of strong winds and heavy rain, the stockpiles must be covered with appropriate material (e.g. cloth, tarpaulin etc.);	Contractor	Appropriate material must be provided in order to cover stockpiles when required	Construction	ECO	Monthly	Contractor to provide proof of availability of appropriate material to cover stockpiles when required
▪ Where possible, sandbags (or similar) must be placed at the bases of the stockpiled material in order to prevent erosion of the material.	Contractor	Sandbags must be provided in order to prevent erosion of stockpiled materials	Construction	ECO	Monthly	Contractor to provide proof of availability of sandbags to prevent erosion of stockpiled materials
▪ The topsoil must not be buried or rendered in any other way inappropriate for rehabilitation use. ▪ Topsoil stripping (in widening and realignment areas) must not occur in wet weather and during stripping and stockpiling, the topsoil must not be subject to a compaction force greater than 1 500kg/m² and must not be pushed for more than 50m. ▪ Topsoil must also only be handled twice, once to strip and stockpile, and secondly to replace, level, shape and scarify if necessary. ▪ Top soil stockpiles must be protected against erosion and a record kept of all top soil quantities and should there be shortfalls of topsoil required for rehabilitation, adequate replacement material from commercial sources should be obtained as approved by the Engineer (preferably from areas identified with sourced excess topsoil). ▪ Equally, excess topsoil must be landscaped and stabilized in accordance to the requirements of the Engineer and in	Contractor / DPM / ECO	Implement erosion control management plan	Construction	ECO	On-going	Proof of implementation of erosion control via monthly ECO audit reports. Photographic evidence of appropriate storage of topsoil from monthly ECO audit reports.

consultation with the Contractor's Land Rehabilitation Specialist. ▪ The stockpiles will need to be enriched or upgraded prior to rehabilitation. The Contractor must consult with the Engineer with regards to matching preconstruction conditions or existing adjacent conditions. ▪ All stockpiles left for extended periods of time must be stabilized using approved vegetation cover or other erosion control measures. ▪ Any excess subsoil must be removed from the road fringe once back filling is completed, and spoiled at an agreed spoil site (spoil sites to be agreed between landowner, ECO and Engineer). ▪ No stockpiles are allowed within any of the delineated waterbodies shown in the aquatic assessment (Appendix B1)						
46. Excavation and installation						
Impact Management Outcome: No environmental degradation occurs as a result of excavation or installation of foundations.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Construction Phase						
▪ All excess spoil generated during foundation excavation must be disposed of in an appropriate manner and at a recognised disposal site, if not used for backfilling purposes;	Contractor	Use a licensed waste disposal facility for the disposal of excess spoil	Construction	ECO	Monthly	Certificates obtained for the disposal of excess spoil at a licensed waste disposal facility

▪ Spoil can however be used for landscaping purposes and must be covered with a layer of 150 mm topsoil for rehabilitation purposes;	Contractor	Spoil used for landscaping must be applied as per the listed requirements	Construction and Rehabilitation	ECO	Monthly	Photographic record of spoil used for landscaping purposes as well as feedback from the contractor
▪ Management of equipment for excavation purposes must be undertaken in accordance with Section 42: Workshop equipment maintenance and storage (Construction phase)	Contractor	Undertake the management of equipment for excavation as per the requirements of Section 42: Workshop equipment maintenance and storage (Construction phase);	Construction	ECO	Monthly	Management of equipment is undertaken in line with the requirements of Section 42: Workshop equipment maintenance and storage (Construction phase);
▪ Hazardous substances spills from equipment must be managed in accordance with Section 42: Workshop equipment maintenance and storage (Construction phase);	Contractor	Undertake the management of hazardous substances spills from equipment as per the requirements of Section 42: Workshop equipment maintenance and storage (Construction phase);	Construction	ECO	Monthly	Management of hazardous substances spills from equipment is undertaken in line with the requirements of Section 42: Workshop equipment maintenance and storage (Construction phase);

▪ Residual cement must be disposed of in accordance with Section 31 (Construction phase): Solid and hazardous waste management..	Contractor	Undertake the disposal of residual cement as per the requirements of Section 31: Solid and hazardous waste management (Construction phase).	Construction	ECO	Monthly	The disposal of residual cement is undertaken in line with Section 31: Solid and hazardous waste management Solid and hazardous waste.

47. Assembly and erecting turbines						
Impact Management Outcome: No environmental degradation occurs as a result of assembly and erecting of towers.						
Impact Management Actions	Implementation				Monitoring	
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Construction Phase						
▪ Prior to erection, turbine components and sections must be stored on elevated surfaces (suggest wooden blocks) to minimise damage to the underlying vegetation;	Contractor	Provide the necessary materials for the elevated surface, where towers are to be placed on indigenous vegetation	Construction	ECO	Weekly	Implementation of elevated surface and photographic record thereof
▪ During assembly, care must be taken to ensure that no wasted/unused materials are left on site e.g. bolts and nuts	Contractor	Inspect areas where construction is being undertaken and remove and appropriately dispose of wasted/unused materials	Construction Rehabilitation	ECO	Weekly	Contractor to provide proof of inspection and removal of waste/unused materials and the appropriate disposal thereof (i.e. disposal certificates)

▪ The crane used for turbine assembly must be operated in a manner which minimises impact to the environment;	Contractor in consultation with the cEO and the ECO	Ensure that no impact to the environment is imposed during the operation of the crane	Pre-construction & Construction	ECO	Weekly	No environmental damages incurred as a result of the crane.
▪ The number of crane trips to each site must be minimised;	Contractor in consultation with the cEO and the ECO	Ensure that the utilisation of the crane is maximised when on site.	Pre-construction & Construction	ECO	Weekly	Few crane trips to each site observed.
▪ Wheeled cranes must be utilised in preference to tracked cranes;	Contractor	Ensure wheeled cranes are utilised.	Pre-construction & Construction	ECO	Weekly	Wheeled cranes observed on site.
▪ Emergency repairs due to breakages of equipment must be managed in accordance with Section 42: Workshop, equipment maintenance and storage (Construction phase) and Section 11: Emergency procedures. (Planning & Design phase)	Contractor	Undertake emergency repairs of equipment as per the requirements of Section 42: Workshop, equipment maintenance and storage (Construction phase) and Section 11: Emergency procedures (Planning & Design phase).	Construction Rehabilitation	ECO	Weekly	Emergency repairs of equipment is undertaken as per the requirements of Section 6.42: Workshop, equipment maintenance and storage (Construction phase) and Section 11: Emergency procedures (Planning & Design phase).

▪ Access to turbine positions to be undertaken in accordance with access requirements specified in Section 6.2 and 6.55: Access Roads	Contractor	Undertake access to tower positions as per the requirements of Section 2 and 55: Access Roads	Construction	ECO	Monthly	Access to tower positions are undertaken as per the requirements of Section 2 and 55: Access Roads
▪ Vegetation clearance to be undertaken in accordance with general vegetation clearance requirements specified in Section 5 and.34: Vegetation clearing	Contractor	Undertake vegetation clearance as per the requirements of Section 5 and 34: Vegetation clearing	Construction	ECO	Weekly	Vegetation clearance is undertaken as per the requirements of Section 5 and 34: Vegetation clearing
▪ Topsoil must be removed separately from subsoil material and stored for later use during rehabilitation of such tower sites;	Contractor	Implement appropriate measures to ensure that topsoil is removed from subsoil material	Construction and Rehabilitation	ECO	Weekly, and as and when required	Proof of appropriate measures implemented must be provided by the Contractor
▪ Topsoil must be stored in heaps not higher than 2m to prevent destruction of the seed bank within the topsoil;	Contractor	Implement the listed requirements for the storage of topsoil	Construction	ECO	Weekly	Topsoil is stored as per the listed requirements
▪ Excavated slopes must be no greater that 1:3, but where this is unavoidable, appropriate measures must be undertaken to stabilise the slopes;	Contractor	Implement the listed requirements for the excavation of slopes	Construction	ECO	Weekly	Excavation of slopes is undertaken as per the listed requirements
▪ Only existing disturbed areas are utilised as spoil areas;	Contractor in consultation with the ECO	Identify, demarcate and use existing disturbed areas for spoil areas	Pre-construction & Construction	ECO	Weekly	Only identified disturbed areas are used as spoil areas

▪ Surface water runoff is appropriately channelled through or around spoil areas;	DPM and Contractor	Design and implement appropriate surface runoff measures for spoil areas	Pre-construction & Construction	ECO	Once, during the construction of the surface runoff measures	Implementation of surface runoff measures through and/or around spoil areas
▪ During backfilling operations, care must be taken not to dump the topsoil at the bottom of the foundation and then put spoil on top of that;	Contractor	Develop and implement backfilling procedures which ensures that topsoil is not placed at the bottom of foundations.	Pre-construction & Construction	ECO	Weekly	Backfilling operations are undertaken as per the procedures developed

48. Visual

Impact Management Outcome: Socio-economic development is enhanced.

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Construction Phase						
▪ Use earth berms and planting to visually screen the substation (including associated battery storage facility) and O&M buildings, where necessary.	Contractor	Ensure berms are created or vegetation is planted to provided screening	Construction	ECO	Monthly	Substation and O&M buildings are sufficiently screened
▪ On-site signage must be discrete, and billboards avoided. Signage must be set against a backdrop and not intrude on the skyline.	Contractor	Ensure that signage is not intruding skyline	Construction and operational	ECO	Monthly	Photographic evidence
▪ Security and other outdoor lighting must be fitted with reflectors to conceal the light source and avoid spoilage to adjacent areas	Contractor	Ensure all security and outdoor lights are fitted with reflectors	Construction	ECO	Monthly	Photographic evidence
▪ All yards and storage areas to be enclosed by masonry walls.	Contractor	Erect masonry walls around yards and storage areas	Construction	ECO	Once off	Photographic record of walls erected

▪ Traffic and other signage to be limited to only that which is essential .	Contractor	Ensure that only necessary signage is erected	Construction and operational	ECO	Monthly	Photographic evidence
Visual mitigation measures (specific to the Komsberg Nature Reserve) ▪ A visual buffer zone of 700 m for the wind turbines from farmsteads and other rural dwellings; ▪ A visual buffer of 500 m for the wind turbines from the local district roads and external farm boundaries; ▪ Cables to be located underground as far as possible; ▪ Signage related to the enterprise to be discrete and confined to the entrance gates. No other corporate or advertising signage, particularly billboards, to be permitted. ▪ Minimise visual intrusion	Contractor	Ensure the buffer zones as recommended by the specialist and final layout are implemented. Ensure that only necessary signage is erected	Construction	ECO	Monthly	Photographic evidence
▪ Night time construction should be avoided where possible. ▪ Night lighting of the construction sites should be minimised within requirements of safety and efficiency ▪ Setbacks around key sensitive visual receptors must be implemented.	Contractor	Ensure all security and outdoor lights are fitted with reflectors and berms are created or vegetation is planted to provided screening were lighting is necessary	Construction	ECO	Monthly	Photographic evidence

49. Socio-Economic						
Impact Management Outcome: Socio-economic development is enhanced.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Construction Phase						

▪ Develop and implement communication strategies to facilitate public participation;	dEO / cEO	Identify and implement appropriate strategies for communication with the communities through consideration of the community needs	Pre-construction & Construction	ECO	Once, prior to the commencement of construction and monthly during the construction	Communication is undertaken as per the identified strategies and no complaints are submitted regarding communication
▪ Develop and implement a collaborative and constructive approach to conflict resolution as part of the external stakeholder engagement process;	Contractor	Development and implement a Grievance Mechanism which considers the community needs and provides procedures for conflict resolution	Pre-construction & Construction	ECO	Once, prior to the commencement of construction and monthly during the construction phase	Conflict resolution is undertaken in line with the requirements of the Grievance Mechanism. No complaints on conflict resolution is submitted by the community
▪ Sustain continuous communication and liaison with neighbouring owners and residents	Contractor	Development and implement and Grievance Mechanism provides procedures for communication / liaison with neighbouring landowners and residents	Pre-construction & Construction	ECO	Once, prior to the commencement of construction and monthly during the construction phase	Communication / liaison with neighbouring landowners and residents are undertaken in line with the requirements of the Grievance Mechanism. No complaints on communication with neighbouring landowners and residents is submitted
▪ Sutherland 2 Wind Farm (Pty) Ltd' s code of conduct developed prior to the construction phase must be adhered to.	Contractor	The Code of Conduct must be implemented and abided by.	Construction	Contractor	Ongoing	Evidence of acceptance of the Code of Conduct to be included in employee contracts and to be kept on file for auditing
▪ The HIV Policy developed prior to the commencement of construction must be adhered to.	Project Developer / Contractor	The HIV policy must be developed and abided by.	Construction	Contractor	Once, prior to the commencement of construction and updated as and when required	Evidence of employee awareness training signed register on the HIV policy.

▪ The Developer will implement a grievance procedure that is easily accessible to local communities, complaints related to contractor or employee behaviour can be lodged and responded to.	Contractor	The Grievance Procedure must be implemented.	Construction	Contractor / ECO	Ongoing	Evidence of incidents reported and kept on file via the Grievance Mechanism Procedure.
▪ The construction workers (from outside the area) should be allowed to return home over the weekends or on a regular basis to visit their families; the contractor should make the necessary arrangement to facilitate these visits.	Contractor	Conditions of the employment contracts must be agreed upon by the employees and as per procurement procedures and abided by for the duration of construction.	Construction	Contractor	Weekly/Ongoing	Disputes to be recorded and resolved by HR.
▪ Undertake a 'locals first' policy with regard to construction labour needs and create work and training opportunities for local stakeholders; ▪ Minimize impacts associated with influx of jobseekers.	Contractor	Develop and implement a "locals first" policy for the provision of employment opportunities	Pre-construction & Construction	ECO	Once, prior to the commencement of construction and monthly during the construction phase	The "locals first" policy is considered in terms of the employment and training opportunities
▪ Minimise damage to agricultural land and stock losses, minimize disruption to current farm regimes.	Contractor	Regular inspections around the constructed infrastructure during construction phase.	During the entire construction and operational phases	ECO	Prior to construction and ongoing	Reporting in monthly audit reports.

54. Temporary closure of site						
Impact Management Outcome: Minimise the risk of environmental impact during periods of site closure greater than five days.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Construction Phase						
▪ Bunds must be emptied (where applicable) and need to be undertaken in accordance with the impact management actions included in sections 12 hazardous substances and 42 workshop, equipment maintenance and storage	Contractor	Regular emptying of the bunds must be undertaken. This must be undertaken as per the requirements listed in sections 12: hazardous substances and 42 workshop, equipment maintenance and storage	Construction	ECO	Prior to site closure for more than 05 days	Bunds are emptied as per the requirements listed under sections 12: hazardous substances and 42 workshop, equipment maintenance and storage
▪ Hazardous storage areas must be well ventilated;	Contractor	Install appropriate ventilation in all hazardous storage areas	Construction	ECO	Prior to site closure for more than 05 days	Effective ventilation is installed in hazardous storage areas
▪ Fire extinguishers must be serviced and accessible. Service records to be filed and audited at last service;	Contractor / cEO	Ensure fire extinguishers are serviced, as required and are easily accessible with appropriate signage indicating location. Ensure service records and kept up to date and filed	Construction	ECO	Prior to site closure for more than 05 days	Signage placed indicating location of fire extinguishers and service records
▪ Emergency and contact details must be displayed;	Contractor / cEO	Place emergency and contact details which are readily available and easily accessible	Construction	ECO	Prior to site closure for more than 05 days	Photographic proof of contact details on display

▪ Security personnel must be briefed and have the facilities to contact or be contacted by relevant management and emergency personnel;	Contractor in consultation with the ECO	Hold a workshop with all security personnel to provide a brief of the project and security requirements. Provide facilities in order to contact management and emergency personnel	Construction	ECO	Prior to site closure for more than 05 days	Proof of the workshop held must be kept on file by the contractor.
▪ Night hazards such as reflectors, lighting, traffic signage etc. must have been checked;	Contractor	Regular checks of night hazards must be undertaken	Construction	ECO	Prior to site closure for more than 05 days	Proof of checks of night hazards must be provided by the contractor
▪ Fire hazards identified and the local authority must have been notified of any potential threats e.g. large brush stockpiles, fuels etc.;	cEO / Contractor in consultation with the ECO	Identify any potential fire hazards and notify the relevant local authority	Construction	ECO	Prior to site closure for more than 05 days	Proof of notification of the fire hazards to the local authority must be provided by the Contractor
▪ Structures vulnerable to high winds must be secured;	Contractor	Ensure structures vulnerable to wind are secure prior to site closure	Construction	ECO	Prior to site closure for more than 05 days	Structures vulnerable to wind are secured prior to site closure
▪ Wind and dust mitigation must be implemented;	Contractor	Implement wind and dust mitigation prior to site closure	Construction	ECO	Prior to site closure for more than 05 days	Wind and dust mitigation is implemented prior to site closure
▪ Cement and materials stores must have been secured;	Contractor	Ensure cement and material stores are secured prior to site closure	Construction	ECO	Prior to site closure for more than 05 days	Cement and material stores
▪ Toilets must have been emptied and secured;	Contractor	Ensure toilets are emptied and	During the Construction Phase	ECO	Prior to site closure for more than 05 days	Toilets are emptied and secured prior to site closure

		secured prior to site closure				
▪ Refuse bins must have been emptied and secured;	Contractor	Ensure refuse bins are emptied and secured prior to site closure	During the Construction Phase	ECO	Prior to site closure for more than 05 days	refuse bins are emptied and secured prior to site closure
▪ Drip trays must have been emptied and secured.	Contractor	Ensure drip trays are emptied and secured prior to site closure	During the Construction Phase	ECO	Prior to site closure for more than 05 days	Drip trays are emptied and secured prior to site closure

OPERATIONAL PHASE

55. Access Roads						
Impact Management Outcome: Minimise impact to the environment through the planned and restricted movement of vehicles on site.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Operational Phase						
▪ Access to the servitude and turbine positions must be negotiated with the relevant landowner and must fall within the assessed and authorised area;	DPM	Negotiations for access to the servitude and tower positions with landowners affected by the grid connection corridor	Pre-construction Construction Operation	dEO	Ongoing	Written and signed agreements
▪ Maximum use of both existing servitudes and existing roads must be made to minimise further disturbance through the development of new roads;	Contractor	Existing access routes to be used must be specified and the development of new roads must be avoided	Operation	cEO / ECO	Ongoing	Implement approved layout

56. Fencing and Gate Installation						
Impact Management Outcome: Minimise impact to the environment and ensure safe and controlled access to the site through the erection of fencing and gates where required.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance

Operational Phase						
▪ All gates must be fitted with locks and be kept locked at all times during the development phase, unless otherwise agreed with the landowner;	Contractor	Ensure all relevant gates are fitted with locks and are always locked	Operation	EO	Ongoing	All gates are locked

57. Noise						
Impact Management Outcome: To avoid or reduce noise impact generated during the construction and operational phases.						
Impact Management Actions	Implementation				Monitoring	
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Operational Phase						
▪ The developer must implement a line of communication (i.e. a help line where complaints could be lodged). ▪ All potential sensitive receptors should be made aware of these contact numbers. ▪ The developer should maintain a commitment to the local community and respond to concerns in an expedient fashion.	Project Developer	▪ A complaints register must be developed and implemented for the duration of the project. ▪ The developer is to inform landowners regarding the commencement of operations in the vicinity of the project along with details to contact the site manager /EO regarding concerns or complaints.	During construction phase and operational phase	EO	Weekly	Record all grievances and complaints received in complaints register

58. Hazardous Substances		
Impact Management Outcome: :Emergency procedures are in place to enable a rapid and effective response to all types of environmental emergencies		
Impact Management Actions	Implementation	Monitoring

	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Operational Phase						
▪ The use and storage of hazardous substances to be minimised and non-hazardous and non-toxic alternatives substituted where possible;	cEO in consultation with the Contractor	Develop a strategy of how hazardous substances can be and should be minimised	Pre-construction & Construction	EO	Once, prior to the commencement of construction and monthly during the construction phase	Contractor to provide evidence of substances used for proof of compliance
▪ All hazardous substances must be stored in suitable containers as defined in the Method Statement;	Contractor	Develop a Method Statement for the storage of hazardous substances in suitable containers	Pre-construction & Construction	EO	Once, prior to the commencement of construction and monthly during the construction phase	Photographic proof that hazardous substances are stored in suitable containers as per the requirements of the relevant Method Statements
▪ Containers must be clearly marked to indicate contents, quantities and safety requirements;	Contractor	Develop a Method Statement for the storage of hazardous substances in suitable containers	Pre-construction & Construction	EO	Once, prior to the commencement of construction and monthly during the construction phase	Photographic proof that hazardous substances are stored in suitable containers as per the requirements of the relevant Method Statements
▪ All storage areas must be bunded. The bunded area must be of sufficient capacity to contain a spill / leak from the stored containers;	Contractor	Where hazardous waste is stored these must be clearly marked.	During the Construction Phase	EO	Monthly	Photographic proof that containers are marked as per the requirements

▪ Bunded areas to be suitably lined with a SABS approved liner;	Contractor	Where hazardous waste is stored these must be clearly marked.	Construction	EO	Monthly	Photographic proof that containers are marked as per the requirements
▪ An Alphabetical Hazardous Chemical Substance (HCS) control sheet must be drawn up and kept up to date on an ongoing basis;	cEO / Contractor	Compile and update an Alphabetical Hazardous Chemical Substance (HCS) control sheet specific to the project	Construction	EO	Monthly, and as and when required	Complete and up to date control sheet provided by the Contractor
▪ The tanks / bowsers must be situated on a smooth impermeable surface (concrete) with a permanent bund. The impermeable lining must extend to the crest of the bund and the volume inside the bund must be 130% of the total capacity of all the storage tanks / bowsers (110% statutory requirement plus an allowance for rainfall);	Contractor	Appropriate storage facilities must be constructed or obtained for tanks as per the requirements listed	Construction	EO	Monthly, and as and when required	Storage areas for the tanks/ bowsers for the project are appropriate and no incidents are reported in this regard
▪ The floor of the bund must be sloped, draining to an oil separator;	Contractor	Appropriate storage facilities must be constructed as per the requirements listed	Construction	EO	Once, during construction	Bunded storage areas are constructed according to the requirements
▪ No unauthorised access into the hazardous substances storage areas must be permitted;	Contractor	Ensure through the implementation of procedures that no unauthorised access is undertaken into the storage areas	Construction	EO	Monthly	Proof of the implementation of the relevant procedure must be provided by the contractor
▪ No smoking must be allowed within the vicinity of the hazardous storage areas;	Contractor	Inform all employees of the requirement and develop and place relevant signage in the relevant areas	Construction	EO cEO	Monthly Weekly	Photographic record of the signage placed must be provided

▪ Adequate fire-fighting equipment must be made available at all hazardous storage areas;	Contractor	Hazardous storage areas must be fitted with adequate fire-fighting equipment	Construction	EO	Monthly	Adequate fire-fighting equipment is available and has been serviced
▪ An appropriately sized spill kit kept onsite relevant to the scale of the activity/s involving the use of hazardous substance must be available at all times;	Contractor	Provide an appropriate spill kit for the project for the use of hazardous substances	Construction	EO	Monthly, and as and when required	Appropriate spill kits are available for use

59. Dust Emissions						
Impact Management Outcome: Dust prevention measures are applied to minimise the generation of dust.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Operational Phase						
▪ Take all reasonable measures to minimise the generation of dust as a result of operational activities to the satisfaction of the EO;	Contractor	Apply dust suppressant	Operation	EO	Weekly	proof of use of dust suppressants , Dust Management Method Statement

60. Stormwater, Groundwater and Waste Water Management						
Impact Management Outcome: Impacts to the environment caused by stormwater and wastewater discharges during operation are avoided						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Operational Phase						
▪ Rainwater that collects in bunded areas must be promptly removed and dealt with as water containing waste	Contractor	Implement stormwater management plan and measures for the control and management of runoff	Operation	EO	Ongoing	No mismanagement of runoff or contaminated water
▪ Rehabilitate any areas where erosion occurred and amend the stormwater run-off control measures if required.	Contractor	Implement erosion control measures	Operation	EO	Monhtly	Photographic proof of rehabilitation of areas that were eroded

61. Water Supply Management						
Impact Management Outcome: Undertake responsible water usage.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Operational Phase						
▪ For the utilisation of boreholes that may yield groundwater: ▪ Utilise the boreholes as per the recommended sustainable yields and avoid over abstraction of any one borehole. ▪ Address any water quality problems at the various boreholes. This may require treatment or appropriate mixing.	DPM and Contractor	Method Statements According to the Water Use Licence	Operation	EO	Ongoing	Records of borehole monitoring and water quality

• Where possible, rotate abstraction and distribute evenly between the boreholes to limit drawdown. • Monitor the borehole water levels and abstraction volumes • As the groundwater is of moderate quality it is not a source of potable as is (treatment to the SANS 241 standards would be required to render the water fit for human consumption, if used)						
▪ The Contractor must ensure the following: a. The vehicle abstracting water from a river does not enter or cross it and does not operate from within the river; b. No damage occurs to the river bed or banks and that the abstraction of water does not entail stream diversion activities; and c. All reasonable measures to limit pollution or sedimentation of the downstream watercourse are implemented.	DPM and Contractor	Method Statements According to the Water Use Licence	Operation	EO	Ongoing	Method Statements and Water Use Licence on file and Photographic records

62. Protection of watercourses						
Impact Management Outcome: Pollution and contamination of the watercourse environment and or estuary erosion are prevented.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Operational Phase						
▪ The stormwater control measures systems must be inspected on an annual basis to ensure these are functional.	cEO and contractor	Monitoring program to be established by engineer	Operational	EO Operation and maintenance team	Annually	Photographic evidence

▪ An effective storm water management plan should be compiled by a suitable specialist and the effectivity of the plan should be regularly assessed and revised if necessary.	cEO and contractor	Ensure the inclusion of silt and sediment traps where needed and effective dissipater structures to reduce flow velocities. Suitable stormwater management features with erosion control measures (gabions) should also be installed in areas where concentrated flows are anticipated as indicated in the storm water management plan (SWMP)	Operational	EO Operation and maintenance team	Annually	Photographic evidence
Impact Management Outcome: To avoid or reduce impact on localized surface water quality (Construction and Operational Phase).						
▪ Institute environmental best practice guidelines as per the DWS Integrated Environmental Management Series for Construction Activities. ▪ Implement appropriate measures to ensure strict use and management of all hazardous materials used on site ▪ Implement appropriate measures to ensure Strict management of potential sources of pollutants (e.g. litter hydrocarbons from vehicles and machinery, cement during construction etc.) within demarcated/bunded areas ▪ Implement appropriate measures to ensure containment of all contaminated water by means of careful run-off management on the development site. ▪ All soil contaminated due to leaks or spills should be remediated on site. If this is not possible, such contaminated soils must be disposed of in a suitable waste facility.	Project Developer	▪ Regular inspections around the constructed infrastructure to during construction phase. ▪ Regular inspections around the constructed infrastructure to detect early signs of soil erosion developing ▪ Any waste generated during construction, must be stored into designated containers and removed from the site by the construction teams	During construction & operational phase	EO	On-going	Undertake inspections and record all findings and document the inspection process.

		▪ When signs of erosion is detected, the areas must be rehabilitated using a combination of geo-textiles and re-vegetation to prevent the eroded area(s) from expanding. ▪ Waste Management Plan is to be undertaken in accordance with the plan in the EMPr				
Impact Management Outcome: To avoid or reduce impact of altered runoff patterns due to rainfall interception by the road and compacted areas resulting in high levels of erosion (Operational Phase)						
▪ All bare areas, as a result of the development, should be revegetated with locally occurring species, to bind the soil and limit erosion potential. ▪ Silt traps should be used where there is a danger of topsoil or material stockpiles eroding and entering streams and other sensitive areas. ▪ Construction of gabions and other stabilisation features to prevent erosion, if deemed necessary.	Project Developer	▪ Regular inspections around the constructed infrastructure to during construction phase. ▪ Regular inspections around the constructed infrastructure to detect early signs of soil erosion developing.	During construction phase and operational phase	EO	Weekly	Undertake inspections and record all findings and document the inspection process.
Impact Management Outcome: To avoid Destruction of freshwater resources						
▪ Avoid loss of freshwater features	Project Developer	No abstraction of any surface or groundwater must take place on site unless it is	Operational	Operations and maintenance contractor / EO	On-going	Evidence of authorisation from DWS

		authorised by the Department of Water and Sanitation. No surface, ground or storm water may be polluted as a result of any activities on the site				Proof of no loss of freshwater or pollution

63. Vegetation Clearing						
Impact Management Outcome: Vegetation clearing is restricted to the authorised development footprint of the proposed infrastructure.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Operational Phase						
▪ Indigenous vegetation which does not interfere with operational activities must be left undisturbed; ▪ It is recommended that all vegetation clearing within the development footprint is kept to a minimum and activities must be limited to the drier periods (late autumn and winter). This will ensure that accelerated erosion doesn't occur	cEO and contractor	It is recommended that all vegetation clearing (as required during operation) within the development footprint is kept to a minimum and activities must be limited to the drier periods (late autumn and winter) to the extent which construction timelines permit. This will ensure that accelerated erosion is minimised	operation (i.e. for maintenance purposes)	EO Operation and maintenance team	Weekly, and as and when required	No unnecessary clearance of indigenous vegetation is undertaken

▪ Prior to clearing the EO must be notified in order to identify and demarcate any indigenous trees or plants, nesting sites or heritage sites that require protection or translocation	cEO and contractor	Notification of EO	operation (i.e. for maintenance purposes)	EO Operation and maintenance team	Weekly, and as and when required	Demarcation of indigenous trees or plants, nesting sites or heritage sites that require protection
▪ Only a registered pest control operator may apply herbicides on a commercial basis and commercial application must be carried out under the supervision of a registered pest control operator that is appropriately trained;	DPM and contractor	A suitably qualified pest control operator must be appointed	Operation	EO	As and when the use of herbicides is required	Only registered pest control operators must be appointed and proof of their registration must be provided
Servitude						
▪ Alien invasive vegetation must be removed according to a plan (in line with relevant municipal and provincial procedures, guidelines and recommendations) and disposed of at a recognised waste disposal facility;	Contractor	Undertake removal of alien invasive vegetation in accordance with the relevant guideline relevant to the project area and ensure the vegetation is disposed of at a licensed waste disposal facility	Construction and Operation	EO Operation and maintenance team	Monthly, and as and when required	Proof must be provided that alien invasive vegetation has been cleared in accordance to the relevant guideline and that the vegetation was disposed of at a licensed waste disposal facility
▪ Vegetation must be trimmed where it is likely to intrude on the minimum vegetation clearance distance (MVCD) or will intrude on this distance before the next scheduled clearance. MVCD is determined from SANS 10280;	Contractor	Develop a procedure for the trimming of vegetation in terms of the with the listed requirements	Construction and operation	EO Operation and maintenance team	Monthly, and as and when required	Proof must be provided that vegetation is trimmed in accordance with the listed requirements

▪ Debris resulting from clearing and pruning must be disposed of at a recognised waste disposal facility, unless the landowners wish to retain the cut vegetation	Contractor	Dispose of the debris in accordance with the waste management plan	Construction and operation	EO Operation and maintenance team	Monthly, and as and when required	Proof must be provided that the debris has been disposed of at a licensed waste disposal facility
Impact Management Outcome: Vegetation clearing is restricted to the authorised development footprint of the proposed infrastructure.(loss of vegetation)						
▪ Minimise impacts associated with loss of vegetation	Contractor	On-site employees, farm workers and visitors to the site will be educated about the conservation of vegetation. This will include strict guidelines for remaining on existing roads while on site to avoid unnecessary destruction or damage to undisturbed and rehabilitated vegetation. ▪ It is understood that lease agreements are in place but it is recommended that landowners are encouraged to ensure livestock numbers are kept at or below densities recommended by the Department of Agriculture to prevent over-grazing.	Construction and operation	EO Operation and maintenance team	Monthly, and as and when required	Proof of training registers for farm workers and visitors Proof of compliance to fire management plan.

		▪ A fire management policy and guidelines will be developed to ensure that the operation of the WEF is compatible with the long-term fire ecology of the site ▪ Remove alien vegetation from any disturbed areas				

64. Protection of fauna						
Impact Management Outcome: Minimise disturbance to fauna						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Operational Phase						
▪ All vehicles entering the site must adhere to low speed limits for heavy (30km/h) and light vehicles (40km/h).	dEO / cEO Contractor	Ensure speed limit signs are visible and speed is monitored.	Operation	EO Operation and maintenance team	Monthly, and as and when required	No incident report relating to speeding.
▪ No Domestic animals allowed on site.	dEO / cEO Contractor	Remove any domestic animal that may enter on site to nearest animal care facility e.g. SPCA.	Operation	EO Operation and maintenance team	Monthly, and as and when required	No presence of domestic animals on site.
▪ Breeding sites must be kept intact and disturbance to breeding birds must be avoided. Special care must be taken where nestlings or fledglings are present;	dEO / cEO in consultation with the Contractor	Avoid breeding sites and ensure that special care is taken in the presence of nestlings and fledglings	Operation	EO Operation and maintenance team	Weekly, and as an when required during the construction.	Photographic record of intact breeding sites

					Monthly, and as and when required during operation	
▪ Nesting sites in near vicinity of the development must documented;	dEO / cEO in consultation with the EO	Walk-downs of the existing lines located parallel to the project must be undertaken and nests and the details thereof documented	Operation	EO Operation and maintenance team	Quarterly, and as and when required	Details of walk- downs undertaken must be noted and kept on file and photographic records of nesting sites must be kept
▪ Special recommendations of the avian specialist must be adhered to at all times to correct implementation of mitigation measures;	dEO / cEO in consultation with the Contractor	All mitigation measures recommended by the avifauna specialist must be implemented	Construction and Operation	EO Operation and maintenance team	Weekly during construction and monthly during operation	Photographic record of compliance and successful implementation of the recommended measures
▪ No deliberate or intentional killing of fauna is allowed;	dEO / cEO in consultation with the Contractor	Implement and maintain snake deterrents on pylons in areas where snakes are abundant	Construction and Operation	EO Operation and maintenance team	Once, during the construction of the pylons and as and when required. Monthly during operation	Photographic record of the implementation and maintenance of snake deterrents
▪ Maintain a log of fauna-related incidents or mortalities (incl. roadkill, electrocutions etc.). The log should be reviewed annually, and mitigations amended/implemented as data suggests.	dEO / cEO in consultation with the Contractor	Capture all incidents and mortalities of all fauna on site. An investigation of cause to each incident of mortality must be undertaken.	Construction and Operation	EO Operation and maintenance team	Monthly, and as and when required	Report logging all fauna-related incidents or mortalities together with mitigation measures that are implemented.

▪ In areas where snakes are abundant, snake deterrents are to be deployed on the pylons to prevent snakes climbing up, being electrocuted, and causing power outages.	dEO / cEO in consultation with the Contractor	Implement and maintain snake deterrents on pylons in areas where snakes are abundant	Construction and Operation	EO Operation and maintenance team	Once, during the construction of the pylons and as and when required. Monthly during operation	Photographic record of the implementation and maintenance of snake deterrents

65. Bats

Impact Management Outcome: Minimise Mortality of bats due to collisions .

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Operational Phase						
▪ Bats should be prevented as far as possible from entering any possible artificial roost structures (e.g. roofs of buildings, road culverts and wind turbines) by ensuring that they are appropriately sealed. ▪ A bat specialist must be consulted should bats start to colonise infrastructure. ▪ Buildings and road culverts must be monitored for any signs of roosting activity.	DPM and a suitably qualified specialist dEO / cEO in consultation with the Contractor and ECOEO	Monitor and record roost and any roosting activities of bats.	Construction and Operation	EO Operation and maintenance team	Monthly, and as and when required	Photographic evidence and GPS co-ordinates of any roosts. Implement Bat Monitoring Programme (Appendix L)
▪ Carefully monitoring collision incidence and investigate appropriate mitigation measures, when required. ▪ Monitor fatalities	DPM and a suitably qualified specialist dEO / cEO in consultation with the	Implement monitoring programme (Appendix L) Carefully monitoring collision incidence and investigate appropriate mitigation measures, when required.	Construction and Operation	EO Operation and maintenance team	Monthly, and as and when required	Photographic evidence and records of incidents Register for bats as proof showing

	Contractor and EO	A register must be maintained of injuries to bats, complaints or queries received as well as any action taken.				monitoring progress
▪ A register must be maintained of injuries to bats, complaints or queries received as well as any action taken.	DPM and a suitably qualified specialist dEO / cEO in consultation with the Contractor and EO	The register must be maintained throughout the operational phase	Operation	EO Operation and maintenance team	Monthly, and as and when required	Evidence of updating of the register and accompanying photographic evidence
▪ All turbines must be curtailed below cut in speed and not allow for freewheeling from the start of operation. ▪ Bat activity is markedly higher over low wind speed periods. Preventing freewheeling should not affect energy production significantly, but will be a substantial bat conservation mitigation measure.	DPM and a suitably qualified specialist dEO / cEO in consultation with the Contractor and EO	Implement a turbine speed monitoring programme	Operation	EO Operation and maintenance team	Monthly, and as and when required	Evidence of monitoring reports on turbine freewheeling and action taken to curtail
▪ An operational bat monitoring study should already be in place at the start of the wind farm operation and should be implemented immediately after construction of turbines. ▪ Mitigation measures outlined by the bat specialist during the operational monitoring study should be applied with due diligence.	DPM and a suitably qualified specialist dEO / cEO in consultation with the Contractor and EO	Implement operational monitoring programme Appointment of bat specialist to conduct operational bat mortality monitoring As soon as the WEF facility becomes operational, a bat specialist must start to conduct a minimum of 2 years of operational bat mortality monitoring. This specialist must be appointed before the facility becomes operational, so the operational monitoring can start at	Construction and Operation	EO Operation and maintenance team	Monthly, and as and when required	Photographic evidence and records of incidents

		the same time as the commercial operation date of the facility. The methodology of this monitoring must comply with the South African Good Practice Guidelines for Operational Monitoring for Bats at Wind Energy Facilities - 2nd Edition June 2020 (Aronson et al. 2020), or any newer version of the applicable guidelines that may be in force at the start of operation of the facility The results of the operational monitoring must be made available, on request, to other bat specialists conducting operational and preconstruction monitoring on WEF's in South Africa.				
▪ Avoid creating artificial wetlands and open water sources in the turbine zones (closer than 300m from any turbine base) ▪ The likelihood of bats being killed by moving turbine blades increases significantly when they are attracted to their proximity when it has become an improved foraging airspace due to the presence of artificial light or artificial water sources.	Developer	Stormwater management must be implemented in a manner to avoid this as this will increase insect and bat activity around turbines.	Operation	Operation and maintenance team	Once, prior to the commencement of construction	Compliance to Stormwater management plan No wetlands closer than 300m from any turbine base
▪ Minimise Bat Mortality	Relevant specialist in consultation with the Project Developer	Install Acoustic bat deterrents This technology is developed well enough to be tested on site and may be recommended during operational monitoring, if mortality data indicate bat mortalities above the sustainable threshold for the wind farm. This threshold will be calculated according to the South	Operational phase	Operation and maintenance team	During operation and ongoing as and when required	Proof of installation of acoustic bat deterrents Proof of bat specialist appointed

		African Bat Fatality Threshold Guidelines (MacEwan, et al., Edition 2, October 2018).				Evidence of minimal bat mortality
▪ Minimise Bat Mortality ▪ If all other bat mitigation steps are followed, and the bat mortality monitoring study detects bat mortalities that are above the sustainable threshold for the WEF, then additional mitigation will need to be implemented to bring bat mortalities to or below the sustainable threshold. According to the South African Bat Fatality Threshold Guidelines (MacEwan, et al., Edition 2, October 2018), this threshold is calculated by considering the hectare size of the WEF area of turbine influence and the value of 2% of bats/10ha/year for the ecoregions that the WEF is located in, to give an annual number of sustainable bat mortalities that is acceptable for the WEF.	Relevant specialist in consultation with the Project Developer	Curtailment must be applied to all turbines by ninety-degree feathering of blades below the manufacturer's cut-in speed, so it is exactly parallel to the wind direction and minimises freewheeling blade rotation as much as possible without locking the blades. Based on high bat activity detected during the 12-month preconstruction study, from 1 November to 31 March every night for the lifetime of the facility, curtailment must be applied to all turbines by ninety-degree feathering of blades below the manufacturer's cut-in speed, so it is exactly parallel to the wind direction and minimises freewheeling blade rotation as much as possible without locking the blades. This can significantly lower probability of bat mortalities. Influence on productivity is minimal since no power is generated below the manufacture's cut-in speed. If mitigation measures for implement additional mitigation measures related to light pollution, creation of artificial habitat, operational bat mortality monitoring and curtailment to prevent freewheeling are followed and the bat mortality monitoring study detects bat mortalities that are above the sustainable threshold for the WEF, then additional mitigation will need to be implemented to bring bat mortalities to or below the sustainable threshold. According to the South African Bat Fatality Threshold Guidelines (MacEwan, et	Operational phase	Contractor / Bat Specialist	During operation and as and when required	Evidence of curtailment. Operational monitoring results and findings. Proof of appointment of bat specialist to undertake operational monitoring.

al., Edition 2, October 2018), this threshold is calculated by considering the hectare size of the WEF area of turbine influence and the value of 2% of bats/10ha/year for the ecoregions that the WEF is located in, to give an annual number of sustainable bat mortalities that is acceptable for the WEF.

Table 4.1: The sustainable acceptable mortality thresholds of the authorised Sutherland 2 WEF.

	Area of influence of wind turbines (hectares)	**Acceptable annual mortality of bats (adjusted values for biases such as searcher efficiency and carcass persistence)**
Sutherland 2 WEF (Succulent Karoo veg unit)	714	0.04 x (714/10) = 0.04 x 71.4 = **3 bats**
Sutherland 2 WEF (Montane Fynbos and Renosterveld veg unit)	420	0.08 x (420/10) = 0.08 x 42.0 = **3 bats**
Total for both veg units		3 + 3 = **6 bats**

Such additional mitigation measures may be to curtail problematic turbines according to the mitigation cut-in

		speed, and/or to utilise acoustic deterrents on problematic turbines. If the final turbine layout is amended, the calculation in Table 4.1 needs to be revised. Preliminarily, it is advised that any additional mitigation measures that may be required be applied during 1 November to 31 March and must be applied to any turbines or group of turbines identified as causing the wind farm's mortalities to be above the sustainable threshold levels. This time period is based on high bat activity months as detected during the 12-month preconstruction study. The bat specialist conducting the operational bat monitoring may recommend other time periods for additional mitigation, based on robust mortality data. If required, the bat specialist may make use of new climatic or acoustic data to allow for an active and adaptable mitigation schedule. It is crucial for the facility to determine and monitor bat mortalities in order to implement, maintain and adapt mitigations as efficiently as possible. For the duration of the lifetime of the facility, the impacts on bats must be audited/monitored by reliable methods of carcass searching and/or electronic devices capable of automatically counting bat mortalities. Such auditing should occur every 5 years (after the end of the initial 2-year operational study) for all turbines on site.				
Impact Management Outcome: Minimise disturbance to bats						

▪ Minimisation of light pollution and artificial habitat creation ▪ Keep artificial lighting to a minimum on the infrastructure (O&M buildings and on wind turbines), while still adhering to safety and security requirements.	Relevant specialist in consultation with the Project Developer	This can be achieved by having floodlights down-hooded, installing passive motion sensors onto lights around buildings and possibly utilising lights with lighting colours (also referred to as lighting temperatures) that attract fewer insects Aviation lights should remain as required by aviation regulations. Bi-annual visits to the facility at night must be conducted for the operational lifetime of the facility by operational staff of the facility, to assess the lighting setup and whether the passive motion sensors are functioning correctly. The bat specialist conducting the operational bat mortality monitoring must conduct at least one visit to site during night-time to assess the placement and setup of outside lights on the facility.	Operational phase	Project Developer	Once, prior to the commencement of construction and as and when required.	Proof of installation of passive motion sensorsand their maintenance as requireed

66. Avifauna						
Impact Management Outcome: To avoid or reduce impact of Potential increased erosion risk during operation						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Operational Phase						
▪ Follow an avifaunal monitoring programme during construction and operational phases.	DPM and a suitably qualified specialist dEO / cEO in consultation with the Contractor and EO	Implement avifaunal monitoring programme (Appendix M)	Construction and Operational phase	EO Operation and maintenance team	Monthly, and as and when required	Photographic evidence and records of bird sightings
▪ Vehicle and pedestrian access to the site should be controlled and restricted to access roads to prevent unnecessary disturbance of SCC.	ECO / cEO / dEO	Access control must be implemented	Commencement and for the duration of the Operational phase	ECO	Ongoing	Access control register
▪ Carefully monitor collision incidence and investigate appropriate mitigation measures, when required. ▪ Formal monitoring should be resumed once the wind turbines have been constructed, as per the most recent edition (2015) of the best practice guidelines (Jenkins et al. 2011). The exact time when post-construction monitoring should commence, will depend on the construction schedule, and will be agreed upon with the site operator once these timelines and a commercial operational date have been finalised.	DPM and a suitably qualified specialist dEO / cEO in consultation with the Contractor and EO	Implement avifaunal monitoring programme	Construction and Operational phase	EO Operation and maintenance team	Monthly, and as and when required	Photographic evidence and records of bird sightings. Proof of appointment of avifauna specialist. Monitoring reports and results kept on file.

▪ As a minimum, post-construction monitoring should be undertaken for the first two years of operation, and then repeated again in Year 5, and again every five years thereafter for the operational life-time of the facility. The exact scope and nature of the post-construction monitoring will be determined on an ongoing basis by the results of the monitoring through a process of adaptive management. ▪ Depending on the results of the carcass searches, a range of mitigation measures will have to be considered if mortality levels exceed mortality thresholds determined by the avifaunal specialist at the time, in consultation with relevant experts, which may include measures such as expanding the SDoD beyond the current zones, selective curtailment of turbines during specific high-risk conditions or any other practical and effective mitigation.						Communication with EWT and Birdlife on monitoring results.
▪ A register must be maintained of injuries to avifauna, complaints or queries received as well as any action taken.	DPM and a suitably qualified specialist dEO / cEO in consultation with the Contractor and EO	The register must be maintained throughout the construction phase	Operational phase	EO Operation and maintenance team	Monthly, and as and when required	Evidence of updating of the register and accompanying photographic evidence
▪ Maintenance activities should be scheduled to avoid disturbances to sensitive areas (identified through operational monitoring) during breeding season.	DPM and a suitably qualified specialist dEO / cEO in consultation with the	Contractor or team undertaking maintenance activities to consult with specialist prior to undertaking activities within sensitive areas	Operational phase	EO Operation and maintenance team	When required	Evidence of reporting in environmental compliance report

	Contractor and EO					
▪ A post-construction inspection must be conducted by an avifaunal specialist to confirm that all aspects have been appropriately handled and in particular that road and hard stand verges do not provide additional substrate for raptor prey species.	Suitably qualified specialist and EO	Undertake inspection	Operational phase	EO Operation and maintenance team	Once, post construction	Record of inspection findings Proof of appointment of avifauna specialist.

67. Terrestrial Ecology						
Impact Management Outcome: To avoid or reduce impact of Potential increased erosion risk during operation						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Operational Phase						
▪ Any erosion problems observed along access road should be rectified immediately and monitored thereafter to ensure that they do not re-occur. ▪ Re-instate as much of the eroded area to its pre-disturbed, "natural" geometry (no change in elevation and any banks not to be steepened) where possible. ▪ The Road and other disturbed areas should be regularly monitored for erosion problems and problem areas should receive follow-up monitoring by the EO to assess the success of the remediation. ▪ Topsoil must be removed and stored separately from subsoil. Topsoil must be reapplied where appropriate as soon as possible in order to encourage and facilitate rapid regeneration of the natural vegetation on cleared areas.	Project Developer	▪ Regular inspections around the constructed infrastructure ▪ The erosion management plan (Appendix F) must be implemented. ▪ Bi-annual monitoring of erosion in the vicinity of the turbines, roads, and other hard-standing surfaces must be conducted before and after the rainy season to	Operational phase	EO Operations and maintenance contractor	Weekly	Undertake inspections and record all findings and document the inspection process.

		ensure erosion sites can be identified early and remedied.			Bi Annually	
▪ All clearing of vegetation must be restricted to the footprint areas only – this will limit any further loss of undisturbed vegetation and loss of habitat.	Project Developer	▪ No driving of any vehicles outside the demarcated roads and site footprints	Operational phase	EO Operations and maintenance contractor	Weekly	Undertake inspections and record all findings and document the inspection process.
Impact Management Outcome: To avoid or reduce altered runoff patterns due to rainfall interception by the road and compacted areas resulting in high levels of erosion (Operational Phase)						
▪ Re-establishment of vegetation along the upgraded route should be monitored and alternatively, soil surfaces, where no revegetation seems possible will have to be covered with gravel or small rock fragments to increase porosity of the soil surface, slow down runoff and prevent wind- and water erosion. ▪ Runoff and storm water should adequately be controlled to prevent localised rill and gully erosion. ▪ Any erosion problems observed should be rectified as soon as possible and monitored thereafter to ensure that they do not re-occur. ▪ The Road should be regularly monitored for erosion problems and problem areas should receive follow-up monitoring to assess the success of the remediation.	Project Developer	▪ Regular inspections around the constructed infrastructure ▪ The erosion management plan (Appendix F) and stormwater management plan (Appendix G) must be implemented and monitored on an on-going basis.	Operational phase	EO Operations and maintenance contractor	Weekly	Undertake inspections and record all findings and document the inspection process.

68. Prevention of Disease		
Impact Management Outcome: All necessary precautions linked to the spread of disease are taken.		
Impact Management Actions	Implementation	Monitoring

	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Operational Phase						
▪ Medical support must be made available;	dEO / cEO in consultation with the Contractor	Ensure that designated personnel with first aid training are available on site and that first aid kits to provide medical support is readily available	Operations	EO Operations and maintenance contractor	Monthly	Check the availability of first aid trained personnel and medical kits (including if these are complete in terms of supplies)

69. Emergency Procedures						
Impact Management Outcome: Emergency procedures are in place to enable a rapid and effective response to all types of environmental emergencies						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Operational Phase						
▪ In the event of emergency, necessary mitigation measures to contain the spill or leak must be implemented (see Hazardous Substances section 12	Contractor	Implement the required mitigation measures in the event of a spill or leak as per the requirements of Section 12: Hazardous Substances	Operations	EO Operations and maintenance contractor	As and when a spill or leak occurs	The mitigation measures included under Section 12: Hazardous Substances have been adhered to

70. Visual
Impact Management Outcome: Socio-economic development is enhanced.

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Operational Phase						
▪ On-site signage must be discrete, and billboards avoided. Signage must be set against a backdrop and not intrude on the skyline.	Contractor	Ensure that signage is not intruding skyline	Construction and operational	EO Operations and maintenance contractor	Monthly	Photographic evidence
▪ Traffic and other signage to be limited to only that which is essential .	Contractor	Ensure that only necessary signage is erected	Construction and operational	EO Operations and maintenance contractor	Monthly	Photographic evidence
▪ Minimize the visual impacts during the operation phase	Contractor	Signage related to the WEF must be discrete and confined to entrance gates.	Operational	Operations and maintenance contractor ▪ EO	Ongoing.	Photographic evidence

71. Health and Safety

Impact Management Outcome: Ensure the health and safety of subcontractors and site users

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Operational Phase						

▪ Maintain health and safety standards ▪ Appropriate PPE must be worn by staff and working personnel.	Project Developer / Contractor	Regular maintenance of turbines and all other infrastructure must be undertaken to ensure optimal functioning and reducing the chance of gearbox failure. Regular inspections of the turbine foundations, towers, blades, spinners and nacelle must be undertaken in order to check for early signs structural fatigue	Operation	Operations and maintenance contractor /EO	Ongoing	Maintenance registers and inspection registers should be in place and in use

72. Socio-Economic						
Impact Management Outcome: Socio-economic development is enhanced through Tourism						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Operational Phase						

▪ Enhance tourism impacts	Project Developer	An information notice board at the nearest town (Sutherland) to facilitate educating the public about the need and benefits of project. This is aimed at instilling the concept of sustainability and creating awareness by engaging the community and local schools. Information brochures and posters must be made available at the kiosk that will provide more information about the facility. These should be presented in the appropriate languages to maximise the benefits.	Operation phase	EO Operations and maintenance contractor	Operation and ongoing	Proof of site erected in Sutherland
▪ Minimise damage to agricultural land and stock losses, minimize disruption to current farm regimes.	Project Developer	Regular inspections around the constructed infrastructure	During the entire construction and operational phases	EO Operations and maintenance contractor	Prior to construction and ongoing	Reporting in monthly audit reports.

73. Traffic						
Impact Management Outcome: Mitigate traffic impacts						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Operational Phase						

▪ The traffic management plan will be adhered to including adherence to speed limits and 'rules of the road' ▪ All directly affected and neighbouring farmers and local residents will be able to lodge grievances with the Developer using the Grievance Procedure regarding dangerous driving or other traffic violations that could be linked to the project.	Project Developer/ Contractor	The traffic management plan (Appendix J) and grievance mechanism (Appendix B) procedure must be implemented	Construction	Operations and maintenance contractor EO	Ongoing	Compliance reporting on the traffic management plan and evidence of incidents reports as per the grievance mechanism.
▪ During operation, if abnormal loads are required for maintenance, the appropriate arrangements will be made to obtain the necessary transportation permits and the route. ▪ Agreed with the relevant authorities to minimise the impact of other road users. ▪ All internal and access roads that will be used by the Developer and/contractor/sub-contractors during the operational phase of the project must be maintained	Project Developer/ Contractor	Obtain the necessary permits for transportation Maintenance of the internal and access roads that will be used by the Developer and/contractor/sub-contractors during the operational phase	Construction	Operations and maintenance contractor / EO	Ongoing	Transportation permits are in place Proof of maintenance of the internal and access roads that will be used by the Developer and/contractor/sub-contractors during the operational phase

74. Electro magnetic interference						
Impact Management Outcome: Mitigate electromagnetic impacts						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Operational Phase						

▪ Appropriate mitigation measures might include the replacement of receiving aerial installations, replacement by satellite dishes or the provision of a private transmitter	Project Developer/ Contractor	Replacement of receiving aerial installations, replacement by satellite dishes or the provision of a private transmitter	Operation phase	Operations and maintenance contractor	On going	Proof of technology for mitigation measures

REHABILITATION PHASE

75. Protection of Watercourses						
Impact Management Outcome: Pollution and contamination of the watercourse environment and or estuary erosion are prevented.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Rehabilitation Phase						
▪ Monitor and rehabilitate disturbed areas near drainage lines.	cEO and contractor	Monitoring program to be established by freshwater ecologist	Rehabilitation	EO Operation and maintenance team	Monthly, and as and when required	Photographic evidence

76. Dust Emissions						
Impact Management Outcome: Dust prevention measures are applied to minimise the generation of dust.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Rehabilitation Phase						
▪ Avoid physical disturbance at structure point	Contractor	Proper planning for vegetation removal must be undertaken as well as for the associated rehabilitation Removal of vegetation must be avoided until such time as	Rehabilitation	EO	Weekly	Plan for implementation must be provided by the Contractor

		soil stripping is required and similarly exposed surfaces must be re- vegetated or stabilised as soon as is practically possible;				

77. Exacavations						
Impact Management Outcome: No environmental degradation occurs as a result of excavation.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Rehabilitation Phase						
▪ Spoil can however be used for landscaping purposes and must be covered with a layer of 150 mm topsoil for rehabilitation purposes;	Contractor	Spoil used for landscaping must be applied as per the listed requirements	Rehabilitation	EO	Monthly	Photographic record of spoil used for landscaping purposes as well as feedback from the contractor

78. Vegetation clearing						
Impact Management Outcome: Vegetation clearing is restricted to the authorised development footprint of the proposed infrastructure.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Rehabilitation Phase						

▪ All alien plant re-growth (mostly forbs) must be monitored, and should it occur, these plants should be eradicated. The scale of the operation does however not warrant the use of a Landscape Architect and / or Landscape Contractor.	dEO / cEO Contractor	Carry out monitoring and eradication of alien plant regrowth.	Rehabilitation	EO	During and after construction phase.	No evidence of unattended alien plant regrowth

79. Assembly of turbines

Impact Management Outcome: No environmental degradation occurs as a result of assembly and erecting of towers.

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Rehabilitation Phase						
▪ Following assembly, care must be taken to ensure that no wasted / unused materials are left on site e.g. bolts and nuts	Contractor	Inspect areas where construction is being undertaken and remove and appropriately dispose of wasted/unused materials	Rehabilitation	EO	Weekly	Contractor to provide proof of inspection and removal of waste/unused materials and the appropriate disposal thereof (i.e. disposal certificates)
▪ Emergency repairs due to breakages of equipment must be managed in accordance with Section 42: Workshop, equipment maintenance and storage and Section 11: Emergency procedures.	Contractor	Undertake emergency repairs of equipment as per the requirements of Section 42: Workshop, equipment maintenance and storage and Section 11: Emergency procedures.	Rehabilitation	EO	Weekly	Emergency repairs of equipment is undertaken as per the requirements of Section 42: Workshop, equipment

						maintenance and storage and Section 11: Emergency procedures.
▪ Topsoil must be removed separately from subsoil material and stored for later use during rehabilitation of such tower sites;	Contractor	Implement appropriate measures to ensure that topsoil is removed from subsoil material	Construction and Rehabilitation	ED	Weekly, and as and when required	Proof of appropriate measures implemented must be provided by the Contractor
▪ The surface of the spoil is appropriately rehabilitated in accordance with the requirements specified in Sections 20 and 81: Landscaping and rehabilitation;	Contractor	Rehabilitation of the surface spoil must be undertaken in accordance with the requirements of Section 20 and 81: Landscaping and rehabilitation;	Rehabilitation	ED	Weekly	Rehabilitation of the surface spoil is undertaken as per the requirements of Section 20 and 81: Landscaping and rehabilitation;
▪ The retained topsoil must be spread evenly over areas to be rehabilitated and suitably compacted to effect re-vegetation of such areas to prevent erosion as soon as construction activities on the site is complete. Spreading of topsoil must not be undertaken at the beginning of the dry season.	Contractor	Ensure that topsoil is spread evenly and compacted appropriately. This must be undertaken outside of the start of the dry season	Rehabilitation	ED	Weekly	Proof that topsoil has been spread evenly and compacted correctly must be provided by the Contractor / cED. Proof that the activities were undertaken outside of the start of the dry season must be provided by the Contractor

80. Landscaping and Rehabilitation						
Impact Management Outcome: Minimise the risk of environmental impact during periods of site closure greater than five days.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Rehabilitation Phase						
▪ All areas disturbed by construction activities must be subject to landscaping and rehabilitation; ▪ All spoil and waste must be disposed to a registered waste site and certificates of disposal provided;	Contractor and EO	Implement a rehabilitation plan; Dispose of all spoil and waste at a licensed waste disposal facility	Rehabilitation	EO	Weekly	Rehabilitation of the disturbed areas is undertaken as per the rehabilitation plan. All waste disposal certificates are available.
▪ All slopes must be assessed for contouring, and to contour only when the need is identified in accordance with the Conservation of Agricultural Resources Act, No 43 of 1983	Contractor and EO	Assess all slopes	Rehabilitation	EO	Weekly	All slopes are assessed and contoured as required
▪ All slopes must be assessed for terracing, and to terrace only when the need is identified in accordance with the Conservation of Agricultural Resources Act, No 43 of 1983;	Contractor and EO	Assess all slopes	Rehabilitation	EO	Weekly	All slopes are assessed and terraced as required
▪ Berms that have been created must have a slope of 1:4 and be replanted with indigenous species and grasses that approximates the original condition;	Contractor and EO	Ensure all berms have a slope of 1:4 and is replanted with indigenous species	Rehabilitation	EO	Weekly	All berms have a slope of 1:4 and is replanted with indigenous species and grasses
▪ Where new access roads have crossed cultivated farmlands, that lands must be rehabilitated by ripping which must be agreed to by the holder of the EA and the landowners;	DPM	Ensure that lands must be rehabilitated by ripping which must be agreed to by the	Rehabilitation	EO	Weekly	Written permission from Landowners

		holder of the EA and the landowners				
▪ Indigenous species must be used and/or grasses to where it compliments or approximates the original condition; ▪ No exotic plants may be used for rehabilitation purposes; only indigenous plants of the area may be utilised.	Contractor	Make use of indigenous species for rehabilitation	Rehabilitation	EO	Weekly	Indigenous species are used for rehabilitation
▪ Stockpiled topsoil must be used for rehabilitation (refer to Section 48: Stockpiling and stockpiled areas);	Contractor	Ensure stockpiled topsoil is used as per the requirements listed under Section 48: Stockpiling and stockpiled areas;	Rehabilitation	EO	Weekly	Stockpiled topsoil is used as per the requirements listed under Section 48: Stockpiling and stockpiled areas;
▪ Stockpiled topsoil must be evenly spread so as to facilitate seeding and minimise loss of soil due to erosion;	Contractor	Ensure that topsoil is spread evenly	Rehabilitation	EO	Weekly	Topsoil is spread evenly
▪ Before placing topsoil, all visible weeds from the placement area and from the topsoil must be removed;	Contractor	Remove all visible weeds from placement area and topsoil before spreading the topsoil	Rehabilitation	EO	Weekly	No weeds are visible in the placement area or the topsoil
▪ Subsoil must be ripped before topsoil is placed;	Contractor	Undertake the ripping of subsoil prior to the spreading of topsoil	Rehabilitation	EO	Weekly	Subsoil is ripped before topsoil is placed
▪ The rehabilitation must be timed so that rehabilitation can take place at the optimal time for vegetation establishment;	Contractor	Plan the timeframe for rehabilitation in order to undertake vegetation planting during the optimal time for vegetation establishment	Rehabilitation	EO	At the start of rehabilitation to confirm correct timeframe	Rehabilitation is undertaken during the optimal time
▪ Where impacted through construction related activity, all sloped areas must be stabilised to ensure proper rehabilitation is effected and erosion is controlled;	Contractor	All disturbed slope areas must be stabilised	Rehabilitation	EO	Weekly	Disturbed slopes are stabilised sufficiently

▪ Sloped areas stabilised using design structures or vegetation as specified in the design to prevent erosion of embankments. The contract design specifications must be adhered to and implemented strictly;	Contractor	Stabilise slopes as per the design specifications	Pre-construction & Rehabilitation	ED	Weekly	Slopes are stabilised as per the design specifications
▪ Spoil can be used for backfilling or landscaping as long as it is covered by a minimum of 150 mm of topsoil.	Contractor	Spoil used for landscaping must be applied as per the listed requirements	Rehabilitation	ED	Weekly	Photographic record of spoil used for landscaping purposes as well as feedback from the contractor
▪ Where required, re-vegetation including hydro-seeding can be enhanced using a vegetation seed mixture as described below. A mixture of seed can be used provided the mixture is carefully selected to ensure the following: a) Annual and perennial plants are chosen; b) Pioneer species are included; c) Species chosen must be indigenous to the area with the seeds used coming from the area; d) Root systems must have a binding effect on the soil; e) The final product must not cause an ecological imbalance in the area	Contractor in consultation with a suitably qualified specialist	Make use of a suitable vegetation seed mixture should enhancement be required	Rehabilitation	ED	As and when required	Use of a suitable vegetation seed mixture if required

DECOMMISSIONING PHASE

81. Stormwater management						
Impact Management Outcome: Impacts to the soil potential caused by stormwater and wastewater discharges during decommissioning						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Decommissioning Phase						
▪ Natural stormwater runoff not contaminated during the development and clean water can be discharged directly to watercourses and water bodies, subject to the Project Manager's approval and support by the ECO;	Contractor and cECO	Implement an effective system of storm water run-off control. See Storm water management plan of this EMPr::	Decommissioning phase	ECO	Ongoing	No mismanagement of runoff
▪ Rehabilitate any areas where erosion occurred and amend the stormwater run-off control measures if required.	Contractor	Implement erosion control measures	Decommissioning phase	ECO	Monthly	Photographic proof of rehabilitation of areas that were eroded

82. Agriculture and soil potential						
Impact Management Outcome: No loss of topsoil through decommissioning activities that disturb the soil profile						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Decommissioning Phase						

▪ Unnecessary land clearance must be avoided; ▪ Regularly monitor the site to check for areas where signs of soil erosion may start to appear. ▪ Should any soil erosion be detected, it must be addressed immediately through rehabilitation and surface stabilisation techniques. ▪ Minimise erosion and loss of topsoil	Site Manager	Strip, stockpile and re-spread topsoil during rehabilitation	Decommissioning phase	ECO	Continually as required	No visible signs of soil erosion around the project infrastructure
Impact Management Outcome: No degradation of veld vegetation through vehicle traffic and dust generation						
▪ Control vehicle passage and control dust	Site Manager	Traffic management plan (Appendix J) should address vehicle passage and dust control at decommissioning phase	Decommissioning phase	ECO	Continually as required	Proof of no loss of topsoil or excessive dust generation

83. Visual

Impact Management Outcome: Visual impact of decommissioning activities on existing views of sensitive visual receptors

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Decommissioning Phase						
▪ Minimise the Visual impact of decommissioning activities on existing views of sensitive visual receptors	Contractor/ ECO	Rehabilitation of cleared and disturbed areas. Working at night should be avoided, where possible. Night lighting of reclamation sites should be minimised within requirements of safety and efficiency	Decommissioning phase	Contractor/ ECO	Continual	Evidence of rehabilitated areas after clearing and disturbing Proof of no or little night work

84. Protection of fauna						
Impact Management Outcome: Minimise disturbance to fauna and avifauna.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Decommissioning Phase						
▪ All vehicles carrying out decommissioning activities must adhere to low speed limits for heavy (30km/h) and light vehicles (40km/h).	dEO / cEO Contractor	Ensure speed limit signs are visible and speed is monitored.	Decommissioning phase	ECO / Contractor	Monthly, and as and when required	No incident report relating to speeding.
▪ Breeding sites must be kept intact and disturbance to breeding birds must be avoided. Special care must be taken where nestlings or fledglings are present;	dEO / cEO in consultation with the Contractor	Avoid breeding sites and ensure that special care is taken in the presence of nestlings and fledglings	Decommissioning phase	ECO / Contractor	Weekly, and as an when required during the construction. Monthly, and as and when required during operation	Photographic record of intact breeding sites
▪ No deliberate or intentional killing of fauna is allowed;	dEO / cEO in consultation with the Contractor	Implement and maintain snake deterrents on pylons in areas where snakes are abundant	Decommissioning phase	ECO / Contractor	Once, during the construction of the pylons and as and when required. Monthly during operation	Photographic record of the implementation and maintenance of snake deterrents
Avifauna						
▪ Minimise disturbance to avifauna	/ cEO in consultation with the	Decommissioning activity should be restricted to the immediate footprint of the infrastructure, and in	Decommissioning phase	ECO / Contractor	Once off	Photographic evidence

	Contractor and ECO	particular to the proposed road network. Access to the remainder of the site should be strictly controlled to prevent unnecessary disturbance of SCC Removal of vegetation must be restricted to a minimum.				
Bats						
▪ Minimise disturbance to bats	DPM and a suitably qualified specialist dEO / cEO in consultation with the Contractor and EO	During the decommissioning phase for the WEF it must become mandatory to only use lights with low sensitivity motion sensors that switch off automatically when no persons are nearby, to prevent the creation of regular insect gathering pools, where practically possible without compromising security requirements. Aviation lights should remain as required by aviation regulations. Floodlights should be down-hooded and where possible, lights with a colour (lighting temperature) that attract less insects	Decommissioning phase	ECO	Monthly, and as and when required during decommissioning	Photographic evidence and records of incidents

		should be used. This mitigation step is a simple and cost-effective strategy to effectively decrease the chances of bat mortality on site.				

85. Ecological resources						
Impact Management Outcome: No negative impact to ecology of the site during or after decommissioning						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Decommissioning Phase						
▪ The rehabilitation of the site must ensure that the final condition of the site is environmentally acceptable and that there will be no adverse long term effects on the surrounding environment afterwards	DPM and a suitably qualified specialist dEO / cEO in consultation with the Contractor and EO	Implementation and procedures as stipulated in the rehabilitation plan.	Decommissioning phase	ECO / Contractor	Continual	Photographic evidence of the progress on final rehabilitation to be documented by the ECO in monitoring reports for the duration of the decommissioning phase.

86. Protection of Watercourses						
Impact Management Outcome: Pollution and contamination of the watercourse environment and or estuary erosion are prevented.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
Construction Phase						
▪ Monitor and rehabilitate disturbed areas near drainage lines.	cEO and contractor	Monitoring program to be established by freshwater ecologist for decommissioning activities	Decommissioning phase	EO / ECO / Contractor	Monthly, and as and when required	Photographic evidence
▪ Any erosion problems observed to be associated with the project infrastructure should be rectified as soon as possible and monitored thereafter to ensure that they do not re-occur. ▪ All bare areas, as a result of the development, should be revegetated with locally occurring species, to bind the soil and limit erosion potential. ▪ All cleared areas must be re-vegetated after construction has been completed	cEO and contractor	▪ Regular inspections around the constructed infrastructure to during decommissioning phase. ▪ Regular inspections around the constructed infrastructure to detect early signs of soil erosion developing Any waste generated during construction, must be stored into designated containers and removed from the site by the decommissioning teams.	Decommissioning phase	ECO	Weekly	Undertake inspections and record all findings and document the inspection process.

SECTION 7: PROJECT REQUIREMENTS

Activities undertaken during site preparation, construction and operation may require additional permits, over and above the Environmental Authorisation. Sutherland 2 Wind Farm (Pty) Ltd is responsible for ensuring that the necessary permits are in place in order to comply with national and local regulations. Additional permit requirements are described below.

7.1 SAHRA Requirements

The following requirements are made in terms of section 3(4) of the NEMA Regulations and section 38(8) of the National Heritage Resources Act, Act No 25 of 1999 (NHRA):

- 38(4)b – The recommendations of the specialists must be adhered to.
- 38(4)c(i) – If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources are found during the proposed development, SAHRA APM Unit (Natasha Higgitt/Phillip Hine 021 462 5402) must be alerted as per section 35(3) of the NHRA. Non-compliance with section of the NHRA is an offense in terms of section 51(1)e of the NHRA and item 5 of the Schedule.
- 38(4)c(ii) – If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves (BGG) Unit (Thingahangwi Tshivhase/Mimi Seetelo 012 320 8490), must be alerted immediately as per section 36(6) of the NHRA. Non-compliance with this section of the NHRA is an offense in terms of section 51(1)e of the NHRA and item 5 of the Schedule.
- 38(4)e – The following condition apply with regards to the appointment of specialists:

» If heritage resources are uncovered during the course of the development, a professional archaeologist or palaeontologist, depending on the nature of the finds, must be contracted as soon as possible to inspect the heritage resource. If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required subject to permits issued by SAHRA.

7.2 Water Use Authorisation Requirements

Regulations requiring that a water user be registered, GN R.1352 (1999). Regulations requiring the registration of water users were promulgated by the Minister of Water Affairs in terms of provision made in Section 26(1)(c), read together with Section 69 of the National Water Act, 1998. Section 26(1)(c) of the Act allows for registration of all water uses including existing lawful water use in terms of Section 34(2). Section 29(1)(b)(vi) also states that in the case of a GA, the responsible authority may attach a condition requiring the registration of such water use. The Regulations (Art. 3) oblige any water user as defined under Section 21 of the Act to register such use with the responsible authority and effectively to apply for a Registration Certificate as contemplated under Art.7(1) of the Regulations. GA in terms of Section. 39 of the NWA.

According to the preamble to Part 6 of the NWA, 1998, "This Part established a procedure to enable a responsible authority, after public consultation, to permit the use of water by publishing general authorisations in the Gazette…" and further states that "The use of water under a general authorisation does not require a licence until the general authorisation is revoked, in which case licensing will be necessary…" The GAs for Section 21 (c) and (i) water uses (impeding or diverting flow or changing the bed, banks or characteristics of a watercourse) as defined under the NWA have recently been revised (Government Notice R509 of 2016). The proposed works within or adjacent to the wetland areas and river channels are likely to change the characteristics of the associated freshwater ecosystems and may therefore require authorization. Determining if a water use licence is required for these water uses is now associated with the risk of degrading the ecological status of a watercourse. A low risk of impact could be authorised in terms of a GA.

7.3 Borrow Pits

A borrow pit refers to an open pit where material (soil, sand, or gravel rock) is removed for use at another location. Sutherland 2 Wind Farm (Pty) Ltd may want to use borrow pits for certain earthworks operations, such as the construction of roads, embankments, bunds, berms, and other structures.

The establishment of borrow pits is regarded as a mining activity and is legislated in terms of the Mineral and Petroleum Resources Development Act (No. 28 of 2002) (MPRDA). A mining permit must be obtained from the Department of Minerals and Energy prior to the establishment of borrow pits on the site.

7.4 Water Use

There are licensing procedures that need to be followed for particular "water uses". Water uses that may be of relevance to the development of wind farms and associated road construction include the following:

- Taking of water from a water resource, including a water course, surface water, estuary, or aquifer (i.e., borehole);
- altering the bed, banks, course, or characteristics of a water course; and/or
- impeding or diverting of a flow in a water course.

Under the National Water Act (Act No. 36 of 1998), either General Authorisation or a Water Use License must be applied for by Sutherland 2 Wind Farm (Pty) Ltd. It is anticipated that Sutherland 2 Wind Farm (Pty) Ltd may require registration under the General Authorisation: GN 509 (2016), for potential river crossings.

7.5 Abnormal Vehicle Loads

Wind turbine components will be delivered to site using road transport and due to the size of the components, the vehicles used to deliver turbine components will be considered abnormal loads in terms of the Road Traffic Act (Act No 29 of 1989). A permit for a vehicle carrying an abnormal load must be obtained from the relevant Provincial Authority. The vehicle must comply with the Administrative Guidelines for Granting of Exemption Permits for the Conveyance of Abnormal Loads, issued by the Department of Transport, 2009.

SECTION 8: CONCLUSION

The mitigation and permit / license requirements as mentioned in this document include all recommendations made by the specialists appointed for the Final Environmental Management Programme (EMPr) for the 140MW Sutherland 2 Wind Energy Facility and associated infrastructure, Northern Cape Province (DEA Ref:. 12/12/1782/3/AM5). Recommendations and stipulations received during the public participation process will also be included in this document. The EAP is confident that this Final Environmental Management Programme (EMPr) addresses all identified impacts to acceptable levels and that this document should be accepted as a Final EMPr for the 140MW Sutherland 2 Wind Energy Facility and associated infrastructure, Northern Cape Province (2022).

APPENDICES

Appendix A:	**EIA Project Team CVs**
Appendix B:	**Grievance Mechanism for Public Complaints and Issues**
Appendix C:	**Alien Invasive Plant and Open Space Management Plan**
Appendix D:	**Plant Rescue and Protection Plan**
Appendix E:	**Re-vegetation and Rehabilitation Plan**
Appendix F:	**Erosion Management Plan**
Appendix G:	**Stormwater Management Plan**
Appendix H:	**Waste Management Plan**
Appendix I:	**Fire management and Emergency Preparedness, Plan**
Appendix J:	**A traffic management plan**
Appendix K	**Transportation plan**
Appendix L:	**Bat Monitoring Programme**
Appendix M:	**Bird Monitoring Programme**
Appendix N:	**Socio-economic plan/report**
Appendix O:	**Key Legislation**
Appendix P:	**Chance Find Procedure**
Appendix Q:	**A3 Maps**

SPECIALIST FINAL WALKTHROUGH REPORTS:

Appendix A1:	**Terrestrial Ecology Pre-Construction Walkthrough**
Appendix B1:	**Aquatic Ecology Pre-Construction Walkthrough**
Appendix C1:	**Avifauna Pre-Construction Walkthrough**
Appendix D1:	**Bat Pre-Construction Walkthrough**
Appendix E1:	**Archaeological Pre-Construction Walkthrough**
Appendix E2:	**Palaeontological Pre-Construction Walkthrough**