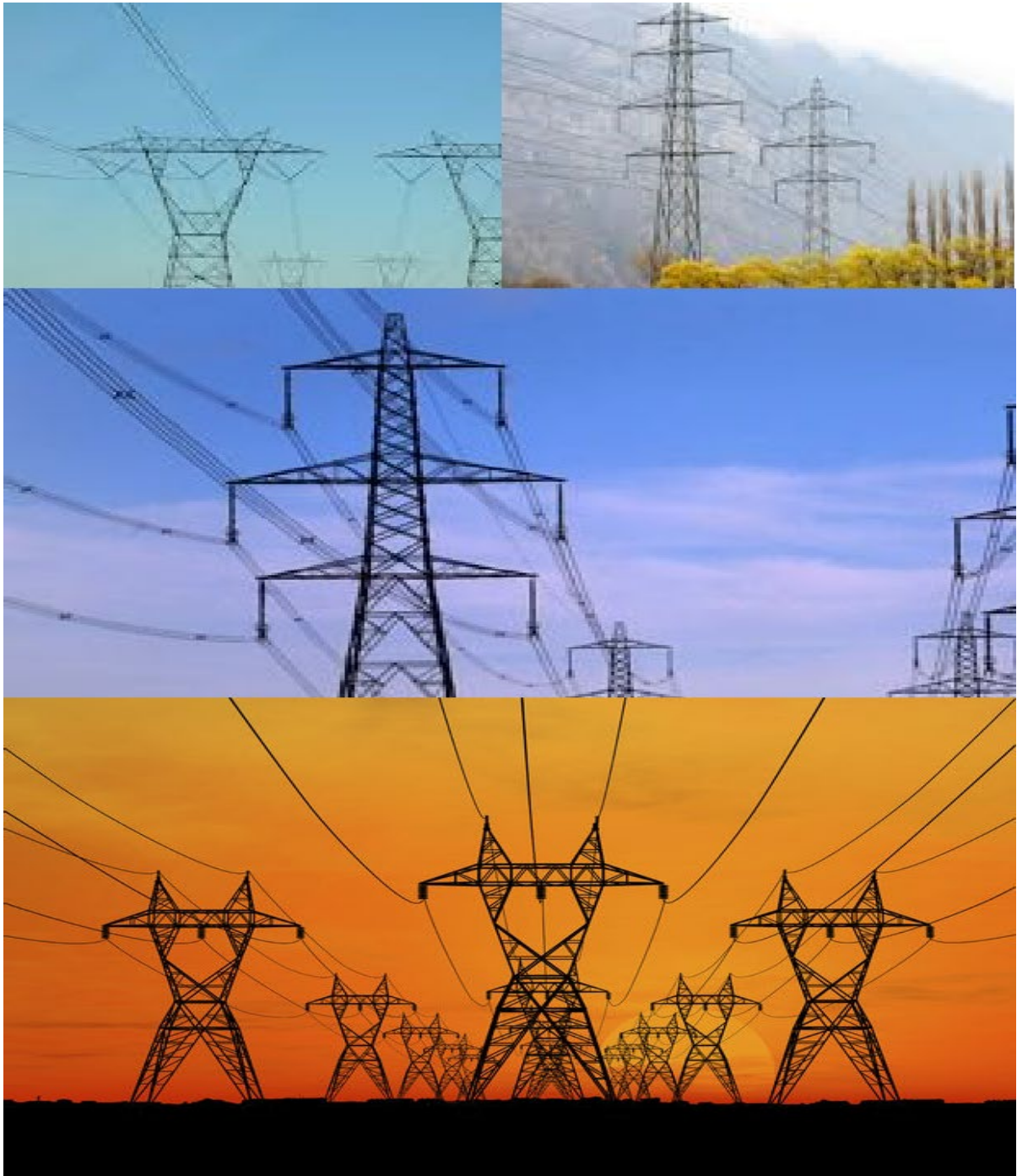


APPENDIX 1  
GENERIC ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE  
DEVELOPMENT AND EXPANSION FOR OVERHEAD ELECTRICITY  
TRANSMISSION AND DISTRIBUTION INFRASTRUCTURE

---



**environmental affairs**

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA

## TABLE OF CONTENTS

INTRODUCTION.....	1
1. Background .....	1
2. Purpose .....	1
3. Objective.....	1
4. Scope .....	1
5. Structure of this document .....	2
6. Completion of part B: section 1: the pre-approved generic EMPr template .....	4
7. Amendments of the impact management outcomes and impact management actions .....	4
8. Documents to be submitted as part of part B: section 2 site specific information and declaration .....	5
(a) Amendments to Part B: Section 2 – site specific information and declaration.....	5
PART A – GENERAL INFORMATION .....	6
1. DEFINITIONS .....	6
2. ACRONYMS and ABBREVIATIONS.....	7
National Environmental Management: Biodiversity Act ,2004 (Act No. 10 of 2004) .....	7
3. ROLES AND RESPONSIBILITIES FOR ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) IMPLEMENTATION .....	8
4. ENVIRONMENTAL DOCUMENTATION REPORTING AND COMPLIANCE.....	14
4.1 Document control/Filing system.....	14
4.2 Documentation to be available .....	14
4.3 Weekly Environmental Checklist.....	14
4.4 Environmental site meetings.....	15
4.5 Required Method Statements.....	15
4.6 Environmental Incident Log (Diary) .....	16
4.7 Non-compliance .....	16
4.8 Corrective action records.....	17
4.9 Photographic record.....	17
4.10 Complaints register .....	18
4.11 Claims for damages .....	18
4.12 Interactions with affected parties.....	18
4.13 Environmental audits .....	19
4.14 Final environmental audits.....	19
PART B: SECTION 1: Pre-approved generic EMPr template.....	20
5. IMPACT MANAGEMENT OUTCOMES AND IMPACT MANAGEMENT ACTIONS .....	20
5.1 Environmental awareness training.....	21

5.2	Site Establishment development.....	22
5.3	Access restricted areas .....	23
5.4	Access roads.....	24
5.5	Fencing and Gate installation .....	25
5.6	Water Supply Management .....	27
5.7	Storm and waste water management .....	28
5.8	Solid and hazardous waste management.....	29
5.9	Protection of watercourses and estuaries.....	30
5.10	Vegetation clearing .....	31
5.11	Protection of fauna .....	34
5.12	Protection of heritage resources .....	35
5.13	Safety of the public .....	36
5.14	Sanitation .....	36
5.15	Prevention of disease.....	37
5.16	Emergency procedures.....	38
5.17	Hazardous substances.....	39
5.18	Workshop, equipment maintenance and storage.....	42
5.19	Batching plants.....	43
5.20	Dust emissions.....	44
5.21	Blasting.....	45
5.22	Noise .....	46
5.23	Fire prevention .....	47
5.24	Stockpiling and stockpile areas .....	47
5.25	Finalising tower positions .....	48
5.26	Excavation and Installation of foundations .....	49
5.27	Assembly and erecting towers .....	50
5.28	Stringing .....	52
5.29	Socio-economic .....	54
5.30	Temporary closure of site .....	54
5.31	Landscaping and rehabilitation.....	55
6	ACCESS TO THE GENERIC EMPr.....	57
PART B: SECTION 2 .....		59
7	SITE SPECIFIC INFORMATION AND DECLARATION .....	59
7.1	Sub-section 1: contact details and description of the project .....	59
7.2	Sub-section 2: Development footprint site map .....	61
7.3	Sub-section 3: Declaration.....	61

7.4	Sub-section 4: amendments to site specific information (Part B; section 2) .....	62
	PART C.....	64
8	SITE SPECIFIC ENVIRONMENTAL ATTRIBUTES.....	64
	APPENDIX 1: METHOD STATEMENTS .....	65

**List of figures**

Figure 1: Example of an environmental sensitivity map in the context of a final overhead transmission and distribution profile .....	61
--	----

**List of tables**

Table 1: Guide to roles and responsibilities for implementation of an EMPr.....	8
---	---

## **INTRODUCTION**

### **1. Background**

The National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) requires that an environmental management programme (EMPr) be submitted where an environmental impact assessment (EIA) has been identified as the environmental instrument to be utilised as the basis for a decision on an application for environmental authorisation (EA). The content of an EMPr must either contain the information set out in Appendix 4 of the Environmental Impact Assessment Regulations, 2014, as amended, (EIA Regulations) or must be a generic EMPr relevant to an application as identified and gazetted by the Minister in a government notice. Once the Minister has identified, through a government notice, that a generic EMPr is relevant to an application for EA, that generic EMPr must be applied by all parties involved in the EA process, including, but not limited to, the applicant and the competent authority (CA).

### **2. Purpose**

This document constitutes a generic EMPr relevant to applications for the development or expansion of overhead electricity transmission and distribution infrastructure, and all listed and specified activities necessary for the realisation of such infrastructure.

### **3. Objective**

The objective of this generic EMPr is to prescribe and pre-approve generally accepted impact management outcomes and impact management actions, which can commonly and repeatedly be used for the avoidance, management and mitigation of impacts and risks associated with the development or expansion of overhead electricity transmission and distribution infrastructure. The use of a generic EMPr is intended to reduce the need to prepare and review individual EMPrs for applications of a similar nature.

### **4. Scope**

The scope of this generic EMPr applies to the development or expansion of overhead electricity transmission and distribution infrastructure requiring EA in terms of NEMA, i.e. with a capacity of 33 kilovolts or more. This generic EMPr applies to activities requiring EA, mainly activity 11 and 47 of the Environmental Impact Assessment Regulations Listing Notice 1 of 2014, as amended, and activity 9 of the Environmental Impact Assessment Regulations Listing Notice 2 of 2014, as amended, and all associated listed or specified activities necessary for the realisation of such infrastructure.

## 5. Structure of this document

This document is structured in three parts with an Appendix as indicated in the table below:

Part	Section	Heading	Content
A		Provides general guidance and information and is <b>not legally binding</b>	Definitions, acronyms, roles & responsibilities and documentation and reporting.
B	1	Pre-approved generic EMPr template	<p>Contains generally accepted impact management outcomes and impact management actions required for the avoidance, management and mitigation of impacts and risks associated with the development or expansion of overhead electricity transmission and distribution infrastructure, which are presented in the form of a template that has been pre-approved.</p> <p>The template in this section is to be completed by the contractor, with each completed page signed and dated by the holder of the EA prior to commencement of the activity.</p> <p>Where an impact management outcome is not relevant, the words "not applicable" can be inserted in the template under the "responsible persons" column.</p> <p>Once completed and signed, the template represents the EMPr for the activity approved by the CA and is legally binding. The template <b>is not required</b> to be submitted to the CA as once the generic EMPr is gazetted for implementation, it has been approved by the CA.</p> <p>To allow interested and affected parties access to the pre-approved EMPr template for consideration through the decision-making process, the EAP on behalf of the applicant /proponent must make the hard copy of this EMPr available at a public location and where the applicant has a website, the EMPr should also be made available on such publicly accessible website.</p>
	2	Site specific information	Contains preliminary infrastructure layout and a declaration that the applicant/holder of the EA will comply with the pre-approved generic EMPr

Part	Section	Heading	Content
			<p>template contained in <u>Part B: Section 1</u>, and understands that the impact management outcomes and impact management actions are <b>legally binding</b>. The preliminary infrastructure layout must be finalized to inform the final EMPr that is to be submitted with the basic assessment report (BAR) or environmental impact assessment report (EIAR), ensuring that all impact management outcomes and actions have been either pre-approved or approved in terms of <u>Part C</u>.</p> <p>This section <b>must be</b> submitted to the CA together with the final BAR or EIAR. The information submitted to the CA will be considered to be incomplete should a signed copy of <u>Part B: section 2</u> not be submitted. Once approved, this Section forms part of the EMPr for the development and is legally binding.</p>
C		Site specific sensitivities/ attributes	<p>If any specific environmental sensitivities/ attributes are present on the site which require site specific impact management outcomes and impact management actions, not included in the pre-approved generic EMPr, to manage impacts, these specific impact management outcomes and impact management actions must be included in this section. These specific environmental attributes must be referenced spatially and impact management outcomes and impact management actions must be provided. These specific impact management outcomes and impact management actions must be presented in the format of the pre-approved EMPr template (<u>Part B: section 1</u>)</p> <p>This section will not be required should the site contain no specific environmental sensitivities or attributes. However, if <u>Part C</u> is applicable to the site, it <b>is required</b> to be submitted together with the BAR or EIAR, for consideration of, and decision on, the application for EA. The information in this section must be prepared by an EAP, and must contain his/her name and expertise including a curriculum vitae. Once approved, Part C forms part of the EMPr for the site and is legally binding.</p>

Part	Section	Heading	Content
			This section applies only <b>to additional</b> impact management outcomes and impact management actions that are necessary for the avoidance, management and mitigation of impacts and risks associated with the specific development or expansion and which are not already included in <u>Part B: section 1</u> .
	Appendix 1		Contains the method statements to be prepared prior to commencement of the activity. The method statements are <b>not required</b> to be submitted to the competent authority.

## 6. Completion of part B: section 1: the pre-approved generic EMPr template

The template is to be completed prior to commencement of the activity, by providing the following information for each environmental impact management action:

- For implementation
  - a 'responsible person',
  - a method for implementation,
  - a timeframe for implementation
- For monitoring
  - a responsible person
  - frequency
  - evidence of compliance.

The completed template must be signed and dated by the holder of the EA prior to commencement of the activity. The method statements prepared and agreed to by the holder of the EA must be appended to the template as Appendix 1. Each method statement must be signed and dated on each page by the holder of the EA. This template, once signed and dated, is legally binding. The holder of the EA will remain responsible for its implementation.

## 7. Amendments of the impact management outcomes and impact management actions

Once the activity has commenced, a holder of an EA may make amendments to the impact management outcomes and impact management actions in the following manner:

- Amendment of the impact management outcomes: in line with the process contemplated in regulation 37 of the EIA Regulations; and
- Amendment of the impact management actions: in line with the process contemplated in regulation 36 of the EIA Regulations.



## 8. Documents to be submitted as part of part B: section 2 site specific information and declaration

Part B: Section 2 has three distinct sub-sections. The first and third sub-sections are in a template format. Sub-section two requires a map to be produced.

Sub-section 1 contains the project name, the applicant's name and contact details, the site information, which includes coordinates of the corridor in which the proposed overhead electricity transmission and distribution infrastructure is proposed as well as the 21-digit Surveyor General code of each cadastral land parcel and, where available, the farm name.

Sub-section 2 is to be prepared by an EAP and must contain his/her name and expertise including a curriculum vitae. This sub-section must include a map of the site sensitivity overlaid with the preliminary infrastructure layout using the national web based environmental screening tool, when available for compulsory use at: <https://screening.environment.gov.za/screeningtool>. The sensitivity map shall identify the nature of each sensitive feature e.g. raptor nest, threatened plant species, archaeological site, etc. Sensitivity maps must identify features both within the planned working area and any known sensitive features in the surrounding landscape within 50m from the development footprint. The overhead transmission and distribution profile must be illustrated at an appropriate resolution to enable fine scale interrogation. It is recommended that <20 km of overhead transmission and distribution length is illustrated per page in A3 landscape format. Where considered appropriate, photographs of sensitive features in the context of tower positions must be used.

Sub-section 3 is the declaration that the applicant/proponent or holder of the EA in the case of a change of ownership must complete, which confirms that the applicant/EA holder will comply with the pre-approved generic EMPr template in Section 1 and understands that the impact management outcomes and actions are legally binding.

### (a) Amendments to Part B: Section 2 – site specific information and declaration

Should the EA be transferred, Part B: Section 2 must be completed by the new applicant/proponent and submitted with the application for an amendment of the EA in terms of Regulations 29 or 31 of the EIA Regulations, whichever applies. The information submitted as part of such an application for an amendment to an EA will be considered to be incomplete should a signed copy of Part B: Section 2 not be submitted. Once approved, Part B: Section 2 forms part of the EMPr for the development and the EMPr becomes legally binding to the new EA holder.

## PART A – GENERAL INFORMATION

### 1. DEFINITIONS

In this EMPr any word or expression to which a meaning has been assigned in the NEMA or EIA Regulations has that meaning, and unless the context requires otherwise –

**"clearing"** means the clearing and removal of vegetation, whether partially or in whole, including trees and shrubs, as specified;

**"construction camp"** is the area designated for key construction infrastructure and services, including but not limited to offices, overnight vehicle parking areas, stores, the workshop, stockpile and lay down areas, hazardous 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"** - The Contractor has overall responsibility for ensuring that all work, activities, and actions linked to the delivery of the contract, are in line with the Environmental Management Programme and that Method Statements are implemented as described.

**"hazardous substance"** is a substance governed by the Hazardous Substances Act, 1973 (Act No. 15 of 1973) as well as the Hazardous Chemical and Substances Regulations, 1995;

**"method statement"** means a written submission by the Contractor to the Project Manager in response to this EMPr or a request by the Project Manager and ECO. The method statement must set out the equipment, materials, labour and method(s) the Contractor proposes using to carry out an activity identified by the Project Manager when requesting the Method Statement. This must be done in such detail that the Project Manager and ECO is able to assess whether the Contractor's proposal is in accordance with this specification and/or will produce results in accordance with this specification;

The method statement must cover applicable details with regard to:

- (i) Construction procedures;
- (ii) Plant, materials and equipment to be used;
- (iii) Transporting the equipment to and from site;
- (iv) How the plant/ material/ equipment will be moved while on site;
- (v) How and where the plant/ material/ equipment will be stored;
- (vi) The containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur;
- (vii) Timing and location of activities;
- (viii) Compliance/ non-compliance; and
- (ix) Any other information deemed necessary by the Project Manager.

**"slope"** means the inclination of a surface expressed as one unit of rise or fall for so many horizontal units;

**“solid waste”** means all solid waste, including construction debris, hazardous waste, excess cement/concrete, wrapping materials, timber, cans, drums, wire, nails, food and domestic waste (e.g. plastic packets and wrappers);

**“spoil”** means excavated material which is unsuitable for use as material in the construction works or is material which is surplus to the requirements of the construction works;

**“topsoil”** means a varying depth (up to 300 mm) of the soil profile irrespective of the fertility, appearance, structure, agricultural potential, fertility and composition of the soil; and

**“works”** means the works to be executed in terms of the Contract

## 2. ACRONYMS and ABBREVIATIONS

<b>CA</b>	Competent Authority
<b>cEO</b>	Contractors Environmental Officer
<b>dEO</b>	Developer Environmental Officer
<b>DPM</b>	Developer Project Manager
<b>DSS</b>	Developer Site Supervisor
<b>EAR</b>	Environmental Audit Report
<b>ECA</b>	Environmental Conservation Act No. 73 of 1989
<b>ECO</b>	Environmental Control Officer
<b>EA</b>	Environmental Authorisation
<b>EIA</b>	Environmental Impact Assessment
<b>ERAP</b>	Emergency Response Action Plan
<b>EMPr</b>	Environmental Management Programme Report
<b>EAP</b>	Environmental Assessment Practitioner
<b>FPA</b>	Fire Protection Agency
<b>HCS</b>	Hazardous chemical Substance
<b>NEMA</b>	National Environmental Management Act, 1998 (Act No. 107 of 1998)
<b>NEMBA</b>	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)
<b>NEMWA</b>	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
<b>MSDS</b>	Material Safety Data Sheet
<b>RI&amp;AP's</b>	Registered interested and affected parties

### 3. ROLES AND RESPONSIBILITIES FOR ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) IMPLEMENTATION

The effective implementation of this generic EMPr is dependent on established and clear roles, responsibilities and reporting lines within an institutional framework. This section of the EMPr gives guidance to the various environmental roles and reporting lines, however, project specific requirements will ultimately determine the need for the appointment of specific person(s) to undertake specific roles and or responsibilities. As such, it must be noted that in the event that no specific person, for example, an environmental control officer (ECO) is appointed, the holder of the EA remains responsible for ensuring that the duties indicated in this document for action by the ECO are undertaken.

**Table 1:** Guide to roles and responsibilities for implementation of an EMPr

Responsible Person (s)	Role and Responsibilities
Developer's Project Manager (DPM)	<p><u>Role</u> 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.</p> <p><u>Responsibilities</u></p> <ul style="list-style-type: none"> <li>- Be fully conversant with the conditions of the EA;</li> <li>- Ensure that all stipulations within the EMPr are communicated and adhered to by the Developer and its Contractor(s);</li> <li>- Issuing of site instructions to the Contractor for corrective actions required;</li> <li>- 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</li> <li>- Ensure that periodic environmental performance audits are undertaken on the project implementation.</li> </ul>
Developer Site Supervisor (DSS)	<p><u>Role</u> The DSS reports directly to the DPM, oversees site works, liaises with the contractor(s) and the ECO. The DSS</p>

Responsible Person (s)	Role and Responsibilities
	<p>is responsible for the day to day implementation of the EMPr and for ensuring the compliance of all contractors with the conditions and requirements stipulated in the EMPr.</p> <p><u>Responsibilities</u></p> <ul style="list-style-type: none"> <li>- Ensure that all contractors identify a contractor's Environmental Officer (cEO);</li> <li>- Must be fully conversant with the conditions of the EA. Oversees site works, liaison with Contractor, DPM and ECO;</li> <li>- Must ensure that all landowners have the relevant contact details of the site staff, ECO and cEO;</li> <li>- Issuing of site instructions to the Contractor for corrective actions required;</li> <li>- Will issue all non-compliances to contractors; and</li> <li>- Ratify the Monthly Environmental Report.</li> </ul>
Environmental Control Officer (ECO)	<p><u>Role</u></p> <p>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 DSS and 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.</p> <p>The ECO provides feedback to the DSS and Project Manager, who in turn reports back to the Contractor and potential and Registered Interested &amp; Affected Parties' (RI&amp;AP's), 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.</p> <p><u>Responsibilities</u></p>

Responsible Person (s)	Role and Responsibilities
	<p>The responsibilities of the ECO will include the following:</p> <ul style="list-style-type: none"> <li>- Be aware of the findings and conclusions of all EA related to the development;</li> <li>- Be familiar with the recommendations and mitigation measures of this EMPr;</li> <li>- Be conversant with relevant environmental legislation, policies and procedures, and ensure compliance with them;</li> <li>- 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;</li> <li>- Educate the construction team about the management measures contained in the EMPr and environmental licenses;</li> <li>- Compilation and administration of an environmental monitoring plan to ensure that the environmental management measures are implemented and are effective;</li> <li>- Monitoring the performance of the Contractors and ensuring compliance with the EMPr and associated Method Statements;</li> <li>- 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;</li> <li>- Liaison between the DPM, Contractors, authorities and other lead stakeholders on all environmental concerns;</li> <li>- Compile a regular environmental audit report highlighting any non-compliance issues as well as satisfactory or exceptional compliance with the EMPr;</li> <li>- Validating the regular site inspection reports, which are to be prepared by the contractor Environmental Officer (cEO);</li> <li>- Checking the cEO's record of environmental incidents (spills, impacts, legal transgressions etc) as well as corrective and preventive actions taken;</li> <li>- Checking the cEO's public complaints register in which all complaints are recorded, as well as action taken;</li> <li>- Assisting in the resolution of conflicts;</li> <li>- Facilitate training for all personnel on the site – this may range from carrying out the training, to reviewing the training programmes of the Contractor;</li> <li>- In case of non-compliances, the ECO must first communicate this to the Senior Site Supervisor, who has the power to ensure this matter is addressed. Should no action or insufficient action be taken, the ECO may report this matter to the authorities as non-compliance;</li> <li>- Maintenance, update and review of the EMPr;</li> <li>- Communication of all modifications to the EMPr to the relevant stakeholders.</li> </ul>
developer Environmental Officer	<u>Role</u>

Responsible Person (s)	Role and Responsibilities
(dEO)	<p>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.</p> <p><u>Responsibilities</u></p> <ul style="list-style-type: none"> <li>- Be fully conversant with the EMPr;</li> <li>- Be familiar with the recommendations and mitigation measures of this EMPr, and implement these measures;</li> <li>- Ensure that all stipulations within the EMPr are communicated and adhered to by the Employees, Contractor(s) ;</li> <li>- Confine the development site to the demarcated area;</li> <li>- Conduct environmental internal audits with regards to EMPr and authorisation compliance (on cEO);</li> <li>- Assist the contractors in addressing environmental challenges on site;</li> <li>- Assist in incident management:</li> <li>- Reporting environmental incidents to developer and ensuring that corrective action is taken, and lessons learnt shared;</li> <li>- Assist the contractor in investigating environmental incidents and compile investigation reports;</li> <li>- Follow-up on pre-warnings, defects, non-conformance reports;</li> <li>- Measure and communicate environmental performance to the Contractor;</li> <li>- Conduct environmental awareness training on site together with ECO and cEO;</li> <li>- Ensure that the necessary legal permits and / or licenses are in place and up to date;</li> <li>- Acting as Developer's Environmental Representative on site and work together with the ECO and contractor;</li> </ul>
Contractor	<p><u>Role</u></p> <p>The Contractor appoints the cEO and has overall responsibility for ensuring that all work, activities, and actions linked to the delivery of the contract are in line with the EMPr and that Method Statements are implemented as described. External contractors must ensure compliance with this EMPr while performing the onsite activities as per their contract with the Project Developer. The contractors are required, where</p>

Responsible Person (s)	Role and Responsibilities
	<p>specified, to provide Method Statements setting out in detail how the impact management actions contained in the EMPr will be implemented during the development or expansion for overhead electricity transmission and distribution infrastructure activities.</p> <p><u>Responsibilities</u></p> <ul style="list-style-type: none"> <li>- project delivery and quality control for the development services as per appointment;</li> <li>- employ a suitably qualified person to monitor and report to the Project Developer's appointed person on the daily activities on-site during the construction period;</li> <li>- ensure that safe, environmentally acceptable working methods and practices are implemented and that equipment is properly operated and maintained, to facilitate proper access and enable any operation to be carried out safely;</li> <li>- attend on site meeting(s) prior to the commencement of activities to confirm the procedure and designated activity zones;</li> <li>- ensure that contractors' staff repair, at their own cost, any environmental damage as a result of a contravention of the specifications contained in EMPr, to the satisfaction of the ECO.</li> </ul>
contractor Environmental Officer (cEO)	<p><u>Role</u></p> <p>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 shall meet the following criteria:</p> <p><u>Responsibilities</u></p> <ul style="list-style-type: none"> <li>- Be on site throughout the duration of the project and be dedicated to the project;</li> <li>- Ensure all their staff are aware of the environmental requirements, conditions and constraints with respect to all of their activities on site;</li> <li>- Implementing the environmental conditions, guidelines and requirements as stipulated within the EA,</li> </ul>



Responsible Person (s)	Role and Responsibilities
	<p>EMPr and Method Statements;</p> <ul style="list-style-type: none"> <li>- Attend the Environmental Site Meeting;</li> <li>- Undertaking corrective actions where non-compliances are registered within the stipulated timeframes;</li> <li>- Report back formally on the completion of corrective actions;</li> <li>- Assist the ECO in maintaining all the site documentation;</li> <li>- Prepare the site inspection reports and corrective action reports for submission to the ECO;</li> <li>- Assist the ECO with the preparing of the monthly report; and</li> <li>- Where more than one Contractor is undertaking work on site, each company appointed as a Contractor will appoint a cEO representing that company.</li> </ul>

## 4. ENVIRONMENTAL DOCUMENTATION REPORTING AND COMPLIANCE

To ensure accountable and demonstrated implementation of the EMPr, a number of reporting systems, documentation controls and compliance mechanisms must be in place for all overhead electricity transmission and distribution infrastructure projects as a minimum requirement.

### 4.1 Document control/Filing system

The holder of the EA is solely responsible for the upkeep and management of the EMPr file. At a minimum, all documentation detailed below will be stored in the EMPr file. A hard copy of all documentation shall be filed, while an electronic copy may be kept where relevant. A duplicate file will be maintained in the office of the DSS (where applicable). This duplicate file must remain current and up-to-date. The filing system must be updated and relevant documents added as required. The EMPr file must be made available at all times on request by the CA or other relevant authorities. The EMPr file will form part of any environmental audits undertaken as prescribed in the EIA Regulations.

### 4.2 Documentation to be available

At the outset of the project the following preliminary list of documents shall be placed in the filing system and be accessible at all times:

- Full copy of the signed EA from the CA in terms of NEMA, granting approval for the development or expansion;
- Copy of the generic and site specific EMPr as well as any amendments thereof;
- Copy of declaration of implementing generic EMPr and subsequent approval of site specific EMPr and amendments thereof;
- All method statements;
- Completed environmental checklists;
- Minutes and attendance register of environmental site meetings;
- An up-to-date environmental incident log;
- A copy of all instructions or directives issued;
- A copy of all corrective actions signed off. The corrective actions must be filed in such a way that a clear reference is made to the non-compliance record;
- Complaints register.

### 4.3 Weekly Environmental Checklist

The ECOs are required to complete a Weekly Environmental Checklist, the format of which is to be agreed prior to commencement of the activity. The ECOs are required to sign and date the checklist, retain a copy in the EMPr file and submit a copy of the completed checklist to the DSS on a weekly basis.

The checklists will form the basis for the Monthly Environmental Reports. Copies of all completed checklists will be attached as Annexures to the Environmental Audit Report as required in terms of the EIA Regulations.

#### 4.4 Environmental site meetings

Minutes of the environmental site meetings shall be kept. The minutes must include an attendance register and will be attached to the Monthly Report that is distributed to attendees. Each set of minutes must clearly record "Matters for Attention" that will be reviewed at the next meeting.

#### 4.5 Required Method Statements

The method statement will be done in such detail that the ECOs are enabled to assess whether the contractor's proposal is in accordance with the EMPr.

The method statement must cover applicable details with regard to:

- development procedures;
- materials and equipment to be used;
- getting the 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 EMPr; and
- any other information deemed necessary by the ECOs.

Unless indicated otherwise by the Project Manager, the Contractor shall provide the following method statements to the Project Manager no less than 14 days prior to the commencement date of the activity:

- Site establishment – Camps, Lay-down or storage areas, satellite camps, infrastructure;
- Batch plants;
- Workshop or plant servicing;
- Handling, transport and storage of Hazardous Chemical Substance's;
- Vegetation management – Protected, clearing, aliens, felling;
- Access management – Roads, gates, crossings etc.;
- Fire plan;
- Waste management – transport, storage, segregation, classification, disposal (all waste streams);
- Social interaction – complaints management, compensation claims, access to properties etc.;
- Water – use (source, abstraction and disposal), access and all related information, crossings and mitigation;
- Emergency preparedness – Spills, training, other environmental emergencies;
- Dust and noise management methodologies;
- Fauna interaction and risk management – only if the risk was identified – wildlife interaction especially on game farms; and
- Heritage and palaeontology management.

The ECOs shall monitor and ensure that the contractors perform in accordance with these method statements. Completed and agreed method statements between the holder of the EA and the contractor shall be captured in Appendix 1.

#### 4.6 Environmental Incident Log (Diary)

The ECOs are required to maintain an up-to-date and current Environmental Incident Log (environmental diary). The Environmental Incident Log is a means to record all environmental incidents and/or all non-compliance notice would not be issued. An environmental incident is defined as:

- Any deviation from the listed impact management actions (listed in this EMPr) that may be addressed immediately by the ECOs. (For example a contractor's staff member littering or a drip tray that has not been emptied);
- Any environmental impact resulting from an action or activity by a contractor in contravention of the environmental stipulations and guidelines listed in the EMPr which as a single event would have a minor impact but which if cumulative and continuous would have a significant effect (for example no toilet paper available in the ablutions for an afternoon); and
- General environmental information such as road kills or injured wildlife.

The ECOs are to record all environmental incidents in the Environmental Incident Log. All incidents regardless of severity must be reported to the Developer. The Log is to be kept in the EMPr file and at a minimum the following will be recorded for each environmental incident:

- The date and time of the incident;
- Description of the incident;
- The name of the Contractor responsible;
- The incident must be listed as significant or minor;
- If the incident is listed as significant, a non-compliance notice must be issued, and recorded in the log;
- Remedial or corrective action taken to mitigate the incident; and
- Record of repeat minor offences by the same contractor or staff member.

The Environmental Incident Log will be captured in the EAR.

#### 4.7 Non-compliance

A non-compliance notice will be issued to the responsible contractor by the ECOs via the DSS or Project Manager. The non-compliance notice will be issued in writing; a copy filed in the EMPr file and will at a minimum include the following:

- Time and date of the non-compliance;
- Name of the contractor responsible;
- Nature and description of the non-compliance;
- Recommended / required corrective action; and
- Date by which the corrective action to be completed.
- The contractors shall act immediately when a notice of non-compliance is received and correct whatever is the cause for the issuing of the notice. Complaints

received regarding activities on the development site pertaining to the environment shall be recorded in a dedicated register and the response noted with the date and action taken. The ECO should be made aware of any complaints. Any non-compliance with the agreed procedures of the EMPr is a transgression of the various statutes and laws that define the manner by which the environment is managed. Failure to redress the cause shall be reported to the relevant CA for them to deal with the transgression, as it deems fit. The contractor is deemed not to have complied with the EMPr if, inter alia, There is a deviation from the environmental conditions, impact management outcomes and impact management actions , as approved in generic and site specific EMPr as relevant as set out in the EMPr, which deviation has, or may cause, an environmental impact.

#### 4.8 Corrective action records

For each non-compliance notice issued, a documented corrective action must be recorded. On receiving a non-compliance notice from the DSS, the contractor's cEO will ensure that the corrective actions required take place within the stipulated timeframe. On completion of the corrective action the cEO is to issue a Corrective Action Report in writing to the ECOs. If satisfied that the corrective action has been completed, the ECOs are to sign-off on the Corrective Action Report, and attach the report to the non-compliance notice in the EMPr file. A corrective action is considered complete once the report has signed off by the ECOs.

#### 4.9 Photographic record

A digital photographic record will be kept. The photographic record will be used to show before, during and post rehabilitation evidence of the project as well used in cases of damages claims if they arise. Each image must be dated and a brief description note attached.

The Contractor shall:

1. Allow the ECOs access to take photographs of all areas, activities and actions.

The ECOs shall keep an electronic database of photographic records which will include:

1. Pictures of all areas designated as work areas, camp areas, development sites and storage areas taken before these areas are set up;
2. All bunding and fencing;
3. Road conditions and road verges;
4. Condition of all farm fences;
5. Topsoil storage areas;
6. All areas to be cordoned off during construction;
7. Waste management sites;
8. Ablution facilities (inside and out);
9. Any non-conformances deemed to be "significant";
10. All completed corrective actions for non-compliances;
11. All required signage;
12. Photographic recordings of incidents;
13. All areas before, during and post rehabilitation; and
14. Include relevant photographs in the Final Environmental Audit Report.

#### 4.10 Complaints register

The ECOs shall keep a current and up-to-date complaints register. The complaints register is to be a record of all complaints received from communities, stakeholders and individuals. The Complaints Record shall:

1. Record the name and contact details of the complainant;
2. Record the time and date of the complaint;
3. Contain a detailed description of the complaint;
4. Where relevant and appropriate, contain photographic evidence of the complaint or damage (ECOs to take relevant photographs); and
5. Contain a copy of the ECOs written response to each complaint received and keep a record of any further correspondence with the complainant. The ECO's written response will include a description of any corrective action to be taken and must be signed by the Contractor, ECO and affected party. Where a damage claim is issued by the complainant, the ECOs shall respond as described in **(section 4.11)** below.

#### 4.11 Claims for damages

In the event that a Claim for Damages is submitted by a community, landowner or individual, the ECOs shall:

1. Record the full detail of the complaint as described in **(section 4.10)** above;
2. The DPM will evaluate the claim and associated damage and submit the evaluation to the Senior Site Representative for approval;
3. Following consideration by the DPM, the claim is to be resolved and settled immediately, or the reason for not accepting the claim communicated in writing to the claimant. Should the claimant not accept this, the ECO shall, in writing report the incident to the Developer's negotiator and legal department; and
4. A formal record of the response by the ECOs to the claimant as well as the rectification of the method of making payments not amount will be recorded in the EMPr file.

#### 4.12 Interactions with affected parties

Open, transparent and good relations with affected landowners, communities and regional staff are an essential aspect to the successful management and mitigation of environmental impacts.

The ECOs shall:

1. Ensure that all queries, complaints and claims are dealt within an agreed timeframe;
2. Ensure that any or all agreements are documented, signed by all parties and a record of the agreement kept in the EMPr file;
3. Ensure that a complaints telephone numbers are made available to all landowners and affected parties; and
4. Ensure that contact with affected parties is courteous at all times;

#### 4.13 Environmental audits

Internal environmental audits of the activity and implementation of the EMPr must be undertaken. The findings and outcomes must be included in the EMPr file and be submitted to the CA at intervals as indicated in the EA.

An Environmental Audit Report must be prepared monthly. The report will be tabled as the key point on the agenda of the Environmental Site Meeting. The Report is submitted for acceptance at the meeting and the final report will be circulated to the Project Manager and filed in the EMPr file. At a frequency determined by the EA, the ECOs shall submit the monthly reports to the CA. At a minimum the monthly report is to cover the following:

- Weekly Environmental Checklists;
- Deviations and non-compliances with the checklists;
- Non-compliances issued;
- Completed and reported corrective actions;
- Environmental Monitoring;
- General environmental findings and actions; and
- Minutes of the Bi-monthly Environmental Site Meetings.

#### 4.14 Final environmental audits

On final completion of the rehabilitation and/or requirements of the EA a final EAR is to be prepared and submitted to the CA. The EAR must comply with Appendix 7 of the EIA Regulations.

**PART B: SECTION 1: Pre-approved generic EMPr template**

**5. IMPACT MANAGEMENT OUTCOMES AND IMPACT MANAGEMENT ACTIONS**

This section provides a pre-approved generic EMPr template with aspects that are common to the development of overhead electricity transmission and distribution infrastructure. There is a list of aspects identified for the development or expansion of overhead electricity transmission and distribution infrastructure, and for each aspect a set of prescribed impact management outcomes and associated impact management actions have been identified. Holders of EAs are responsible to ensure the implementation of these outcomes and actions for all projects as a minimum requirement, in order to mitigate the impact of such aspects identified for the development or expansion of overhead electricity transmission and distribution infrastructure.

The template provided below is to be completed by providing the information under each heading for each environmental impact management action.

The completed template must be signed and dated on each page by both the contractor and the holder of the EA prior to commencement of the activity. The method statements prepared and agreed to by the holder of the EA must be appended to the template as Appendix 1. Each method statement must also be duly signed and dated on each page by the contractor and the holder of the EA. This template, once signed and dated, is legally binding. The holder of the EA will remain responsible for its implementation.



**5.1 Environmental awareness training**

**Impact management outcome:** All onsite staff are aware and understands the individual responsibilities in terms of this EMPr.

act Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>- All staff must receive environmental awareness training prior to commencement of the activities;</li> <li>- The Contractor must allow for sufficient sessions to train all personnel with no more than 20 personnel attending each course;</li> <li>- Refresher environmental awareness training is available as and when required;</li> <li>- 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;</li> <li>- The Contractor must erect and maintain information posters at key locations on site, and the posters must include the following information as a minimum:               <ul style="list-style-type: none"> <li>a) Safety notifications; and</li> <li>b) No littering.</li> </ul> </li> <li>- Environmental awareness training must include as a minimum the following:               <ul style="list-style-type: none"> <li>a) Description of significant environmental impacts, actual or potential, related to their work activities;</li> <li>b) Mitigation measures to be implemented when carrying out specific activities;</li> <li>c) Emergency preparedness and response</li> </ul> </li> </ul>						

<p>procedures;</p> <ul style="list-style-type: none"> <li>d) Emergency procedures;</li> <li>e) Procedures to be followed when working near or within sensitive areas;</li> <li>f) Wastewater management procedures;</li> <li>g) Water usage and conservation;</li> <li>h) Solid waste management procedures;</li> <li>i) Sanitation procedures;</li> <li>j) Fire prevention; and</li> <li>k) Disease prevention.</li> </ul> <ul style="list-style-type: none"> <li>- A record of all environmental awareness training courses undertaken as part of the EMPr must be available;</li> <li>- Educate workers on the dangers of open and/or unattended fires;</li> <li>- A staff attendance register of all staff to have received environmental awareness training must be available.</li> <li>- Course material must be available and presented in appropriate languages that all staff can understand.</li> </ul>						
---	--	--	--	--	--	--

**5.2 Site Establishment development**



**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
<ul style="list-style-type: none"> <li>- 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;</li> <li>- Location of 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;</li> <li>- Sites must be located where possible on previously disturbed areas;</li> <li>- The camp must be fenced in accordance with <b>Section 5.5: Fencing and gate installation</b>; and</li> <li>- The use of existing accommodation for contractor staff, where possible, is encouraged.</li> </ul>						

**5.3 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
<ul style="list-style-type: none"> <li>- Identification of access restricted areas is to be informed by the environmental assessment, site walk through and any additional areas identified during development;</li> <li>- 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; and</li> <li>- Unauthorised access and development related activity inside access restricted areas is prohibited.</li> </ul>						

**5.4 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
<ul style="list-style-type: none"> <li>- Access to the servitude and tower positions must be negotiated with the relevant landowner and must fall within the assessed and authorised area;</li> <li>- An access agreement must be formalised and signed by the DPM, Contractor and landowner before commencing with the activities;</li> </ul>						

<ul style="list-style-type: none"> <li>- The access roads to tower positions must be signposted after access has been negotiated and before the commencement of the activities;</li> <li>- 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</li> <li>- All contractors must be made aware of all these access routes.</li> <li>- Any access route deviation from that in the written agreement must be closed and re-vegetated immediately, at the contractor's expense;</li> <li>- Maximum use of both existing servitudes and existing roads must be made to minimize further disturbance through the development of new roads;</li> <li>- In circumstances where private roads must be used, the condition of the said roads must be recorded in accordance with <b>section 4.9: photographic record</b>; prior to use and the condition thereof agreed by the landowner, the DPM, and the contractor;</li> <li>- Access roads in flattish areas must follow fence lines and tree belts to avoid fragmentation of vegetated areas or croplands</li> <li>- Access roads must only be developed on pre-planned and approved roads.</li> </ul>						
--	--	--	--	--	--	--

**5.5 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
<ul style="list-style-type: none"> <li>- Use existing gates provided to gain access to all parts of the area authorised for development, where possible;</li> <li>- Existing and new gates to be recorded and documented in accordance with <b>section 4.9: photographic record</b>;</li> <li>- All gates must be fitted with locks and be kept locked at all times during the development phase, unless otherwise agreed with the landowner;</li> <li>- At points where the line crosses a fence in which there is no suitable gate within the extent of the line servitude, on the instruction of the DPM, a gate must be installed at the approval of the landowner;</li> <li>- 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;</li> <li>- Where gates are installed in jackal proof fencing, a suitable reinforced concrete sill must be provided beneath the gate;</li> <li>- Original tension must be maintained in the fence wires;</li> <li>- All gates installed in electrified fencing must be re-electrified;</li> <li>- All demarcation fencing and barriers must be maintained in good working order for the duration of overhead transmission and distribution electricity infrastructure development activities;</li> <li>- Fencing must be erected around the camp, batching plants, hazardous storage areas, and all designated access</li> </ul>						

<p>restricted areas, where appropriate and would not cause harm to the sensitive flora;</p> <ul style="list-style-type: none"> <li>- Any temporary fencing to restrict the movement of life-stock must only be erected with the permission of the land owner.</li> <li>- All fencing must be developed of high quality material bearing the SABS mark;</li> <li>- The use of razor wire as fencing must be avoided;</li> <li>- 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;</li> <li>- On completion of the development phase all temporary fences are to be removed;</li> <li>- The contractor must ensure that all fence uprights are appropriately removed, ensuring that no uprights are cut at ground level but rather removed completely.</li> </ul>						
--	--	--	--	--	--	--

**5.6 Water Supply Management**

<p><b>Impact management outcome:</b> Undertake responsible water usage.</p>						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>- All abstraction points or bore holes must be registered with the DWS and suitable water meters installed to ensure that the abstracted volumes are measured on a daily basis;</li> <li>- The Contractor must ensure the following: <ul style="list-style-type: none"> <li>a. The vehicle abstracting water from a river does not enter</li> </ul> </li> </ul>						

<p>or cross it and does not operate from within the river;</p> <p>b. No damage occurs to the river bed or banks and that the abstraction of water does not entail stream diversion activities; and</p> <p>c. All reasonable measures to limit pollution or sedimentation of the downstream watercourse are implemented.</p> <p>– Ensure water conservation is being practiced by:</p> <p>a. Minimising water use during cleaning of equipment;</p> <p>b. Undertaking regular audits of water systems; and</p> <p>c. Including a discussion on water usage and conservation during environmental awareness training.</p> <p>d. The use of grey water is encouraged.</p>						
--	--	--	--	--	--	--

**5.7 Storm and waste water management**

**Impact management outcome:** Impacts to the environment caused by storm water 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
<ul style="list-style-type: none"> <li>– 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;</li> <li>– 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;</li> <li>– Natural storm water runoff not contaminated during the</li> </ul>						



<p>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;</p> <ul style="list-style-type: none"> <li>– 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.</li> </ul>						
--	--	--	--	--	--	--

**5.8 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
<ul style="list-style-type: none"> <li>– All measures regarding waste management must be undertaken using an integrated waste management approach;</li> <li>– Sufficient, covered waste collection bins (scavenger and weatherproof) must be provided;</li> <li>– A suitably positioned and clearly demarcated waste collection site must be identified and provided;</li> <li>– The waste collection site must be maintained in a clean and orderly manner;</li> </ul>						

<ul style="list-style-type: none"> <li>- Waste must be segregated into separate bins and clearly marked for each waste type for recycling and safe disposal;</li> <li>- Staff must be trained in waste segregation;</li> <li>- Bins must be emptied regularly;</li> <li>- General waste produced onsite must be disposed of at registered waste disposal sites/ recycling company;</li> <li>- Hazardous waste must be disposed of at a registered waste disposal site;</li> <li>- Certificates of safe disposal for general, hazardous and recycled waste must be maintained.</li> </ul>						
--	--	--	--	--	--	--

**5.9 Protection of watercourses and estuaries**

<p><b>Impact management outcome:</b> Pollution and contamination of the watercourse environment and or estuary erosion are prevented.</p>						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>- 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;</li> <li>- In the event of a spill, prompt action must be taken to clear the polluted or affected areas;</li> <li>- Where possible, no development equipment must traverse any seasonal or permanent wetland</li> <li>- No return flow into the estuaries must be allowed and no disturbance of the Estuarine Functional Zone should occur;</li> </ul>						

<ul style="list-style-type: none"> <li>- Development of permanent watercourse or estuary crossing must only be undertaken where no alternative access to tower position is available;</li> <li>- There must not be any impact on the long term morphological dynamics of watercourses or estuaries;</li> <li>- Existing crossing points must be favored over the creation of new crossings (including temporary access)</li> <li>- When working in or near any watercourse or estuary, the following environmental controls and consideration must be taken: <ul style="list-style-type: none"> <li>a) Water levels during the period of construction; No altering of the bed, banks, course or characteristics of a watercourse</li> <li>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;</li> <li>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</li> <li>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.</li> </ul> </li> </ul>						
--	--	--	--	--	--	--

**5.10 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
<p><b>General:</b></p> <ul style="list-style-type: none"> <li>- Indigenous vegetation which does not interfere with the development must be left undisturbed;</li> <li>- Protected or endangered species may occur on or near the development site. Special care should be taken not to damage such species;</li> <li>- 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;</li> <li>- Permits for removal must be obtained from the Department of Agriculture, Forestry and Fisheries prior to the cutting or clearing of the affected species, and they must be filed;</li> <li>- 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;</li> <li>- Trees felled due to construction must be documented and form part of the Environmental Audit Report;</li> <li>- Rivers and watercourses must be kept clear of felled trees, vegetation cuttings and debris;</li> <li>- 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, supervision of a registered</li> </ul>						

<p>pest control operator or is appropriately trained;</p> <ul style="list-style-type: none"> <li>- A daily register must be kept of all relevant details of herbicide usage;</li> <li>- No herbicides must be used in estuaries;</li> <li>- All protected species and sensitive vegetation not removed must be clearly marked and such areas fenced off in accordance to <b>Section 5.3: Access restricted areas.</b></li> </ul> <p><b>Servitude:</b></p> <ul style="list-style-type: none"> <li>- Vegetation that does not grow high enough to cause interference with overhead transmission and distribution infrastructures, or cause a fire hazard to any plantation, must not be cut or trimmed unless it is growing in the road access area, and then only at the discretion of the Project Manager;</li> <li>- 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 land owner and the EA holder</li> <li>- 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;</li> <li>- 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;</li> <li>- 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;</li> <li>- In the case of the development of new overhead transmission and distribution infrastructures, a one metre "trace-line" must be cut through the vegetation for stringing</li> </ul>						
--	--	--	--	--	--	--

purposes only and no vehicle access must be cleared along the "trace-line". Alternative methods of stringing which limit impact to the environment must always be considered.						
---	--	--	--	--	--	--

**5.11 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
<ul style="list-style-type: none"> <li>- No interference with livestock must occur without the landowner's written consent and with the landowner or a person representing the landowner being present;</li> <li>- The breeding sites of raptors and other wild birds species must be taken into consideration during the planning of the development programme;</li> <li>- 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;</li> <li>- Nesting sites on existing parallel lines must documented;</li> <li>- Special recommendations of the avian specialist must be adhered to at all times to prevent unnecessary disturbance of birds;</li> <li>- Bird guards and diverters must be installed on the new line as per the recommendations of the specialist;</li> <li>- 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;</li> <li>- No deliberate or intentional killing of fauna is allowed;</li> </ul>						

<ul style="list-style-type: none"> <li>- In areas where snakes are abundant, snake deterrents to be deployed on the pylons to prevent snakes climbing up, being electrocuted and causing power outages; and</li> <li>- 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.</li> </ul>						
--	--	--	--	--	--	--

**5.12 Protection of heritage 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
<ul style="list-style-type: none"> <li>- Identify, demarcate and prevent impact to all known sensitive heritage features on site in accordance with the No-Go procedure in <b>Section 5.3: Access restricted areas;</b></li> <li>- Carry out general monitoring of excavations for potential fossils, artefacts and material of heritage importance;</li> <li>- 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</li> </ul>						

remove/collect such material before development recommences.						
--	--	--	--	--	--	--

### 5.13 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
<ul style="list-style-type: none"> <li>- 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.;</li> <li>- All unattended open excavations must be adequately fenced or demarcated;</li> <li>- Adequate protective measures must be implemented to prevent unauthorised access to and climbing of partly constructed towers and protective scaffolding;</li> <li>- Ensure structures vulnerable to high winds are secured;</li> <li>- Maintain an incidents and complaints register in which all incidents or complaints involving the public are logged.</li> </ul>						

### 5.14 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
<ul style="list-style-type: none"> <li>- Mobile chemical toilets are installed onsite if no other ablution facilities are available;</li> <li>- 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;</li> <li>- Where mobile chemical toilets are required, the following must be ensured: <ul style="list-style-type: none"> <li>a) Toilets are located no closer than 100 m to any watercourse or water body;</li> <li>b) Toilets are secured to the ground to prevent them from toppling due to wind or any other cause;</li> <li>c) No spillage occurs when the toilets are cleaned or emptied and the contents are managed in accordance with the EMPr;</li> <li>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;</li> <li>e) Toilets are emptied before long weekends and workers holidays, and must be locked after working hours;</li> <li>f) Toilets are serviced regularly and the ECO must inspect toilets to ensure compliance to health standards;</li> </ul> </li> <li>- A copy of the waste disposal certificates must be maintained.</li> </ul>						

**5.15 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
<ul style="list-style-type: none"> <li>- Undertake environmentally-friendly pest control in the camp area;</li> <li>- Ensure that the workforce is sensitised to the effects of sexually transmitted diseases, especially HIV AIDS;</li> <li>- The Contractor must ensure that information posters on AIDS are displayed in the Contractor Camp area;</li> <li>- Information and education relating to sexually transmitted diseases to be made available to both construction workers and local community, where applicable;</li> <li>- Free condoms must be made available to all staff on site at central points;</li> <li>- Medical support must be made available;</li> <li>- Provide access to Voluntary HIV Testing and Counselling Services.</li> </ul>						

**5.16 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
<ul style="list-style-type: none"> <li>- Compile an Emergency Response Action Plan (ERAP) prior to the commencement of the proposed project;</li> <li>- The Emergency Plan must deal with accidents, potential spillages and fires in line with relevant legislation;</li> <li>- All staff must be made aware of emergency procedures as part of environmental awareness training;</li> <li>- The relevant local authority must be made aware of a fire as soon as it starts;</li> <li>- In the event of emergency necessary mitigation measures to contain the spill or leak must be implemented (see <b>Hazardous Substances section 5.17</b>).</li> </ul>						

**5.17 Hazardous substances**

**Impact management outcome:** Safe storage, handling, use and disposal of hazardous substances.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>- The use and storage of hazardous substances to be minimised and non-hazardous and non-toxic alternatives</li> </ul>						

<p>substituted where possible;</p> <ul style="list-style-type: none"> <li>- All hazardous substances must be stored in suitable containers as defined in the Method Statement;</li> <li>- Containers must be clearly marked to indicate contents, quantities and safety requirements;</li> <li>- All storage areas must be bunded. The bunded area must be of sufficient capacity to contain a spill / leak from the stored containers;</li> <li>- Bunded areas to be suitably lined with a SABS approved liner;</li> <li>- An Alphabetical Hazardous Chemical Substance (HCS) control sheet must be drawn up and kept up to date on a continuous basis;</li> <li>- All hazardous chemicals that will be used on site must have Material Safety Data Sheets (MSDS);</li> <li>- All employees working with HCS must be trained in the safe use of the substance and according to the safety data sheet;</li> <li>- 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;</li> <li>- The Contractor must ensure that diesel and other liquid fuel, oil and hydraulic fluid is stored in appropriate storage tanks or in bowsers;</li> <li>- 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);</li> </ul>						
--	--	--	--	--	--	--

<ul style="list-style-type: none"> <li>- The floor of the bund must be sloped, draining to an oil separator;</li> <li>- Provision must be made for refueling at the storage area 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;</li> <li>- All empty externally dirty drums must be stored on a drip tray or within a bunded area;</li> <li>- No unauthorised access into the hazardous substances storage areas must be permitted;</li> <li>- No smoking must be allowed within the vicinity of the hazardous storage areas;</li> <li>- Adequate fire-fighting equipment must be made available at all hazardous storage areas;</li> <li>- Where refueling away from the dedicated refueling station is required, a mobile refueling unit must be used. Appropriate ground protection such as drip trays must be used;</li> <li>- 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;</li> <li>- The responsible operator must have the required training to make use of the spill kit in emergency situations;</li> <li>- An appropriate number of spill kits must be available and must be located in all areas where activities are being undertaken;</li> <li>- 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 <b>Section 5.7</b> for procedures concerning <b>storm and waste water management</b> and <b>5.8</b> for <b>solid and hazardous waste management</b>.</li> </ul>						
---	--	--	--	--	--	--

**5.18 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
<ul style="list-style-type: none"> <li>- Where possible and practical all maintenance of vehicles and equipment must take place in the workshop area;</li> <li>- 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. The relevant local authority must be made aware of a fire as soon as it starts;</li> <li>- Leaking equipment must be repaired immediately or be removed from site to facilitate repair;</li> <li>- Workshop areas must be monitored for oil and fuel spills;</li> <li>- Appropriately sized spill kit kept onsite relevant to the scale of the activity taking place must be available;</li> <li>- 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;</li> <li>- Water drainage from the workshop must be contained and managed in accordance <b>Section 5.7: storm and waste water management.</b></li> </ul>						

**5.19 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
<ul style="list-style-type: none"> <li>- Concrete mixing must be carried out on an impermeable surface;</li> <li>- Batching plants areas must be fitted with a containment facility for the collection of cement laden water.</li> <li>- Dirty water from the batching plant must be contained to prevent soil and groundwater contamination</li> <li>- Bagged cement must be stored in an appropriate facility and at least 10 m away from any water courses, gullies and drains;</li> <li>- A washout facility must be provided for washing of concrete associated equipment. Water used for washing must be restricted;</li> <li>- Hardened concrete from the washout facility or concrete mixer can either be reused or disposed of at an appropriate licenced disposal facility;</li> <li>- Empty cement bags must be secured with adequate binding material if these will be temporarily stored on site;</li> <li>- Sand and aggregates containing cement must be kept damp to prevent the generation of dust (Refer to <b>Section 5.20: Dust emissions</b>)</li> </ul>						

<ul style="list-style-type: none"> <li>- 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;</li> <li>- Temporary fencing must be erected around batching plants in accordance with <b>Section 5.5: Fencing and gate installation.</b></li> </ul>						
--	--	--	--	--	--	--

**5.20 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
<ul style="list-style-type: none"> <li>- Take all reasonable measures to minimise the generation of dust as a result of project development activities to the satisfaction of the ECO;</li> <li>- 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;</li> <li>- Excavation, handling and transport of erodible materials must be avoided under high wind conditions or when a visible dust plume is present;</li> <li>- 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</li> </ul>						



<p>acceptable level;</p> <ul style="list-style-type: none"> <li>- Where possible, soil stockpiles must be located in sheltered areas where they are not exposed to the erosive effects of the wind;</li> <li>- Where erosion of stockpiles becomes a problem, erosion control measures must be implemented at the discretion of the ECO;</li> <li>- Vehicle speeds must not exceed 40 km/h along dust roads or 20 km/h when traversing unconsolidated and non- vegetated areas;</li> <li>- Straw stabilisation must be applied at a rate of one bale/10 m<sup>2</sup> and harrowed into the top 100 mm of top material, for all completed earthworks;</li> <li>- For significant areas of excavation or exposed ground, dust suppression measures must be used to minimise the spread of dust.</li> </ul>						
---	--	--	--	--	--	--

**5.21 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
<ul style="list-style-type: none"> <li>- Any blasting activity must be conducted by a suitably licensed blasting contractor; and</li> <li>- Notification of surrounding landowners, emergency services site personnel of blasting activity 24 hours prior to such</li> </ul>						

activity taking place on Site.						
--------------------------------	--	--	--	--	--	--

**5.22 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
<ul style="list-style-type: none"> <li>- The Contractor must keep noise level within acceptable limits, Restrict the use of sound amplification equipment for communication and emergency only;</li> <li>- All vehicles and machinery must be fitted with appropriate silencing technology and must be properly maintained;</li> <li>- 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;</li> <li>- 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.</li> </ul>						

**5.23 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
<ul style="list-style-type: none"> <li>- Designate smoking areas where the fire hazard could be regarded as insignificant;</li> <li>- Firefighting equipment must be available on all vehicles located on site;</li> <li>- The local Fire Protection Agency (FPA) must be informed of construction activities;</li> <li>- Contact numbers for the FPA and emergency services must be communicated in environmental awareness training and displayed at a central location on site;</li> <li>- Two way swop of contact details between ECO and FPA.</li> </ul>						

**5.24 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
<ul style="list-style-type: none"> <li>- 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;</li> <li>- All stockpiled material must be maintained and kept clear of weeds and alien vegetation growth by undertaking regular weeding and control methods;</li> <li>- Topsoil stockpiles must not exceed 2 m in height;</li> <li>- During periods of strong winds and heavy rain, the stockpiles must be covered with appropriate material (e.g. cloth, tarpaulin etc.);</li> <li>- Where possible, sandbags (or similar) must be placed at the bases of the stockpiled material in order to prevent erosion of the material.</li> </ul>						

**5.25 Finalising tower positions**

**Impact management outcome:** No environmental degradation occurs as a result of the survey and pegging operations.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance

	person	implementation	implementation	person		compliance
<ul style="list-style-type: none"> <li>- No vegetation clearing must occur during survey and pegging operations;</li> <li>- No new access roads must be developed to facilitate access for survey and pegging purposes;</li> <li>- Project manager, botanical specialist and contractor to agree on final tower positions based on survey within assessed and approved areas;</li> <li>- 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.</li> </ul>						

**5.26 Excavation and Installation of foundations**

**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
<ul style="list-style-type: none"> <li>- 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;</li> <li>- Spoil can however be used for landscaping purposes and must be covered with a layer of 150 mm topsoil for rehabilitation purposes;</li> <li>- Management of equipment for excavation purposes must be undertaken in accordance with <b>Section 5.18: Workshop equipment maintenance and storage</b>; and</li> <li>- Hazardous substances spills from equipment must be</li> </ul>						

<p>managed in accordance with <b>Section 5.17: Hazardous substances</b>.</p> <ul style="list-style-type: none"> <li>– Batching of cement to be undertaken in accordance with <b>Section 5.19 : Batching plants</b>;</li> <li>– Residual cement must be disposed of in accordance with <b>Section 5.8: Solid and hazardous waste management</b>.</li> </ul>						
--	--	--	--	--	--	--

**5.27 Assembly and erecting towers**

<p><b>Impact management outcome:</b> No environmental degradation occurs as a result of assembly and erecting of towers.</p>						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>– Prior to erection, assembled towers and tower sections must be stored on elevated surface (suggest wooden blocks) to minimise damage to the underlying vegetation;</li> <li>– In sensitive areas, tower assembly must take place off-site or away from sensitive positions;</li> <li>– The crane used for tower assembly must be operated in a manner which minimises impact to the environment;</li> <li>– The number of crane trips to each site must be minimised;</li> <li>– Wheeled cranes must be utilised in preference to tracked cranes;</li> <li>– Consideration must be given to erecting towers by helicopter or by hand where it is warranted to limit the extent</li> </ul>						

<p>of environmental impact;</p> <ul style="list-style-type: none"> <li>- Access to tower positions to be undertaken in accordance with access requirements in specified in Section 8.4: Access Roads;</li> <li>- Vegetation clearance to be undertaken in accordance with general vegetation clearance requirements specified in Section 8.10: Vegetation clearing;</li> <li>- No levelling at tower sites must be permitted unless approved by the Development Project Manager or Developer Site Supervisor;</li> <li>- Topsoil must be removed separately from subsoil material and stored for later use during rehabilitation of such tower sites;</li> <li>- Topsoil must be stored in heaps not higher than 1m to prevent destruction of the seed bank within the topsoil;</li> <li>- Excavated slopes must be no greater than 1:3, but where this is unavoidable, appropriate measures must be undertaken to stabilise the slopes;</li> <li>- Fly rock from blasting activity must be minimised and any pieces greater than 150 mm falling beyond the Working Area, must be collected and removed;</li> <li>- Only existing disturbed areas are utilised as spoil areas;</li> <li>- Drainage is provided to control groundwater exit gradient with the spill areas such that migration of fines is kept to a minimum;</li> <li>- Surface water runoff is appropriately channeled through or around spoil areas;</li> <li>- 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;</li> <li>- The surface of the spoil is appropriately rehabilitated in</li> </ul>						
--	--	--	--	--	--	--

<p>accordance with the requirements specified in Section 5.29: Landscaping and rehabilitation;</p> <ul style="list-style-type: none"> <li>- 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.</li> </ul>						
--	--	--	--	--	--	--

**5.28 Stringing**

<p><b>Impact management outcome:</b> No environmental degradation occurs as a result of stringing.</p>						
<p><b>Impact Management Actions</b></p>	<p><b>Implementation</b></p>			<p><b>Monitoring</b></p>		
	<p>Responsible person</p>	<p>Method of implementation</p>	<p>Timeframe for implementation</p>	<p>Responsible person</p>	<p>Frequency</p>	<p>Evidence of compliance</p>
<ul style="list-style-type: none"> <li>- Where possible, previously disturbed areas must be used for the siting of winch and tensioner stations. In all other instances, the siting of the winch and tensioner must avoid Access restricted areas and other sensitive areas;</li> <li>- The winch and tensioner station must be equipped with drip trays in order to contain any fuel, hydraulic fuel or oil spills and leaks;</li> <li>- Refueling of the winch and tensioner stations must be undertaken in accordance with Section 5.17: Hazardous substances;</li> </ul>						



<ul style="list-style-type: none"> <li>- In the case of the development of overhead transmission and distribution infrastructure, a one metre "trace-line" may be cut through the vegetation for stringing purposes only and no vehicle access must be cleared along "trace-lines". Vegetation clearing must be undertaken by hand, using chainsaws and hand held implements, with vegetation being cut off at ground level. No tracked or wheeled mechanised equipment must be used;</li> <li>- Alternative methods of stringing which limit impact to the environment must always be considered e.g. by hand or by using a helicopter;</li> <li>- Where the stringing operation crosses a public or private road or railway line, the necessary scaffolding/ protection measures must be installed to facilitate access. If, for any reason, such access has to be closed for any period(s) during development, the persons affected must be given reasonable notice, in writing;</li> <li>- No services (electrical distribution lines, telephone lines, roads, railways lines, pipelines fences etc.) must be damaged because of stringing operations. Where disruption to services is unavoidable, persons affected must be given reasonable notice, in writing;</li> <li>- Where stringing operations cross cultivated land, damage to crops is restricted to the minimum required to conduct stringing operations, and reasonable notice (10 work days minimum), in writing, must be provided to the landowner;</li> <li>- Necessary scaffolding protection measures must be installed to prevent damage to the structures supporting certain high value agricultural areas such as vineyards, orchards, nurseries.</li> </ul>						
---	--	--	--	--	--	--

**5.29 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
<ul style="list-style-type: none"> <li>- Develop and implement communication strategies to facilitate public participation;</li> <li>- Develop and implement a collaborative and constructive approach to conflict resolution as part of the external stakeholder engagement process;</li> <li>- Sustain continuous communication and liaison with neighboring owners and residents</li> <li>- Create work and training opportunities for local stakeholders; and</li> <li>- Where feasible, no workers, with the exception of security personnel, must be permitted to stay over-night on the site. This would reduce the risk to local farmers.</li> </ul>						

**5.30 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
<ul style="list-style-type: none"> <li>- Bunds must be emptied (where applicable) and need to be undertaken in accordance with the impact management actions included in <b>sections 5.17: management of hazardous substances</b> and <b>5.18 workshop, equipment maintenance and storage</b>;</li> <li>- Hazardous storage areas must be well ventilated;</li> <li>- Fire extinguishers must be serviced and accessible. Service records to be filed and audited at last service;</li> <li>- Emergency and contact details displayed must be displayed;</li> <li>- Security personnel must be briefed and have the facilities to contact or be contacted by relevant management and emergency personnel;</li> <li>- Night hazards such as reflectors, lighting, traffic signage etc. must have been checked;</li> <li>- Fire hazards identified and the local authority must have been notified of any potential threats e.g. large brush stockpiles, fuels etc.;</li> <li>- Structures vulnerable to high winds must be secured;</li> <li>- Wind and dust mitigation must be implemented;</li> <li>- Cement and materials stores must have been secured;</li> <li>- Toilets must have been emptied and secured;</li> <li>- Refuse bins must have been emptied and secured;</li> <li>- Drip trays must have been emptied and secured.</li> </ul>						

**5.31 Landscaping and rehabilitation**



**Impact management outcome:** Areas disturbed during the development phase are returned to a state that approximates the original condition.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>- 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;</li> <li>- 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</li> <li>- 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;</li> <li>- 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;</li> <li>- 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;</li> <li>- Rehabilitation of tower sites and access roads outside of farmland;</li> <li>- Indigenous species must be used for with species and/grasses to where it compliments or approximates the original condition;</li> <li>- Stockpiled topsoil must be used for rehabilitation (refer to</li> </ul>						

<p>Section <b>5.24: Stockpiling and stockpiled areas</b>);</p> <ul style="list-style-type: none"> <li>- Stockpiled topsoil must be evenly spread so as to facilitate seeding and minimise loss of soil due to erosion;</li> <li>- Before placing topsoil, all visible weeds from the placement area and from the topsoil must be removed;</li> <li>- Subsoil must be ripped before topsoil is placed;</li> <li>- The rehabilitation must be timed so that rehabilitation can take place at the optimal time for vegetation establishment;</li> <li>- Where impacted through construction related activity, all sloped areas must be stabilised to ensure proper rehabilitation is effected and erosion is controlled ;</li> <li>- 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;</li> <li>- Spoil can be used for backfilling or landscaping as long as it is covered by a minimum of 150 mm of topsoil.</li> <li>- 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: <ul style="list-style-type: none"> <li>a) Annual and perennial plants are chosen;</li> <li>b) Pioneer species are included;</li> <li>c) Species chosen must be indigenous to the area with the seeds used coming from the area;</li> <li>d) Root systems must have a binding effect on the soil;</li> <li>e) The final product must not cause an ecological imbalance in the area</li> </ul> </li> </ul>						
---	--	--	--	--	--	--

**6 ACCESS TO THE GENERIC EMPr**

Once completed and signed, to allow the public access to the generic EMPr, the holder of the EA must make the EMPr available to the public in accordance with the requirements of regulation 26(h) of the EIA Regulations.

## PART B: SECTION 2

### 6 SITE SPECIFIC INFORMATION AND DECLARATION

#### 6.1 Sub-section 1: contact details and description of the project

6.1.1 Details of the applicant: **Genesis Koup 2 Wind Farm (Pty) Ltd**

Name of applicant: **Davin Chown**

Tel No: **083 460 3898**

Fax No: **086 689 0583**

Postal Address: **PO Box 363, Newlands, Cape Town**

Physical Address: **39 De Villiers Road, Kommetjie**

6.1.2 Details and expertise of the EAP:

Name of applicant: **SIVEST SA (Pty) Ltd**

Tel No: **+27 31 581 1573**

Fax No: **N/A**

E-mail address: [michelleq@sivest.co.za](mailto:michelleq@sivest.co.za)

Expertise of the EAP (Curriculum Vitae included): **Yes, included in the BA Application**

6.1.3 Project name:

Proposed Development of the On-site Switching Substation / Collector Substation and associated 132kV Power Line for the Koup 2 Wind Energy Facility (WEF), near Beaufort West in the Western Cape Province– SUBSTATION INFRASTRUCTURE EMPR

6.1.4 Description of the project:

Genesis Enertrag Koup 2 Wind Farm (Pty) Ltd is proposing to develop one (1) new 33/132kV on-site substation and/or collector substation as well as one (1) new associated 132kV overhead power line for the proposed Koup 2 Wind Energy Facility (WEF) (part of a separate EIA application), near the town of Beaufort West in the Western Cape Province of South Africa. The overall objective of the proposed development is to feed the electricity generated by the proposed Koup 2 WEF into the national grid. The grid connection and 33/132kV on-site substation and/or collector substation (this application) requires a separate Environmental Authorisation (EA), in order to allow the EA as well as the proposed infrastructure to be handed over to Eskom.

This EMPr forms part of one (1) of two (2) grid connection infrastructure developments that are being proposed on nearby properties by Genesis. In addition, two (2) WEF developments are also being proposed on adjacent properties by Genesis. The other proposed developments (i.e. WEF, substation and power line) which are being proposed on nearby properties by Genesis include the following:

- Koup 1 WEF – DFFE Reference Number: 14/12/16/3/3/2/2120 (part of a separate EIA process / application);
- Koup 2 WEF – DFFE Reference Number: 14/12/16/3/3/2/2121 (part of a separate EIA process / application);  
and
- Koup 1 WEF Substation and Power Line – DFFE Reference Number: To be Allocated (part of separate BA process / application).

The grid connection infrastructure which is part of this application is being proposed to feed the electricity generated by the Koup 2 WEF into the national grid. The on-site and/or collector substation will include an Eskom portion and an Independent Power Producer (IPP) portion, hence the substation has been included in the WEF EIA (part of separate application) and in this associated grid connection infrastructure Basic Assessment (BA) (this application) to allow for handover to Eskom. Following construction, the substation will be owned and managed by Eskom. The current applicant will remain in control of the low voltage components (more specifically the 33kV yard) of the substation, while the high voltage components (i.e. 132kV components) of this substation will likely be ceded to Eskom shortly after the completion of construction.

Although the WEF (part of separate application) and associated grid connection infrastructure (part of this application) will be assessed separately, a single public participation process is being undertaken to consider all of the proposed developments [i.e. two (2) WEF EIAs and two (2) grid connection infrastructure BAs]. The potential environmental impacts associated with the proposed development which forms part of this application have been assessed as part of the cumulative impact assessment.

At this stage it is anticipated that the proposed grid connection infrastructure to serve the Koup 2 WEF (part of separate application) will include the following components:

- One (1) new 33/132kV on-site substation and/or collector substation, occupying an area of up to approximately 1ha. The proposed substation will be a step-up substation and will include an Eskom portion and an IPP portion;  
and
- One (1) new 132kV overhead power line connecting the on-site and/or collector substation via the proposed Koup 1 collector substation and thereby feeding the electricity into the national grid. Power line towers being considered for this development include self-supporting suspension monopole structures for relatively straight sections of the line and angle strain towers where the route alignment bends to a significant degree. Maximum tower height is expected to be approximately 25m.

- 

The proposed overhead power line and 33/132kV on-site substation is subject to a BA process in terms of the NEMA) (as amended) and Appendix 1 of the EIA Regulations, 2014 (as amended). The competent authority for this EIA process is the national Department of Forestry, Fisheries and the Environment (DFFE).

#### 6.1.5 Project location:

The proposed development is located approximately 55km south of the town of Beaufort West and is within the Beaufort West and Prince Albert Local Municipalities, in the Central Karoo District Municipality of the Western Cape Province (Figure 1). The proposed development (including all power line corridor route alternatives) will affect the following twelve (12) farms / properties:



NO	FARM NAME( if applicable)	FARM NUMBER( if applicable)	PORTION NAME	PORTION NUMBER	LATITUDE	LONGITUDE
1	Rietfontein	12	Portion 2 of the Farm Rietfontein No. 12;	2	Refer below	
2	Kaatjies	380	Portion 1 of the Farm Kaatjies Kraal No. 380;	1	Refer below	
3	Kaatjies	380	Portion 2 of the Farm Kaatjies Kraal No. 380;	2	Refer below	
4	Kaatjies	380	Portion 5 of the Farm Kaatjies Kraal No. 380;	5	Refer below	
5	Kaatjies	380	Portion 10 of the Farm Kaatjies Kraal No. 380;	10	Refer below	
6	Kaatjies	380	Portion 11 of the Farm Kaatjies Kraal No. 380;	11	Refer below	
7	Eigendom	374	Portion 11 of the Farm Brits Eigendom No. 374;	11	Refer below	
8	Eigendom	374	Portion 15 of the Farm Brits Eigendom No. 374;	15	Refer below	
9	Eigendom	374	Portion 24 of the Farm Brits Eigendom No. 374;	24	Refer below	
10	Antjesfontein	14	Portion 1 of the Farm Antjesfontein No. 14;	1	Refer below	
11	Riet Poort	13	Portion 1 of the Farm Riet Poort No. 13;	1	Refer below	
12	Riet Poort	231	The Farm Riet Poort No. 231.	-	Refer below	

KROUP 2 SUBSTATION COORDINATES AT CENTRE POINT		
SITE ALTERNATIVE	SOUTH	EAST
OPTION 1	S32°51'19.37"	E22°25'30.19"
OPTION 2	S32° 52' 6.234"	E22° 23' 54.829"

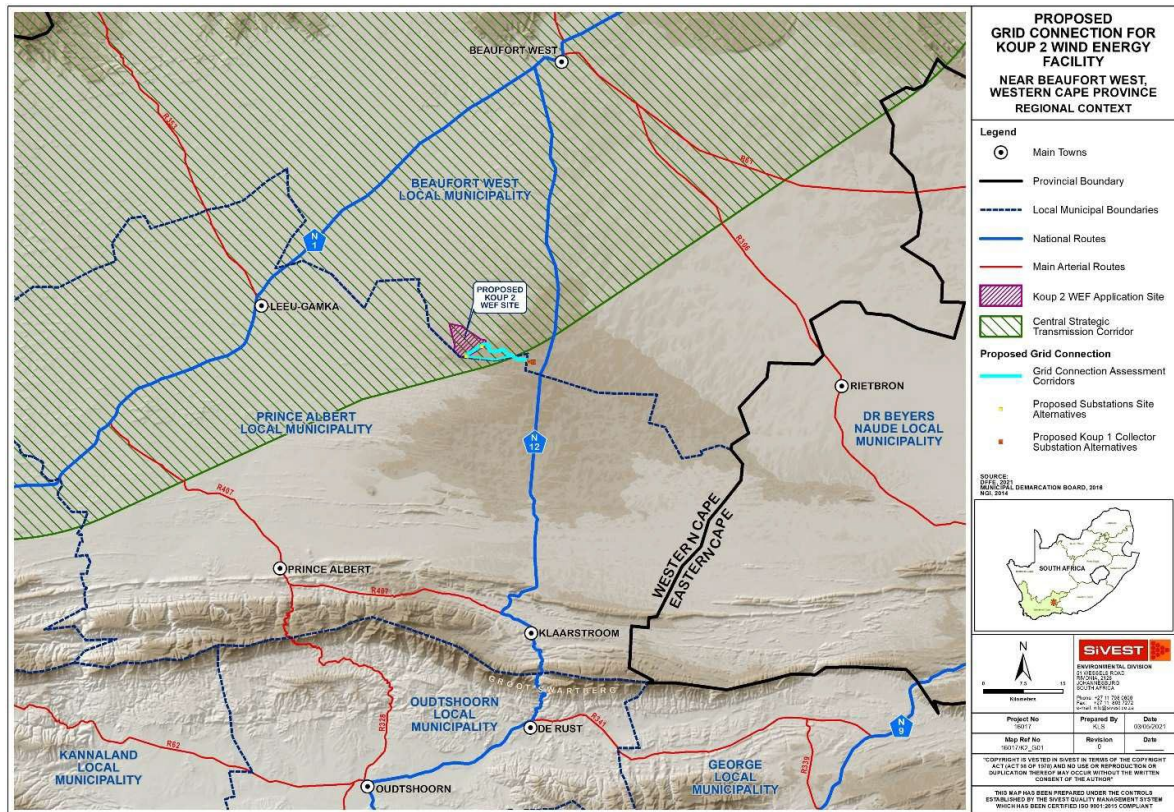


Figure 1: Regional Context

## 6.2 Sub-section 2: Development footprint site map

This sub-section must include a map of the site sensitivity overlaid with the preliminary infrastructure layout. The sensitivity map must be prepared from the national web based environmental screening tool, when available for compulsory use at: <https://screening.environment.gov.za/screeningtool>. The sensitivity map shall identify the nature of each sensitive feature e.g. threatened plant species, archaeological site, etc. Sensitivity maps shall identify features both within the planned working area and any known sensitive features within 50 m from the development footprint.

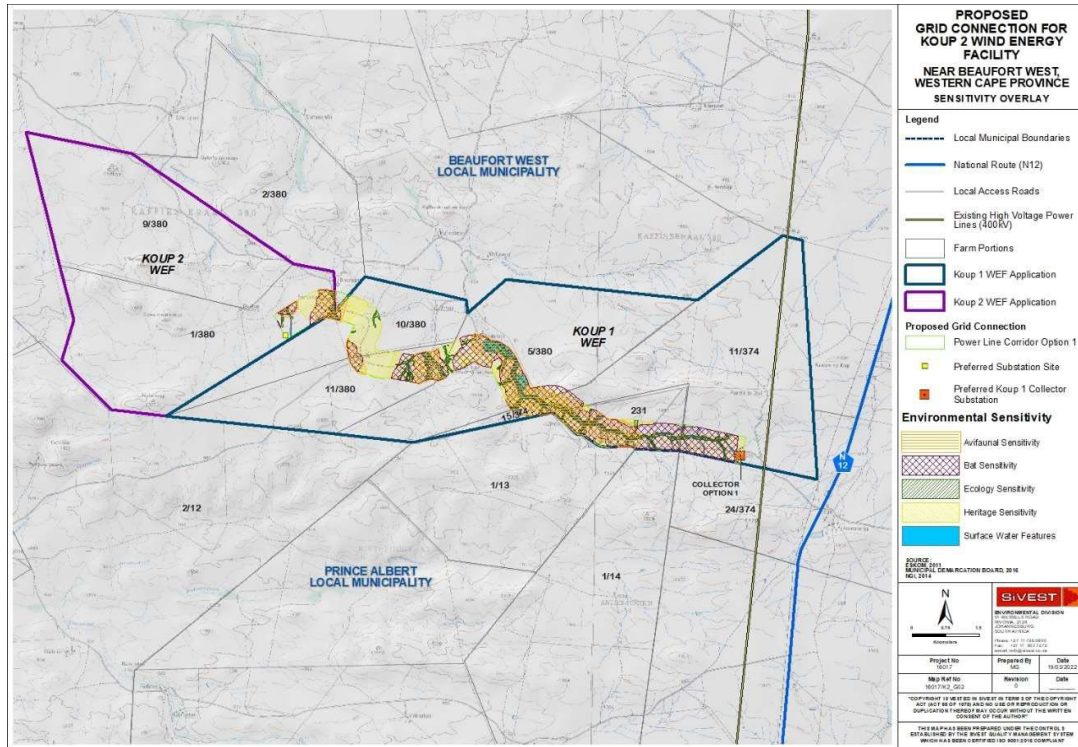


Figure 2: Environmental Sensitivity Overlay (Final)

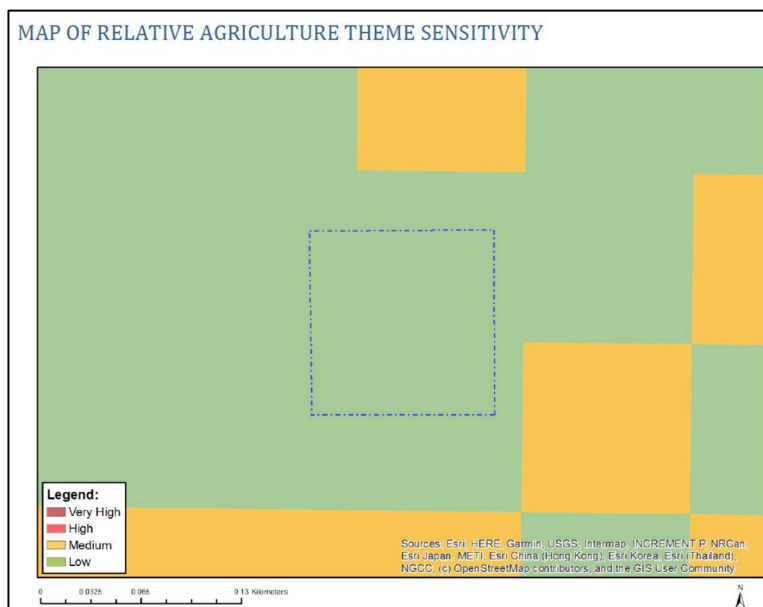


Figure 3: Map showing substation location in relation to the Agriculture Theme Sensitivity (DFFE Screening Tool)

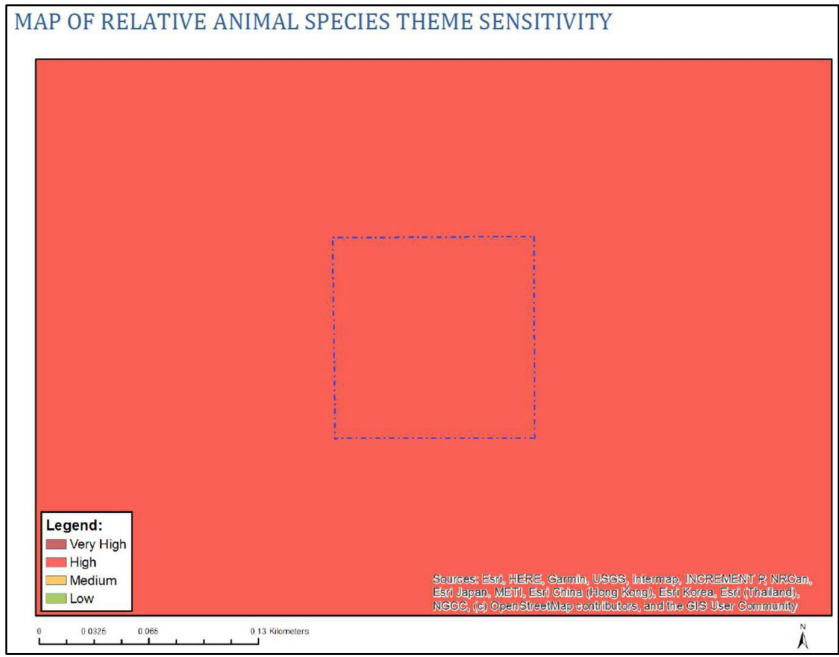


Figure 4: Map showing substation location in relation to the Animal Species Theme Sensitivity (DFFE Screening Tool)

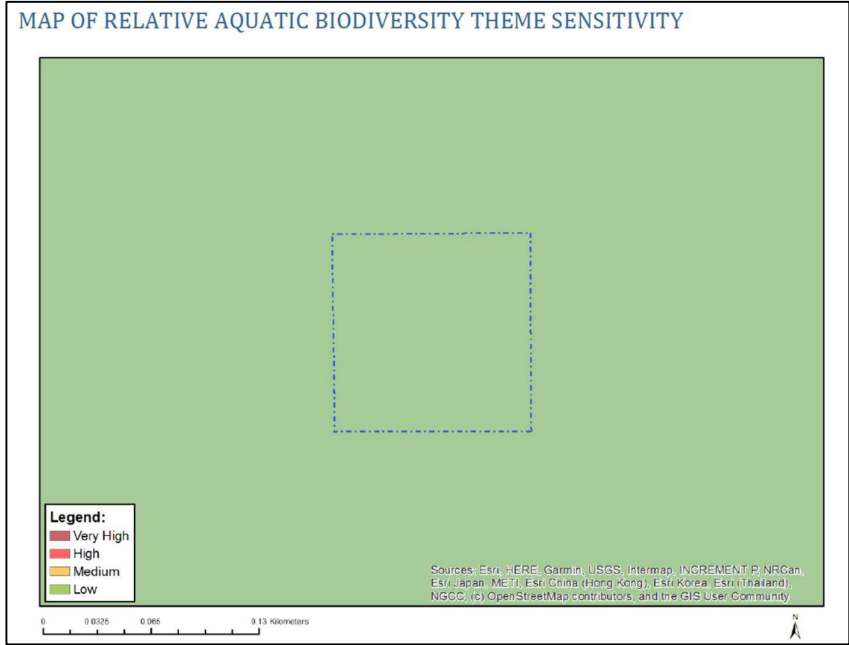


Figure 5: Map showing substation location in relation to the Aquatic Biodiversity Theme Sensitivity (DFFE Screening Tool)

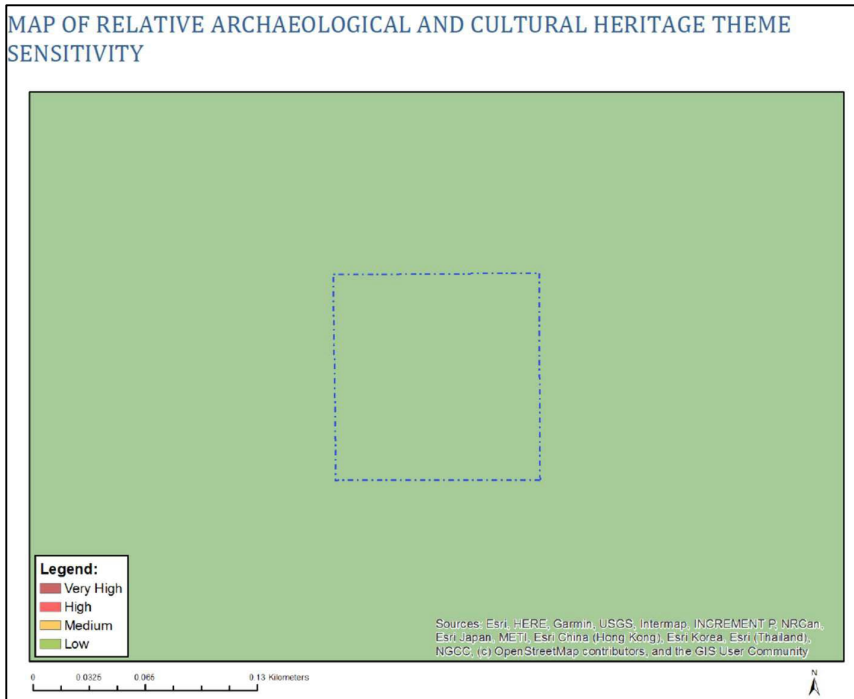


Figure 6: Map showing substation location in relation to the Archaeological and Cultural Heritage Theme Sensitivity (DFFE Screening Tool)

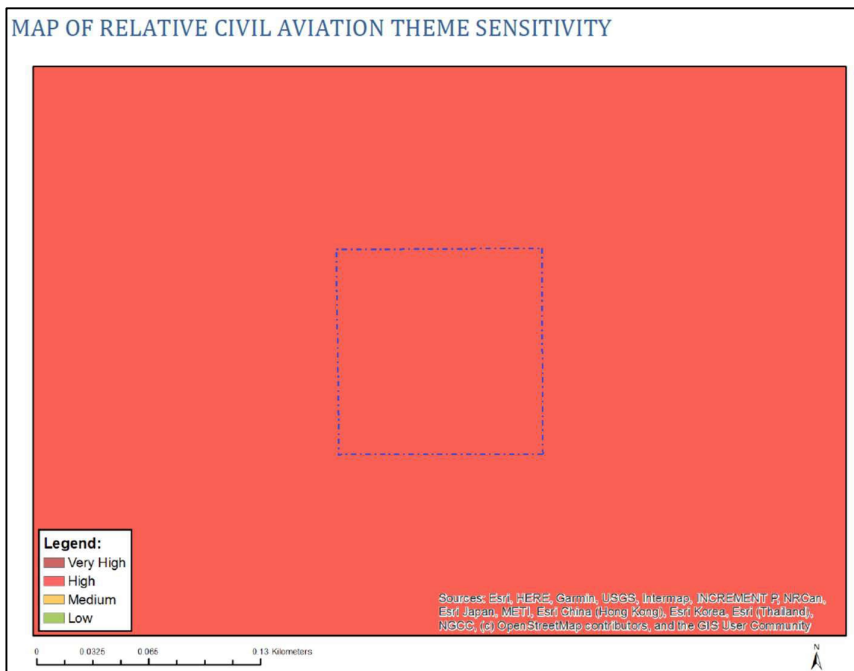


Figure 7: Map showing substation location in relation to the Civil Aviation Theme Sensitivity (DFFE Screening Tool)

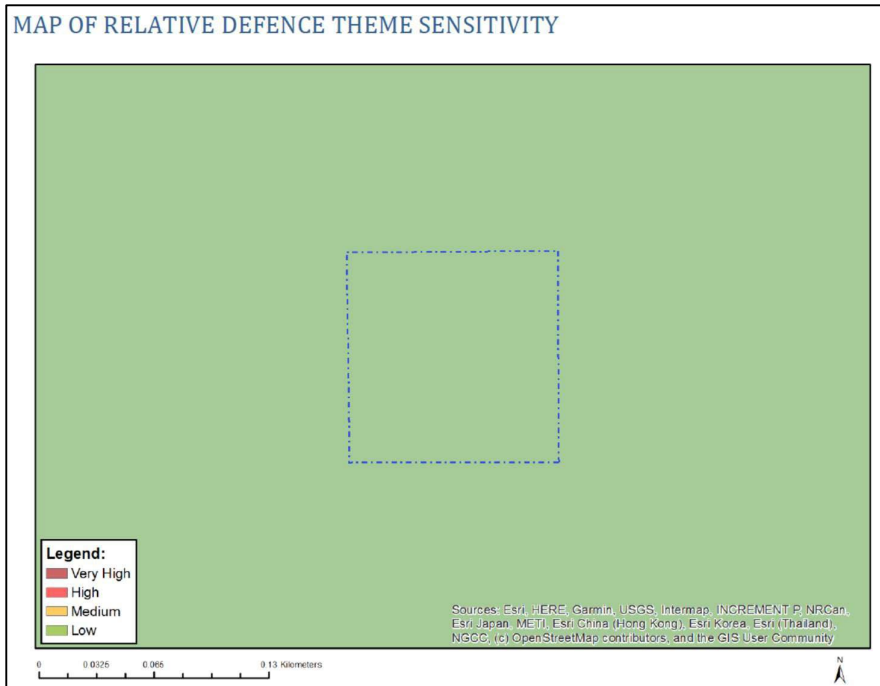


Figure 8: Map showing substation location in relation to the Defence Theme Sensitivity (DFFE Screening Tool)

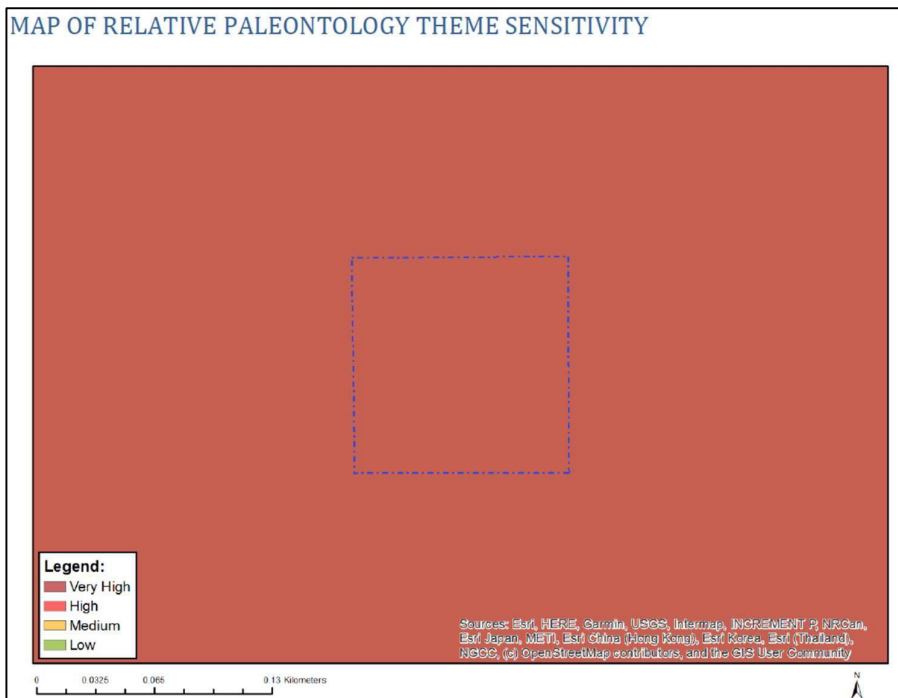


Figure 9: Map showing substation location in relation to the Paleontology Theme Sensitivity (DFFE Screening Tool)



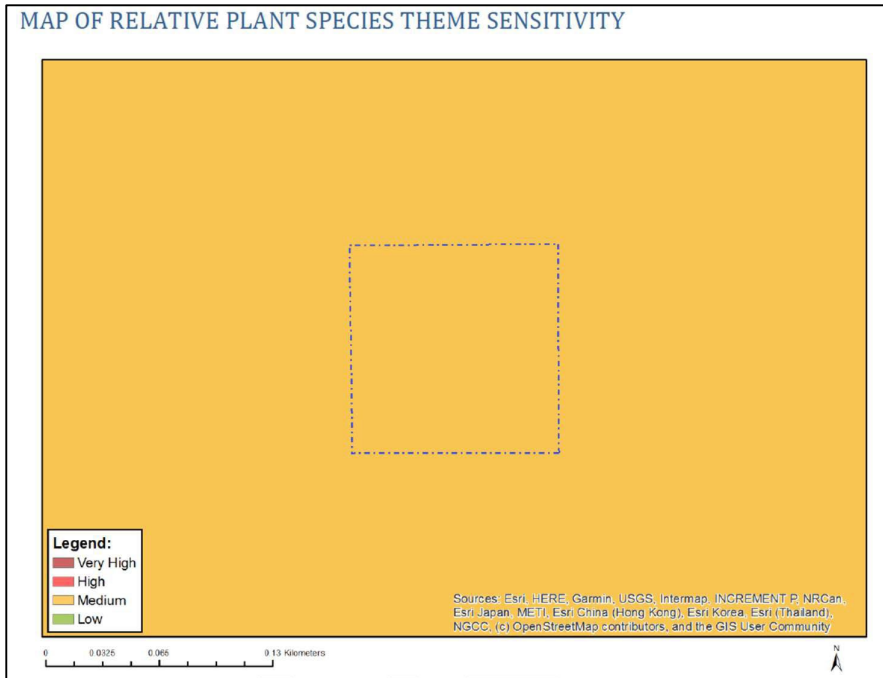


Figure 10: Map showing substation location in relation to the Plant Species Theme Sensitivity (DFFE Screening Tool)

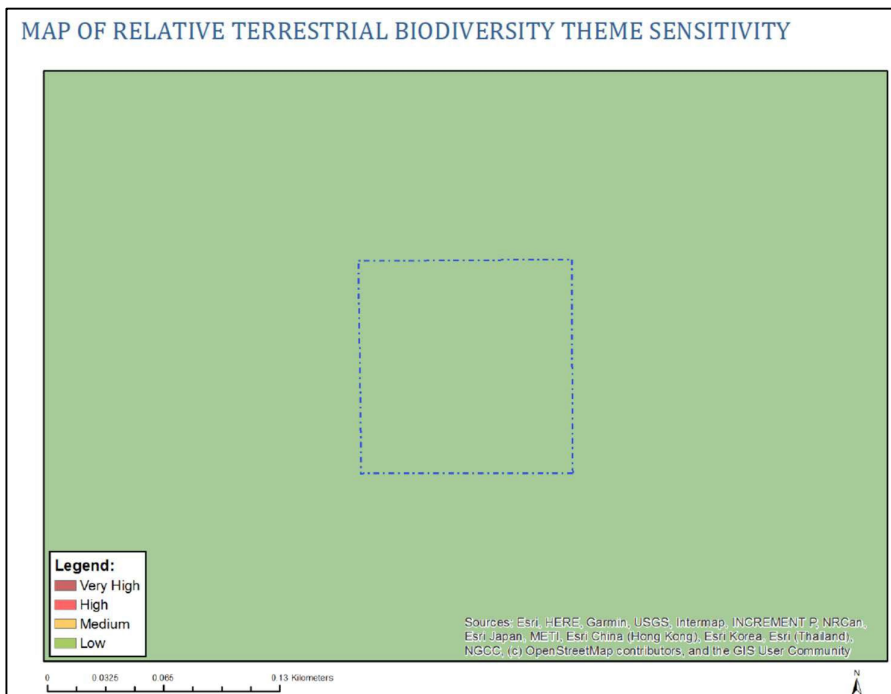


Figure 11: Map showing substation location in relation to the Terrestrial Biodiversity Theme Sensitivity (DFFE Screening Tool)

**6.3 Sub-section 3: Declaration**

The proponent/applicant or holder of the EA affirms that he/she will abide and comply with the prescribed impact management outcomes and impact management actions as stipulated in part B: section 1 of the generic EMPr and have the understanding that the impact management outcomes and impact management actions are legally binding. The proponent/applicant or holder of the EA affirms that he/she will provide written notice to the CA 14 day prior to the date on which the activity will commence of commencement of construction to facilitate compliance inspections.

Signature Proponent/applicant/holder of EA

Date:



-----

03/05/2024

-----

**6.4 Sub-section 4: amendments to site specific information (Part B; section 2)**

Should the EA be transferred to a new holder, Part B: Section 2 must be completed by the new holder and submitted with the application for an amendment of the EA in terms of Regulations

29 or 31 of the EIA Regulations, whichever applies. The information submitted for an amendment to an environmental authorisation will be considered to be incomplete should a signed copy of Part B: Section 2 not be submitted. Once approved, Part B: Section 2 forms part of the EMPr for the development and the EMPr becomes legally binding to the new EA holder.



## PART C

### 7 SITE SPECIFIC ENVIRONMENTAL ATTRIBUTES

If any specific environmental sensitivities/attributes are present on the site which require more specific impact management outcomes and actions, not included in the pre-approved generic EMPr template, to manage impacts, those impact management outcomes and impact management actions must be included in this section. These specific management controls must be referenced spatially, and must include impact management outcomes and impact management actions. The management controls including impact management outcomes and impact management actions must be presented in the format of the pre-approved generic EMPr template. This applies only to additional impact management outcomes and impact management actions that are necessary.

If Part C is applicable to the development as authorised in the EA, it is required to be submitted to the CA together with the BAR or EIAR, for consideration of, and decision on, the application for EA. The information in this section must be prepared by an EAP and the name and expertise of the EAP, including the curriculum vitae are to be included. Once approved, Part C forms part of the EMPr for the site and is legally binding.

This section will **not be required** should the site contain no specific environmental sensitivities or attributes.

#### **The following specialist studies were undertaken as part of this project:**

- Avifauna Impact Assessment (incl. pre-construction monitoring);
- Biodiversity Impact Assessment;
- Desktop Geotechnical Impact Assessment;
- Heritage Impact Assessment (including Palaeontology, Archaeology & Cultural Landscape);
- Noise Impact Assessment;
- Desktop Social Impact Assessment;
- Surface Water Impact Assessment;
- Transportation Impact Assessment; and
- Visual Impact Assessment.

**The specific mitigation measures provide by the Specialists through the Impact Assessment process are included below.**

**Pre-construction walk-through of the approved development footprint will be conducted to ensure that sensitive habitats and species are avoided where possible.**

### **Specific Mitigations and Recommendations included in EAIr:**

- The avifaunal post-construction monitoring at the proposed WEF must be conducted in accordance with the latest version (2015) of the Best practice guidelines for avian monitoring and impact mitigation at proposed wind energy development sites in southern Africa;
- It is recommended that no turbines or associated infrastructure are allowed in the High sensitivity areas. High-medium sensitivity zones should preferably be avoided, but due to the general low bat activity in certain areas, could be developed with strict mitigation measures. Medium sensitivity zones could be developed, but with limited mitigation due to the low bat activity. It is therefore recommended that turbines will be shifted from High sensitivity areas and that curtailment is applied under certain weather conditions to the turbines situated in the High-medium sensitivity zone. Close observation during the bat monitoring to be conducted during the post-construction phase should refine the curtailment schedule and apply it to more turbines, if necessary. Should curtailed turbines show consistent low activity through static recordings, as well as mortality in the low threshold range, the bat specialist could adapt curtailment again.
- It is recommended that curtailment be applied during the specified time periods when the relevant temperatures and wind speeds prevail for the turbine situated in the High-medium sensitivity zone. If the developer decides to reduce the number of turbines, the first option, after the wind regime has been considered, should be to remove the turbine in the High-medium sensitivity zones. Operational monitoring and carcass searches will inform this decision.
- It is recommended that the turbines be constructed on relatively flat to gentle, open areas (0-8.7° slopes) in areas with maximum wind exposure
- It is recommended that a detailed geotechnical investigation be undertaken during the detailed design phase of the project. The detailed geotechnical investigation must entail the following:
  - Profiling and sampling exploratory trial pits to determine founding conditions for the substation, the construction laydown area and the BESS. An investigation for determining the subgrade conditions for internal roads and a materials investigation (if required) is also recommended
  - Profiling rotary core to determine foundation conditions for the turbines;
  - Geotechnical investigation for construction material – gravel and rock
  - Thermal resistivity and electrical resistivity geophysical testing for electrical design and ground earthing requirements
  - Groundwater sampling of existing boreholes to establish a baseline of the groundwater quality for construction purposes
  - Dynamic Probe Super Heavy (DPSH) tests and rotary core drilling may be required depending on the soil profiles and imposed loads of the structures
  - 50m buffer zones around grave sites
  - 30m buffer zone around farmsteads
  - 30 buffer zone around historical structures
  - Monitor find spot areas if construction is going to take place through them.
  - A management plan for the heritage resources then needs to be compiled and approved for implementation during construction and operations.
  - A specialist palaeontological walk-down of the final WEF and grid connection project area in the pre-construction phase,
  - Implementation of a Chance Fossil Finds Protocol (See Appendix 4) by the ECO / ESO during the construction phase. The specialist palaeontologist responsible will need to submit a Work Plan for approval by Heritage Western Cape
  - implement a noise monitoring program that will define the residual levels before the construction of the WEF, as well as to confirm noise levels once the WEF is operational. Residual and noise monitoring is recommended at NSDs 1, 2 and 3.
  - Investigate any reasonable and valid noise complaint if registered by a NSD staying within 2,000 m from the location where construction or operational activities are taking place;
  - evaluate the potential noise impact should the layout be revised where any proposed wind turbines are located closer than 1,000 m from a confirmed NSD; or

- if the developer decides to use a different wind turbine that has a sound power emission level higher than that of the WTG used in this report (sound power emission level exceeding 108.3 dBA re 1 pW).
- Existing access from the N12 Freeway has sufficient sight distance in both directions and hence an upgrade to the existing access will be required from the Western Cape Department of Transport & Public Works.
- The layout of the internal infrastructure should be such that the impact to the environment is kept to a minimum. We
- therefore propose that both Koup 1 & 2 share a central access to both facilities and that all other proposed temporary and permanent buildings and construction infrastructure be located close to the access point.
- An internal network of minimum 5m wide gravel roads will connect all the WTG and ancillary equipment to each other. The roads will have a horizontal and vertical alignment to accommodate vehicles and more specifically abnormal vehicles intended to use these roads for the delivery of the WTG equipment. A typical intersection and horizontal alignment would consist of radii and clearances similar to the requirements in Figure 8.1. We note that the larger WTG's are planned for these facilities and will need to be simulated once additional information becomes available.
- All internal access roads should be designed to have a minimum impact to the environment and thus are in most cases parallel to the contours and keep drainageline crossings to a minimum. The use of roads perpendicular to the contours for long sections should be avoided, as the risk of possible erosion is increased. Existing gravel roads should also be used to reduce the overall impact on the environment.

**Compliance with the Conditions of the EA in the EMPr:**

EA Condition	EMPr Reference
<b>Management of the Activity</b>	
<p>13. A final site layout plan for the Koup 1 Wind Energy Facility, substation and all associated infrastructure, as determined by the detailed engineering phase and micro-siting of the wind turbine positions, and all mitigation measures as dictated by the final site layout plan, must be submitted to the Department for approval prior to construction. A copy of the final site layout map must be made available for comments to registered Interested and Affected Parties and the holder of this Environmental Authorisation must consider such comments. Once amended, the final development layout map must be submitted to the Department for written approval prior to commencement of the activity. All available biodiversity information must be used in the finalisation of the layout map. Existing infrastructure must be used as far as possible e.g., roads. The layout map must indicate the following:</p> <p>The position of wind turbines and associated infrastructure;            Internal and access roads indicating width;            The BESS, substation(s) invertors and /or transformer(s) sites including their entire footprints;            Connection routes (including pylon positions) to the distribution/transmission network;            Buildings, including accommodation;            All existing infrastructure on the site;            Wetlands, drainage lines, rivers, stream and water crossing of roads and cables;            All sensitive features e.g., Important Bird Areas, Critical Biodiversity Areas, Ecological Support Areas, heritage sites, wetlands, pans and drainage channels that will be affected by the facility and associated infrastructure; and            All "no-go" and buffer areas.</p>	<p>EMPr Report, Section 2, Figure 2-1 and Table 2-4.</p>
<p>14. The Environmental Management Programme (EMPr) submitted as part of the final EIAR (Appendix 8) dated June 2022 is not approved and must be amended to include measures as dictated by the final site lay-out map and micro-siting; and the provisions 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.</p>	<p>N/A</p>
<p>15. The EMPr must include the following:</p>	
<p>15.1 All recommendations and mitigations measures recorded in the EIAR and the specialist reports as included in the final EIAR dated June 2022.</p>	<p>EMPr Report, Section 2</p>

15.2 The requirements and conditions of this authorisation.	EMPr Report, Section 3.8
15.3 The final site layout map.	EMPr Report, Figure 2-1
15.4 A construction and operational avifaunal and bat monitoring plan.	EMPr Report, Section 25
15.5 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 is undertaken.	EMPr Report, Section 12
15.6 A plant rescue and 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.	EMPr Report, Section 13
15.7 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 completion of construction activities to reduce the amount of habitat converted at any one time and to speed up the recovery to natural habitats.	EMPr Report, Section 14
15.8 A transportation plan for the transport of turbine components, main assembly cranes and other large equipment.	EMPr Report, Section 20
15.9 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 not to disturb existing retail and commercial operations.	EMPr Report, Section 19
15.10 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-site 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 lines so as not to impede natural surface and subsurface flows. Drainage measures must promote the dissipation of storm water run-off.	EMPr Report, Section 18
15.11 An erosion management plan for monitoring and rehabilitating 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.	EMPr Report, Section 15
15.12 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.	EMPr Report, Section 22
15.13 A fire management plan to be implemented during the construction and operational phases.	EMPr Report, Section 21
15.14 Measures to protect hydrological features such as streams, rivers, pans, wetlands, dams and their catchments, and other environmental sensitive areas from construction impacts including the direct or indirect spillage of pollutants.	EMPr Report, Section 22
15.15 An environmental sensitivity map indicating environmental sensitive areas and features identified during the EIA process.	EMPr Report, Figure 2-1
15.16 A map combining the final layout map superimposed (overlain) on the environmental sensitivity map. This map must reflect the proposed location of the turbines as stated in the EIAr in the amended layout and this authorisation.	EMPr Report, Figure 2-1
16. The generic EMPr (Appendix 8) for the substations and all associated infrastructure, submitted as part of the final EIAr dated June 2022, is not approved. Part C must be amended to include measures as dictated by the final site lay-out map and micro-siting, and the provisions of this Environmental Authorisation. Part C of the generic EMPr must be made available for comments to registered Interested and Affected Parties and the holder of this Environmental Authorisation must consider such comments. Once amended, the generic EMPr must be submitted to the Department for written approval of Part C prior to commencement of the activity. Part C of the generic EMPr must be amended to include the following: The requirements and conditions of this Environmental Authorisation; Measures as dictated by the final site lay-out map and micro-siting; All recommendations and mitigation measures recorded in the EIAr and the specialist reports as included in the final EIAr dated June 2022;	Appendix A

<p>All recommendations and mitigation measures to be implemented for the operational phase of the dangerous goods facility;</p> <p>An effective monitoring system to detect any leakage or spillage of any hazardous substances during their transportation, handling, use or storage. This must include precautionary measures to limit the possibility of oil and other toxic liquids from entering the soil or storm water systems;</p> <p>A fire management plan to be implemented during the construction and operation of the facility;</p> <p>A re-vegetation and habitat rehabilitation plan. The plan must provide for restoration to be undertaken as soon as possible after completion of construction activities, to reduce the amount of habitat converted at any one time and to speed up the recovery to natural habitats;</p> <p>An aquatic rehabilitation and monitoring plan, particularly for watercourse features that will be infilled and/ or excavated;</p> <p>A stormwater management plan; and</p> <p>The final site layout map.</p>	
<p>17. Once approved the EMPs must be implemented and adhered to. They shall be seen as dynamic documents and shall be included in all contract documentation for the development.</p>	
<p>18. Changes to the approved EMPs must be submitted in accordance with the EIA Regulations applicable at the time.</p>	
<p>19. The Department reserves the right to amend the approved EMPs should any impacts that were not anticipated or covered in the EIA be discovered.</p> <p>■ ☐ Condition 20: The EMP must be updated where the findings of the environmental audit reports, contemplated in Condition 27 below, indicate insufficient mitigation of environmental impacts associated with the undertaking of the activity, or insufficient levels of compliance with the Environmental Authorisation or EMP.</p> <p>Condition 21: The updated EMP must contain recommendations to rectify the shortcomings identified in the environmental audit report.</p> <p>Condition 22: The updated EMP must be submitted to the Department for approval together with the environmental audit report, as per Regulation 34 of GNR. 982, as amended. The updated EMP must have been subjected to a public participation process, which process has been agreed to by the Department, prior to submission of the updated EMP to the Department for approval.</p> <p>Condition 23: In assessing whether to grant approval of an EMP which has been updated as a result of an audit, the Department will consider the processes prescribed in Regulation 35 of GNR. 982. Prior to approving an amended EMP the Department may request such amendments to the EMP as it deems appropriate to ensure that the EMP sufficiently provides avoidance, management, and mitigation of environmental impacts associated with the undertaking of the activity.</p> <p>Condition 24: The holder of the authorisation may apply for an amendment of an EMP, if such amendment is required before an audit is required. The amendment process is prescribed in Regulation 37 of the EIA Regulations, 2014, as amended. The holder of the authorisation must request comments on the amendments to the impact management outcomes of the EMP or amendments to the closure objectives of the closure plan from potentially interested and affected parties, including the competent authority, by using any of the methods provided for in the Act for a period of at least 30 days.</p> <p>Condition 25: The holder of the authorisation must appoint an experienced Environmental Control Officer (ECO) for the construction phase of the development that will have the responsibility to ensure that the mitigation/rehabilitation measures and recommendations referred to in this Environmental Authorisation are implemented and to ensure compliance with the provisions of the approved EMP.</p> <p>25.1 The ECO must be appointed before commencement of any authorised activities.</p> <p>25.2 Once appointed, the name and contact details of the ECO must be submitted to the Director: Compliance Monitoring of the Department.</p> <p>25.3 The ECO must keep record of all activities on site, problems identified, transgressions noted and a task schedule of tasks undertaken by the ECO.</p> <p>25.4 The ECO must remain employed until all rehabilitation measures, as required for implementation due to construction damage, are completed and the site is ready for operation.</p> <p>Condition 26: All documentation e.g., audit / monitoring / compliance reports and notifications, required to be submitted to the Department in terms of this Environmental Authorisation, must be submitted to the Director: Compliance Monitoring.</p> <p>Condition 27: The holder of the Environmental Authorisation must, for the period during which the Environmental Authorisation and EMP remain valid, ensure that project compliance with the conditions of the Environmental Authorisation and the EMP are audited, and that the audit reports are submitted to the Director: Compliance Monitoring of the Department.</p> <p>Condition 28: The frequency of auditing and of submission of the environmental audit reports must be per the frequency indicated in the EMP, taking into account the processes for such auditing as prescribed in Regulation 34 of the EIA Regulations, 2014, as amended.</p>	

Condition 29: The holder of the environmental authorisation must, in addition, submit environmental audit reports to the Department within 30 days of completion of the construction phase (i.e., within 30 days of site handover) and a final environmental audit report within 30 days of completion of rehabilitation activities.

Condition 30: The environmental audit reports must be compiled in accordance with Appendix 7 of the EIA Regulations, 2014, as amended, and must indicate the date of the audit, the name of the auditor and the outcome of the audit in terms of compliance with the Environmental Authorisation conditions as well as the requirements of the approved EMPr.

Condition 31: Records relating to monitoring and auditing must be kept on site and made available for inspection to any relevant and competent authority in respect of this development.

Condition 32: A written notification of commencement must be given to the Department no later than fourteen (14) days prior to the commencement of the activity. Commencement for the purposes of this condition includes site preparation. The notice must include a date on which it is anticipated that the activity will commence, as well as a reference number.

Condition 33: A written notification of operation must be given to the department no later than fourteen (14) days prior to the commencement of the activity operational phase.

Condition 34: Should the activity ever cease or become redundant, the holder of the authorisation must undertake the required actions as prescribed by legislation at the time and comply with all relevant legal requirements administered by any relevant and Competent Authority at that time.

EA Condition No.	Condition in the EA	Status	EMPr Reference
Avifauna and bats			
35.	The results of the pre-construction bird monitoring assessment including all recommendations proposed by the reports dated June 2022, must inform the final layout and the construction schedule of the WEF.	Complete	Section 2
36.	The facility must be designed in a manner that, infrastructure components that could be used as perching or roosting substrates by birds and bats must be prohibited.	Complete	Section 2
37.	The holder of this Environmental Authorisation must restrict the construction activities to the footprint area. No access to the remainder of the property is allowed.	Pending for construction	Section 2
38.	Anti-collision devices such as bird flappers must be installed where power lines cross avifaunal corridors (e.g. grasslands, rivers, wetlands, and dams). The input of an avifaunal specialist must be obtained for the fitting of the anti-collision devices onto specific sections of the line once the exact positions of the towers have been surveyed and pegged. Additional areas of high sensitivity along the preferred alignment must also be identified by the avifaunal specialist for the fitment of anti-collision devices. These devices must be according to Eskom's Transmission and EWT's Guidelines.	Pending for construction	Section 2
39.	A pre-construction walk through of the approved power line alignment and turbine positions by a bat specialist, avifaunal specialist and ecologist, must be conducted to	Complete	Section 2

	ensure that the micro-siting of the turbines, pylons and power line alignment have the least possible impact, there are no nests sites of priority species on or close to the construction corridor, and all protected plant species impacted are identified.		
40.	A construction monitoring plan must be developed and be implemented to survey impacts resulting from the infrastructure installation on the bird communities with focus on assessing the displacement and disturbance effects of the development on the bird communities, as well as continue to gather information on the bird communities present in the area and monitor the effectiveness of the mitigation measures for a minimum duration of at least three years during operation.	Complete	Section 24
41.	A bat monitoring program to determine the actual impacts on the bat community must be carried out for a minimum of three years, and utilization of red lights in the turbines to minimize insect attraction and bat foraging behaviours near the turbines is encouraged.	Complete	Section 25
42.	All bird monitoring must be conducted in accordance with the latest Birdlife South Africa/Endangered Wildlife Trust: Best practice guidelines for avian monitoring and impact mitigation at proposed wind energy development sites in Southern Africa.	Pending for Operation	Section 24
Vegetation, wetlands and water resources			
43.	The 'no-go' areas of the development property must be clearly demarcated and must be excluded from the final layout plan.	Complete	Section 2
44.	All watercourses and associated wetlands are regarded as sensitive. All developments within 500m of watercourses must comply with the National Water Act.	Pending application	Section 3
45.	No transmission line towers, substations and construction camps will be placed within the delineated water courses as well as their respective buffers without obtaining the required approvals. A 32m buffer must be applied along all identified watercourses and a 50m buffer must be applied along all identified wetlands.	Pending application	Section 3
46.	A pre-construction survey of the final development footprint must be conducted by a qualified floral specialist to identify protected species affected by the proposed development. Prior to the commencement of construction, a rescue and rehabilitation operation for these species which could survive translocation must be conducted.	Complete	Section 2
47.	Construction activities must be restricted to demarcated areas to restrict the impact on sensitive environmental features.	Pending for Construction	Section 7
48.	All areas of disturbed soil must be reclaimed using only indigenous grass and shrubs. Reclamation activities shall be undertaken according to the rehabilitation plan to be included in the final EMPr.	Complete	Section 14
49.	Topsoil from all excavations and construction activities must be salvaged and reapplied during reclamation.	Pending for Construction	Section 7
50.	No exotic plants may be used for rehabilitation purposes; only indigenous plants of the area may be utilised.	Pending for Construction	Section 14

51.	Cleared alien vegetation must not be dumped on adjacent intact vegetation during clearing but must be temporarily stored in a demarcated area.	Pending for Construction	Section 12
52.	Removal of alien invasive species or other vegetation and follow-up procedures must be in accordance with the Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983).	Pending for Construction	Section 12
53.	Contractors and construction workers must be clearly informed of the no-go areas.	Pending for Construction	Section 7
54.	Where roads pass right next to major water bodies, provision shall be made for fauna such as toads to pass under the roads by using culverts or similar structures.	Pending for Construction	Section 7
55.	Bridge design must be such that it minimise impact to riparian areas with minimal alterations to water flow and must allow the movement of fauna and flora.	Pending for Construction	Section 7
56.	The final development area should be surveyed for species suitable for search and rescue, which should be trans-located prior to the commencement of construction.	Pending for Construction	Section 13
57.	Electric fencing should not have any strands within 30cm of the ground, which should be sufficient to allow smaller mammals, reptiles and tortoises to pass through, but still remain effective as a security barrier.	Pending for Construction	Section 7
58.	Disturbed areas must be rehabilitated as soon as possible after construction with locally indigenous plants to enhance the conservation of existing natural vegetation on site.	Pending for Construction	Section 7
59.	Wetlands, rivers and river riparian areas must be treated as "no-go" areas and appropriately demarcated as such. No vehicles, machinery, personnel, construction material, fuel, oil, bitumen or waste must be allowed into these areas without the express permission of and supervision by the ECO, except for rehabilitation work in these areas.	Pending for Construction	Section 7
60.	Workers must be made aware of the importance of not destroying or damaging the vegetation along rivers and in wetland areas and this awareness must be promoted throughout the construction phase.	Pending for Construction	Section 7
61.	Freshwater ecosystems located in close proximity to the construction areas must be inspected on a regular basis by the ECO for signs of disturbance from construction activities. If signs of disturbance are noted, immediate action must be taken to remedy the situation and, if necessary, a freshwater ecologist must be consulted for advice on the most suitable remediation measures.	Pending for Construction	Section 7
62.	No discharge of effluents or polluted water must be allowed into any rivers or wetland areas.	Pending for Construction	Section 7
63.	If construction areas are to be pumped of water (e.g. after rains), this water must be pumped into an appropriate settlement area, and not allowed to flow into any rivers or wetland areas.	Pending for Construction	Section 7
64.	Workers must be made aware of the importance of not polluting rivers or wetlands and of not undertaking activities that could result in such pollution, and this awareness must be promoted throughout the construction phase.	Pending for Construction	Section 7



65.	Freshwater ecosystems located in close proximity to the site must be inspected on a regular basis (but especially after rainfall) by the ECO for signs of sedimentation and pollution. If signs of sedimentation or pollution are noted, immediate action must be taken to remedy the situation and, if necessary, a freshwater ecologist must be consulted for advice on the most suitable remediation measures.	Pending for Construction	Section 7
Roads and transportation			
66.	Signs must be placed along construction roads to identify speed limits, travel restrictions, and other standard traffic control information. To minimize impacts on local commuters, consideration should be given to limiting construction vehicles travelling on public roadways during the morning and late afternoon commute time.	Pending for Construction	Section 20
67.	All structures crossing streams must be located and constructed so that they do not decrease channel stability or increase water velocity.	Pending for Construction	Section 20
68.	A designated access to the site must be created and clearly marked to ensure safe entry and exit.	Pending for Construction	Section 20
69.	Signage must be erected at appropriate points warning of turning traffic and the construction site.	Pending for Construction	Section 20
70.	Construction vehicles carrying materials to the site should avoid using roads through densely populated built-up areas so as not to disturb existing retail and commercial operations.	Pending for Construction	Section 20
71.	Road borders should be regularly maintained to ensure that vegetation remains short and that they therefore serve as an effective firebreak.	Pending for Construction	Section 20
72.	Roads must be designed so that changes to surface water runoff are avoided and erosion is not initiated.	Pending for Construction	Section 20
73.	All construction vehicles should adhere to a low speed limit to avoid collisions with susceptible species such as snakes and tortoises.	Pending for Construction	Section 20
Noise			
74.	The potential noise impact be re-evaluated should the layout be changed such that any wind turbines are located closer than 1,000m from a confirmed noise sensitive area.	Complete	Section 2
75.	The holder of this authorisation must ensure that the construction staff working in areas where the 8-hour ambient noise levels exceed 75dBA must wear ear protection equipment.	Pending for Construction	Section 7
76.	The holder of this authorisation must ensure that all equipment and machinery are well maintained and equipped with silencers.	Pending for Construction	Section 7
77.	The holder of this authorisation must provide a prior warning to the community when a noisy activity e.g. blasting is to take place.	Pending for Construction	Section 7
78.	Positions of turbines jeopardizing compliance with accepted noise levels should be revised during the micro-siting of the units in question and predicted noise levels re-modelled by the noise specialist, in order to ensure that the predicted noise levels are less than 45dB(A).	Complete	Section 2

79.	Construction staff must be trained in actions to minimise noise impacts.	Pending for Construction	Section 7
Visual resources			
80.	The holder of this authorisation must reduce visual impacts during construction by minimising areas of surface disturbance, controlling erosion, using dust suppression techniques and restoring exposed soil as closely as possible to their original contour and vegetation.	Pending for Construction	Section 7
81.	A lighting engineer must be consulted to assist in the planning and placement of light fixtures in order to reduce visual impacts associated with glare and light trespass.	Pending for Construction	Section 7
82.	Lighting of main structures (turbines) and ancillary buildings should be designed to minimise light pollution without compromising safety, and turbines must be lit according to Civil Aviation Regulations.	Pending for Construction	Section 7
83.	Signage on or near wind turbines must be avoided unless they serve to inform the public about wind turbines and their function.	Pending for Construction	Section 7
84.	Commercial messages and graffiti on turbines are prohibited.	Pending for Construction	Section 8
Human health and safety			
85.	A health and safety programme must be developed to protect both workers and the general public during construction, operation and decommissioning of the energy facility. The programme must establish a safety zone for wind turbines from residences and occupied buildings, roads, right-of-ways and other public access areas that is sufficient to prevent accidents resulting from the operation of the wind turbines.	Pending for Construction	Section 7
86.	Potentials interference with public safety communication systems (e.g. radio traffic related to emergency activities) must be avoided.	Pending for Construction	Section 7
87.	The holder of this authorisation must obtain approval from the South Africa Civil Aviation Authority that the wind facility will not interfere with the performance of aerodrome radio Communication, Navigation and Surveillance (CNS) equipment, especially the radar, prior to commencement of the activity. A copy of the approval must be kept on site by the ECO.	Pending for Construction	Section 7
88.	The holder of this authorisation must obtain approval from the South Africa Weather Services (WeatherSA) that the energy facility will not interfere with the performance of their equipment, especially radar, prior to commencement of the activity. A copy of the approval must be kept on site by the ECO.	Pending for Construction	Section 7
89.	The holder of this authorisation must train safety representatives, managers and workers in workplace safety. The construction process must be compliant with all safety and health measures as prescribed by the relevant act.	Pending for Construction	Section 7
90.	Liaison with land owners/farm managers must be done prior to construction in order to provide sufficient time for them to plan agricultural activities.	Pending for Construction	Section 7

91.	No unsupervised open fires for cooking or heating must be allowed on site.	Pending for Construction	Section 7
Hazardous materials and waste management			
92.	Areas around fuel tanks must be bunded or contained in an appropriate manner as per the requirements of SASS 089:1999 Part 1.	Pending for Construction	Section 7
93.	Leakage of fuel must be avoided at all times and if spillage occurs, it must be remedied immediately.	Pending for Construction	Section 7
94.	Hazardous waste such as bitumen, oils, oily rags, paint tins etc. must be disposed of at an approved waste landfill site licensed to accept such waste.	Pending for Construction	Section 7
95.	No dumping or temporary storage of any materials may take place outside designated and demarcated laydown areas, and these must all be located within areas of low environmental sensitivity.	Pending for Construction	Section 7
96.	Hazardous substances must not be stored where there could be accidental leakage into surface or subterranean water.	Pending for Construction	Section 7
97.	Hazardous and flammable substances must be stored and used in compliance to the applicable regulations and safety instructions. Furthermore, no chemicals 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.	Pending for Construction	Section 7
98.	Temporary bunds must be constructed around chemical storage to contain possible spills.	Pending for Construction	Section 7
99.	Spill kits must be made available on-site for the clean-up of spills.	Pending for Construction	Section 7
100.	An integrated waste management approach must be implemented that is based on waste minimisation and must incorporate reduction, recycling and re-use options where appropriate. Where solid waste is disposed of, such disposal shall only occur at a landfill licensed in terms of section 20(b) of the National Environment Management Waste Act, 2008 (Act 59 of 2008).	Pending for Construction	Section 7
101.	The holder of this authorisation must provide sanitation facilities within the construction camps and along the road so that workers do not pollute the surrounding environment. These facilities must be removed from the site when the construction phase is completed as well as associated waste to be disposed of at a registered waste disposal site.	Pending for Construction	Section 7
102.	The holder of this authorisation must take note that no temporary site camps will be allowed outside the footprint of the development area as the establishment of such structures might trigger a listed activity as defined in the Environmental Impact Assessment Regulations, 2014.	Pending for Construction	Section 7
Excavation and blasting activities			
103.	Underground cables and internal access roads must be aligned as much as possible along existing infrastructure to limit damage to vegetation and watercourses.	Pending for Construction	Section 7
104.	Foundations and trenches must be backfilled with originally excavated materials as much as possible. Excess excavation materials must be disposed of only in	Pending for Construction	Section 7

	approved areas or, if suitable, stockpiled for use in reclamation activities.		
105.	Borrow materials must be obtained only from authorised and permitted sites. Permits must be kept on site by the ECO.	Pending for Construction	Section 7
106.	Anti-erosion measures such as silt fences must be installed in disturbed areas.	Pending for Construction	Section 7
Air emissions			
107.	Dust abatement techniques must be used before and during surface clearing, excavation, or blasting activities.	Pending for Construction	Section 7
108.	Appropriate dust suppression techniques must be implemented on all exposed surfaces during periods of high wind. Such measures may include wet suppression, chemical stabilisation, the use of a wind fence, covering surfaces with straw chippings and re-vegetation of open areas.	Pending for Construction	Section 7
Historical /cultural/paleontological resources			
109.	A 30m buffer must be applied around all identified archaeological sites.	Pending for Construction	Section 27
110.	After initial vegetation clearance has taken place but before the ground is levelled for construction, a professional palaeontologist must undertake a walkthrough and document any identified paleontological findings. The survey/walkthrough must be conducted as per the South African Heritage Resources Agency (SAHRA) requirements.	Pending for Construction	Section 27
111.	Should any archaeological sites, artefacts, paleontological fossils or graves be exposed during construction work, work in the immediate vicinity of the find must be stopped, SAHRA must be informed and the services of an accredited heritage professional obtained for an assessment of the heritage resources to be made.	Pending for Construction	Section 27
112.	Construction managers/foremen must be informed before construction starts on the possible types of heritage sites and cultural material they may be encountered and the procedures to follow when they find sites.	Pending for Construction	Section 27
113.	All buffers and no-go areas stipulated in this report must be adhered to for both the facilities and all roads and power lines.	Pending for Construction	Section 27
114.	Should any human remains be uncovered during development they must be immediately protected in situ and reported to the heritage authorities or to an archaeologist. The remains will need to be exhumed at the cost of the developer.	Pending for Construction	Section 27
115.	All construction and maintenance crew and vehicles (except small vehicles which may use existing farm tracks) should be kept out of the buffer zones.	Pending for Construction	Section 27
116.	The final layout should be shown to the appointed archaeologist before implementation to confirm that all significant heritage resources have been adequately protected.	Pending for Construction	Section 27
Turbines position			
117.	No turbines or associated infrastructure are allowed in the high sensitivity areas.	Complete	Section 2

118.	50m buffer zones must be applied around grave sites.	Complete	Section 2
119.	A 30m buffer zone must be applied around farmsteads.	Complete	Section 2
120.	A 30m buffer zone must be applied around historical structures.	Complete	Section 2
121.	The laydown area and gridline must be located outside the 500m buffer of the significant historic Bloemendal - Reynartskraal Poort gateway cultural landscape feature.	Complete	Section 2
122.	Access roads must maintain a 200m buffer from historic structures, and 50m buffer from cultivated areas, especially within the Bloemendal - Reynartskraal Poort gateway.	Complete	Section 2
123.	The approved turbines must be placed in a manner to avoid all designated, "no-go" areas as well as its buffers.	Complete	Section 2
124.	The final placement of turbines must follow a micro siting procedure involving a walk-through and identification of any sensitive areas by botanical and avifaunal specialists.	Complete	Section 2
125.	1Exclusion of sensitive ecological, heritage and paleontological areas from construction activities must inform micro siting of all development activities.	Complete	Section 2
General			
126.	The recommendations of the EAP in the EIAR dated June 2022 and the specialist studies attached must be adhered to. In the event of any conflicting mitigation measures and conditions of the Environmental Authorisation, the specific condition of this Environmental Authorisation will take preference.	Complete	Section 2, 3 & 7
127.	A copy of this Environmental Authorisation, the audit and compliance monitoring reports, and the approved EMP, must be made available for inspection and copying - 127.1. at the site of the authorised activity; 127.2. to anyone on request; and 127.3. where the holder of the Environmental Authorisation has a website, on such publicly accessible website.	Pending for construction	Section 7
128.	National government, provincial government, local authorities or committees appointed in terms of the conditions of this authorisation or any other public authority shall not be held responsible for any damages or losses suffered by the holder of the authorisation or his/her successor in title in any instance where construction or operation subsequent to construction be temporarily or permanently stopped for reasons of non-compliance by the holder of the authorisation with the conditions of authorisation as set out in this document or any other subsequent document emanating from these conditions of authorisation.	Noted	

## Design Phase Management Plan

ASPECT / IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	METHOD	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
<b>General Measures during the Design Phase</b>					
Specialist Investigations	<ol style="list-style-type: none"> <li>1. An avifaunal walk-through must be undertaken by the avifaunal specialist prior to the construction commencing, to confirm the location and status of all priority species nests within the area of influence of the wind farm.</li> <li>2. Preconstruction biodiversity walk-through of the facility to micro-site roads and turbines.</li> <li>3. A preconstruction micro-survey for access roads, substations, laydown areas and gridlines should be completed with CLA specialist to ensure appropriate buffers are maintained during operational activities.</li> <li>4. Turbine layouts must adhere to the sensitivity areas and buffers, and the layout should be approved by a bat specialist upon finalisation of turbine specifications.</li> <li>5. A pre-construction walkthrough with an aquatic specialist is recommended and they can assist with the development of the stormwater management plan and Aquatic Rehabilitation and Monitoring plan, coupled to micro-siting of the final layout.</li> <li>6. Pre-construction walk down must be undertaken by the flora specialist in order to locate species</li> </ol>	Holder of the EA Relevant specialists	As per specialist requirements.	Ensure the EMPr is adhered to.	Pre-construction

	<p>of conservation concern that can be translocated as well as comply with the local permit conditions.</p> <p>7. A walk down of the final approved layout by the Heritage specialist will be required before construction commences.</p> <p>8. Any heritage features of significance identified during this walk down will require formal mitigation or where possible a slight change in design could accommodate such resources.</p> <p>9. A pre-construction palaeontological heritage walkdown of the final WEF and grid connection layout by a suitably qualified palaeontologist is recommended here.</p> <p>a. The recommended palaeontological walkdown should involve the recording and judicious collection of valuable fossil material as well as relevant geological data (e.g. on stratigraphic context, preservation style / taphonomy) within or close to (within ~10 m) the project footprint. This mitigation phase is essential because all fossil heritage resources in the RSA are protected by law and it is illegal to disturb, damage or destroy fossils here without a permit from the relevant provincial heritage resources agency (South African Heritage Resources Act, Act No. 25 of 1999). The palaeontological heritage mitigation report would then make</p>				
--	---	--	--	--	--

	<p>recommendations for further studies and mitigation (if any are necessary) during the construction phase of the renewable energy project. Since mitigation through recording and collection is almost invariably feasible, late-stage modifications to the final WEF / grid infrastructure layout (e.g. micro-siting changes to access roads, turbine or pylon locations) are not anticipated here.</p> <p>The palaeontologist responsible for the mitigation work will be required to submit a Work Plan for approval by Heritage Western Cape (HWC) and a Mitigation Report must be submitted to HWC for consideration. All fieldwork and reporting should meet the standards of international best practice as well as those developed for PIA reports by SAHRA(2013) and Heritage Western Cape (2021). Fossil material collected must be safeguarded and curated within an approved palaeontological repository (e.g. museum or university collection) with full collection data.</p> <p>10. It is recommended that a 5km turbine exclusion zone is implemented around the Martial Eagle nest a Tower 108 on the Droërivier – Protheus 400kV transmission line (see Figure 4). The</p>				
--	--	--	--	--	--



	<p>current 28 turbine lay-out has taken this into account.</p> <ol style="list-style-type: none"> <li>11. It is recommended that a 150m turbine exclusion zone is implemented around all drainage lines at the project site, and a 200m turbine exclusion zone around dams and water troughs as a precautionary measure against SCC and other priority species collisions (Figure 4). The current 28 turbine lay-out has taken this into account.</li> <li>12. It is recommended that all internal medium voltage cables are buried if technically possible.</li> <li>13. Those sections where the 33kV medium voltage cable cannot be trenched due to technical or environmental reasons, but needs run on overhead poles, the proposed pole designs must be approved by the avifaunal specialist, to ensure that the designs are raptor-friendly.</li> <li>14. It is recommended that bird flight diverters are fitted to all internal 33kV overhead lines according to the applicable Eskom engineering standard at the time.</li> <li>15. Consideration should be given to painting one third of one blade on each turbine signal red as a mitigation measure against avifaunal collisions, if feasible. While this mitigation measure is still considered experimental, data from Norway indicates a high level of effectiveness, even up to 100% for large raptors. If this can be done</li> </ol>				
--	--	--	--	--	--

	during the manufacturing phase, it can be done inexpensively.				
Appointment of ECO	<p>16. Appoint an Environmental Control Officer.</p> <p>17. The Environmental Control Officer (ECO) or a responsible appointed person or site manager should contact a bat specialist before construction commences so that they know what to look out for during construction.</p>	Holder of the EA	Undertake regular audits	Avoid construction delays. Ensure the EMPr is adhered to.	Continuous.
Site demarcation	<p>18. Before construction begins, all areas to be developed must be clearly demarcated with fencing or orange construction barrier where applicable.</p> <p>19. All Construction Camps are to be fenced off in such a manner that unlawful entry is prevented and access is controlled. All access points to the Construction Camp should be controlled by a guard or otherwise monitored, to prevent unlawful access.</p> <p>20. Records of all environmental incidents (in line with Section 30 of NEMA, 1998) must be maintained and a copy of these records be made available to provincial department on request throughout the project execution.</p>	Contractor	Undertake regular audits	Prevent unauthorized impact on the environment. Ensure safety of the workers, public and prevent loss/ damage to equipment. Ensure the conditions of the EA are adhered to. Compliance to all legislative requirements.	Continuous
Site clearing	<p>21. Site clearing must take place in a phased manner, as and when required.</p> <p>22. Areas which are not to be constructed on within two months must not be cleared to reduce erosion risks.</p>	Holder of the EA Contractor	Undertake regular audits	Site establishment undertaken responsibly Sensitive areas identified and avoided Erosion management plan implemented and	Once off

	<p>23. The area to be cleared must be clearly demarcated and this footprint strictly maintained.</p> <p>24. Spoil that is removed from the site must be removed to an approved spoil site or a licensed landfill site.</p> <p>25. The necessary silt fences and erosion control measures must be implemented in areas where these risks are more prevalent</p>			<p>hydrological measures in place.</p> <p>Appropriate stormwater structures as informed by the Storm Water Management Plan</p>	
Construction Camp	<p>26. Site establishment shall take place in an orderly manner and all required amenities shall be installed at camp sites before the main workforce move onto site.</p> <p>27. All construction equipment must be stored within the construction camp.</p> <p>28. All associated oil changes etc. (no servicing) must take place within the camp over a sealed surface such as a concrete slab.</p> <p>29. An area for the storage of hazardous materials must be established that conforms to the relevant safety requirements and that provides for spillage prevention and containment</p> <p>30. All Construction Camps shall be provided with portable fire extinguishing equipment, in accordance with all relevant legislation and must be readily accessible.</p> <p>31. The Contractor must provide sufficient ablution facilities, in the form of portable / VIP toilets, at the Construction Camps, and shall conform to all relevant health and</p>	Contractor	Undertake regular audits	<p>Prevent unauthorized impact on the environment.</p> <p>Ensure safety of the public and prevent loss/ damage equipment</p> <p>Ensure EMPr is adhered to</p> <p>Compliance to all legislative requirements</p>	Continuous

	<p>safety standards and codes. No pit latrines, French drain systems or soak away systems shall be allowed and toilets may not be situated within 100 meters of any surface water body or 1:100-year flood line. A sufficient number of toilets shall be provided to accommodate the number of personnel working in the area.</p> <p>32. The Contractor shall inform all site staff to make use of supplied ablution facilities and under no circumstances shall indiscriminate sanitary activities be allowed.</p> <p>33. No fires will be allowed and the Contractor must make alternative arrangements for heating. LP Gas may be used, provided that all required safety measures are in place. The Contractor shall take specific measures to prevent the spread of fires, caused by activities at the campsites. These measures may include appropriate instruction of employees about fire risks and the construction of firebreaks around the site perimeter.</p>				
Training of site staff	<p>34. Environmental awareness training for construction staff, concerning at a minimum the general environmental awareness, conservation of fauna and flora, the prevention of accidental spillage of hazardous chemicals and oil; pollution of water resources (both surface and groundwater), air pollution and litter control and identification of archaeological artefacts.</p>	Contractor	Undertake regular audits	<p>All staff members are aware of the EMP requirements relevant to them.</p> <p>All waste managed according to approved the Method Statement compiled by the contractor and approved by the engineer and reviewed by ECO.</p>	Continuous

	<p>35. Staff operating equipment (such as loaders, etc.) shall be adequately trained and sensitised to any potential hazards associated with their tasks.</p> <p>36. No operator shall be permitted to operate critical items of mechanical equipment without having been trained by the Contractor and certified competent by the Project Manager.</p> <p>37. Staff should be educated as to the need to refrain from indiscriminate waste disposal and/or pollution of local soil and water resources and receive the necessary safety training.</p> <p>38. Staff must be trained in the hazards and required precautionary measures for dealing with these substances.</p> <p>39. Spillage packs must be available at construction areas.</p>				
<b>Consultation During the Design Phase</b>					
Consultation	<p>1. Provide a mechanism through which information could be exchanged between the project proponent and stakeholders.</p> <p>2. Identify relevant stakeholders and engage them at applicable stages of the EIA process.</p> <p>3. Inform the public about the proposed construction process.</p> <p>4. Surrounding communities must be kept informed, through the identified and agreed consultation channels, of the commencement of construction.</p>	Holder of the EA Contractor	n/a	Clear communication channels established.	Continuous

	<p>5. Work on site to be restricted to work hours.</p> <p>6. Financial provision must be included for rehabilitation in terms of the REIPPP financial model requirements.</p> <p>7. An agreement/contract should be formalised between the landowner and the applicant that will ensure that the rehabilitation does not leave any liability to future landowners.</p>				
Noise	<p>8. At all stages, surrounding receptors should be informed about the project, providing them with factual information without setting unrealistic expectations.</p> <p>9. 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.</p> <p>10. The proposed WEF should maintain a commitment to the local community (people staying within 2,000 m from construction or operational activities) and respond to noise concerns in an expedient fashion. Sporadic and legitimate noise complaints could be raised. For example, sudden and sharp increases in sound levels could result from mechanical malfunctions or perforations or slits in the blades. Problems of this nature can be corrected quickly and it is in the developer's interest to do so.</p>	Holder of the EA Contractor	n/a	Clear communication channels established.	Continuous

	11. Noise generated from all the proposed activities must comply with the Western Cape Noise Control Regulations promulgated in Provincial Notice 200/2013 (“WCNCR”).				
<b>Specialist Specific Mitigation Measures</b>					
<b>Erosion</b>					
Protection of soil resources	1. Design an effective system of storm water run-off control, where it is required - that is at any points where run-off water might accumulate. The system must effectively collect and safely disseminate any run-off water from all accumulation points and it must prevent any potential down slope erosion.	Engineer Contractor	Ensure that the storm water run-off control is included in the engineering design.	That disturbance and existence of hard surfaces causes no erosion on or downstream of the site.	Once-off during the design phase.
<b>Visual</b>					
<ul style="list-style-type: none"> <li>■ Potential alteration of the visual character and sense of place.</li> <li>■ Potential visual impact on receptors in the study area.</li> <li>■ Potential visual impact on the night time visual environment.</li> </ul>	<ol style="list-style-type: none"> <li>1. Ensure that wind turbines are not located within 1km of any farmhouses in order to minimise visual impacts on these dwellings.</li> <li>2. Where possible, fewer but larger turbines with a greater output should be utilised rather than a larger number of smaller turbines with a lower capacity.</li> <li>3. Where possible, the operation and maintenance buildings and laydown areas should be consolidated to reduce visual clutter.</li> <li>4. Where possible, underground cabling should be utilised</li> </ol>	Holder of the EA Contractor	Undertake regular audits	Ensure the EMP is adhered to.	Continuous
<b>Biodiversity</b>					

Vegetation and protected plant species	<ol style="list-style-type: none"> <li>1. There should be no turbines within the Very High Sensitivity areas.</li> <li>2. The footprint within drainage lines should be minimized as much as possible.</li> <li>3. Preconstruction walk-through of the approved development footprint to ensure that sensitive habitats and species are avoided where possible.</li> <li>4. Ensure that lay-down and other temporary infrastructure is within low sensitivity areas, preferably previously transformed areas if possible.</li> <li>5. Minimise the development footprint as far as possible and rehabilitate disturbed areas that are no longer required by the operational phase of the development.</li> <li>6. A large proportion of the impact of the development stems from the access roads and the number of roads should be reduced to the minimum possible and routes should also be adjusted to avoid areas of high sensitivity as far as possible, as informed by a preconstruction walk-through survey.</li> <li>7. Preconstruction environmental induction for all construction staff on site to ensure that basic environmental principles are adhered to. This includes topics such as no littering, appropriate handling of pollution and chemical spills, avoiding fire hazards, minimizing wildlife interactions,</li> </ol>	Holder of the EA Contractor	Construction Monitoring and audit reports.	<p>Impacts avoided or managed as per specialist recommendations.</p> <p>Alien Plant Management Plan Implemented.</p> <p>Plant Rehabilitation Implemented.</p> <p>Ensure the conditions of the EA are adhered to.</p>	Continuous
--	--	--------------------------------	--	--	------------



	<p>remaining within demarcated construction areas etc.</p> <p>8. Demarcate all areas to be cleared with construction tape or other appropriate and effective means. However, caution should be exercised to avoid using material that might entangle fauna.</p>				
<b>Aquatic Systems</b>					
<p>Impact on aquatic systems through the possible increase in surface water runoff on form and function:</p> <p>Increase in hard surface areas, and roads that require stormwater management will increase through the concentration of surface water flows that could result in localised changes to flows (volume) that would result in form and function changes within aquatic systems, which are currently ephemeral. This then increases the rate of erosions and sedimentation of downstream areas.</p>	<p>1. A stormwater management plan must be developed in the preconstruction phase, detailing the stormwater structures and management interventions that must be installed to manage the increase of surface water flows directly into any natural systems. This stormwater control systems must be inspected on an annual basis to ensure these are functional. Effective stormwater management must include effective stabilisation (gabions and Reno mattresses) of exposed soil and the re-vegetation of any disturbed riverbanks.</p>	<p>Holder of the EA Contractor</p>	<p>All staff members are aware of the EMP requirements relevant to them.</p> <p>Align to Storm Water Plan.</p>	<p>Impacts avoided or managed as per specialist recommendations.</p> <p>Ensure the conditions of the EA are adhered to.</p>	<p>Continuous</p>
<p>Surface Water</p> <p>Damage or loss of riparian and or drainage line systems i.e. disturbance of the waterbodies in the construction phase.</p>	<p>2. A detailed monitoring plan must be developed in the pre- construction phase by an aquatic specialist, where any delineated system occurs within 50 m of existing crossings.</p>	<p>Holder of the EA to appoint aquatic specialist to implement.</p>	<p>Construction Monitoring and audit reports.</p>	<p>Impacts avoided or managed as per specialist recommendations.</p> <p>Ensure the conditions of the EA are adhered to.</p>	<p>Continuous</p>

Heritage					
Damage to 2 sites containing burial grounds and graves (KO-06 and KO- 09).	<ol style="list-style-type: none"> <li>1. Demarcate sites as no-go areas (50m buffer).</li> <li>2. Demarcate and fence during construction if construction activities area to happened within 50 meters from a site.</li> <li>3. A management plan, after a walkdown of the final layout, for the heritage resources needs then to be compiled and approved for implementation during construction and operations.</li> </ol>	Applicant ECO Environmental Control Officer (ECO) Heritage / Archaeological specialist	n/a	Ensure the EMPr is adhered to.	Continuous
Damage to 3 historical farmsteads/structures (One structure is located near farm roads within the proposed development area. The expansion of existing farm roads may impact the site, two sites are located within the proposed grid corridor area).	<ol style="list-style-type: none"> <li>4. Demarcate sites as no-go areas (30m buffer).</li> <li>5. Demarcate and fence during construction if construction activities area to happened within 30 meters from a site.</li> <li>6. A management plan, after a walkdown of the final layout, for the heritage resources needs then to be compiled and approved for implementation during construction and operations.</li> </ol>	Applicant ECO Environmental Control Officer (ECO) Heritage / Archaeological specialist	n/a	Ensure the EMPr is adhered to.	Continuous
Unidentified heritage resources	<ol style="list-style-type: none"> <li>7. A management plan, after a walkdown of the final layout, for the heritage resources needs then to be compiled and approved for implementation during construction and operations.</li> </ol>	Applicant ECO Environmental Control Officer (ECO) Heritage / Archaeological specialist	n/a	Ensure the EMPr is adhered to.	Continuous
Fossil heritage resources: Disturbance, damage or destruction of fossils at or beneath the ground surface due to surface	<ol style="list-style-type: none"> <li>8. Pre-construction walkdown (with fossil recording / collection) of final footprint by specialist palaeontologist.</li> </ol>	Applicant ECO Environmental Control Officer (ECO)	n/a	Ensure the EMPr is adhered to.	Continuous

clearance and bedrock excavations.	9. Chance Fossil Finds Procedure during construction phase.	Heritage / Archaeological specialist			
Cultural landscape - Ecological	<p>10. Ecological Support Areas (along drainage lines), should be protected from development of the wind turbines or any associated development during all phases.</p> <p>11. No wind turbines should be placed within the 1:100-year flood line of the watercourses. In the context of the sensitivity to soil erosion in the area, as well as potential archaeological resources, it would be a risk to include any structures close to these drainage lines.</p> <p>12. Identified medicinal plants used for healing or ritual purposes should be conserved during all phases if threatened for use and continued access to these resources be maintained.</p> <p>13. Careful planning should incorporate areas for storm water runoff where the base of the structure disturbed the natural soil. Local rocks found on the site could be used to slow storm water (instead of concrete, or standard edge treatments), and prevent erosion that would be an unfortunate consequence that would alter the character of the site. By using rocks from site it helps to sensitively keep to the character.</p>	Holder of the EA	n/a	Ensure the EMPr is adhered to.	Continuous
Cultural landscape - Aesthetic	14. Where additional infrastructure (i.e. roads) is needed, the upgrade of existing roads to accommodate the development should be the first consideration.	Holder of the EA	n/a	Ensure the EMPr is adhered to.	Continuous

	<p>15. Avoid development of infrastructure (such as buildings, wind turbines and power lines), on crests or ridgelines due to the impact on the visual sensitivity of skylines. The visual impact of turbines can be reduced by distancing them from viewpoints such as roads and farmsteads, and placing them in lower lying plains to reduce their impact on the surrounding sensitive cultural landscape.</p> <p>16. Significant and place-making view sheds of surrounding ridgelines and distant mountain should be maintained by limiting the placement of turbines or associated infrastructure on opposing sides of any of the regional roads, so that at any time a turbine-free view can be found when travelling through the landscape or at the historic farmsteads.</p> <p>Retain view-lines and vistas focused on prominent natural features such as mountain peaks or hills, such as the Platdoring se Kop and the Koup 1 poort, as these are important place making and orientating elements for experiencing the cultural landscape.</p> <p>17. Prevent the construction of new buildings/structures/ new roads on visually sensitive, steep, elevated or exposed slopes, ridgelines and hillcrests.</p> <p>18. Turbine and new road placement to avoid slopes steeper than 10% with</p>				
--	---	--	--	--	--

	<p>existing farm roads to be used for access to turbines as far possible.</p> <p>19. Proposed turbines 4, 5 and 8 are not feasible in their current proposed locations due to steep slope gradients and high and visually prominent ridge lines in these locations which will have an overwhelming negative impact on the historic farm road.</p> <p>20. Proposed turbine 9 is not feasible in the current proposed location due to a combination of factors that cumulatively overwhelm the cultural landscape:</p> <ul style="list-style-type: none"> <li>■ Prominent location in relation to the Koup 1 landscape poort.</li> <li>■ Location at the top of a steep slope classified as 10% and higher.</li> <li>■ Location at one of the highest points in the Koup 1 landscape at close to 1050masl.</li> </ul> <p>21. Due to the scenic and historic significance of the regional road, a buffer of 1000m to either side of the N12 should be maintained for no development associated with the WEF other than sensitive road upgrades, which must not impact on the views from the road. The visual impact of the turbines will be 50% less at 1km distance and therefore this distance will greatly reduce the negative visual impact of the turbines on the experience of the historic road and the values that give it significance.</p> <p>22. Due to the nature of the landscape being largely devoid of high vertical elements such as the proposed</p>				
--	---	--	--	--	--

	<p>turbines, and the introduction of these turbines fundamentally altering the sense of place and character of the landscape for those living there, location of turbines should be limited to a 800m buffer around the farmsteads. The current turbine layout supports this recommendation in that there is nowhere more than a single turbine at the edge of these buffer zones.</p> <p>23. Due to the historic and local experience of the landscape from the farm roads, which link the historically significant farmsteads across the region, a buffer of 300m from the farm roads should be maintained for no development associated with the WEF other than sensitive road upgrades which must not impact on the views from the road.</p> <p>24. Alternatives Option 1(sub1) for the grid corridor and Option 1 for the laydown area, are preferred in terms of cultural landscape assessment as they limit the construction to a smaller footprint on the landscape and locate the infrastructure far enough from the N12 and out of the Koups 1 landscape as far possible. They should be moved as far away from the farm road as possible without impacting on a riverine corridor flood line or a slope over 3%.</p> <p>25. The substation location should be located on the same side as other development infrastructure and to the north of the farm road so as to limit the visual impact to one</p>				
--	---	--	--	--	--

	<p>viewshed. As there is a ridge behind this development area, for which turbine placement is proposed, location of the substation to the north of the farm road contains the impact to one side of the road and the infrastructure will not interrupt view lines of the mountain ranges in the distance.</p> <p>26. The impact of WEF turbine night lighting on the wilderness landscape is intrusive and overwhelms the rural character of the landscape, giving it an industrial sense of place after dark. Reduce the impact of turbine night lighting by minimizing the number of turbines with lighting to only those necessary for aviation safety, such as a few identified turbines on the outer periphery, or use aircraft triggered night lighting. Due to the reduced receptors on the roads at night, the impact of the lighting at night is reserved mainly for farmsteads and other places of overnight habitation such as the surrounding tourist facilities, which would be heavily impacted by the light pollution on a long term and ongoing basis.</p>				
Cultural landscape - Historic	<p>27. Due to the scenic and historic significance of the regional road, a buffer of 1000m to either side of the N12 should be maintained for no development associated with the WEF other than sensitive road upgrades, which must not impact on the views from the road. The visual impact of the turbines will be 50% less at 1000m distance and therefore this distance will greatly</p>	Holder of the EA	n/a	Ensure the EMPr is adhered to.	Continuous

	<p>reduce the negative visual impact of the turbines on the experience of the historic road and the values that give it significance.</p> <p>28. The integrity of the historic farmsteads and their associated cultivated areas and relationship to the riverine corridors and other natural elements, such as the ridgelines and poorts, should be maintained and protected. Due to the nature of the landscape being largely devoid of high vertical elements such as the proposed turbines, the introduction of turbines will fundamentally alter the sense of place and character of the landscape for those living there. Location of proposed turbines and power lines should be limited to a 800m buffer around the farmsteads as far possible to limit impact to the farmsteads. The current turbine layout supports this recommendation in that there is nowhere more than a single turbine at the edge of these buffer zones.</p> <p>29. Any development that impacts the inherent character of the werf component should be discouraged and a development buffer of 50m around the outer boundary of farm werfs and 200m around any graded heritage structure, must be maintained, including the associated cultivated areas, cemeteries and unmarked graves, for all new infrastructure. A preconstruction micro-survey for access roads, substations, laydown areas and gridlines should be</p>				
--	--	--	--	--	--



	<p>completed with CLA specialist to ensure appropriate buffers are maintained.</p> <p>30. The significant historical cultural element of the Bloemendal – Reynartskraal Poort settlement, graded IIIA, should be protected from heavy construction vehicles, WEF infrastructure, construction and operational traffic dust or water exploitation as this will impact heavily on the continued sustainable land use patterns and crop cultivation. A 500m buffer around this area is for all infrastructure, including laydown areas, other than minor sensitive road widening or upgrades.</p> <p>31. No infrastructure or operational upgrades, such as boreholes, should impact negatively or reduce natural, on site water quality, quantity or access for the residents within or around the development site. Any borehole or other water resource upgrade should also be made freely accessible to the residents living on site.</p> <p>32. Due to the historic and local experience of the landscape from the farm roads, which link the historically significant farmsteads across the region, a buffer of 300m from the farm roads should be maintained for no development associated with the WEF other than sensitive road upgrades which must not impact on the views from the road. A preconstruction micro-survey for access roads, substations, laydown areas and gridlines should</p>				
--	---	--	--	--	--

	<p>be completed with CLA specialist to ensure appropriate buffers are maintained.</p> <p>33. Buffers from identified stone markers and foundations should be in accordance with the AIA (PGS, 2021) where they are not directly associated with an historic farmstead.</p> <p>34. The existing names of places, routes, watercourses and natural features in the landscape that are related to its use, history and natural character should be retained and used as heritage resources related to intangible heritage.</p> <p>35. Burial grounds and places of worship are automatically regarded as Grade IIIa or higher. Any development that threatens the inherent character of family burial grounds must be assessed and should be discouraged. No development closer than 100m from the boundary of any burial grounds or unmarked graves. No turbines have been proposed for placement near known unmarked burials or family cemeteries. A preconstruction micro-survey for access roads, substations, laydown areas and gridlines should be completed with CLA specialist to ensure appropriate buffers are maintained. A preconstruction micro-survey of each turbine footprint and any new access roads should be conducted to ensure no</p>				
--	--	--	--	--	--

	<p>further unmarked graves are threatened.</p> <p>36. Commonages and outspans were located at water points, and these places were likely gathering points before the arrival of colonists and continued to provide communal resources. In the mid-20th century, many old commonages came under the ownership of the Municipality, and have since been rented out to private individuals or organisations. The Municipality should facilitate the use of common land in a way that promotes the well-being and quality of life of the public. These sites can play a restorative role within the community, for instance for those who have limited alternative opportunities for recreation.</p> <p>37. Respect existing patterns, typologies and traditions of settlement-making by promoting the continuity of heritage features. These include: (a) indigenous; (b) colonial; and (c) current living heritage in the form of tangible and intangible associations to place.</p> <p>38. Alterations and additions to conservation-worthy structures should be sympathetic to their architectural character and period detailing.</p>				
Cultural landscape - Socio-economic	<p>39. The findings of this report must be shared with identified interested and affected parties in the public participation process, including non-landowner residents on the development properties, in the EIA</p>	Holder of the EA	n/a	Ensure the EMPr is adhered to.	Continuous

	<p>public participation process in order to further ascertain any intangible cultural resources that may exist on the landscape that have not been identified. A specialist qualified in recognising and discussing significance of intangible heritage resources should be present during the public meetings. The findings should inform the recommendations for appropriate mitigation for impacts to the cultural landscape.</p> <p>40. The public participation process must include the non-owner residents on and surrounding the development site, which will be impacted on by the proposed WEF as identified by the SIA and VIA. The PPP must consider fully issues of sense of place in its process. A specialist qualified in recognising and discussing significance of intangible heritage resources should be present during the public meetings. The findings should inform the recommendations for appropriate mitigation for impacts to the cultural landscape.</p> <p>41. The continued use of the landscape for human habitation and cultivation by historic residents of the area, should be retained and encouraged as far possible to sustain the continual use pattern and human-environment relationship which is the ultimate significance of this cultural landscape element. The WEF development must allow and support this, including financially,</p>				
--	--	--	--	--	--

	<p>and not degrade this continued relationship.</p> <p>42. No infrastructure or operational upgrades, such as boreholes, should impact negatively or reduce natural, on site water quality, quantity or access for the residents within or around the development site. Preferably any borehole or other water resource upgrade should also be made freely accessible to the residents living on site.</p> <p>43. The local community on and around the development should benefit from job opportunities created by the proposed development and the development should not cause reduction in economic viability of surrounding properties in excess of those offered by the development. Short-term job opportunities at the expense of long term economic benefit and local employment opportunities must be prevented.</p> <p>44. Local residents must be offered employment on the construction/ decommissioning and operational phases before 'importing' staff from elsewhere.</p> <p>45. Local residents must be offered employment-training opportunities associated with WEF developments at all phases.</p>				
<b>Avifauna</b>					
Mortality of priority avifauna due to collisions with the wind turbines.	<p>1. The results of the pre-construction monitoring must guide the lay-out of the turbines, especially as far as proposed no-turbine zones are concerned. No turbines must be</p>	Project Developer	Design the facility with 200m buffers around dams and water troughs, and 150m buffers around major drainage lines.	Prevent mortality of priority avifauna.	Once-off during the planning phase.

	constructed in the buffer zones which were identified based on the results of the pre- construction monitoring, with a specific view to limiting the risk of collisions to a variety of birds, including several Red Data species.				
Electrocution of raptors on the internal 33kV poles.	<ol style="list-style-type: none"> <li>2. Use underground cabling as much as is practically possible.</li> <li>3. Where the use of overhead lines is unavoidable due to technical reasons, the Avifaunal Specialist must be consulted to ensure that a raptor friendly pole design is used, and that appropriate mitigation is implemented pro-actively for complicated pole structures e.g. insulation of live components to prevent electrocutions on terminal structures and pole transformers.</li> </ol>	Project Developer	Design the facility with underground cabling. Consult with Avifaunal Specialist during the design phase of the overhead lines.	Prevent electrocutions.	Once-off during the planning phase.
<b>Bats</b>					
Impact	Mitigation / Management Objectives	Mitigation / Management Actions	Monitoring		
			Method	Frequency	Responsibility
Future Impacts on Bats	<ol style="list-style-type: none"> <li>1. Mitigate impacts on Bat Habitat caused by destruction, disturbance, and displacement.</li> </ol>	Ensure the design of the WEF takes the sensitivity mapping of the bat specialist into account to avoid and reduce impacts on bat species and bat important features. Maintain buffers around these sensitive areas.	Ensure that No Go and high sensitivity areas are identified and excluded from turbine placement during the planning and design phase.	Prior to construction during design and planning phase.	Project Developer

	2. Mitigate impacts leading to bat population decline in future project phases.	Conduct one year of bat monitoring at height.	Relevant SABAA bat guidelines (Sowler, et al, 2017).	Prior to construction.	Project Developer
	3. Minimize footprint of the construction to an acceptable level i.e., no placement of turbines in sensitive areas as well as spacing of turbines.	Turbines need to be approximately 250 m apart from blade tip to blade tip.	Final layout design.	During design and prior to construction.	Project Developer
	4. Avoid attracting bats to sensitive areas.	Plan to minimise artificial light at night.	Choice and light placement on turbines.	Final design.	Project Developer

### **Construction Phase Management Plan**

ASPECT / IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	METHOD	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
<b>Construction Camp</b>					
Construction Camp: Site of construction camp	<ol style="list-style-type: none"> <li>The size of the construction camp must be aligned to the approved laydown area.</li> <li>Adequate parking must be provided for site staff and visitors. The Contractor must attend to drainage of the camp site to avoid standing water and / or sheet erosion.</li> <li>Suitable control measures over the Contractor's yard, plant and material storage to mitigate any visual impact of the construction activity must be implemented.</li> <li>No construction should occur in an area of high or unique agricultural value, or in an area under cultivation.</li> </ol>	Holder of the EA Contractor	As per specialist requirements.	Ensure the conditions of the EA are adhered to. Compliance to all legislative requirements. Impacts avoided or managed as per specialist recommendations.	Once-off
Construction Camp:	<ol style="list-style-type: none"> <li>Choice of location for storage areas must take into account prevailing winds, distances to water bodies,</li> </ol>	Holder of the EA Contractor	As per specialist requirements.	Choice of storage areas carefully considered to	Continuous

<p>Storage of materials (including hazardous materials)</p>	<p>general onsite topography and water erosion potential of the soil. Impervious surfaces must be provided where necessary.</p> <ol style="list-style-type: none"> <li>6. Storage areas must be designated, demarcated and fenced if necessary.</li> <li>7. Storage areas should be secure so as to minimize the risk of crime. They should also be safe from access by unauthorised persons i.e. children / animals etc.</li> <li>8. Fire prevention facilities must be present at all storage facilities.</li> <li>9. Storage areas containing chemical substances / materials must be clearly sign posted.</li> <li>10. Proper storage facilities for the storage of oils, paints, grease, fuels, chemicals and any hazardous materials to be used must be provided to prevent the migration of spillage into the ground and groundwater regime around the temporary storage area(s). These pollution prevention measures for storage must include a bund wall high enough to contain at least 110% of any stored volume, and this must be sited away from drainage lines in a site with the approval of the Project Manager. The bund wall must be high enough to contain 110% of the total volume of the stored hazardous material with an additional allocation for potential stormwater events.</li> <li>11. These storage facilities (including any tanks) must be on an impermeable surface that is protected from the ingress of storm water from surrounding areas and that will not</li> </ol>			<p>avoid impact to environment.</p> <p>Correct handling, storage and/or disposal and/or cleanup of all materials to prevent impact to environment.</p> <p>All hazardous substances managed according to approved Method Statement.</p>	
---	--	--	--	--	--



	<p>infiltrate into the ground in order to ensure that accidental spillage does not pollute local soil or water resources.</p> <p>12. All fuel storage areas must be roofed to avoid creation of dirty stormwater.</p> <p>13. Material Safety Data Sheets (MSDSs) shall be readily available on site for all chemicals to be used on site. Where possible the available, MSDS's must additionally include information on ecological impacts and measures to minimise negative environmental impacts during accidental releases or escapes.</p> <p>14. Staff dealing with these materials / substances must be aware of their potential impacts and follow the appropriate safety measures.</p> <p>15. An approved waste disposal contractor must be employed to remove and recycle waste oil, if practical. The contractor must ensure that its staff is made aware of the health risks associated with any hazardous substances used and has been provided with the appropriate protective clothing/equipment in case of spillages or accidents and have received the necessary training.</p> <p>16. All excess cement and concrete mixes are to be contained on the construction site prior to disposal off site.</p> <p>17. All major spills as specified in the contractor emergency response procedure of any materials, chemicals, fuels or other potentially hazardous or pollutant substances must be cleaned immediately, and</p>				
--	---	--	--	--	--

	the cause of the spill investigated. Preventative measures must be identified and submitted to the MC and ECO for information. Emergency response procedures to be followed and implemented.				
Construction Camp: Drainage of construction camp	18. Surface drainage measures must be established in the Construction Camps so as to prevent: ponding of water. erosion as a result of accelerated runoff; and, 19. Uncontrolled discharge of polluted runoff.	Holder of the EA Contractor	As per specialist requirements.	Storm Water Management Plan provided and accepted prior to construction commencing. Storm Water Management Plan implemented. Erosion plan implemented and hydrological measures in place.	Continuous.
<b>Construction Traffic and Access</b>					
Construction Traffic	<ol style="list-style-type: none"> <li>1. Construction routes and required access roads must be clearly defined.</li> <li>2. Recommendations of the stormwater management plan must be implemented.</li> <li>3. Delivery of equipment must be undertaken with the minimum amount of trips to reduce the carbon footprint of these activities</li> <li>4. Access of all construction and material delivery vehicles should be strictly controlled, especially during wet weather to avoid compaction and damage to the topsoil structure.</li> <li>5. Damping down of the un-surfaced roads must be implemented to reduce dust and nuisance.</li> </ol>	Holder of the EA Contractor	n/a	A traffic management strategy developed and implemented throughout the construction and operation phases. Storm Water Management Plan implemented. Ensure the EMPr is adhered to.	Continuous.

	<p>6. Vehicles and equipment shall be serviced regularly to avoid the contamination of soil from oil and hydraulic fluid leaks etc.</p> <p>7. Servicing must be done in dedicated service areas on site or else off site if no such area exists.</p> <p>8. Oil changes must take place on a concrete platform and over a drip tray to avoid pollution.</p> <p>9. Soils compacted by construction shall be deep ripped to loosen compacted layers and re-graded to even running levels.</p>				
Construction Access	<p>10. The main routes on the site must be clearly sign posted and printed delivery maps must be issued to all suppliers and Sub-contractors.</p> <p>11. Planning of access routes to the site for construction purposes shall be done in conjunction with the Contractor and the Landowner. All agreements reached should be documented and no verbal agreements should be made. The Contractor shall clearly mark all access roads. Roads not to be used shall be marked with a "NO ENTRY for construction vehicles" sign.</p> <p>12. Access to the site must be via secondary roads as requested by SANRAL.</p>	Holder of the EA Contractor	n/a	A traffic management strategy developed and implemented throughout the construction and operation phases.	Continuous.
Road Maintenance	<p>13. Where necessary suitable measures shall be taken to rehabilitate damaged areas.</p> <p>14. Contractors should ensure that access roads are maintained in good condition by attending to potholes,</p>	Holder of the EA Contractor	n/a	A traffic management strategy developed and implemented throughout the construction and operation phases.	Continuous.

	<p>corrugations, and stormwater damages as soon as these develop.</p> <p>15. If necessary, staff must be employed to clean surfaced roads adjacent to construction sites where materials have spilt.</p> <p>16. Recommendations of the surface water report must be taken into consideration.</p>				
General	<p>17. The contractor shall meet safety requirements under all circumstances. All equipment transported shall be clearly labelled as to their potential hazards according to specifications. All the required safety labelling on the containers and trucks used shall be in place.</p> <p>18. The Contractor shall ensure that all the necessary precautions against damage to the environment and injury to persons are taken.</p> <p>19. Care for the safety and security of community members crossing access roads should receive priority at all times.</p> <p>20. Where there are further changes/updates to the vertical and horizontal alignments of the road network and site laydown area, such sections/areas may require reassessed in order to determine any further risks and impacts to the ecology and/or species.</p>	Holder of the EA Contractor	n/a	A traffic management strategy developed and implemented throughout the construction and operation phases. Adhere to Health and Safety Regulations.	Continuous.
<b>Environmental Education and Training</b>					
Environmental Training	<p>1. Ensure that all site personnel have a basic level of environmental awareness training. The Contractor</p>	Contractor	n/a	Throughout induction to site.	Continuous

	<p>must submit a proposal for this training to the ECO for approval. Translators are to be used where necessary. Topics covered should include:</p> <ul style="list-style-type: none"> <li>■ What is meant by “Environment”?</li> <li>■ Why the environment needs to be protected and conserved.</li> <li>■ How construction activities can impact on the environment</li> <li>■ What can be done to mitigate against such impacts?</li> <li>■ Awareness of emergency and spills response provisions</li> <li>■ Social responsibility during construction e.g. being considerate to local residents.</li> </ul> <ol style="list-style-type: none"> <li>2. It is the Contractor’s responsibility to provide the site foreman with no less than 1 hour’s environmental training and to ensure that the foreman has sufficient understanding to pass this information onto the construction staff.</li> <li>3. Training should be provided to the staff members in the use of the appropriate fire-fighting equipment.</li> <li>4. Use should be made of environmental awareness posters on site.</li> <li>5. The need for a “clean site” policy also needs to be explained to the workers.</li> <li>6. Staff operating equipment (such as loaders, etc.) shall be adequately trained and sensitized to any potential hazards associated with their tasks.</li> </ol>				
--	--	--	--	--	--

Monitoring of environmental training	7. The Contractor must monitor the performance of construction workers to ensure that the points relayed during their introduction have been properly understood and are being followed. If necessary, the ECO and / or a translator should be called to the site to further explain aspects of environmental or social behaviour that are unclear. Toolbox talks are recommended.	Contractor	n/a	Throughout induction to site.	Continuous
<b>Waste Management</b>					
Litter management / general waste	<ol style="list-style-type: none"> <li>1. Refuse bins must be placed at strategic positions to ensure that litter does not accumulate within the construction site.</li> <li>2. The Contractor shall supply waste collection bins where such is not available, and all solid waste collected shall be disposed of at registered/licensed landfill.</li> <li>3. A housekeeping team should be appointed to regularly maintain the litter and rubble situation on the construction site.</li> <li>4. If possible and feasible, all waste generated on site must be separated into glass, plastic, paper, metal, and wood and recycled. An independent contractor can be appointed to conduct this recycling.</li> <li>5. Where vegetation is cleared and is suitable, chipping and/or mulching can be considered.</li> <li>6. Littering by the employees of the Contractor shall not be allowed under any circumstances.</li> </ol>	Contractor The ECO shall monitor the neatness of the work sites as well as the Contractor campsite.	n/a	All waste managed according to approved Method Statement.	Continuous

	<p>7. Skip waste containers should be maintained on site. These should be kept covered and arrangements made for them to be collected regularly.</p> <p>8. Any putrescible waste must be stored in containers that can keep out scavengers such as baboons and birds to prevent the spread of litter.</p> <p>9. All waste must be removed from the site and transported to a landfill site promptly to ensure that it does not attract vermin or produce odours.</p> <p>10. The Contractor shall provide a method statement with regard to waste management.</p> <p>11. A certificate of disposal shall be obtained by the Contractor and kept on file, if relevant.</p> <p>12. Under no circumstances may solid waste be burnt on site.</p> <p>13. All waste must be removed promptly to ensure that it does not attract vermin or produce odours.</p>				
Hazardous waste	<p>14. All waste hazardous materials, if present, must be carefully and appropriately stored, and then disposed of off-site at a licensed landfill site, where practical.</p> <p>15. Contaminants to be stored safely to avoid spillage.</p> <p>16. Machinery must be properly maintained to keep oil leaks in check.</p> <p>17. All necessary precaution measures shall be taken to prevent soil or surface water pollution from hazardous materials used during construction and any spills shall</p>	<p>Contractor The ECO shall monitor the neatness of the work sites as well as the Contractor campsite.</p>	n/a	All waste managed according to approved Method Statement.	Continuous

	immediately be cleaned up and all affected areas rehabilitated.				
Sanitation	<p>18. The Contractor shall install mobile chemical toilets on the site.</p> <p>19. The construction of “Long Drop” toilets are forbidden. Rather, portable toilets are to be used.</p> <p>20. Staff shall be sensitised to the fact that they should use these facilities at all times. No indiscriminate sanitary activities on site shall be allowed. Under no circumstances may open areas, neighbours’ fences or the surrounding bush be used as a toilet facility.</p> <p>21. Ablution facilities shall be within proximity from workplaces and not closer than 100m from any natural water bodies or boreholes. There should be enough toilets available to accommodate the workforce (minimum requirement 1: 15 workers). Male and females must be accommodated separately where possible.</p> <p>22. Toilets shall be serviced regularly, and the ECO shall inspect toilets regularly.</p> <p>23. Potable water must be provided for all construction staff.</p>	Contractor	n/a	Staff members aware of EMPr requirements and ablutions used and maintained accordingly.	Continuous
Remedial Actions	<p>24. In the event of an accidental spill or leakage of hazardous substances, such incident(s) must be reported to all relevant authorities, including the Directorate: Pollution and Chemicals Management, in accordance with section 30(5) of the NEMA, 1998 pertaining to the control of incidents.</p> <p>25. Depending on the nature and extent of the spill, contaminated soil must</p>	Contractor	n/a	All waste managed according to approved Method Statement.	Continuous



	<p>be either excavated or treated on-site.</p> <p>26. Excavation of contaminated soil must involve careful removal of soil using appropriate tools/machinery to storage containers until treated or disposed of at a licensed hazardous landfill site.</p> <p>27. The precise method of treatment for polluted soil must be identified by a suitable specialist. This could involve the application of soil absorbent materials as well as oil-digestive powders to the contaminated soil.</p> <p>28. If a spill occurs on an impermeable surface such as cement or concrete, the surface spill must be contained using oil absorbent material.</p> <p>29. If necessary, oil absorbent sheets or pads must be attached to leaky machinery or infrastructure.</p> <p>30. Materials used for the remediation of petrochemical spills must be used according to product specifications and guidance for use.</p> <p>31. Contaminated remediation materials must be carefully removed from the area of the spill so as to prevent further release of petrochemicals to the environment and stored in adequate containers until appropriate disposal.</p>				
<b>Agriculture and Soils</b>					
Erosion	<p>1. Implement an effective system of storm water run-off control, where it is required - that is at any points where run-off water might accumulate. The system must</p>	<p>Engineer Contractor</p>	<p>Undertake a periodic site inspection to verify and inspect the effectiveness and integrity of the storm water run-off control</p>	<p>That disturbance and existence of hard surfaces causes no erosion on or downstream of the site.</p>	<p>Every 2 months during the construction phase.</p>

	effectively collect and safely disseminate any run-off water from all accumulation points, and it must prevent any potential down slope erosion.		system and to specifically record the occurrence of any erosion on site or downstream. Corrective action must be implemented to the run-off control system in the event of any erosion occurring.		
	2. Maintain where possible all vegetation cover and facilitate re-vegetation of denuded areas throughout the site, to stabilize disturbed soil against erosion.	Engineer Contractor	Undertake a periodic site inspection to record the occurrence of and re-vegetation progress of all areas that require re-vegetation.	That vegetation clearing does not pose a high erosion risk.	Every 4 months during the construction phase.
Topsoil loss	3. If an activity will mechanically disturb the soil below surface in any way, then any available topsoil should first be stripped from the entire surface to be disturbed and stockpiled for re-spreading during rehabilitation. During rehabilitation, the stockpiled topsoil must be evenly spread over the entire disturbed surface.	Engineer Contractor	Record GPS positions of all occurrences of below-surface soil disturbance (e.g. excavations). Record the date of topsoil stripping and replacement. Check that topsoil covers the entire disturbed area.	That topsoil loss is minimised.	As required, whenever areas are disturbed.
Removal of subsoils (soil and rock): Displacement of natural earth material and overlying vegetation.	4. Identify protected areas prior to construction. 5. Construction of temporary berms and drainage channels to divert surface water. 6. Minimize earthworks and fills. 7. Use existing road network and access tracks. 8. Rehabilitation of affected areas (such as regrassing, mechanical stabilization). 9. Correct engineering design and construction of gravel roads and water crossings.	Engineer Contractor	Undertake regular audits	Erosion plan implemented and hydrological measures in place. All waste managed according to approved Method Statement. Ensure the EMPr is adhered to.	Continuous

	<p>10. Correct construction methods for foundation installations and cut to fill configurations.</p> <p>11. Vehicle repairs to be undertaken in designated areas.</p> <p>12. Control stormwater flow.</p>				
<b>Biodiversity</b>					
<p>Faunal disturbance and habitat loss:</p> <p>Increased levels of noise, pollution, disturbance and human presence during construction will be detrimental to fauna. Sensitive and shy fauna are likely to move away from the area during the construction phase as a result of the noise and human activities present, while some slow- moving species would not be able to avoid the construction activities and might be killed.</p>	<ol style="list-style-type: none"> <li>1. During construction any fauna directly threatened by the construction activities should be removed to a safe location by the ECO or other suitably qualified person.</li> <li>2. The illegal 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 construction site.</li> <li>3. No fires should be allowed within the site as there is a risk of runaway veld fires.</li> <li>4. No fuelwood collection should be allowed on-site.</li> <li>5. If any parts of site such as construction camps must be lit at night, this should be done with low-UV type lights (such as most LEDs) as far as practically possible, which do not attract insects, and which should be directed downwards.</li> <li>6. All hazardous materials should be stored in the appropriate manner to prevent contamination of the site. Any accidental chemical, fuel and oil spills that occur at the site should be cleaned up in the appropriate manner as related to the nature of the spill.</li> </ol>	Holder of the EA	Construction Monitoring and audit reports.	<p>Impacts avoided or managed as per specialist recommendations.</p> <p>Alien Plant Management Plan Implemented.</p> <p>Plant Rehabilitation Implemented Ensure the conditions of the EA are adhered to.</p>	Continuous

	<p>7. No unauthorized persons should be allowed onto the site and site access should be strictly controlled.</p> <p>8. All construction vehicles should adhere to a low-speed limit (40km/h for cars and 30km/h for trucks) to avoid collisions with susceptible species such as snakes and tortoises and rabbits or hares. Speed limits should apply within the facility as well as on the public gravel access roads to the site.</p> <p>9. All personnel should undergo environmental induction with regards to fauna and in particular awareness about not harming or collecting species such as snakes, tortoises and snakes which are often persecuted out of fear or superstition.</p>				
<b>Surface Water</b>					
Loss of aquatic species of special concern: During construction activities within watercourses could result in the disturbance or destruction of any listed and or protected plant or animal species. However none of these aquatic obligate species were observed during this assessment	<p>1. Develop and implement an Aquatic Rehabilitation and Monitoring plan post Environmental Authorisation. This must be developed following the finalisation of the turbine / road layout and a walk down has been completed.</p>	Holder of the EA	Construction Monitoring and audit reports	Impacts avoided or managed as per specialist recommendations. Ensure the conditions of the EA are adhered to.	Continuous
Damage or loss of riparian and or drainage line systems i.e. disturbance of the waterbodies in the construction phase:	<p>■ All alien plant re-growth, which is currently low within the greater region must be monitored and should it occur, these plants must be eradicated within the project footprints and especially in areas near</p>	Holder of the EA	Construction Monitoring and audit reports	Impacts avoided or managed as per specialist recommendations.	Continuous

<p>Construction could result in the loss of drainage systems that are fully functional and provide an ecosystem services within the site especially where new access roads are required or road upgrades will widen any current bridges or drifts.</p> <p>Loss can also include a functional loss, through change in vegetation type via alien encroachment for example.</p>	<p>the proposed crossings. <i>Prosopis</i> (alien invasive riparian tree) is prevalent in areas to the north of the site, thus care in transporting any material, while ensuring that such materials is free of alien seed, coupled with pre and post alien clearing must be stipulated in the EMPr. Where roads and crossings are upgraded, the following applies:</p> <ul style="list-style-type: none"> <li>■ Existing pipe culverts must be removed and replaced with suitable sized box culverts, especially where road levels are raised to accommodate any large vehicles.</li> <li>■ River levels, regardless of the current state of the river / water course must be reinstated thus preventing any impoundments from being formed. The related designs must be assessed by an aquatic specialist during a pre-construction walkdown.</li> <li>■ Where large cut and fill areas are required these must be stabilised and rehabilitated during the construction process, to minimise erosion and sedimentation.</li> <li>■ 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 through whatever additional interventions maybe necessary (i.e., extension, energy dissipaters, spreaders, etc).</li> </ul>			<p>Ensure the conditions of the EA are adhered to.</p>	
<p>Potential impact on localised surface water quality (construction materials and fuel storage facilities) during</p>	<p>2. All liquid chemicals including fuels and oil, including the BESS must be stored in with secondary containment (bunds or containers or berms) that can contain a leak or spill. Such</p>	<p>Holder of the EA Contractor</p>	<p>Construction Monitoring and audit reports</p>	<p>Impacts avoided or managed as per specialist recommendations.</p>	<p>Continuous</p>

<p>the construction and decommissioning phases. During construction earthworks will expose and mobilise earth materials, and a number of materials as well as chemicals will be imported and used on site and may end up in the surface water, including soaps, oils, grease and fuels, human wastes, cementitious wastes, paints and solvents, etc. Any spills during transport or while works area conducted in proximity to a watercourse has the potential to affect the surrounding biota.</p> <p>Although unlikely, consideration must also be provided for the proposed Battery Energy Storage System (BESS), with regard safe handling during the construction phase. This to avoid any spills or leaks from this system</p>	<p>facilities must be inspected routinely and must have the suitable PPE and spill kits needed to contain likely worst-case scenario leak or spill in that facility, safely.</p> <ol style="list-style-type: none"> <li>3. 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).</li> <li>4. Mechanical plant and bowsers must not be refuelled or serviced within 100m of a river channel.</li> <li>5. All construction camps, lay down areas, wash bays, batching plants or areas and any stores should be more than 50 m from any demarcated water courses. Note comment regards Camp A that requires micro-siting.</li> <li>6. Littering and contamination associated with construction activity must be avoided through effective construction camp management.</li> <li>7. No stockpiling should take place within or near a water course.</li> <li>8. All stockpiles must be protected and located in flat areas where run-off will be minimised and sediment recoverable.</li> <li>9. It is recommended that construction activities should ideally take place within the dry season to reduce the risk of sediment-laden runoff from the construction activities/sites washing into any nearby watercourses.</li> </ol>			<p>Ensure the conditions of the EA are adhered to.</p>	
--	---	--	--	--	--

Noise					
Noise Special Conditions	<ol style="list-style-type: none"> <li>1. The developer must investigate any reasonable and valid noise complaint if registered by a receptor staying within 2,000 m from the location where construction activities are taking place or operational wind turbine is present. A complaints register must be kept on site.</li> <li>2. The developer must minimize night-time construction traffic if the access roads are closer than 150 m from any NSD, alternatively, the access road must be relocated further than 120 m from NSDs (night-time traffic passing occupied houses).</li> <li>3. The developer must implement a noise monitoring program that will define the residual levels before the construction of the WEF, as well as to confirm noise levels once the WEF is operational.</li> <li>4. Noise generated from all the proposed activities must comply with the Western Cape Noise Control Regulations promulgated in Provincial Notice 200/2013 (“WCNCR”).</li> </ol>	Holder of the EA Contractor	n/a	Noise and lighting managed according to approved Method Statement. Ensure the EMPr is adhered to.	Continuous
Noise impacts during the day: Construction activities relating to hardstand areas, digging of foundations for wind turbines, civil works as well as erection of wind turbines.	<ol style="list-style-type: none"> <li>5. No specific mitigation measures recommended for construction activities at the WTG locations or for substations.</li> <li>6. Continuing management objectives would be: <ul style="list-style-type: none"> <li>■ Ensure that total daytime construction noise levels are less than 52 dBA at all potential NSDs (dwellings used for residential purposes);</li> </ul> </li> </ol>	Holder of the EA Contractor	n/a	Noise and lighting managed according to approved Method Statement. Ensure the EMPr is adhered to.	Continuous

	<ul style="list-style-type: none"> <li>■ Ensure that total night-time construction noise levels are less than 45 dBA at all potential NSDs (dwellings used for residential purposes);</li> <li>■ Ensure that total noise levels due to operational activities are less than 45 dBA at all potential NSDs (dwellings used for residential purposes); and</li> <li>■ Prevent the generation of nuisance noises.</li> </ul>				
Noise impacts at night: Construction activities relating to civil works as well as erection of wind turbines.	7. Night-time construction activities closer than 1,000 m from and NSD to be minimized. Night-time construction activities (closer than 800 m) are not recommended and it should be minimized where possible. If construction activities take place closer than 800 m at night (such as the pouring of concrete), NSD should be notified of the activity that will be taking place at night.	Holder of the EA Contractor	n/a	Noise and lighting managed according to approved Method Statement. Ensure the EMPr is adhered to.	Continuous
Noise impacts during the day: Construction of access roads.	8. Access routes to be relocated further than 120 m from dwellings used for residential purposes at night. If access roads cannot be relocated close to residential dwellings, the projected noise levels must be discussed with potentially affected receptors.	Holder of the EA Contractor	n/a	Noise and lighting managed according to approved Method Statement. Ensure the EMPr is adhered to.	Continuous
Noise impacts during the day: Noises relating to construction traffic.	9. Access routes to the relocated further than 120 m from dwellings used for residential purposes at night. If access roads cannot be relocated close to residential dwellings, the projected noise levels must be discussed with potentially affected receptors.	Holder of the EA Contractor	n/a	Noise and lighting managed according to approved Method Statement. Ensure the EMPr is adhered to.	Continuous
<b>Heritage</b>					



Palaeontology	<ol style="list-style-type: none"> <li>1. During the construction phase the Chance Fossil Finds Protocol summarized in Annexure D should be fully implemented.</li> <li>2. The Environmental Control Officer (ECO) / Environmental Site Officer (ESO) responsible for the development should be made aware of the possibility of important fossil remains (vertebrate bones, teeth, petrified wood, plant-rich horizons etc.) being found or unearthed during the construction phase of the development. Monitoring for fossil material of all major surface clearance and deeper (&gt;1m) excavations by the Environmental Site Officer on an on-going basis during the construction phase is therefore recommended. Significant fossil finds should be safeguarded and reported at the earliest opportunity to Heritage Western Cape for recording and sampling by a professional palaeontologist (Contact details: Heritage Western Cape. 3rd Floor Protea Assurance Building, 142 Longmarket Street, Green Market Square, Cape Town 8000. Private Bag X9067, Cape Town 8001. Tel: 021 483 5959 Email: ceoheritage@westerncape.gov.za).</li> </ol>	Palaeontologist ECO	n/a	Ensure the EMPr is adhered to.	Continuous
Cultural landscape - Ecological	<ol style="list-style-type: none"> <li>3. Critical Biodiversity Areas, and Ecological Support Areas (along drainage lines), should be protected from development of the wind turbines or any associated development during all phases.</li> <li>4. No wind turbines should be placed within the 1:100-year flood line of the</li> </ol>	Holder of the EA Contractor	n/a	Ensure the EMPr is adhered to.	Continuous

	<p>watercourses. In the context of the sensitivity to soil erosion in the area, as well as potential archaeological resources, it would be a risk to include any structures close to these drainage lines</p> <p>5. Remaining areas of endemic and endangered natural vegetation should be conserved.</p> <p>6. Areas of critical biodiversity should be protected from any damage during all phases; where indigenous and endemic vegetation should be preserved at all cost.</p> <p>7. Areas of habitat are found among the rocky outcrops and contribute to the character, as well as biodiversity of the area. Care should be taken that habitats are not needlessly destroyed.</p> <p>8. Identified medicinal plants used for healing or ritual purposes should be conserved during all phases if threatened for use.</p> <p>9. Careful planning should incorporate areas for storm water runoff where the base of the structure disturbed the natural soil. Local rocks found on the site could be used to slow storm water (instead of concrete, or standard edge treatments), and prevent erosion that would be an unfortunate consequence that would alter the character of the site. By using rocks from site it helps to sensitively keep to the character.</p>				
Cultural landscape - Aesthetic	10. Encourage mitigation measures (for instance use of vegetation) to 'embed' or disguise the proposed	Holder of the EA Contractor	n/a	Ensure the EMPr is adhered to.	Continuous

	<p>structures within the surrounding tourism and agricultural landscape at ground level, road edges etc.;</p> <p>11. The continuation of the traditional use of material could be enhanced with the use of the rocks on the site as building material. This would also help to embed structures into the landscape and should not consist of shipping containers or highly reflective untreated corrugated sheeting that clutters the landscape and is exacerbates the foreign intrusion on the natural matte landscape.</p> <p>12. Using material found on the site adds to the sense of place and reduces transportation costs of bringing materials to site.</p> <p>13. The local material such as the rocks found within the area could be applied to address storm water runoff from the road to prevent erosion.</p> <p>14. Duration and magnitude of construction/ decommissioning activity must be minimized as far possible to reduce the impact of heavy vehicles on the roads as well as the associated dust from the activity. Lightest vehicles possible should be used to reduce degradation to the farm roads and the need to upgrade roads to scale and extent that negatively impacts on the integrity of the historic farm roads. Construction/ decommissioning traffic must operate at speeds that reduce dust and noise as far possible.</p>				
--	--	--	--	--	--

	<p>15. Any new road network or widening must be returned to its original state at end of the operational time of the WEF, with full environmental and aesthetic rehabilitation to the approval of a qualified cultural landscapes assessment specialist.</p> <p>16. Turbine sites, substation and laydown areas should be returned to their original state at the end of the operational time of the WEF, with full environmental and aesthetic rehabilitation to the approval of a qualified cultural landscapes assessment specialist.</p>				
Cultural landscape - Historic	<p>17. Historic farmsteads must be protected from the impacts of heavy construction vehicles and increased numbers of people. No construction traffic should pass through or closer than 50m to the outer boundaries of a farm werf, or 200m from graded structures, which includes the associated historically cultivated lands, cemeteries, unmarked burials. The most appropriate use of existing farm roads must be found to avoid farm werfs as far as possible and reduce construction impact on these heritage features.</p> <p>18. A preconstruction micro-survey for turbines, access roads, substations, laydown areas and gridlines should be completed with CLA specialist to ensure appropriate buffers are maintained.</p> <p>19. Duration and magnitude of construction/ decommissioning activity must be minimized to reduce the impact of heavy vehicles on the</p>	Holder of the EA Contractor	n/a	Ensure the EMPr is adhered to.	Continuous

	<p>roads as well as the associated dust from the activity. Light vehicles should be used to reduce degradation to the farm roads and the need to upgrade roads to scale and extent that negatively impacts on the integrity of the historic farm roads. Construction decommissioning traffic must operate at speeds that reduce dust and noise.</p> <p>20. No infrastructure or operational upgrades, such as boreholes, should impact negatively or reduce natural, on site water quality, quantity or access for the residents within or around the development site. Preferably any borehole or other water resource upgrade should also be made freely accessible to the residents living on site.</p> <p>21. Accommodation of construction staff must not negatively impact on existing farm residents or degrade the integrity of the farmstead complexes and should, without negative impact to ecological or aesthetic resources, be located outside of the farmstead complexes or site. Farm residents should be consulted on the preferable location for construction staff accommodation.</p> <p>22. Traditional planting patterns should be protected by ensuring that existing trees are not needlessly destroyed, as these signify traces of cultural intervention in a harsh environment. These planting patterns include the trees planted around the werfs and along travel routes. Interpretation of these landscape features as historic</p>				
--	---	--	--	--	--

	<p>remnants should occur. A buffer of 50m around such planting patters should be maintained.</p> <p>23. Burial grounds and places of worship are automatically regarded as Grade IIIa or higher. Any development that threatens the inherent character of family burial grounds must be assessed and should be discouraged. No turbines have been proposed for placement near known unmarked burials or family cemeteries. A preconstruction micro-survey of each turbine footprint and any new access roads should be conducted to ensure no further unmarked graves are threatened. A preconstruction micro-survey for access roads, substations, laydown areas and gridlines should be completed with CLA specialist to ensure appropriate buffers are maintained.</p> <p>24. Mountain slopes have been used for traditional practices for many years, and care should be taken that any significant cultural sites, such as burials and veldkos/medicinal plant resources, are not disturbed.</p> <p>25. Farms in the area followed a system of stone markers to demarcate the farm boundaries in the area. Where these structures are found on the site, care should be taken that they are not needlessly destroyed, as they add to the layering of the area.</p> <p>26. Roads running through the area may have historic stone way markers. Where these are found care should be taken that they are left in tact and in place. Road upgrades must not</p>				
--	---	--	--	--	--

	<p>move or threaten their position and they should be visible from the road they are related to by passing travellers. A preconstruction micro-survey for access roads, substations, laydown areas and gridlines should be completed with CLA specialist to ensure appropriate buffers are maintained.</p> <p>27. Where the historic function of a building/site is still intact, the function has heritage value and should be protected.</p> <p>28. Surviving examples (wagon routes, outspans, and commonage), where they are owned in some public or communal way (or by a body responsible for acting in the public interest) and where they are found to be actively operating in a communal way, will have cultural and heritage value and should be enhanced and retained. The historic route running through Koup 1 should be maintained and integrity as a communal road for farm residents must be retained.</p>				
Cultural landscape - Socio- economic	<p>29. An updated cultural landscapes impact assessment report must be completed should the WEF continue to be used after the term granted in this application. This report should include a detailed assessment of the impacts to the cultural landscape and its outcomes and recommendations need to be considered in the decision for recommissioning and be implemented if recommissioning is approved.</p> <p>30. The continued use of the landscape for human habitation and cultivation</p>	Holder of the EA Contractor	n/a	Ensure the EMPr is adhered to.	Continuous

	<p>by historic residents of the area, should be retained and encouraged as far possible to sustain the continual use pattern and human-environment relationship which is the ultimate significance of this cultural landscape element. The WEF development must allow and support this, including financially, and not degrade this continued relationship.</p> <p>31. No infrastructure or operational upgrades, such as boreholes, should impact negatively or reduce natural, on site water quality, quantity or access for the residents within or around the development site. Preferably any borehole or other water resource upgrade should also be made freely accessible to the residents living on site.</p> <p>32. The local community on and around the development should benefit from job opportunities created by the proposed development and the development should not cause reduction in economic viability of surrounding properties in excess of those offered by the development. Short-term job opportunities at the expense of long term economic benefit and local employment opportunities must be prevented.</p> <p>33. Local residents must be offered employment on the construction/ decommissioning and operational phases before 'importing' staff from elsewhere.</p> <p>34. Local residents must be offered employment-training opportunities</p>				
--	---	--	--	--	--



	<p>associated with WEF developments at all phases.</p> <p>35. Sheep, cattle or game farming should be allowed to continue below the wind turbines, or be rehabilitated to increase biodiversity in the area.</p>				
<b>Visual</b>					
<p>Potential alteration of the visual character and sense of place.</p> <p>Potential visual impact on receptors in the study area.</p>	<ol style="list-style-type: none"> <li>1. Carefully plan to minimise the construction period and avoid construction delays.</li> <li>2. Inform receptors within 1km of the WEF development area of the construction programme and schedules.</li> <li>3. Minimise vegetation clearing and rehabilitate cleared areas as soon as possible.</li> <li>4. Vegetation clearing should take place in a phased manner.</li> <li>5. Maintain a neat construction site by removing rubble and waste materials regularly.</li> <li>6. Position storage / stockpile areas in unobtrusive positions in the landscape, where possible.</li> <li>7. Where possible, underground cabling should be utilised.</li> <li>8. Make use of existing gravel access roads where possible.</li> <li>9. Limit the number of vehicles and trucks travelling to and from the construction site, where possible.</li> <li>10. Ensure that dust suppression techniques are implemented: <ul style="list-style-type: none"> <li>■ on all access roads;</li> <li>■ in all areas where vegetation clearing has taken place;</li> </ul> </li> </ol>	<p>Holder of the EA Contractor</p>	<p>n/a</p>	<p>Ensure the EMPr is adhered to.</p>	<p>Continuous</p>

	<ul style="list-style-type: none"> <li>■ on all soil stockpiles.</li> </ul>				
<p>Potential alteration of the visual character and sense of place in the broader area.</p> <p>Potential visual impact on receptors in the study area.</p> <p>Potential visual impact on the night time visual environment.</p>	<ol style="list-style-type: none"> <li>11. Carefully plan to minimise the construction period and avoid construction delays.</li> <li>12. Position laydown areas and related storage/stockpile areas in unobtrusive positions in the landscape, where possible.</li> <li>13. Minimise vegetation clearing and rehabilitate cleared areas as soon as possible.</li> <li>14. Vegetation clearing should take place in a phased manner.</li> <li>15. Where possible, the operation and maintenance buildings should be consolidated to reduce visual clutter.</li> <li>16. As far as possible, limit the number of maintenance vehicles which are allowed to access the facility.</li> <li>17. Ensure that dust suppression techniques are implemented on all gravel access roads.</li> <li>18. As far as possible, limit the amount of security and operational lighting present on site.</li> <li>19. Light fittings for security at night should reflect the light toward the ground and prevent light spill.</li> <li>20. Lighting fixtures should make use of minimum lumen or wattage.</li> <li>21. Mounting heights of lighting fixtures should be limited, or alternatively foot-light or bollard level lights should be used.</li> <li>22. If possible, make use of motion detectors on security lighting.</li> </ol>	Holder of the EA Contractor	n/a	Ensure the EMPr is adhered to.	Continuous

	<p>23. The operations and maintenance (O&amp;M) buildings should not be illuminated at night.</p> <p>24. The O&amp;M buildings should be painted in natural tones that fit with the surrounding environment.</p>				
<b>Social</b>					
Incident register	<p>1. A public grievance and incident register should be established and should be monitored internally by the developer and made available for public scrutiny if requested. Any incident should be immediately recorded and reported to management and all actions pertaining to that incident, as well as the final outcome of the complaint, should be recorded and signed off by management. If an independent environmental monitor is appointed, this register should be audited on at least a monthly basis.</p>	Holder of the EA Contractor	n/a	Clear communication channels maintained.	Continuous
Health and well- being: Air quality	<p>2. Where appropriate apply dust suppression measures on a regular basis. Ensure that vehicles used to transport sand and building materials are fitted with tarpaulins or covers.</p> <p>3. Ensure that all vehicles are roadworthy and drivers are qualified and made aware of the potential noise and dust issues.</p> <p>4. Appoint a community liaison officer to deal with complaints and grievances from the public.</p> <p>5. Dust generated during the proposed development must comply with the National Dust Control Regulations (GN No. R. 827 of 1 November 2013)</p>	Holder of the EA Contractor	n/a	Clear communication channels maintained. Compliance to all legislative requirements. Ensure the EMPr is adhered to.	Continuous

	promulgated in terms of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004). These regulations prohibit a person from conducting any activity in such a way as to give rise to dust in such quantities and concentrations that the dust, or dust fallout, has a detrimental effect on the environment, including human health.				
Health and well-being: Noise	6. Refer to the mitigation measures suggested by the noise specialist.	Holder of the EA Contractor	n/a	Clear communication channels maintained. Compliance to all legislative requirements. Ensure the EMPr is adhered to.	Continuous
Health and well-being: Increase in crime	7. Ensure that construction workers are clearly identifiable. All workers should carry identification cards and wear identifiable clothing. 8. Fence off the construction sites and control access to these sites. 9. Appoint an independent security company to monitor the site. 10. Encourage local people to report any suspicious activity associated with the construction sites through the establishment of a community liaison forum. 11. Prevent loitering within the vicinity of the construction camp as well as construction sites.	Holder of the EA Contractor	n/a	Clear communication channels maintained. Compliance to all legislative requirements. Ensure the EMPr is adhered to.	Continuous
Health and well-being: Increased risk of HIV infections	12. Ensure that an onsite HIV Infections Policy is in place and that construction workers have easy access to condoms.	Holder of the EA Contractor	n/a	Clear communication channels maintained. Compliance to all legislative requirements.	Continuous

	<p>13. Expose workers to a health and HIV/AIDS awareness educational program.</p> <p>14. Extend the HIV/AIDS program into the community with a specific focus on schools and youth clubs.</p>			Ensure the EMPr is adhered to.	
Health and well-being: Influx of construction workers	<p>15. Communicate the limitation of opportunities created by the project through Community Leaders and Ward Councillors.</p> <p>16. Draw up a recruitment policy in consultation with the</p> <p>17. Community Leaders and Ward Councillors of the area and ensure compliance with this policy.</p>	Holder of the EA Contractor	n/a	Clear communication channels maintained. Compliance to all legislative requirements. Ensure the EMPr is adhered to.	Continuous
Health and well-being: Hazard exposure	<p>18. Ensure that all construction equipment and vehicles are properly maintained at all times.</p> <p>19. Ensure that operators and drivers are properly trained and make them aware, through regular toolbox talks, of any risk they may pose to the community. Place specific emphasis on the vulnerable sector of the population such as children and the elderly.</p> <p>20. Ensure that fires lit by construction staff are only ignited in designated areas and that the appropriate safety precautions, such as not lighting fires in strong winds and completely extinguishing fires before leaving them unattended, are strictly adhered to.</p> <p>21. Make staff aware of the dangers of fire during regular toolbox talks.</p>	Holder of the EA Contractor	n/a	Clear communication channels maintained. Compliance to all legislative requirements. Ensure the EMPr is adhered to.	Continuous

Quality of the living environment: Disruption of daily living patterns	22. Ensure that, at all times, people have access to their properties as well as to social facilities.	Holder of the EA Contractor	n/a	Clear communication channels maintained. Compliance to all legislative requirements. Ensure the EMPr is adhered to.	Continuous
Quality of the living environment: Disruptions to social and community infrastructure	23. Regularly monitor the effect that construction is having on infrastructure and immediately report any damage to infrastructure to the appropriate authority. 24. Ensure that where communities' access is obstructed that this access is restored to an acceptable state.	Holder of the EA Contractor	n/a	Clear communication channels maintained. Compliance to all legislative requirements. Ensure the EMPr is adhered to.	Continuous
Economic: Job creation and skills development	25. Wherever feasible, local residents should be recruited to fill semi and unskilled jobs. 26. Women should be given equal employment opportunities and encouraged to apply for positions. 27. A skills transfer plan should be put in place at an early stage and workers should be given the opportunity to develop skills which they can use to secure jobs elsewhere post construction.	Holder of the EA Contractor	n/a	Clear communication channels maintained. Compliance to all legislative requirements. Ensure the EMPr is adhered to.	Continuous
Economic: Socio-economic stimulation.	28. A procurement policy promoting the use of local business should, where possible, be put in place to be applied throughout the construction phase.	Holder of the EA Contractor	n/a	Clear communication channels maintained. Compliance to all legislative requirements. Ensure the EMPr is adhered to.	Continuous
<b>Traffic and Transportation</b>					
Increase in Traffic	1. Ensure staff transport is done in the 'off peak' periods and by bus.	Holder of the EA Contractor	n/a	All staff members are aware of the EMPr	Continuous

	<ul style="list-style-type: none"> <li>2. Stagger material, component and abnormal loads.</li> <li>3. Construction of an on-site concrete batching plant to reduce trips.</li> </ul>			<p>requirements relevant to them.</p> <p>Ensure the EMPr is adhered to.</p>	
Increase of Incidents with pedestrians and livestock	<ul style="list-style-type: none"> <li>4. Reduction in speed of vehicles.</li> <li>5. Adequate enforcement of the law.</li> <li>6. Implementation of pedestrian safety initiatives.</li> <li>7. Regular maintenance of farm fences &amp; access cattle grids.</li> <li>8. Construction of an on-site concrete batching plant to reduce trips.</li> </ul>	Holder of the EA Contractor	n/a	<p>All staff members are aware of the EMPr requirements relevant to them.</p> <p>Ensure the EMPr is adhered to.</p>	Continuous
Increase in Dust from gravel roads	<ul style="list-style-type: none"> <li>9. Reduction in speed of the vehicles.</li> <li>10. Use of dust suppressant techniques.</li> <li>11. Implement a road maintenance program under the auspices of the respective transport department.</li> <li>12. Construction of an on-site concrete batching plant to reduce trips.</li> </ul>	Holder of the EA Contractor	n/a	<p>All staff members are aware of the EMPr requirements relevant to them.</p> <p>Ensure the EMPr is adhered to.</p>	Continuous
Increase in Road Maintenance	<ul style="list-style-type: none"> <li>13. Implement a road maintenance program under the auspices of the respective transport department.</li> <li>14. Construction of an on-site batching plant to reduce trips.</li> </ul>	Holder of the EA Contractor	n/a	<p>All staff members are aware of the EMPr requirements relevant to them.</p> <p>Ensure the EMPr is adhered to.</p>	Continuous
Additional Abnormal Loads	<ul style="list-style-type: none"> <li>15. Ensure abnormal vehicles travel to and from the proposed development in the 'off peak' periods or stagger delivery.</li> <li>16. Adequate enforcement of the law.</li> </ul>	Holder of the EA Contractor	n/a	<p>All staff members are aware of the EMPr requirements relevant to them.</p> <p>Ensure the EMPr is adhered to.</p>	Continuous
Increase in Dust from gravel roads	<ul style="list-style-type: none"> <li>17. Enforce a maximum speed limit on the development.</li> <li>18. Use of dust suppressant techniques.</li> </ul>	Holder of the EA Contractor	n/a	<p>All staff members are aware of the EMPr requirements relevant to them.</p>	Continuous

	19. Adequate watering by means of water bowser.			Ensure the EMPr is adhered to.	
New / Larger Access points	20. Adequate road signage according to the SARTSM. 21. Approval from the respective roads department.	Holder of the EA Contractor	n/a	All staff members are aware of the EMPr requirements relevant to them. Ensure the EMPr is adhered to.	Continuous
<b>Avifauna</b>					
Displacement due to disturbance associated with the construction of the wind turbines and associated infrastructure.	<p>1. A site-specific CEMPr must be implemented, which gives appropriate and detailed description of how construction activities must be conducted. All contractors are to adhere to the CEMPr and should apply good environmental practice during construction. The CEMPr must specifically include the following:</p> <ul style="list-style-type: none"> <li>■ No off-road driving;</li> <li>■ Maximum use of existing roads, where possible;</li> <li>■ Measures to control noise and dust according to latest best practice;</li> <li>■ Restricted access to the rest of the property;</li> <li>■ Strict application of all recommendations in the botanical specialist report pertaining to the limitation of the footprint.</li> </ul> <p>2. Construction activity should be restricted to the immediate footprint of the infrastructure as far as possible. Access to the remainder of the area should be strictly controlled to prevent unnecessary disturbance of priority species.</p>	Contractor The ECO shall monitor	1. Implementation of the CEMPr. Oversee activities to ensure that the CEMPr is implemented and enforced via site audits and inspections. Report and record any non-compliance.	Prevent unnecessary displacement of avifauna by ensuring that contractors are aware of the requirements of the Construction Environmental Management Programme (CEMPr.)	On a daily basis
			2. Ensure that construction personnel are made aware of the impacts relating to off-road driving.		Weekly
			3. Construction access roads must be demarcated clearly. Undertake site inspections to verify.		Weekly
			4. Monitor the implementation of noise control mechanisms via site inspections and record and report non-compliance.		Weekly



	<ol style="list-style-type: none"> <li>3. Measures to control noise and dust should be applied according to current best practice in the industry.</li> <li>4. Construction activity should be restricted to the immediate footprint of the infrastructure as far as possible, 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.</li> <li>5. Removal of vegetation must be restricted to a minimum.</li> <li>6. Construction of new roads should only be considered if existing roads cannot be upgraded.</li> <li>7. The recommendations of the ecological and botanical specialist studies must be strictly implemented, especially as far as limitation of the activity footprint is concerned.</li> </ol>		<ol style="list-style-type: none"> <li>5. Ensure that the construction area is demarcated clearly and that construction personnel are made aware of these demarcations. Monitor via site inspections and report non-compliance.</li> </ol>		Weekly
<p>Displacement due to habitat transformation associated with the construction of the wind turbines and associated infrastructure.</p> <p>Total or partial displacement of avifauna due to habitat transformation associated with the vegetation clearance and the presence of the wind</p>	<ol style="list-style-type: none"> <li>8. Develop a Habitat Restoration Plan (HRP) and ensure that it is approved.</li> <li>9. Monitor rehabilitation via site audits and site inspections to ensure compliance. Record and report any non-compliance.</li> <li>10. Vehicle and pedestrian access to the site should be controlled and restricted to the facility footprint as much as possible to prevent unnecessary destruction of vegetation.</li> </ol>	<p>Operations Manager SHE Manager</p>	<ol style="list-style-type: none"> <li>1. Appointment of rehabilitation specialist to develop Habitat Restoration Plan (HRP).</li> </ol>	<p>Prevent unnecessary displacement of avifauna by ensuring that the rehabilitation of transformed areas is implemented by an appropriately qualified rehabilitation specialist, according to the recommendations of the botanical specialist study.</p>	Once-off

turbines and associated infrastructure.	<p>11. Removal of vegetation must be restricted to a minimum and must be rehabilitated to its former state where possible after construction.</p> <p>12. Construction of new roads should only be considered if existing roads cannot be upgraded.</p> <p>13. The recommendations of the ecological and botanical specialist studies must be strictly implemented, especially as far as limitation of the activity footprint is concerned.</p>		<p>2. Site inspections to monitor progress of HRP.</p>		Once a year
---	--	--	--	--	-------------

Bats					
Impact	Mitigation / Management Objectives	Mitigation / Management Actions	Monitoring		
			Method	Frequency	Responsibility
Avoid disturbance of foraging bats	Avoid Habitat loss and destruction caused by clearing vegetation for the working areas, construction and landscape modifications.	<p>1. Construction activities to be kept out of all No-go and High bat sensitive areas.</p> <p>2. Rock formations occurring along the ridge lines be avoided during construction, as these serve as roosting space for bats.</p> <p>3. Destruction of limited trees should be avoided during construction as far as possible, and where destruction of trees is unavoidable, careful investigation</p>	<ul style="list-style-type: none"> <li>■ Monitor the efficiency of the EMPR.</li> <li>■ Monitor whether proposed measures are adhered to.</li> <li>■ ECO should be trained to recognize bat species and roost locations before construction starts.</li> </ul>	<ul style="list-style-type: none"> <li>■ During construction phase.</li> <li>■ ECO should be trained before construction commences.</li> <li>■ Erosion and pollution monitoring during construction phase.</li> <li>■ Monitoring of off-road driving during construction phase.</li> <li>■ Monitor before anything is</li> </ul>	<ul style="list-style-type: none"> <li>■ Project Developer</li> <li>■ Bat specialist and ECO.</li> </ul>

		<p>for any bat roost should be conducted before the tree is removed.</p> <p>4. Where possible, dense bushes should not be destroyed, but if unavoidable, careful investigation for any bat roost should be conducted before the destruction of any bushes.</p> <p>5. Aardvark holes or any large derelict holes or excavations should not be destroyed before careful examination for bats. The Environmental Control Officer (ECO) or a responsible appointed person or site manager should contact a bat specialist before construction commences so that they know what to look out for during construction.</p>		<p>removed that could contain a bat roost.</p>	
<p>Active roost destruction and potential roost destruction and habitat loss</p>	<ul style="list-style-type: none"> <li>■ Minimise impacts on bats during construction activities</li> <li>■ Keep construction out of high bat sensitive areas</li> <li>■ Try to avoid destruction of rock formations, trees, aardvark holes, derelict</li> </ul>	<p>6. Adhere to No-go areas incorporated into the Final Layout.</p> <p>7. Appoint an independent ECO to oversee that the</p>	<ul style="list-style-type: none"> <li>■ Visual inspection and continuous monitoring of high sensitivity areas, erosion prevention, chemical pollution and vehicle activity</li> </ul>	<ul style="list-style-type: none"> <li>■ Throughout construction.</li> <li>■ ECO to be present during all site clearance activities.</li> </ul>	<ul style="list-style-type: none"> <li>■ Project Developer.</li> <li>■ Holder of EA to appoint ECO.</li> </ul>

	<p>holes, excavations investigated for bat roosts before destruction.</p>	<p>EMPR is being adhered to.</p> <ol style="list-style-type: none"> <li>8. Bat specialist to train ECO, if necessary, to identify possible bat roosts or signs of bat presence.</li> <li>9. Avoid destruction of trees or dense bushes, where possible.</li> <li>10. All aardvark holes, derelict holes or excavations should be carefully investigated for roosts before any destruction.</li> <li>11. Careful investigation of old telephone poles, before destroying them, if there are any on site.</li> <li>12. Avoid pollution of water courses.</li> <li>13. No off-road driving.</li> </ol>	<p>to prevent habitat destruction.</p> <ul style="list-style-type: none"> <li>■ If buildings, trees or structures providing potential roosts need to be demolished, the ECO is required to investigate the features before commencement of the works.</li> </ul>	<ul style="list-style-type: none"> <li>■ Access to bat specialist if ECO needs information or confirmation concerning bat presence.</li> </ul>	<ul style="list-style-type: none"> <li>■ Appointed bat specialist to train the ECO, if necessary.</li> </ul>
<p>Creating new habitat amongst the turbines that might attract bats.</p>	<ul style="list-style-type: none"> <li>■ Prevent bats from roosting in high-risk areas close to turbines and infrastructure, such as new roofs.</li> <li>■ Prevent the creation of features that could attract bats to the terrain.</li> </ul>	<ol style="list-style-type: none"> <li>14. Existing roosts in roofs should be left as such and treated with caution.</li> <li>15. All roofs of new buildings should be closed off during construction, before bat roosts could move in.</li> <li>16. Rehabilitate and close excavation</li> </ol>	<ul style="list-style-type: none"> <li>■ Continues inspection of sealed roofs – bats can move into holes as small as 1 X 1 cm.</li> <li>■ Oversee the rehabilitation of any excavation areas.</li> </ul>	<p>Throughout construction phase</p>	<p>Project Developer, construction site manager and ECO.</p>

		holes and quarries where water could accumulate.			
Construction noise, especially during night-time.	<ul style="list-style-type: none"> <li>Prevent disturbance to bat activity and behaviour.</li> </ul>	<p>17. Nightly construction activities should be avoided, or if necessary, minimised to the shortest period possible.</p> <p>18. Except for compulsory civil aviation lightning, artificial lightening during construction should be minimised, especially bright lights or spotlights. Lights should avoid skyward illumination. Turbine tower lights should be switched off when not in operation, where possible.</p>	<ul style="list-style-type: none"> <li>Monitor construction to reduce noise and minimise disturbance in bat sensitive areas.</li> <li>Avoid construction activities at night, as far as possible.</li> </ul>	Throughout construction phase.	Project Developer and construction site manager.

### **Operational Phase Management Plan**

ASPECT / IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	METHOD	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
<b>Construction Site Decommissioning</b>					
Removal of equipment	<ol style="list-style-type: none"> <li>All structures comprising the construction camp are to be removed from site.</li> <li>The area that previously housed the construction camp is to be checked for spills of substances such as oil,</li> </ol>	Holder of the EA Contractor	n/a	Compliance to all legislative requirements. Ensure the EMPr is adhered to.	Following construction

	<p>paint, etc., and these shall be cleaned up.</p> <p>3. All hardened surfaces within the construction camp area should be ripped, all imported materials removed, and the area shall be top soiled and regressed using the guidelines set out in the re-vegetation that forms part of this document.</p>				
Temporary services	<p>4. The Contractor must arrange the cancellation of all temporary services.</p> <p>5. Temporary roads must be closed and access across these, blocked.</p> <p>6. All areas where temporary services were installed are to be rehabilitated to the satisfaction of the ECO.</p>	Holder of the EA Contractor	n/a	Compliance to all legislative requirements. Ensure the EMPr is adhered to.	Following construction
Associated infrastructure	<p>7. Surfaces are to be checked for waste products from activities such as concreting or asphaltting and cleared in a manner approved by the Engineer.</p> <p>8. All surfaces hardened due to construction activities are to be ripped and imported material thereon removed.</p> <p>9. All rubble is to be removed from the site to an approved disposal site as approved by the Engineer. Burying of rubble on site is prohibited.</p> <p>10. The site is to be cleared of all litter.</p> <p>11. The Contractor is to check that all watercourses are free from building rubble, spoil materials and waste materials.</p>	Holder of EA Contractor	n/a	All waste managed according to approved Method Statement.	Following construction

	<p>12. Fences, barriers and demarcations associated with the construction phase are to be removed from the site unless stipulated otherwise by the Engineer.</p> <p>13. All residual stockpiles must be removed to spoil or spread on site as directed by the Engineer.</p> <p>14. All leftover building materials must be returned to the depot or removed from the site.</p> <p>15. The Contractor must repair any damage that the construction works has caused to neighbouring properties, specifically, but not limited to, damage caused by poor storm water management.</p>				
Rehabilitation plan	16. Rehabilitate and re-vegetate cleared areas with indigenous plant species.	Holder of EA Contractor	n/a	Alien Plant Management Plan Plant Rehabilitation implemented	Following construction
<b>Operation and Maintenance</b>					
Maintenance	<p>1. All applicable standards, legislation, policies and procedures must be adhered to during operation.</p> <p>2. Noise generated from all the proposed activities must comply with the Western Cape Noise Control Regulations promulgated in Provincial Notice 200/2013 ("WCNCR").</p> <p>3. Regular ground inspection of the plants must take place to monitor their status.</p> <p>4. Compile and adhere to a procedure for the safe handling of battery cells.</p>	Holder of the EA	n/a	Ensure the conditions of the EA are adhered to. Compliance to all legislative requirements.	During operation

	<ol style="list-style-type: none"> <li>5. Lithium-ion batteries must have battery management systems (containment, automatic alarms, and shut-off systems) to monitor and protect cells from overcharging or damaging conditions, such as temperature extremes.</li> <li>6. Compile an Emergency Response Plan for implementation in the event of a spill or leakage.</li> <li>7. Record and report all significant fuel, oil, hydraulic fluid, or electrolyte spills or leaks so that appropriate clean-up measures can be implemented. A copy of these records must be made available to authorities on request throughout the project lifecycle.</li> <li>8. Frequent and appropriate disposal of both general and hazardous waste must be undertaken to prevent pollution of soil and groundwater.</li> <li>9. Install leak detection monitoring systems where possible.</li> <li>10. On-site battery maintenance should only be undertaken on impermeable surfaces with secondary containment measures. Any resulting hazardous substances must be disposed of appropriately.</li> <li>11. Provide for suitable emergency and safety signage on site, and demarcation of any areas which may pose a safety risk (including hazardous substances). Emergency numbers for the local police, fire department, Eskom and Beaufort West Local Municipality must be</li> </ol>				
--	---	--	--	--	--



	placed in a prominent clearly visible area on-site.				
Public awareness	12. The emergency preparedness plan must be ready for implementation at all times should an emergency situation arise.	Holder of the EA		Adhere to Emergency Evacuation Plan	During operation
<b>Waste Management</b>					
Recycling and litter management	<ol style="list-style-type: none"> <li>1. The site should be kept clear of litter at all times.</li> <li>2. Solid waste separation and recycling should take place for the duration of the operational phase for the development at the administration block.</li> <li>3. Where vegetation is cleared and is suitable, chipping and/or mulching can be considered.</li> <li>4. Any putrescible waste must be stored in containers that can keep out scavengers such as baboons and birds to prevent the spread of litter.</li> <li>5. All waste must be removed promptly to ensure that it does not attract vermin or produce odours.</li> <li>6. Solid waste should be collected on a regular basis.</li> </ol>	Holder of the EA		All waste managed according to approved Method Statement. Compliance to all legislative requirements.	Continuous
<b>Waste Management</b>					
Protection of soil resources	1. Maintain the storm water run-off control system. Monitor erosion and remedy the storm water control system in the event of any erosion occurring.	Facility Environmental Manager	Undertake a periodic site inspection to verify and inspect the effectiveness and integrity of the storm water run-off control system and to specifically record the occurrence of any erosion on site or downstream. Corrective action must be	That existence of hard surfaces causes no erosion on or downstream of the site.	Bi-annually

			implemented to the run-off control system in the event of any erosion occurring.		
Erosion	2. Facilitate re-vegetation of denuded areas throughout the site.	Facility Environmental Manager	Undertake a periodic site inspection to record the progress of all areas that require re-vegetation	That denuded areas are re-vegetated to stabilise soil against erosion.	Bi-annually
Displacement of natural earth material	3. Use of existing roads and tracks where feasible. 4. Rehabilitation of affected areas (such as erosion control mats). 5. Correct engineering design and construction of roads and water crossings. 6. Vehicle repairs to be undertaken in designated areas. 7. Maintenance of stormwater system.	Engineer Contractor Holder of EA (rehabilitation)	Undertake regular audits	Erosion plan implemented and hydrological measures in place All waste managed according to approved Method Statement. Ensure the EMPr is adhered to.	Continuous
<b>Avifauna</b>					
Mortality due to collisions with the wind turbines: Bird collisions with the wind turbines	1. No turbines should be located in the buffer zones around major drainage lines, waterpoints and dams. 2. A 5km circular No-Go (no turbines) buffer zone must be implemented around the Martial Eagle nest on Tower 108 of the Droërivier Proteus 1400kV transmission line. 3. Formal live-bird monitoring and carcass searches should be implemented at the start of the operational phase, as per the most recent edition of the Best Practice Guidelines at the time (Jenkins et al. 2015) to assess collision rates. The exact time when operational monitoring should commence, will depend on the construction	Operations Manager	1. Appoint Avifaunal Specialist to compile operational monitoring plan, including live bird monitoring and carcass searches. 2. Implement operational monitoring plan. 3. Design and implement mitigation measures if mortality thresholds are exceeded. 4. Compile quarterly and annual progress	Prevention of collision mortality on the wind turbines.	1. 1. Once-off 2. Years 1,2, 5 and every five years after that for the duration of the operational lifetime of the facility.

	<p>schedule, and should commence when the first turbines start operating. The Best Practice Guidelines require that, as an absolute minimum, operational monitoring should be undertaken for the first two (preferably three) years of operation, and then repeated again in year 5, and again every five years thereafter for the operational lifetime of the facility.</p> <p>4. If estimated annual collision rates indicate unacceptable mortality levels of priority species, i.e., if it exceeds mortality thresholds as determined by the avifaunal specialist in consultation with BLSA and other avifaunal specialists, additional measures will have to be implemented which could include shut down on demand or other proven measures.</p> <p>5. Vehicle and pedestrian access to the site should be controlled and restricted to access roads to prevent unnecessary disturbance of SCC.</p> <p>6. Formal monitoring should be resumed once the 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.</p>		<p>reports detailing the results of the operational monitoring and progress with any recommended mitigation measures.</p>		
--	--	--	---	--	--

	<p>7. 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 lifetime 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.</p> <p>8. Depending on the results of the carcass searches, a range of mitigation measures will have to be considered if mortality levels of SCC turn out to be biologically significant, including Shutdown on Demand (SDoD).</p> <p>9. Dismantling activity should be restricted to the immediate footprint of the infrastructure as far as possible. Access to the remainder of the area should be strictly controlled to prevent unnecessary disturbance of priority species.</p> <p>10. Measures to control noise and dust should be applied according to current best practice in the industry.</p>				
<p>Mortality due to collisions and electrocutions on the 33kV network:</p> <p>Bird electrocutions on the overhead sections of the internal 33kV cables</p>	<p>11. Underground cabling should be used as much as is practically possible.</p> <p>12. If the use of overhead lines is unavoidable due to technical reasons, the Avifaunal Specialist must be consulted timeously to ensure that a raptor friendly pole design is used, and that appropriate</p>	Operations Manager	<p>1. Carcass searchers under the supervision of the Avifaunal Specialist.</p> <p>2. Design and implement mitigation measures if mortality</p>	Prevention of electrocution mortality on the overhead sections of the 33kV internal cable network.	At least once every two months.

	<p>mitigation is implemented pro-actively for complicated pole structures e.g., insulation of live components to prevent electrocutions on terminal structures and pole transformers.</p> <p>13. Regular inspections of the overhead sections of the internal reticulation network must be conducted during the operational phase to look for carcasses, as per the most recent edition of the Best Practice Guidelines at the time (Jenkins et al. 2015).</p>		<p>thresholds are exceeded.</p> <p>3. Compile quarterly and annual progress reports detailing the results of the operational monitoring and progress with any recommended mitigation measures.</p>		
<p>Mortality due to collisions with the overhead sections of the internal 33kV cables.</p>	<p>14. Bird flight diverters should be installed on all the overhead line sections for the full span length according to Eskom guidelines - five metres apart. Light and dark colour devices must be alternated to provide contrast against both dark and light backgrounds respectively. These devices must be installed as soon as the conductors are strung.</p>	<p>Holder of the EA</p>	<p>Construction Monitoring and audit reports</p>	<p>Impacts avoided or managed as per specialist recommendations.</p> <p>Ensure the conditions of the EA are adhered to.</p> <p>Adhere to legislative requirements.</p>	<p>Continuous</p>
<p><b>Biodiversity</b></p>					
<p>Faunal disturbance and habitat degradation: Fauna will be negatively affected by the operation of the wind farm due to the human disturbance, the presence of vehicles on the site and possibly by noise generated by the wind turbines as well.</p>	<p>1. Management of the site should take place within the context of an Open Space Management Plan.</p> <p>2. No unauthorized persons should be allowed onto the site.</p> <p>3. Any potentially dangerous fauna such snakes or fauna threatened by the maintenance and operational activities should be removed to a safe location.</p> <p>4. The collection, hunting or harvesting of any plants or animals at the site should be strictly</p>	<p>Holder of the EA Contractor</p>	<p>Construction Monitoring and audit reports</p>	<p>Impacts avoided or managed as per specialist recommendations.</p> <p>Ensure the conditions of the EA are adhered to.</p> <p>Alien Plant Management Plan Implemented.</p> <p>Plant Rehabilitation Implemented.</p>	<p>Continuous</p>

	<p>forbidden by anyone except landowners or other individuals with the appropriate permits and permissions where required.</p> <p>5. If any parts of the site need to be lit at night for security purposes, this should be done with downward-directed low-UV type lights (such as most LEDs or HPS bulbs) as far as possible, which do not attract insects.</p> <p>6. All hazardous materials should be stored in the appropriate manner to prevent contamination of the site. Any accidental chemical, fuel and oil spills that occur at the site should be cleaned up in the appropriate manner as related to the nature of the spill.</p> <p>7. All vehicles accessing the site should adhere to a reduced speed limit (30km/h for heavy vehicles and 40km/h for light vehicles) to avoid collisions with susceptible species such as snakes and tortoises.</p> <p>8. If parts of the facility such as the substation are to be fenced, then no electrified strands should be placed within 30cm of the ground as some species such as tortoises are susceptible to electrocution from electric fences as they do not move away when electrocuted but rather adopt defensive behaviour and are killed by repeated shocks. Alternatively, the electrified strands should be placed on the inside of the fence and not the outside.</p>				
--	--	--	--	--	--

<p>Increased potential for soil erosion</p> <p>Following construction, the site will remain vulnerable to soil erosion for some time due to the disturbance created by site clearing and likely low natural revegetation of disturbed areas thereafter. It is important to note that while the site is arid, such areas can experience significant soil erosion as plant cover is low and occasional heavy showers generate large amounts of runoff.</p>	<ol style="list-style-type: none"> <li>9. Erosion management at the site should take place according to an Erosion Management Plan and Rehabilitation Plan.</li> <li>10. All roads and other hardened surfaces should have runoff control features which redirect water flow and dissipate any energy in the water which may pose an erosion risk.</li> <li>11. Regular monitoring for erosion post construction to ensure that no erosion problems have developed as result of the disturbance, as per the Erosion Management and Rehabilitation Plans for the project. Monitoring should take place every 6 months in the first year after construction and annually thereafter.</li> <li>12. All erosion problems observed should be rectified as soon as possible, using the appropriate erosion control structures and revegetation techniques.</li> <li>13. All cleared areas should be revegetated with indigenous perennial shrubs and succulents from the local area. Dead material from site clearing can be used to encourage this process and can be set aside during clearing and later placed on the cleared areas to encourage recovery.</li> </ol>	<p>Holder of the EA Contractor</p>	<p>Construction Monitoring and audit reports</p>	<p>Impacts avoided or managed as per specialist recommendations.</p> <p>Erosion Management Plan and Rehabilitation Plan Implemented.</p> <p>Ensure the conditions of the EA are adhered to.</p>	<p>Continuous</p>
<p>Ecological degradation due to alien plant invasion</p>	<ol style="list-style-type: none"> <li>14. There should be regular monitoring for alien plants within the development footprint as well as adjacent areas which receive runoff from the facility as there are also</li> </ol>	<p>Holder of the EA Contractor</p>	<p>Construction Monitoring and audit reports</p>	<p>Impacts avoided or managed as per specialist recommendations.</p> <p>Alien Plant Management Plan Implemented.</p>	<p>Continuous</p>

	<p>likely to be prone to invasion problems. Monitoring every 6 months for the first 2 years post-construction is recommended, followed by annual monitoring thereafter.</p> <p>15. Regular alien clearing should be conducted using the best-practice methods for the species concerned. The use of herbicides should be avoided as far as possible.</p>			<p>Plant Rehabilitation Implemented.</p> <p>Ensure the conditions of the EA are adhered to.</p>	
<p>Negative impact on ESAs, CBAs and broad-scale ecological processes.</p> <p>Transformation and presence of the facility will contribute to cumulative habitat loss within CBAs / ESAs and impacts on broad-scale ecological processes such as fragmentation.</p>	<p>16. Minimise the development footprint within the high sensitivity areas.</p> <p>17. There should be an integrated management plan for the development area during operation, which is beneficial to fauna and flora.</p> <p>18. All disturbed areas that are not used such as excess road widths, should be rehabilitated with locally occurring shrubs and grasses after construction to reduce the overall footprint of the development.</p> <p>19. Noise and disturbance on the site should be kept to a minimum during operation and maintenance activities.</p>	Holder of the EA Contractor	Construction Monitoring and audit reports	<p>Impacts avoided or managed as per specialist recommendations.</p> <p>Alien Plant Management Plan Implemented.</p> <p>Plant Rehabilitation Implemented.</p> <p>Ensure the conditions of the EA are adhered to.</p>	Continuous
<b>Surface Water</b>					
<p>Impact on aquatic systems through the possible increase in surface water runoff on form and function during the operational phase:</p> <p>Increase in hard surface areas, and roads that require stormwater management will increase through the</p>	<p>A stormwater management plan must be developed in the preconstruction phase, detailing the stormwater structures and management interventions that must be installed to manage the increase of surface water flows directly into any natural systems. This stormwater control systems must be inspected on an annual</p>	Holder of the EA Contractor	n/a	<p>All staff members are aware of the EMPr requirements relevant to them</p> <p>Align to Storm Water Plan</p> <p>Ensure the EMPr is adhered to.</p>	Continuous



concentration of surface water flows that could result in localised changes to flows (volume) that would result in form and function changes within aquatic systems, which are currently ephemeral. This then increases the rate of erosions and sedimentation of downstream areas.	basis to ensure these are functional. Effective stormwater management must include effective stabilisation (gabions and Reno mattresses) of exposed soil and the re-vegetation of any disturbed riverbanks.				
<b>Heritage</b>					
Cultural landscape: Ecological	<ol style="list-style-type: none"> <li>1. Areas of endemic and endangered natural vegetation should be conserved.</li> <li>2. Critical Biodiversity Areas, and Ecological Support Areas (along drainage lines), should be protected.</li> <li>3. Areas of habitat are found among the rocky outcrops and contribute to the character, as well as biodiversity of the area. Care should be taken that habitats are not needlessly destroyed.</li> <li>4. Identified medicinal plants used for healing or ritual purposes should be conserved during all phases if threatened for use. Access to these resources should be made available to those who have had historic access to them.</li> </ol>	Holder of the EA Contractor	n/a	Ensure the EMPr is adhered to.	Continuous
Cultural Landscape: Aesthetic	<ol style="list-style-type: none"> <li>5. Infrastructure improvement or maintenance work, including new roads and upgrades to the road network, should be appropriate to the rural context (scale, material etc.) and avoid steep slopes over 10% as well as ridges.</li> </ol>	Holder of the EA Contractor	n/a	Ensure the EMPr is adhered to.	Continuous

	<p>6. Prevent the construction of new buildings/structures on visually sensitive, steep (over 10%), elevated or exposed slopes, ridgelines and hillcrests or within 800m of the farmsteads, 1000m of the N12 and 300m of the farm roads.</p> <p>7. Avoid visual clutter in the landscape by intrusive signage, and the intrusion of commercial, corporate development along roads.</p> <p>8. Duration and magnitude of operational activity must be minimized as far possible to reduce the impact of heavy vehicles on the roads as well as the associated dust from the activity. Lightest vehicles possible should be used to reduce degradation to the farm roads and the need to upgrade roads to scale and extent that negatively impacts on the integrity of the historic farm roads. Operational traffic must operate at speeds that reduce dust and noise.</p> <p>9. The impact of WEF turbine night lighting on the wilderness landscape is intrusive and overwhelms the rural character of the landscape, giving it an industrial sense of place after dark. Reduce the impact of turbine night lighting by minimizing the number of turbines with lighting to only those necessary for aviation safety, such as a few identified turbines on the outer periphery, or use aircraft triggered night lighting. Due to the reduced receptors on the roads at night, the impact of the lighting at night is reserved mainly</p>				
--	--	--	--	--	--

	for farmsteads and other places of overnight habitation such as the surrounding tourist facilities, which would be heavily impacted by the light pollution on a long term and ongoing basis.				
Cultural landscape: Historic	<p>10. Historic farmsteads must be protected from the impacts of operational facility vehicles and increased numbers of people. No WEF operations traffic should pass through or closer than 50m to the outer boundaries of a farm werf, or 200m from graded structures, which includes the associated historically cultivated lands, cemeteries, unmarked burials. The most appropriate use of existing farm roads must be found to avoid farm werfs as far as possible and reduce construction impact on these heritage features.</p> <p>11. No infrastructure or operational upgrades, such as boreholes, should impact negatively or reduce natural, on site water quality, quantity or access for the residents within or around the development site. Preferably any borehole or other water resource upgrade should also be made freely accessible to the residents living on site.</p> <p>12. Traditional planting patterns should be protected by ensuring that existing trees are not needlessly destroyed, as these signify traces of cultural intervention in a harsh environment. These planting patterns include the trees planted around the werfs and along travel</p>	Holder of the EA Contractor	n/a	Ensure the EMPr is adhered to.	Continuous

	<p>routes. Interpretation of these landscape features as historic remnants should occur.</p> <p>13. Burial grounds and places of worship are automatically regarded as Grade IIIa or higher. Any development that threatens the inherent character of family burial grounds must be assessed and should be discouraged and a buffer of 100m around all burial ground or unmarked graves should be in place. No turbines have been proposed for placement near known unmarked burials or family cemeteries. A preconstruction micro-survey of each turbine footprint and any new access roads should be conducted to ensure no further unmarked graves are threatened.</p> <p>14. Mountain slopes have been used for traditional practices for many years, and care should be taken that any significant cultural sites, such as burials and veldkos/medicinal plant resources, are not disturbed.</p> <p>15. Farms in the area followed a system of stone markers to demarcate the farm boundaries in the area. Where these structures are found on the site, care should be taken that they are not needlessly destroyed, as they add to the layering of the area.</p> <p>16. Roads running through the area may have historic stone way markers. Where these are found care should be taken that they are left in tact and in place. Road upgrades must not move or</p>				
--	---	--	--	--	--

	<p>threaten their position and they should be visible from the road they are related to by passing travellers.</p> <p>17. Where the historic function of a building/site is still intact, the function has heritage value and should be protected.</p> <p>18. Surviving examples (wagon routes, outspans, and commonage), where they are owned in some public or communal way (or by a body responsible for acting in the public interest) and where they are found to be actively operating in a communal way, will have cultural and heritage value and should be enhanced and retained. The historic route running through Koup 1 should be maintained and integrity as a communal road for farm residents must be retained.</p> <p>19. Accommodation of WEF staff must not negatively impact on existing farm residents or degrade the integrity of the farmstead complexes and should, without negative impact to ecological or aesthetic resources, be located outside of the farmstead complexes or site. Farm residents should be consulted on the preferable location for construction staff accommodation.</p> <p>20. Light vehicles should be used to reduce degradation to the farm roads and the need to upgrade roads to scale and extent that negatively impacts on the integrity of the historic farm roads.</p>				
--	--	--	--	--	--

	<p>Operational traffic must operate at speeds that reduce dust and noise.</p> <p>21. A preconstruction micro-survey for access roads, substations, laydown areas and gridlines should be completed with CLA specialist to ensure appropriate buffers are maintained during operational activities.</p>				
<p>Cultural landscape: Socio-economic</p>	<p>22. The local community on and around the development should benefit from job opportunities created by the proposed development and the development should not cause reduction in economic viability of surrounding properties in excess of those offered by the development. Short-term job opportunities at the expense of long term economic benefit and local employment opportunities must be prevented.</p> <p>23. The continued use of the landscape for human habitation and cultivation by historic residents of the area should be retained and encouraged as far possible to sustain the continual use pattern and human-environment relationship which is the ultimate significance of this cultural landscape element. The WEF development must allow and support this, including financially, and not degrade this continued relationship.</p> <p>24. No infrastructure or operational upgrades, such as boreholes, should impact negatively or reduce natural, on site water quality, quantity or access for the residents within or</p>	<p>Holder of the EA Contractor</p>	<p>n/a</p>	<p>Ensure the EMPr is adhered to.</p>	<p>Continuous</p>

	<p>around the development site. Preferably any borehole or other water resource upgrade should also be made freely accessible to the residents living on site.</p> <p>25. The local community on and around the development should benefit from job opportunities created by the proposed development and the development should not cause reduction in economic viability of surrounding properties in excess of those offered by the development. Short-term job opportunities at the expense of long term economic benefit and local employment opportunities must be prevented.</p> <p>26. Local residents must be offered employment on the construction/ decommissioning and operational phases before 'importing' staff from elsewhere.</p> <p>27. Local residents must be offered employment-training opportunities associated with WEF developments at all phases.</p> <p>28. Crop cultivation, sheep, cattle or game farming should be allowed to continue below the wind turbines, or be rehabilitated to increase biodiversity in the area.</p>				
<b>Visual</b>					
<p>Potential alteration of the visual character and sense of place.</p> <p>Potential visual impact on receptors in the study area.</p> <p>Potential visual impact on the night time visual environment.</p>	<ol style="list-style-type: none"> <li>1. Turbine colours should adhere to CAA requirements. Bright colours and logos on the turbines should be kept to a minimum.</li> <li>2. Inoperative turbines should be repaired promptly, as they are considered more visually appealing</li> </ol>	<p>Holder of the EA Contractor</p>	n/a	<p>Noise and lighting managed according to approved Method Statement.</p>	<p>During operation.</p>

	<p>when the blades are rotating (or at work) (Vissering, 2011).</p> <ol style="list-style-type: none"> <li>3. If turbines need to be replaced for any reason, they should be replaced with the same model, or one of equal height and scale to lessen the visual impact.</li> <li>4. As far as possible, limit the number of maintenance vehicles which are allowed to access the site.</li> <li>5. Ensure that dust suppression techniques are implemented on all gravel access roads.</li> <li>6. As far as possible, limit the amount of security and operational lighting present on site.</li> <li>7. Light fittings for security at night should reflect the light toward the ground and prevent light spill.</li> <li>8. Lighting fixtures should make use of minimum lumen or wattage.</li> <li>9. Mounting heights of lighting fixtures should be limited, or alternatively foot- light or bollard level lights should be used.</li> <li>10. If possible, make use of motion detectors on security lighting.</li> <li>11. Where possible, the operation and maintenance buildings should be consolidated to reduce visual clutter.</li> <li>12. The operations and maintenance (O&amp;M) buildings should not be illuminated at night.</li> <li>13. The O&amp;M buildings should be painted in natural tones that fit with the surrounding environment.</li> </ol>			<p>All waste managed according to approved Method Statement. Plant Rehabilitation Implemented.</p>	
--	---	--	--	--	--



Social					
Incident register	<ol style="list-style-type: none"> <li>1. A public grievance and incident register should be established and should be monitored internally by the developer and made available for public scrutiny if requested. Any incident should be immediately recorded and reported to management and all actions pertaining to that incident, as well as the final outcome of the complaint, should be recorded and signed off by management. If an independent environmental monitor is appointed, this register should be audited on at least a monthly basis.</li> </ol>	Holder of the EA Contractor	n/a	Clear communication channels maintained.	Continuous
Health and social Wellbeing: Noise WEF Only	<ol style="list-style-type: none"> <li>2. Refer to the mitigation measures suggested by the noise specialist.</li> <li>3. Noise generated from all the proposed activities must comply with the Western Cape Noise Control Regulations promulgated in Provincial Notice 200/2013 ("WCNCR").</li> </ol>	Holder of the EA Contractor	n/a	Clear communication channels maintained.	Continuous
Health and social Wellbeing: Shadow Flicker WEF only	<ol style="list-style-type: none"> <li>4. Identifying receptor points and applying appropriate technical measures such as computer modelling in siting the wind turbines to limit the effect of shadow flicker.</li> <li>5. Where necessary and appropriate apply tracking technology that will automatically shutoff and restart the affecting wind turbine to eliminate shadow flicker.</li> </ol>	Holder of the EA Contractor	n/a	Clear communication channels maintained. Social Responsibility Programme implemented.	Continuous

	6. Consider the application of appropriate screening measures to reduce the effect of shadow flicker.				
Health and social Wellbeing: Blade glint	7. Calculate and factor in the risk of blade glint in siting the wind turbines. 8. Coat wind turbine blades with non-reflective coating to reduce blade glint. 9. Where appropriate adjust the angle of turbine blades to reduce blade glint.	Holder of the EA Contractor	n/a	Clear communication channels maintained. Social Responsibility Programme implemented.	Continuous
Health and social Wellbeing: Electromagnetic field and RF interference	10. Wind turbine mechanisms will be elevated and the risk of EMFs will be minimal. Notwithstanding this, it would be pertinent to regularly monitor the levels of EMFs emitted by the turbines and, if necessary, make the appropriate adjustments to ensure that these levels remain within acceptable parameters. 11. Ensure that power lines are not routed in close proximity (with 300 meters) of residential areas to limit the effect off EMFs. 12. Consult with the appropriate telecommunication authorities to ensure that the telecommunication installations identified within the vicinity of the project are not compromised through RFI.	Holder of the EA Contractor	n/a	Clear communication channels maintained. Social Responsibility Programme implemented.	Continuous
Health and social Wellbeing: Hazard exposure	13. Install early detection techniques to avoid or reduce structural damage. 14. Install lighting protection systems. 15. Install fire prevention and control measures.	Holder of the EA Contractor	n/a	Clear communication channels maintained. Social Responsibility Programme implemented.	Continuous

<p>Quality of the living Environment: Transformation of the sense of place</p>	<p>16. Apply the mitigation measures suggested in the Visual Impact Assessment Report.</p> <p>17. Communicate the benefits associated with renewable energy to the broader community.</p> <p>18. Ensure that all affected landowners and tourist associations are regularly consulted.</p> <p>19. A Grievance Mechanism should be put in place and all grievances should be dealt with transparently.</p> <p>20. The mitigation measures recommended in the Heritage and Palaeontology Impact Assessment should be followed.</p>	<p>Holder of the EA Contractor</p>	<p>n/a</p>	<p>Clear communication channels maintained. Social Responsibility Programme implemented.</p>	<p>Continuous</p>
<p>Economic: Job creation and skills development</p>	<p>21. Implement a training and skills development programme for locals.</p> <p>22. Work closely with the appropriate municipal structures regarding establishing a social responsibility programme.</p>	<p>Holder of the EA Contractor</p>	<p>n/a</p>	<p>Clear communication channels maintained. Social Responsibility Programme implemented.</p>	<p>Continuous</p>
<p>Economic: Socio- economic stimulation.</p>	<p>23. Ensure that the procurement policy supports local enterprises.</p> <p>24. Establish a social responsibility programme either in line with the REIPPP BID guidelines or equivalent.</p> <p>25. Work closely with the appropriate municipal structures regarding establishing a social responsibility programme.</p> <p>26. Ensure that any trusts or funds are strictly managed in respect of outcomes and funds.</p>	<p>Holder of the EA</p>	<p>n/a</p>	<p>Clear communication channels maintained. Social Responsibility Programme implemented.</p>	<p>Continuous</p>
<p><b>Transportation</b></p>					

Additional Traffic Generation: Increase in Traffic	1. The increase in traffic for this phase of the development is negligible and will not have a significant impact.	Holder of the EA Contractor	n/a	All staff members are aware of the EMPr requirements relevant to them.  Ensure the EMPr is adhered to.	Continuous
Additional Traffic Generation: Increase of Incidents with pedestrians and livestock	2. The increase in traffic for this phase of the development is negligible and will not have a significant impact.	Holder of the EA Contractor	n/a	All staff members are aware of the EMPr requirements relevant to them.  Ensure the EMPr is adhered to.	Continuous
Additional Traffic Generation: Increase in Dust from gravel roads	3. The increase in traffic for this phase of the development is negligible and will not have a significant impact.	Holder of the EA Contractor	n/a	All staff members are aware of the EMPr requirements relevant to them.  Ensure the EMPr is adhered to.	Continuous
Additional Traffic Generation: Increase in Road Maintenance	4. The increase in traffic for this phase of the development is negligible and will not have a significant impact.	Holder of the EA Contractor	n/a	All staff members are aware of the EMPr requirements relevant to them.  Ensure the EMPr is adhered to.	Continuous
Additional Abnormal Loads	5. The increase in traffic for this phase of the development is negligible and will not have a significant impact.	Holder of the EA Contractor	n/a	All staff members are aware of the EMPr requirements relevant to them.  Ensure the EMPr is adhered to.	Continuous
Internal Access Roads: New / Larger Access points	6. Adequate road signage according to the SARTSM.	Holder of the EA Contractor	n/a	All staff members are aware of the EMPr requirements relevant to them.  Ensure the EMPr is adhered to.	Continuous

Bats					
Impact	Mitigation / Management Objectives	Mitigation / Management Actions	Monitoring		
			Method	Frequency	Responsibility
Fatality of resident bats through direct collision or barotrauma.	<ul style="list-style-type: none"> <li>■ Mitigate potential impacts on bats during operation of wind farm.</li> <li>■ Reduce bat mortality during the operational lifetime of the wind farm.</li> <li>■ Supervise all bat monitoring activities.</li> <li>■ Stay aware of bat mortality.</li> </ul>	<ol style="list-style-type: none"> <li>1. All turbines and turbine components, including the rotor swept zone, should be kept out of all No-go and high bat sensitivity areas, Annexure E.</li> <li>2. Mitigation as proposed in Annexure E, should be applied as soon as the turbines start operating for the site as a whole.</li> <li>3. Mitigation as proposed for High-medium sensitivity zones proposed in Annexure E, must be adhered to as soon as the turbines start turning. Mitigation measures must be adapted by a bat specialist as data is collected</li> </ol>	<ul style="list-style-type: none"> <li>■ Regular bat monitoring reports, informed by the relevant SABAA operational bat monitoring guidelines.</li> <li>■ Adhere to the mitigation measures as indicated by the EA and Section 9 of the Bat Monitoring report.</li> <li>■ Maintain a register of bat mortality/injury.</li> <li>■ Regular communication between bat specialist and site manager.</li> </ul>	Throughout operation and during operational bat monitoring period.	Site manager Project developer

		<p>during the operational phase.</p> <p>4. Where high bat mortality occurs, mitigation should be implemented without delay. Specific turbines should be mitigated, using Sections in Annexure E, as a starting point for discussions.</p> <p>5. Freewheeling should be avoided, to a point where the turbines are not a threat to bats, when turbines do not generate power.</p> <p>6. Except for compulsory lightning required in terms of civil aviation, artificial lightning should be minimised, especially bright lights. Lights should rather be turned downwards.</p> <p>7. Turbine tower lights should be</p>			
--	--	--	--	--	--

		<p>switched off when not in operation, if possible, depending on civil aviation laws.</p> <p>8. At least two years of post-construction bat monitoring is to be conducted and must be performed according to the South Africa Good Practice Guidelines for Operational Monitoring for Bats at Wind Energy facilities (Aronson, et.al., 2020) or later versions of the guidelines valid at the time of monitoring.</p> <p>9. Prolonged post construction mitigation, beyond the prescribed two years, might be necessary if advised by the operational bat specialist.</p> <p>10. The use of ultrasound as a mitigation</p>			
--	--	--	--	--	--

		measure to deter bats should be investigated if necessary and as advised by a bat specialist.			
Bat fatality of migratory species.	<ul style="list-style-type: none"> <li>■ Mitigate potential impacts on bats during operation of wind farm.</li> <li>■ Reduce bat mortality during the operational lifetime of the wind farm.</li> <li>■ Supervise all bat monitoring activities.</li> </ul>	<ol style="list-style-type: none"> <li>11. Care should be taken during post construction monitoring to verify the numbers of this species, especially within the rotor swept area of the turbine blades.</li> <li>12. All turbines and turbine components, including the rotor swept zone, should be kept out of all No-go and high bat sensitivity areas, Annexure E.</li> <li>13. Mitigation as proposed in Annexure E should be applied as soon as the turbines start operating for the site as a whole.</li> </ol>	<ul style="list-style-type: none"> <li>■ Regular bat monitoring reports, informed by the relevant SABAA operational bat monitoring guidelines.</li> <li>■ Adhere to the mitigation measures as indicated by the EA and Section 9 of the Bat Monitoring report.</li> </ul>	Throughout operation and during operational bat monitoring period.	Site manager Project developer



		<p>14. Mitigation as proposed for High-medium sensitivity zones proposed in Annexure E, must be adhered to as soon as the turbines start turning. Mitigation measures must be adapted by a bat specialist as data is collected during the operational phase.</p> <p>15. Where high bat mortality occurs, mitigation should be implemented without delay. Specific turbines should be mitigated, using Annexure E, as a starting point for discussions.</p> <p>16. Freewheeling should be avoided, to a point where the turbines are not a threat to bats, when turbines do not generate power.</p> <p>17. Except for compulsory</p>			
--	--	---	--	--	--

		<p>lightning required in terms of civil aviation, artificial lightning should be minimised, especially bright lights. Lights should rather be turned downwards.</p> <p>18. Turbine tower lights should be switched off when not in operation, if possible, depending on civil aviation laws.</p> <p>19. At least two years of post-construction bat monitoring is to be conducted and must be performed according to the South Africa Good Practice Guidelines for Operational Monitoring for Bats at Wind Energy facilities (Aronson, et.al., 2020) or later versions of the guidelines valid at the time of monitoring.</p>			
--	--	---	--	--	--

		<p>20. Prolonged post construction mitigation, beyond the prescribed two years, might be necessary if advised by the operational bat specialist.</p> <p>21. The use of ultrasound as a mitigation measure to deter bats should be investigated if necessary and as advised by a bat specialist.</p>			
Loss of bats of conservation value.	<ul style="list-style-type: none"> <li>■ Mitigate potential impacts on bats during operation of wind farm.</li> <li>■ Reduce bat mortality during the operational lifetime of the wind farm.</li> <li>■ Supervise all bat monitoring activities.</li> </ul>	<p>22. Care should be taken during post construction monitoring to verify the numbers of this species, especially within the rotor swept area of the turbine blades.</p> <p>23. All turbines and turbine components, including the rotor swept zone, should be kept out of all No-go and high</p>	<ul style="list-style-type: none"> <li>■ Regular bat monitoring reports, informed by the relevant SABAA operational bat monitoring guidelines.</li> <li>■ Adhere to the mitigation measures as indicated by the EA and Section 9 of the Bat Monitoring report.</li> <li>■ Regular communication between bat</li> </ul>	Throughout operation and during operational bat monitoring period.	Site manager Project developer

		<p>bat sensitivity areas, Annexure E.</p> <p>24. Mitigation as proposed in Annexure E should be applied as soon as the turbines start operating for the site as a whole.</p> <p>25. Mitigation as proposed for High-medium sensitivity zones proposed in Annexure E, must be adhered to as soon as the turbines start turning. Mitigation measures must be adapted by a bat specialist as data is collected during the operational phase.</p> <p>26. Where high bat mortality occurs, mitigation should be implemented without delay. Specific turbines should be mitigated, using Annexure E, as a</p>	<p>specialist and site manager.</p>		
--	--	---	-------------------------------------	--	--

		<p>starting point for discussions.</p> <p>27. Freewheeling should be avoided, to a point where the turbines are not a threat to bats, when turbines do not generate power.</p> <p>28. Except for compulsory lightning required in terms of civil aviation, artificial lightning should be minimised, especially bright lights. Lights should rather be turned downwards.</p> <p>29. Turbine tower lights should be switched off when not in operation, if possible, depending on civil aviation laws.</p> <p>30. At least two years of post-construction bat monitoring is to be conducted and must be performed</p>			
--	--	--	--	--	--

		<p>according to the South Africa Good Practice Guidelines for Operational Monitoring for Bats at Wind Energy facilities (Aronson, et.al., 2020) or later versions of the guidelines valid at the time of monitoring.</p> <p>31. Prolonged post construction mitigation, beyond the prescribed two years, might be necessary if advised by the operational bat specialist.</p> <p>32. The use of ultrasound as a mitigation measure to deter bats should be investigated if necessary and as advised by a bat specialist.</p>			
Bat fatality due to the attraction of bats to turbine blades.	Avoid activities that will attract bats to turbines.	33. Minimise artificial light at night as far as possible, at the turbines as well as the site	Reduce lights as far as possible.	Ongoing	Site manager Project Developer

		<p>management offices.</p> <p>34. Where possible, lights should shine downwards.</p> <p>35. Avoid any activities that might attract flying insects to the areas amongst the turbines.</p>			
Loss of habitat and foraging space during operation of the wind turbines.	<ul style="list-style-type: none"> <li>■ Mitigate the loss of habitat and foraging space to avoid bat mortality.</li> <li>■ Reduce bat mortality during the operational lifetime of the wind farm.</li> </ul>	<p>36. Adhere to the sensitivity zones as indicated in the bat monitoring report and bat sensitivity map.</p> <p>37. No off-road driving on site.</p>	Adaptive mitigation plan.	During operations.	Site manager Project Developer ECO
Reduction in size, genetic diversity, resilience, and persistence of bat populations.	<ul style="list-style-type: none"> <li>■ Monitor potential impacts on bats during operation of wind farm.</li> <li>■ Prevent activities that will attract bats to high-risk areas on site.</li> </ul>	<p>38. All turbines and turbine components, including the rotor swept zone, should be kept out of all No-go and high bat sensitivity areas, Annexure E.</p> <p>39. Mitigation as proposed in Annexure E should be applied as soon as the turbines</p>	Adaptive mitigation plan.	During operations.	Site manager Project Developer ECO

		<p>start operating for the site.</p> <p>40. Mitigation as proposed for High-medium sensitivity zones proposed in Annexure E, must be adhered to as soon as the turbines start turning. Mitigation measures must be adapted by a bat specialist as data is collected during the operational phase.</p> <p>41. Where high bat mortality occurs, mitigation should be implemented without delay. Specific turbines should be mitigated, using Annexure E, as a starting point for discussions.</p> <p>42. Freewheeling should be avoided, to a point where the turbines are not a threat to bats, when turbines</p>			
--	--	--	--	--	--



		<p>do not generate power.</p> <p>43. Except for compulsory lightning required in terms of civil aviation, artificial lightning should be minimised, especially bright lights. Lights should rather be turned downwards.</p> <p>44. Turbine tower lights should be switched off when not in operation, if possible, depending on civil aviation laws.</p> <p>45. At least two years of post-construction bat monitoring is to be conducted and must be performed according to the South Africa Good Practice Guidelines for Operational Monitoring for Bats at Wind Energy facilities (Aronson, et.al., 2020) or later</p>			
--	--	---	--	--	--

		<p>versions of the guidelines valid at the time of monitoring.</p> <p>46. Prolonged post construction mitigation, beyond the prescribed two years, might be necessary if advised by the operational bat specialist.</p>			
--	--	---	--	--	--

**Decommissioning Phase Management Plan**

ASPECT / IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	METHOD	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
<b>On-going Stakeholder Involvement</b>					
Ongoing Stakeholder Involvement	<ol style="list-style-type: none"> <li>Community to be notified, as culturally appropriate, timeously of the planned decommissioning, e.g.: <ul style="list-style-type: none"> <li>Proposed decommissioning start date; and</li> <li>Process to be followed.</li> </ul> </li> <li>Recommend that a meeting with community leader(s) be held before decommissioning commence to inform them: <ul style="list-style-type: none"> <li>What activities will take place during the decommissioning phase.</li> <li>How these activities will impact upon the communities and/or their properties.</li> </ul> </li> </ol>	Holder of the EA	n/a	Clear communication channels maintained	During decommissioning

	<ul style="list-style-type: none"> <li>■ Regarding the timeframes of scheduled activities.</li> </ul> <ol style="list-style-type: none"> <li>3. Regular interaction between the client and community leader(s) during the decommissioning phase</li> <li>4. A reporting office/ channel to be established should community members experience problems with contractors/ sub-contractors during the decommissioning phase.</li> <li>5. Formalise agreements or contracts between the landowner and the applicant that will ensure that the rehabilitation does not leave any liability to future landowners.</li> <li>6. A register to be kept of problems reported by community members and the steps taken to address / resolve it.</li> <li>7. Noise generated from all the proposed activities must comply with the Western Cape Noise Control Regulations promulgated in Provincial Notice 200/2013 ("WCNCR").</li> </ol>				
<b>Waste Management</b>					
Waste Management Mitigation	<ol style="list-style-type: none"> <li>1. All decommissioned equipment must be removed from site and disposed of at a registered land fill. Records of disposal must be kept.</li> <li>2. Any putrescible waste must be stored in containers that can keep out scavengers such as baboons and birds to prevent the spread of litter.</li> <li>3. Wind turbines must be returned to the manufacturer or relevant recycling agent to be recycled.</li> </ol>	Holder of the EA	n/a	All waste managed according to approved Method Statement.	During decommissioning
<b>Agriculture and Soils</b>					

Aspect: Protection of soil resources Erosion	1. Implement an effective system of storm water run-off control, where it is required - that is at any points where run-off water might accumulate. The system must effectively collect and safely disseminate any run-off water from all accumulation points and it must prevent any potential down slope erosion.	Environmental Control Officer (ECO)	Undertake a periodic site inspection to verify and inspect the effectiveness and integrity of the storm water run-off control system and to specifically record the occurrence of any erosion on site or downstream. Corrective action must be implemented to the run-off control system in the event of any erosion occurring.	That disturbance and existence of hard surfaces causes no erosion on or downstream of the site.	Every 2 months during the decommissioning phase, and then every 6 months after completion of decommissioning, until final sign-off is achieved.
Erosion	2. Maintain where possible all vegetation cover and facilitate re-vegetation of denuded areas throughout the site, to stabilize disturbed soil against erosion.	Environmental Control Officer (ECO)	Undertake a periodic site inspection to record the occurrence of and re-vegetation progress of all areas that require re-vegetation.	That vegetation clearing does not pose a high erosion risk.	Every 4 months during the decommissioning phase, and then every 6 months after completion of decommissioning, until final sign-off is achieved.
Topsoil	3. If an activity will mechanically disturb the soil below surface in any way, then any available topsoil should first be stripped from the entire surface to be disturbed and stockpiled for re-spreading during rehabilitation. During rehabilitation, the stockpiled topsoil must be evenly spread over the entire disturbed surface.	Holder of the EA	Record GPS positions of all occurrences of below-surface soil disturbance (e.g. excavations). Record the date of topsoil stripping and replacement. Check that topsoil covers the entire disturbed area.	That topsoil loss is minimised.	As required, whenever areas are disturbed.

<p>Removal of subsoils (soil, rock): Decommissioning of the structure will disturb the geological environment.</p>	<ol style="list-style-type: none"> <li>4. Use of temporary berms and drainage channels to divert surface water were feasible.</li> <li>5. Minimize earthworks and demolish footprints.</li> <li>6. Use of existing roads and tracks were feasible.</li> <li>7. Rehabilitation of affected areas (such as regrassing).</li> <li>8. Develop a chemical spill response plan.</li> <li>9. Develop dust and demolition fly suppression plan.</li> <li>10. Vehicle repairs to be undertaken in designated areas.</li> <li>11. Reinstate channelized drainage features.</li> </ol>	<p>Holder of the EA</p>	<p>Undertake regular audits</p>	<p>Erosion plan implemented and hydrological measures in place.</p> <p>All waste managed according to approved Method Statement.</p> <p>Ensure the EMPr is adhered to.</p>	<p>Continuous</p>
<p><b>Avifauna</b></p>					
<p>Avifauna: Displacement due to disturbance:</p> <p>The noise and movement associated with the de-commissioning activities at the WEF footprint will be a source of disturbance which would lead to the displacement of avifauna from the area.</p>	<p>A site-specific EMPr must be implemented, which gives appropriate and detailed description of how construction activities must be conducted. All contractors are to adhere to the EMPr and should apply good environmental practice during construction. The EMPr must specifically include the following:</p> <ul style="list-style-type: none"> <li>■ No off-road driving;</li> <li>■ Maximum use of existing roads, where possible;</li> <li>■ Measures to control noise and dust according to latest best practice;</li> <li>■ Restricted access to the rest of the property;</li> <li>■ Strict application of all recommendations in the botanical</li> </ul>	<p>Contractor ECO</p>	<ol style="list-style-type: none"> <li>1. Implementation of the EMPr. Oversee activities to ensure that the EMPr is implemented and enforced via site audits and inspections. Report and record any non-compliance.</li> <li>2. Ensure that construction personnel are made aware of the impacts</li> </ol>	<p>Prevent unnecessary displacement of avifauna by ensuring that contractors are aware of the requirements of the Environmental Management Programme (EMPr.)</p>	<ol style="list-style-type: none"> <li>1. On a daily basis.</li> <li>2. Weekly.</li> </ol>

	specialist report pertaining to the limitation of the footprint.		relating to off-road driving.		
			3. Construction access roads must be demarcated clearly. Undertake site inspections to verify.		3. Weekly.
			4. Monitor the implementation of noise control mechanisms via site inspections and record and report non-compliance.		4. Weekly
			5. Ensure that the construction area is demarcated clearly and that construction personnel are made aware of these demarcations. Monitor via site inspections and report non-compliance.		5. Weekly
Displacement due to disturbance associated with the dismantling of the wind turbines and associated infrastructure.	1. Dismantling activity should be restricted to the immediate footprint of the infrastructure as far as possible. Access to the remainder of the area should be strictly controlled to prevent unnecessary disturbance of priority species.	Holder of the EA	Construction Monitoring and audit reports	Impacts avoided or managed as per specialist recommendations. Ensure the conditions of the EA are adhered to.	Continuous

	2. Measures to control noise and dust should be applied according to current best practice in the industry.			Adhere to legislative requirements	
<b>Biodiversity</b>					
<p>Faunal disturbance and habitat loss</p> <p>Fauna will be negatively affected by the decommissioning of the wind farm due to the human disturbance, the presence and operation of vehicles and heavy machinery on the site and the noise generated.</p>	<ol style="list-style-type: none"> <li>1. Any potentially dangerous fauna such as snakes or fauna threatened by the decommissioning activities should be removed to a safe location prior to the commencement of decommissioning activities.</li> <li>2. All hazardous materials should be stored in the appropriate manner to prevent contamination of the site. Any accidental chemical, fuel and oil spills that occur at the site should be cleaned up in the appropriate manner as related to the nature of the spill.</li> <li>3. All vehicles accessing the site should adhere to a low- speed limit (40km/h max) to avoid collisions with susceptible species such as snakes and tortoises.</li> <li>4. No excavated holes or trenches should be left open for extended periods as fauna may fall in and become trapped.</li> <li>5. All above-ground infrastructure should be removed from the site. Below-ground infrastructure such as cabling can be left in place if it does not pose a risk, as removal of such cables may generate additional disturbance and impact, however, this should be in accordance with the facilities' decommissioning and recycling plan, and as per the agreements with the land owners concerned.</li> </ol>	Holder of the EA	Construction Monitoring and audit reports	<p>Impacts avoided or managed as per specialist recommendations.</p> <p>Alien Plant Management Plan Implemented.</p> <p>Plant Rehabilitation Implemented.</p> <p>Ensure the conditions of the EA are adhered to.</p>	Continuous

<p>Increased potential for soil erosion</p> <p>Following decommissioning, the site will be highly vulnerable to soil erosion due to the disturbance created by the removal of infrastructure from the site.</p>	<p>6. Any roads that will not be rehabilitated should have runoff control features which redirect water flow and dissipate any energy in the water which may pose an erosion risk.</p> <p>7. There should be regular monitoring (annual) for erosion for at least 5 years after decommissioning by the applicant to ensure that no erosion problems develop as a result of the disturbance, and if they do, to immediately implement erosion control measures.</p> <p>8. All erosion problems observed should be rectified as soon as possible, using the appropriate erosion control structures and revegetation techniques.</p> <p>9. All disturbed and cleared areas should be revegetated with indigenous perennial shrubs and grasses from the local area during the rehabilitation process.</p>	<p>Holder of the EA Contractor</p>	<p>Construction Monitoring and audit reports</p>	<p>Impacts avoided or managed as per specialist recommendations.</p> <p>Alien Plant Management Plan Implemented.</p> <p>Plant Rehabilitation Implemented.</p> <p>Ensure the conditions of the EA are adhered to.</p>	<p>Continuous</p>
<p>Ecological degradation due to alien plant invasion.</p>	<p>10. Wherever excavation is necessary for decommissioning, topsoil should be set aside and replaced after construction to encourage natural regeneration of the local indigenous species.</p> <p>11. Indigenous vegetation seeds that occur naturally in the area should be reintroduced during the rehabilitation process.</p> <p>12. Due to the disturbance at the site alien plant species are likely to be a long-term problem at the site following decommissioning and regular control will need to be</p>	<p>Holder of the EA Contractor</p>	<p>Construction Monitoring and audit reports</p>	<p>Impacts avoided or managed as per specialist recommendations.</p> <p>Alien Plant Management Plan Implemented.</p> <p>Plant Rehabilitation Implemented.</p> <p>Ensure the conditions of the EA are adhered to.</p>	<p>Continuous</p>



	<p>implemented until a cover of indigenous species has returned.</p> <p>13. Annual monitoring for alien plants within the disturbed areas for at least three years after decommissioning or until alien invasives are no longer a problem at the site.</p> <p>14. Regular alien clearing should be conducted using the best-practice methods for the species concerned. The use of herbicides should be avoided as far as possible</p>				
<b>Surface Water</b>					
<p>Loss of aquatic species of special concern: During decommissioning activities within watercourses could result in the disturbance or destruction of any listed and or protected plant or animal species. However none of these aquatic obligate species were observed during this assessment.</p>	<p>1. Develop and implement an Aquatic Rehabilitation and Monitoring plan post Environmental Authorisation. This must be developed following the finalisation of the turbine / road layout and a walk down has been completed.</p>	Holder of the EA	Decommissioning Monitoring and audit reports.	<p>Impacts avoided or managed as per specialist recommendations.</p> <p>Ensure the conditions of the EA are adhered to.</p>	Continuous
<p>Damage or loss of riparian and or drainage line systems i.e. disturbance of the waterbodies in the construction phase:</p>	<p>2. All alien plant re-growth, which is currently low within the greater region must be monitored and should it occur, these plants must be eradicated within the project footprints and especially in areas near the proposed crossings. <i>Prosopis</i> (alien invasive riparian tree) is prevalent in areas to the north of the site, thus care in transporting any material, while ensuring that such materials is free of alien seed, coupled with pre and post alien clearing must be stipulated in the EMPr.</p>	Holder of the EA	Decommissioning Monitoring and audit reports.	<p>Impacts avoided or managed as per specialist recommendations.</p> <p>Ensure the conditions of the EA are adhered to.</p>	Continuous

	<p>Where roads and crossings are upgraded, the following applies:</p> <ul style="list-style-type: none"> <li>■ Existing pipe culverts must be removed and replaced with suitable sized box culverts, especially where road levels are raised to accommodate any large vehicles.</li> <li>■ River levels, regardless of the current state of the river / water course must be reinstated thus preventing any impoundments from being formed. The related designs must be assessed by an aquatic specialist during a pre-decommissioning walkdown.</li> <li>■ Where large cut and fill areas are required these must be stabilised and rehabilitated during the decommissioning process, to minimise erosion and sedimentation.</li> <li>■ 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 through whatever additional interventions maybe necessary (i.e., extension, energy dissipaters, spreaders, etc).</li> </ul>				
<p>Potential impact on localised surface water quality (decommissioning materials and fuel storage facilities) during the decommissioning phases. During decommissioning earthworks will expose and</p>	<p>3. All liquid chemicals including fuels and oil, including the BESS must be stored in with secondary containment (bunds or containers or berms) that can contain a leak or spill. Such facilities must be inspected routinely and must have the suitable PPE and spill kits needed to contain likely worst-case</p>	<p>Holder of the EA</p>	<p>Construction Monitoring and audit reports.</p>	<p>Impacts avoided or managed as per specialist recommendations. Ensure the conditions of the EA are adhered to.</p>	<p>Continuous</p>

<p>mobilise earth materials, and a number of materials as well as chemicals will be imported and used on site and may end up in the surface water, including soaps, oils, grease and fuels, human wastes, cementitious wastes, paints and solvents, etc. Any spills during transport or while works area conducted in proximity to a watercourse has the potential to affect the surrounding biota. Leaks or spills from storage facilities also pose a risk and due consideration to the safe design and management of the 30 000l fuel storage facility must be given.</p> <p>Although unlikely, consideration must also be provided for the proposed Battery Energy Storage System (BESS), with regard safe handling during the decommissioning phase. This to avoid any spills or leaks from this system.</p>	<p>scenario leak or spill in that facility, safely.</p> <ol style="list-style-type: none"> <li>4. 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).</li> <li>5. Mechanical plant and bowsers must not be refuelled or serviced within 100m of a river channel.</li> <li>6. All construction camps, lay down areas, wash bays, batching plants or areas and any stores should be more than 50 m from any demarcated water courses. Note comment regards Camp A that requires micro-siting.</li> <li>7. Littering and contamination associated with decommissioning activity must be avoided through effective construction camp management.</li> <li>8. No stockpiling should take place within or near a water course.</li> <li>9. All stockpiles must be protected and located in flat areas where run-off will be minimised and sediment recoverable.</li> </ol>				
<b>Heritage</b>					
<p>Palaeontology</p>	<ol style="list-style-type: none"> <li>1. During the construction phase the Chance Fossil Finds Protocol summarized in Annexure D should be fully implemented.</li> <li>2. The Environmental Control Officer (ECO ) / Environmental Site Officer (ESO) responsible for the</li> </ol>	<p>Palaeontologist ECO</p>	<p>n/a</p>	<p>Ensure the EMPr is adhered to.</p>	<p>Continuous</p>

	<p>development should be made aware of the possibility of important fossil remains (vertebrate bones, teeth, petrified wood, plant-rich horizons etc.) being found or unearthed during the construction phase of the development. Monitoring for fossil material of all major surface clearance and deeper (&gt;1m) excavations by the Environmental Site Officer on an ongoing basis during the construction phase is therefore recommended. Significant fossil finds should be safeguarded and reported at the earliest opportunity to Heritage Western Cape for recording and sampling by a professional palaeontologist (Contact details: Heritage Western Cape. 3rd Floor Protea Assurance Building, 142 Longmarket Street, Green Market Square, Cape Town 8000. Private Bag X9067, Cape Town 8001. Tel: 021 483 5959 Email: ceoheritage@westerncape.gov.za).</p>				
<p>Cultural landscape: Ecological</p>	<p>3. Critical Biodiversity Areas, and Ecological Support Areas (along drainage lines), should be protected from development of the wind turbines or any associated development during all phases.</p> <p>4. No wind turbines should be placed within the 1:100-year flood line of the watercourses. In the context of the sensitivity to soil erosion in the area, as well as potential archaeological resources, it would be a risk to include any structures close to these drainage lines</p>	<p>Holder of the EA Contractor</p>	<p>n/a</p>	<p>Ensure the EMP is adhered to.</p>	<p>Continuous</p>

	<p>5. Remaining areas of endemic and endangered natural vegetation should be conserved.</p> <p>6. Areas of critical biodiversity should be protected from any damage during all phases; where indigenous and endemic vegetation should be preserved at all cost.</p> <p>7. Areas of habitat are found among the rocky outcrops and contribute to the character, as well as biodiversity of the area. Care should be taken that habitats are not needlessly destroyed.</p> <p>8. Identified medicinal plants used for healing or ritual purposes should be conserved during all phases if threatened for use.</p> <p>9. Careful planning should incorporate areas for storm water runoff where the base of the structure disturbed the natural soil. Local rocks found on the site could be used to slow storm water (instead of concrete, or standard edge treatments), and prevent erosion that would be an unfortunate consequence that would alter the character of the site. By using rocks from site it helps to sensitively keep to the character.</p>				
Cultural landscape: Aesthetic	<p>10. Encourage mitigation measures (for instance use of vegetation) to 'embed' or disguise the proposed structures within the surrounding tourism and agricultural landscape at ground level, road edges etc.</p> <p>11. The continuation of the traditional use of material could be enhanced with the use of the rocks on the site as building material. This would also help</p>	Holder of the EA Contractor	n/a	Ensure the EMPr is adhered to.	Continuous

	<p>to embed structures into the landscape and should not consist of shipping containers or highly reflective untreated corrugated sheeting that clutters the landscape and is exacerbates the foreign intrusion on the natural matte landscape.</p> <p>12. Using material found on the site adds to the sense of place and reduces transportation costs of bringing materials to site.</p> <p>13. The local material such as the rocks found within the area could be applied to address storm water runoff from the road to prevent erosion.</p> <p>14. Duration and magnitude of construction/ decommissioning activity must be minimized as far possible to reduce the impact of heavy vehicles on the roads as well as the associated dust from the activity. Lightest vehicles possible should be used to reduce degradation to the farm roads and the need to upgrade roads to scale and extent that negatively impacts on the integrity of the historic farm roads. Construction/ decommissioning traffic must operate at speeds that reduce dust and noise as far possible.</p> <p>15. Any new road network or widening must be returned to its original state at end of the operational time of the WEF, with full environmental and aesthetic rehabilitation to the approval of a qualified cultural landscapes assessment specialist.</p> <p>16. Turbine sites, substation and laydown areas should be returned to their original state at the end of the</p>				
--	--	--	--	--	--

	operational time of the WEF, with full environmental and aesthetic rehabilitation to the approval of a qualified cultural landscapes assessment specialist.				
Cultural landscape: Historic	<p>17. Historic farmsteads must be protected from the impacts of heavy construction vehicles and increased numbers of people. No construction traffic should pass through or closer than 50m to the outer boundaries of a farm werf, or 200m from graded structures, which includes the associated historically cultivated lands, cemeteries, unmarked burials. The most appropriate use of existing farm roads must be found to avoid farm werfs as far as possible and reduce construction impact on these heritage features.</p> <p>18. A preconstruction micro-survey for turbines, access roads, substations, laydown areas and gridlines should be completed with CLA specialist to ensure appropriate buffers are maintained.</p> <p>19. Duration and magnitude of construction/ decommissioning activity must be minimized to reduce the impact of heavy vehicles on the roads as well as the associated dust from the activity. Light vehicles should be used to reduce degradation to the farm roads and the need to upgrade roads to scale and extent that negatively impacts on the integrity of the historic farm roads. Construction decommissioning traffic must operate at speeds that reduce dust and noise.</p> <p>20. No infrastructure or operational</p>	Holder of the EA Contractor	n/a	Ensure the EMPr is adhered to.	Continuous

	<p>upgrades, such as boreholes, should impact negatively or reduce natural, on site water quality, quantity or access for the residents within or around the development site. Preferably any borehole or other water resource upgrade should also be made freely accessible to the residents living on site.</p> <p>21. Accommodation of construction staff must not negatively impact on existing farm residents or degrade the integrity of the farmstead complexes and should, without negative impact to ecological or aesthetic resources, be located outside of the farmstead complexes or site. Farm residents should be consulted on the preferable location for construction staff accommodation.</p> <p>22. Traditional planting patterns should be protected by ensuring that existing trees are not needlessly destroyed, as these signify traces of cultural intervention in a harsh environment. These planting patterns include the trees planted around the werfs and along travel routes. Interpretation of these landscape features as historic remnants should occur. A buffer of 50m around such planting patters should be maintained.</p> <p>23. Burial grounds and places of worship are automatically regarded as Grade IIIa or higher. Any development that threatens the inherent character of family burial grounds must be assessed and should be discouraged. No turbines have been proposed for placement near known unmarked</p>				
--	--	--	--	--	--



	<p>burials or family cemeteries. A preconstruction micro-survey of each turbine footprint and any new access roads should be conducted to ensure no further unmarked graves are threatened. A preconstruction micro-survey for access roads, substations, laydown areas and gridlines should be completed with CLA specialist to ensure appropriate buffers are maintained.</p> <p>24. Mountain slopes have been used for traditional practices for many years, and care should be taken that any significant cultural sites, such as burials and veldkos/medicinal plant resources, are not disturbed.</p> <p>25. Farms in the area followed a system of stone markers to demarcate the farm boundaries in the area. Where these structures are found on the site, care should be taken that they are not needlessly destroyed, as they add to the layering of the area.</p> <p>26. Roads running through the area may have historic stone way markers. Where these are found care should be taken that they are left in tact and in place. Road upgrades must not move or threaten their position and they should be visible from the road they are related to by passing travellers. A preconstruction micro-survey for access roads, substations, laydown areas and gridlines should be completed with CLA specialist to ensure appropriate buffers are maintained.</p> <p>27. Where the historic function of a building/site is still intact, the function</p>				
--	---	--	--	--	--

	<p>has heritage value and should be protected.</p> <p>28. Surviving examples (wagon routes, outspans, and commonage), where they are owned in some public or communal way (or by a body responsible for acting in the public interest) and where they are found to be actively operating in a communal way, will have cultural and heritage value and should be enhanced and retained. The historic route running through Koup 1 should be maintained and integrity as a communal road for farm residents must be retained.</p>				
Cultural landscape: Socio-economic	<p>29. An updated cultural landscapes impact assessment report must be completed should the WEF continue to be used after the term granted in this application. This report should include a detailed assessment of the impacts to the cultural landscape and its outcomes and recommendations need to be considered in the decision for recommissioning and be implemented if recommissioning is approved.</p> <p>30. The continued use of the landscape for human habitation and cultivation by historic residents of the area, should be retained and encouraged as far possible to sustain the continual use pattern and human-environment relationship which is the ultimate significance of this cultural landscape element. The WEF development must allow and support this, including financially, and not degrade this continued relationship.</p> <p>31. No infrastructure or operational</p>	Holder of the EA Contractor	n/a	Ensure the EMPr is adhered to.	Continuous

	<p>upgrades, such as boreholes, should impact negatively or reduce natural, on site water quality, quantity or access for the residents within or around the development site. Preferably any borehole or other water resource upgrade should also be made freely accessible to the residents living on site.</p> <p>32. The local community on and around the development should benefit from job opportunities created by the proposed development and the development should not cause reduction in economic viability of surrounding properties in excess of those offered by the development. Short-term job opportunities at the expense of long term economic benefit and local employment opportunities must be prevented.</p> <p>33. Local residents must be offered employment on the construction/ decommissioning and operational phases before 'importing' staff from elsewhere.</p> <p>34. Local residents must be offered employment-training opportunities associated with WEF developments at all phases.</p> <p>35. Sheep, cattle or game farming should be allowed to continue below the wind turbines, or be rehabilitated to increase biodiversity in the area.</p>				
<b>Visual</b>					
Potential visual intrusion resulting from vehicles and	1. All infrastructure that is not required for post-decommissioning use should be removed.	Holder of the EA	n/a	Noise and lighting managed according to	During decommissioning

<p>equipment involved in the decommissioning process. Potential visual impacts of increased dust emissions from decommissioning activities and related traffic. Potential visual intrusion of any remaining infrastructure on the site.</p>	<ol style="list-style-type: none"> <li>2. Carefully plan to minimize the decommissioning period and avoid delays.</li> <li>3. Maintain a neat decommissioning site by removing rubble and waste materials regularly.</li> <li>4. Ensure that dust suppression procedures are maintained on all gravel access roads throughout the decommissioning phase.</li> <li>5. All cleared areas should be rehabilitated as soon as possible.</li> <li>6. Rehabilitated areas should be monitored post-decommissioning and remedial actions implemented as required.</li> </ol>			<p>approved Method Statement. All waste managed according to approved Method Statement. Plant Rehabilitation Implemented.</p>	
<b>Transportation</b>					
<p>Additional Traffic Generation: Increase in Traffic.</p>	<ol style="list-style-type: none"> <li>1. Ensure staff transport is done in the 'off peak' periods and by bus.</li> <li>2. Stagger material, component and abnormal loads.</li> <li>3. Construction of an on-site concrete batching plant to reduce trips.</li> </ol>	Holder of the EA Contractor	n/a	<p>All staff members are aware of the EMPr requirements relevant to them. Ensure the EMPr is adhered to.</p>	Continuous
<p>Additional Traffic Generation: Increase of Incidents with pedestrians and livestock.</p>	<ol style="list-style-type: none"> <li>4. Reduction in speed of vehicles.</li> <li>5. Adequate enforcement of the law.</li> <li>6. Implementation of pedestrian safety initiatives.</li> <li>7. Regular maintenance of farm fences &amp; access cattle grids.</li> <li>8. Construction of an on-site concrete batching plant to reduce trips.</li> </ol>	Holder of the EA Contractor	n/a	<p>All staff members are aware of the EMPr requirements relevant to them. Ensure the EMPr is adhered to.</p>	Continuous
<p>Additional Traffic Generation: Increase in Dust from gravel roads.</p>	<ol style="list-style-type: none"> <li>9. Reduction in speed of the vehicles.</li> <li>10. Use of dust suppressant techniques.</li> </ol>	Holder of the EA Contractor	n/a	<p>All staff members are aware of the EMPr requirements relevant to them.</p>	Continuous

	<p>11. Implement a road maintenance program under the auspices of the respective transport department.</p> <p>12. Construction of an on-site concrete batching plant to reduce trips.</p>			Ensure the EMPr is adhered to.	
Additional Traffic Generation: Increase in Road Maintenance.	<p>13. Implement a road maintenance program under the auspices of the respective transport department.</p> <p>14. Construction of an on-site batching plant to reduce trips.</p>	Holder of the EA Contractor	n/a	All staff members are aware of the EMPr requirements relevant to them. Ensure the EMPr is adhered to.	Continuous
Additional Abnormal Loads.	<p>15. Ensure abnormal vehicles travel to and from the proposed development in the 'off peak' periods or stagger delivery.</p> <p>16. Adequate enforcement of the law.</p>	Holder of the EA Contractor	n/a	All staff members are aware of the EMPr requirements relevant to them. Ensure the EMPr is adhered to.	Continuous
Internal Access Roads: Increase in Dust from gravel roads.	<p>17. Enforce a maximum speed limit on the development.</p> <p>18. Use of dust suppressant techniques.</p> <p>19. Adequate watering by means of water bowser.</p>	Holder of the EA Contractor	n/a	All staff members are aware of the EMPr requirements relevant to them. Ensure the EMPr is adhered to.	Continuous
Internal Access Roads: New / Larger Access points.	<p>20. Adequate road signage according to the SARTSM.</p> <p>21. Approval from the respective roads department.</p>	Holder of the EA Contractor	n/a	All staff members are aware of the EMPr requirements relevant to them. Ensure the EMPr is adhered to.	Continuous

**Cumulative impacts:**

- Where possible, limit the number of maintenance vehicles using access roads.
- Non-reflective surfaces should be utilised where possible.
- Where possible, limit the amount of security and operational lighting present at the on-site substation.
- Light fittings for security at night should reflect the light toward the ground and prevent light spill.

### **High Level BESS Risk Assessment**

<b>Possible Risk</b>	<b>Likelihood of occurrence</b>	<b>Resultant Impact</b>	<b>Management / Mitigation</b>
<b>General leakage:</b> - Leakage of Coolant - Leakage of Electrolyte	<b>Low</b>	- On site fires. - Electrical failure. - Potential spillage of electrolytes or refrigerant - Soil contamination - Groundwater contamination	- Latest BESS technologies to be used as far as possible. - BESS installation is to adhere to the appropriate international standards and South African National Standard (SANS) requirements. - Training of all staff and employees on how to handle spillages, fires and electrocutions. - Records kept for well managed operations and maintenance.
<b>Mishandling:</b> - Batteries incorrectly connected - Batteries left disconnected - Short circuits - Forced discharged - Venting of Electrolyte - Punctured/Crushed or damaged modules and battery casing	<b>Low</b>	- On site fires. - Electrical failure - Electrocution - Potential spillage of electrolytes or refrigerant - Vented gasses - Staff and personal injury - Contaminated Runoff - Soil and microbe contamination - Groundwater seepage - Downstream effects on the current terrestrial ecosystem.	- Bunding of containers and batteries to be placed on an impermeable barrier/layer (e.g., concrete surface with acid lining). - In case of a spillage of hazardous chemicals where contamination of soil occurs, depending on the degree of contamination, excavation and removal to a hazardous waste disposal site might be necessary. If the spillage is widespread, a specialist will need to be immediately appointed to deal with the issue, the DFFE must be notified, and the notification process stipulated in the National Norms and Standards for the Remediation of Contaminated Land and Soil Quality (GN 331, 2 May 2014) should be followed. - Implementation of spill handling and management in line with the EMPr. - Demarcate all no-go and sensitive areas. - Avoid the placement of batteries near watercourses and sensitive features. - Material Safety Data Sheets (MSDS) Records to be kept, as well as incidents reporting register.

			<ul style="list-style-type: none"> <li>- Source batteries from reputable suppliers, and batteries to arrive on site pre-assembled in suitable containers.</li> <li>- Battery inspection prior to installation.</li> </ul>
<b>Thermal Runaway:</b> <ul style="list-style-type: none"> <li>- Thermal and/or Mechanical failure in one or more battery cells</li> <li>- Overheating</li> <li>- Short circuiting</li> </ul>	<b>Low</b>	<ul style="list-style-type: none"> <li>- On site fires.</li> <li>- Electrical failure</li> <li>- Potential spillage of electrolytes or refrigerant</li> <li>- Downstream effects on the current terrestrial ecosystem.</li> </ul>	<ul style="list-style-type: none"> <li>- Maintenance.</li> <li>- Latest BESS technologies to be used as far as possible.</li> <li>- Appropriate battery design and venting control.</li> <li>- Source from reputable manufacturers.</li> <li>- Safe and appropriate storage in line with the above and the EMPr. Safe handling which must include battery inspection prior to installation.</li> <li>- Should electrolyte solutions be stored on site, these should be stored away from incompatible materials such as all peroxides, such as hydrogen peroxide; chemicals that react with acid to generate a gaseous product, such as carbonate and bicarbonates, sulfites and bisulfites; strong reducing agents, such as alkaline metals (Li, Na, K) and alkaline earth metals (Be Mg Ca, Sr, Ba); reactive metals such as aluminum and zinc, all hydrides (such as LiAlH<sub>4</sub>, NaBH<sub>4</sub>), and some carbides (such as CaC<sub>2</sub>).</li> <li>- Development and implementation of Thermal Management Plan prior to installation/construction.</li> </ul>
<b>Limited Employee Training and Experience:</b> <ul style="list-style-type: none"> <li>- Device Monitoring Failure (SCADA)</li> <li>- Poor incidents reporting</li> <li>- Poor first responders training</li> <li>- Distance to nearest fire station and response time.</li> </ul>	<b>Low</b>	<ul style="list-style-type: none"> <li>- Time lag for first respondent</li> <li>- Inability to contain spillage</li> <li>- Fire</li> <li>- Electrocutation</li> <li>- Damage to exiting/surrounding infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>- During the construction phase the proposed project, first responders from the nearest major center (such as fire fighters and paramedics) must be given appropriate training on dealing with any emergency situation that may occur as a result of the operation of BESS. Such training must be provided by the technology suppliers or an appointed service provider.</li> </ul>
<b>Inappropriate Storage</b> <ul style="list-style-type: none"> <li>- Hydrocarbon Spill</li> <li>- Leaked battery pack coolant</li> <li>- Leaked refrigerant</li> <li>- Leaked cell electrolyte</li> <li>- Rapid heating of individual cells</li> <li>- Fires</li> </ul>	<b>Low</b>	<ul style="list-style-type: none"> <li>- On site fires.</li> <li>- Electrical failure</li> <li>- Electrocutation</li> <li>- Potential spillage of electrolytes or refrigerant</li> <li>- Vented gasses</li> <li>- Staff and personal injury</li> <li>- Contaminated Runoff</li> </ul>	<ul style="list-style-type: none"> <li>- Solid State Li-Ion technologies to be preferred where possible.</li> <li>- Training of all staff and employees on how to handle spillages, fires and electrocutations.</li> <li>- In terms of appropriate design measures, the holder of the EA must identify a secondary containment facility, which is to be constructed with a capacity of at least 110% of the largest storage tank's capacity and the off-loading point must be located in the bunded area to ensure that any potential spill during the off-loading of the electrolyte solutions is contained.</li> </ul>

		<ul style="list-style-type: none"> <li>- Soil and microbe contamination</li> <li>- Groundwater seepage</li> <li>- Downstream effects on the current terrestrial ecosystem.</li> </ul>	<ul style="list-style-type: none"> <li>- Records kept for well managed operations and maintenance.</li> <li>- Bunding of containers.</li> <li>- Implementation of spill handling and management in line with the EMPr which ensures that run-off and dirty water does not mix with electrolyte spill.</li> <li>- Containment areas to be sloped towards a sump.</li> <li>- All drains to be covered.</li> <li>- Demarcate all no-go and sensitive areas.</li> <li>- Avoid the placement of batteries near watercourses and sensitive features.</li> <li>- MSDS Records to be kept, as well as incidents reporting register.</li> <li>- The batteries should be placed in a well-ventilated area, include vents (where necessary and applicable) and appropriate PPE (appropriate gloves, safety glasses/face shield, appropriate clothing) should be worn when handling the electrolyte solutions.</li> <li>- Source batteries from reputable suppliers.</li> <li>- The transport vehicle should be identified with symbols.</li> <li>- Transport schedule and map must be implemented and kept on each drivers person, with a copy kept in the admin offices on site.</li> <li>- Battery inspection prior to installation.</li> </ul>
<p><b>Inappropriate disposal at the end of life</b></p> <ul style="list-style-type: none"> <li>- Landfill Disposal</li> <li>- Heavy Metal Pollution</li> </ul>	<p><b>Medium</b></p>	<ul style="list-style-type: none"> <li>- Potential scenario of fluids from the batteries leaking into environment. The release of such chemicals through leaching, spills or air emissions can harm communities, ecosystems and food production.</li> <li>- The potentially toxic materials contained in batteries means that they are classified as hazardous materials in terms of NEM:WA. There are only a few licensed hazardous waste sites in South Africa and recycling of batteries and e-waste has been identified as a</li> </ul>	<ul style="list-style-type: none"> <li>- The recycling of batteries and their potential use as e-waste.</li> <li>- Disposal at a licensed hazardous waste site.</li> <li>- Prior to construction of the WEF, and BESS, the holder of the EA is to develop a dedicated Battery Recycling Programme to be adopted on-site.</li> <li>- Records of disposal at a licensed facility must be kept.</li> </ul>



		sure way of improving the lifespans of such sites.	
--	--	--	--

## **Fire Management Plan**

The National Veld and Forest Fires Act (Act 101 of 1998) states that it is the landowner' and / or relevant contractors in the context of the WEFs' responsibility to ensure that the appropriate equipment as well as trained personnel are available to combat fires.

Although fires are not a regular occurrence at the site, fires may occasionally occur under the right circumstances. Ignition risk sources in the area include the following:

- Lightning strikes.
- Personnel within the facility.
- Infrastructure such as transmission lines.

A fire management plan in compliance with Veld Fire Management Act should be compiled by the main contractor prior to the commencement of construction.

### **Firebreaks**

Extensive firebreaks are not recommended as a fire risk management strategy at the site. The site is very large compared to the extent of the infrastructure and the maintenance of firebreaks would impose a large management burden on the operation of the facility. In addition, the risk of fires is not distributed equally across the site and within many of the lowlands of the site, there is not sufficient biomass to carry fires and the risk of fires within these areas is very low. Rather targeted risk management must be implemented around vulnerable or sensitive elements of the facility such as substations or other high risk components. Within such areas, the extent over which management action needs to be applied is relatively limited and it is recommended that firebreaks are created by mowing and that burning to create firebreaks is not used as this in itself poses a risk of runaway fires. Where such firebreaks need to be built such as around substations, a strip of vegetation 5 - 10 m wide can be cleared manually and maintained relatively free of vegetation through manual clearing on an annual basis. However, if alien species colonise these areas, more regular clearing must be implemented.

## **Re-vegetation and habitat rehabilitation plan**

The Revegetation and Habitat Rehabilitation Plan addresses the need to mitigate all impacts leading to disturbed vegetation, loss of species and/or agricultural potential, disturbed soil surfaces, and generally bare soils prone to erosion and further degradation on the proposed development site. The plan overlaps to some degree with the Erosion Management Plan, and for successful rehabilitation, it is imperative that this plan is at all times used in conjunction with other EMPs mentioned.

The objective of the plan is therefore to provide:

- Protocols for the removal, temporary storage and replanting of plant species of conservation concern  
Protocols for the rehabilitation of vegetative cover across the project area;
- Tools for planning the rehabilitation work and responding to unforeseen events Guidelines on implementation and post-implementation tasks Criteria for evaluating rehabilitation success; and
- A summary of items to be included in the rehabilitation budget to ensure that there is sufficient allocation of resources on the project budget so that the scale of EMP-related activities is consistent with the significance of project impacts.

The objective of rehabilitation and revegetation of the development area is:

- Preventing the loss of species either directly or through future extinction and minimising impacts of development on population dynamics of species of conservation concern.
- Preserving the natural configuration of habitats as part of ecosystems, thus ensuring a diverse but stable hydrology, substrate and general environment for species to be able to become established and persist.
- Preserving or re-creating the structural integrity of natural plant communities. Actively aid the improvement of indigenous biodiversity according to a desirable end state according to a previously recorded reference state. This reference state, if healthy, will be dynamic and able to recover after occasional disturbances without returning to a degraded state.

- Improving the ecosystem function of natural landscapes and their associated vegetation.
- Successful rehabilitation can only be achieved with: »A long-term commitment »Practical, adaptive management »Viable goals of desired outcomes

Prior to vegetation rehabilitation, all stakeholders involved must be consulted to determine:

- What the rehabilitation is ultimately aiming for– rehabilitation of cropping/grazing lands or rehabilitation of indigenous vegetation, after soil erosion and storm water management is in place and IAPs have been cleared?
- A clear definition of incompatible and compatible vegetation on and in the immediate surroundings of the development must be defined and maintained as such. No tree or shrubs shall be allowed to grow to a height in excess of the horizontal distance of that tree or shrub from the nearest newly developed structure or to grow in such a manner as to endanger the development or its operation
- Who will take long-term ownership and hence responsibility for the rehabilitation and its subsequent monitoring and management? Continued monitoring of vegetation establishment and composition, as well as erosion detection will have to be coupled with continued follow-up maintenance of rehabilitation and erosion control from commencement of activity up to the decommissioning phase.
- The ultimate objective for rehabilitation must focus on the stabilisation of soil erosion, retaining agricultural potential of transformed areas and /or the establishment of a dense and protective plant cover and the maintenance of habitats to enable vegetation to persist and flourish on rehabilitated areas indefinitely, ultimately relying only on environmental resources.

### **Map and Create Management Areas**

The entire project area must be mapped and divided into management areas indicating:

- Current land cover
- Roads and residential
- Areas with IAPs, subdivided further in sparse or dense infestations where applicable
- Transformed areas
- Untransformed indigenous vegetation

For every one of the management areas, the project proponent, in consultation with the land users, will have to decide what intervention will be necessary, desirable, and feasible to enable the development of the project and long-term sustainable maintenance of infrastructure. Thus for every management area there must be an operational outline on:

- what will happen there
- what needs to be mitigated – including storm water- and erosion management
- which management units need priority intervention/mitigation
- how will this mitigation / intervention be done (method statements) including schedule of work
- realistic and desirable end states including list of species that must be established to initiate rehabilitation after initial revegetation
- approximate timeframes
- monitoring protocol to evaluate success or failures of interventions
- establish permanently marked transects and monitor with fixed-point photography who will be responsible for doing what how will different actions be integrated to achieve and maintain or improve the desirable end state of the environment of that management unit

Special attention will have to be given to drainage zones, as these not only have very active morphodynamics, but are also distributors of seeds – both indigenous and of IAPs. Thus clearing a downstream invasion of aliens to enable

maintenance of the development will be futile if the upstream IAPs are not cleared or at least aggressively controlled.

### **Setting Realistic Rehabilitation Goals**

Rehabilitation efforts typically aim at improving ecosystem function that consists of a series of processes, which can in the end be evaluated against a desired outcome or reference state of the vegetation and environment.

Attainable goals of rehabilitation on the project area must be possible and viable for at least the following:

- Stabilisation of soils
- Stabilisation of riparian areas
- Storm water reduction through management and wetland integrity
- Clearing of IAPs
- The degree to which IAPs can be cleared from the project area needs to be determined according to desirability, available project funding, personnel and project requirements
- Restoring and/or rehabilitating vegetative cover on non-transformed areas to obtain an acceptable vegetation cover that can be maintained or persists on its own indefinitely.

### **Remove or Ameliorate the Cause of Degradation**

This will include:

- Physical rehabilitation of topsoil where it has been removed.
- Topsoil on areas that have not been cultivated are considered as the upper 20 - 30 cm only. These contain the most important nutrients, micro flora and –fauna essential for nutrient cycling processes. Topsoils are also an important source of seeds.
- Subsoils and overburden substrata lack the above elements and will first have to be used for physical rehabilitation of landscapes as and where necessary, and then overlain with topsoils.
- Stabilisation of topsoils and prevention of erosion – refer to the Erosion management plan.
- Removal of all invasive vegetation – refer to the Alien Invasive Management Plan

Where it is desirable to use brush or logs of the cleared vegetation for soil stabilisation, such material must be free of regenerative material – e.g. seeds or root suckers.

### **Initial Revegetation**

Immediately after clearing of vegetation, the soil surface must be inspected for signs of erosion and stabilised as soon as possible. After completion of construction, such erosion stabilisation must preferably be with a cover of vegetation. A dense initial grass or other perennial cover will be desirable. The appropriate seed mix must be determined in consultation with an ecologist familiar with the area. The aim of the first vegetation cover is to form a protective, relatively dense indigenous layer to slow runoff, increase moisture infiltration into the soil, and gradually change the soil nutrient status in order for it to be more favourable for other desirable indigenous vegetation to become established.

### **Natural seed banks and improvement of plant structural and compositional diversity**

It is expected that soil seed banks of indigenous vegetation will be present to initiate initial vegetation cover, but may not be sufficient to establish an acceptable cover of desirable species. After deciding which indigenous species must be re-introduced, seed must be ideally collected from site or an environmentally-matched site nearby.

Seed collection may be done throughout the year as seed ripens, but can also be restricted to summer, when a large amount of the perennial seed should have ripened. Seeds must be stored in paper or canvas bags dusted with insecticide, and sown at the onset of the rainy season.

Alternatively, slower-growing perennials may be raised from seed or cuttings in a nursery and then transplanted once established. It will be beneficial to investigate if community members would be able to create and maintain such a nursery, or if there are nurseries in the area, that raise indigenous flora from the area.

The final vegetation cover must resemble the original (non-encroached) vegetation composition and structure as far as practicable possible or permissible within each management unit.

*For drainage areas:*

- First restore drainage line morphology following the guidelines of the Erosion Management Plan – without that ecological recovery cannot be initiated;
- Determine if natural seed sources may be present further upstream;
- If such upstream seed sources are still present, rehabilitation of riparian vegetation after soil erosion management will most likely occur naturally, PROVIDED that follow-up monitoring of the establishment of vegetation is carried out, and all invasive species eradicated as they emerge. This can only be achieved with a long-term commitment (> 5 years minimum); and
- Should no upstream seed resources be available, suitable species (as determined in consultation with an ecologist) must be sown or planted.

### **Monitoring and Follow-Up Action**

Throughout the lifecycle of the development, regular monitoring and adaptive management must be in place to detect any new degradation of ecosystems affected by the development, and remedy these as soon as detected.

During the construction phase, the ECO and contractor will be responsible for initiating and maintaining a suitable monitoring system. Once the development is operational, the project proponent will have to identify a suitable entity that will be able to take over and maintain the monitoring cycle and initiate adaptive management as soon as it is required. Monitoring personnel must be adequately trained.

The following are the minimum criteria that must be monitored:

- Composition and density of replanted vegetation, distinguishing between species introduced for initial revegetation only and species that are part of the pre-determined desirable end state;
- Associated nature and stability of surface soils
  - It is recommended that permanent transects are marked and surveyed annually according to the LFA technique (Tongway and Hindley 2004), adapted to integrate both surface soil characteristics and the vegetation to be monitored
- Re-emergence of IAPs
  - If noted, remedial action must be taken immediately according to Working for Water specifications
- Nature and dynamics of riparian zones
  - Stability of riparian vegetation,
  - Any form of bank erosion, slumping or undercutting, and
  - Stability of channel form and width of streams – if this increases, it shows that vegetation on plains and/or riparian areas and upper drainage lines are not yet in a stable enough state to be fully functional in reducing excess runoff and the ecosystem overall is losing valuable resources.

### **Timeframes and Duration**

- Rehabilitation will occur during construction, as areas for the re-application of topsoil and revegetation become available or where revegetation can be initiated after clearing of invasives or to stabilise erosion.
- The initial revegetation period post construction is estimated to be over a period of 6 (minimum) to 12 months (maximum), or a time period specified by the Horticultural Landscape Contractor, particularly if planting of trees and shrubs occurs.
- The rehabilitation phase (including post seeding maintenance) must be at least 12 months (depending on time of seeding and rainfall) to ensure establishment of an acceptable plant cover is achieved (excluding invasive plant species or weeds).

- If the plants have not established and the acceptable plant cover is not achieved within the specified maintenance period, maintenance of these areas shall continue until at acceptable plant cover is achieved (excluding alien plant species or weeds).
- Additional seeding or planting may be necessary to achieve acceptable plant cover. Hydroseeding may have to be considered as an option in this case.
- Any plants that die, during the maintenance period, shall be replaced by the Horticultural Landscape Contractor (at the Horticultural Landscape Contractor's cost if it was due to insufficient maintenance).
- Succession of natural plant species must be encouraged
- Monitoring of rehabilitation success and follow-up adaptive management, together with clearing of emerging invasives shall be carried on until the decommissioning phase has been completed.

#### **Freshwater and Wetlands (Aquatic) Management and Monitoring Plan**

Based on the results of the walkdown, several sensitive areas are present within the region, but based on the field assessments, the final layouts and alignments were found to be located outside the majority of the high sensitive area identified during the EIA. All that remains are the recommendations made in above, that will then see the avoidance of any additional impacts on the minor drainage lines shown.

The further the following recommendations are reiterated:

- Vegetation clearing should occur in a phased manner in accordance with the construction programme to minimise erosion and/or run-off.
- 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. Washing and cleaning of equipment should also be done in berms or bunds, in order to trap any cement and prevent excessive soil erosion. 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.
- All cleared areas must be re-vegetated after construction has been completed.
- All alien plant re-growth 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.

#### **Stormwater management plan**

The objective of the storm water management plan (SWMP) is to prevent increased soil erosion, to contain any contaminated run-off and to avoid water logging and pollution.

The Erosion Management Plan (see below) must therefore be seen in conjunction with the SWMP. Actions are listed that will ensure that storm water is channelled in a controlled manner from roads and substations towards natural drainage lines, without impeded natural surface flows.

- Develop and implement a site-specific storm water management plan during the detailed design phase of the projects and prior to construction;
- In the detailed design phase of the project minimise any water crossings and utilise existing roads wherever possible;
- Enforce 32 m construction buffers of all rivers, streams and waterbodies;
- Should new roads be required to cross any banks or channels these must be secured with erosion protection (i.e. gabions etc);
- Monitor for erosion during the clearing of vegetation;
- Avoid hard-engineered surfaces (i.e. construct gravel roads and not asphalt roads wherever possible);

- Roads in steep areas must be equipped with side drainages and culverts that channel the run-off to natural drainage lines without gaining velocity and causing erosion;
- Construction camps and temporary ablution facilities must be located beyond the 1:100 year floodline;
- Stockpiles must be located on flat areas and protected from erosion;
- The substation site design must include side water outlets and an adequate slope to allow storm water run-off from the paved areas;
- Any run-off from the BESS area must be controlled and managed before entering any stormwater channel; and
- Prevent surface run-off from areas of potential contamination.

Guidelines and Stormwater Management:

Where buildings/ infrastructure occur on-site, the developer should ensure that all stormwater flow paths are protected against erosion. All inlets to piped systems must be fitted with a screen/grating to prevent debris and refuse from entering the stormwater system. Screens/ grating must be installed immediately after the installation of piped infrastructure. Buildings, earthworks, or any other infrastructure may obstruct or encroach on a watercourse inside or outside the site without approved plans. The approved plans must not compromise the SWMP or any other required Authority approvals.

Designs must ensure that rainfall run-off from roofing, not subjected to increases in pollution, can be captured for re-use for on-site irrigation and non-potable water uses. Where storage for re-use and ground conditions permit, rainwater run-off should connect to detention areas to maximise groundwater recharge. Detention areas must be designed to attenuate run-off.

Parking or paved areas should be structured to reduce stormwater runoff by allowing ponding or infiltration. Stormwater from these areas should be discharged and controlled as overland sheet flow or attenuation facilities.

Designed roads must avoid concentration of flow along and off the road. Where flow concentration is unavoidable, incorporating the road into the major stormwater system must be considered.

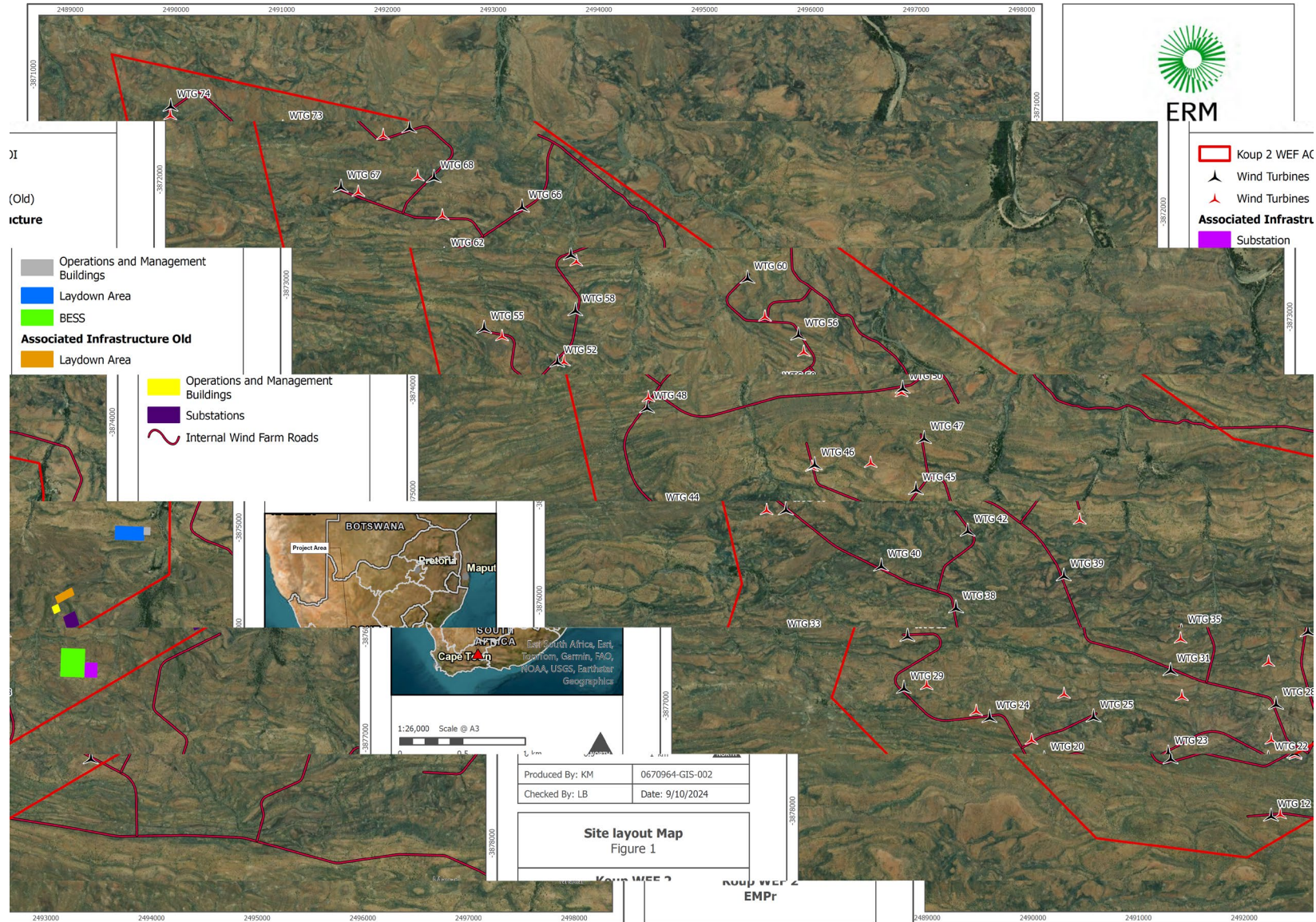
Subsurface disposal must be designed to ensure that slope instability, concentrated saturation or inundation does not occur.

Channels may be constructed to convey stormwater directly to a natural watercourse where deemed necessary and unavoidable. The channels must be suitably lined to prevent erosion and provide maximum possible energy dissipation of the flow.

Open trenches should not be unprotected for extended periods and should be progressively backfilled as construction proceeds. Excavated material to be used as a backfill must be placed close to the trench on the upstream side to avoid loose material from washing away. Materials to be stockpiled away from drainage paths and loose material such as stone, sand or gravel must be covered or kept damp to minimise dust. The stormwater systems should be free from materials that could harm the water systems' fauna, flora, and aquatic life.



Figure 0-1 Final Site Layout Map





## APPENDIX 1: METHOD STATEMENTS

To be prepared by the contractor prior to commencement of the activity. The method statements are **not required** to be submitted to the CA.

---

GENERIC ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE  
DEVELOPMENT AND EXPANSION OF SUBSTATION INFRASTRUCTURE FOR THE  
TRANSMISSION AND DISTRIBUTION OF ELECTRICITY

---



**environmental affairs**

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA

## TABLE OF CONTENTS

INTRODUCTION .....	1
1. Background .....	1
2. Purpose.....	1
3. Objective.....	1
4. Scope.....	1
5. Structure of this document .....	2
6. Completion of part B: section 1: the pre-approved generic EMPr template .....	4
7. Amendments of the impact management outcomes and impact management actions.....	4
8. Documents to be submitted as part of part B: section 2 site specific information and declaration .....	5
(a) Amendments to Part B: Section 2 – site specific information and declaration .....	5
PART A – GENERAL INFORMATION.....	2
1. DEFINITIONS .....	2
2. ACRONYMS and ABBREVIATIONS .....	3
3. ROLES AND RESPONSIBILITIES FOR ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) IMPLEMENTATION.....	4
4. ENVIRONMENTAL DOCUMENTATION REPORTING AND COMPLIANCE .....	10
4.1 Document control/Filing system .....	10
4.2 Documentation to be available.....	10
4.3 Weekly Environmental Checklist .....	10
4.4 Environmental site meetings .....	11
4.5 Required Method Statements .....	11
4.6 Environmental Incident Log (Diary) .....	12
4.7 Non-compliance .....	12
4.8 Corrective action records .....	13
4.9 Photographic record.....	13
4.10 Complaints register .....	14
4.11 Claims for damages.....	14
4.12 Interactions with affected parties.....	14
4.13 Environmental audits.....	15
4.14 Final environmental audits .....	15
PART B: SECTION 1: Pre-approved generic EMPr template .....	16
5. IMPACT MANAGEMENT OUTCOMES AND IMPACT MANAGEMENT ACTIONS.....	16
5.1 Environmental awareness training.....	17
5.2 Site Establishment development .....	19

5.3	Access restricted areas.....	20
5.4	Access roads.....	20
5.5	Fencing and Gate installation.....	22
5.6	Water Supply Management.....	24
5.7	Storm and waste water management .....	25
5.8	Solid and hazardous waste management .....	26
5.9	Protection of watercourses and estuaries .....	27
5.10	Vegetation clearing.....	29
5.11	Protection of fauna.....	30
5.12	Protection of heritage resources.....	32
5.13	Safety of the public .....	33
5.14	Sanitation .....	34
5.15	Prevention of disease.....	35
5.16	Emergency procedures.....	36
5.17	Hazardous substances.....	37
5.18	Workshop, equipment maintenance and storage.....	40
5.19	Batching plants.....	41
5.20	Dust emissions .....	42
5.21	Blasting.....	43
5.22	Noise .....	44
5.23	Fire prevention.....	45
5.24	Stockpiling and stockpile areas.....	46
5.25	Civil works.....	47
5.26	Excavation of foundation, cable trenching and drainage systems.....	48
5.27	Installation of foundations, cable trenching and drainage systems.....	49
5.28	Installation of equipment (circuit breakers, current Transformers, Isolators, Insulators, surge arresters, voltage transformers, earth switches) .....	49
5.30	Cabling and Stringing .....	51
5.31	Testing and Commissioning (all equipment testing, earthing system, system integration).....	52
5.32	Socio-economic.....	52
5.33	Temporary closure of site .....	53
5.34	Dismantling of old equipment.....	54
5.35	Landscaping and rehabilitation .....	55
6	ACCESS TO THE GENERIC EMPr.....	57
PART B: SECTION 2.....		58
7	SITE SPECIFIC INFORMATION AND DECLARATION .....	58
7.1	Sub-section 1: contact details and description of the project .....	58

7.2	Sub-section 2: Development footprint site map .....	61
7.3	Sub-section 3: Declaration.....	67
7.4	Sub-section 4: amendments to site specific information (Part B; section 2).....	67
PART C .....		68
8	SITE SPECIFIC ENVIRONMENTAL ATTRIBUTES.....	68
APPENDIX 1: METHOD STATEMENTS .....		166
APPENDIX 2: ESKOM AND NWPWRT CONDITIONS .....		<b>Error! Bookmark not defined.</b>

**List of tables**

Table 1:	<i>Guide to roles and responsibilities for implementation of an EMPr.....</i>	4
----------	---	---

## **INTRODUCTION**

### **1. Background**

The National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) requires that an environmental management programme (EMPr) be submitted where an environmental impact assessment (EIA) has been identified as the environmental instrument to be utilised as the basis for a decision on an application for environmental authorisation (EA). The content of an EMPr must either contain the information set out in Appendix 4 of the Environmental Impact Assessment Regulations, 2014, as amended (EIA Regulations) or must be a generic EMPr relevant to an application as identified and gazetted by the Minister in a government notice. Once the Minister has identified, through a government notice that a generic EMPr is relevant to an application for EA, that generic EMPr must be applied by all parties involved in the EA process, including but not limited to the applicant and the competent authority (CA).

### **2. Purpose**

This document constitutes a generic EMPr relevant to applications for the development or expansion of substation infrastructure for the transmission and distribution of electricity, and all listed and specified activities necessary for the realisation of such infrastructure.

### **3. Objective**

The objective of this generic EMPr is to prescribe and pre-approve generally accepted impact management outcomes and impact management actions, which can commonly and repeatedly be used for the avoidance, management and mitigation of impacts and risks associated with the development or expansion of substation infrastructure for the transmission and distribution of electricity. The use of a generic EMPr is intended to reduce the need to prepare and review individual EMPrs for applications of a similar nature.

### **4. Scope**

The scope of this generic EMPr applies to the development or expansion of substation infrastructure for the transmission and distribution of electricity requiring EA in terms of NEMA. This generic EMPr applies to activities requiring EA, mainly activity 11 and 47 of the Environmental Impact Assessment Regulations Listing Notice 1 of 2014, as amended, and activity 9 of the Environmental Impact Assessment Regulations Listing Notice 2 of 2014, as amended, and all associated listed or specified activities necessary for the realization of such infrastructure.

## 5. Structure of this document

This document is structured in three parts with an Appendix as indicated in the table below:

Part	Section	Heading	Content
A		Provides general guidance and information and is <b>not legally binding</b>	Definitions, acronyms, roles & responsibilities and documentation and reporting.
B	1	Pre-approved generic EMPr template	<p>Contains generally accepted impact management outcomes and impact management actions required for the avoidance, management and mitigation of impacts and risks associated with the development or expansion of substation infrastructure for the transmission and distribution of electricity, which are presented in the form of a template that has been pre-approved.</p> <p>The template in this section is to be completed by the contractor, with each completed page signed and dated by the holder of the EA prior to commencement of the activity.</p> <p>Where an impact management outcome is not relevant, the words "not applicable" can be inserted in the template under the "responsible persons" column.</p> <p>Once completed and signed, the template represents the EMPr for the activity approved by the CA and is legally binding. The template <b>is not required</b> to be submitted to the CA as once the generic EMPr is gazetted for implementation, it has been approved by the CA.</p> <p>To allow interested and affected parties access to the pre-approved EMPr template for consideration through the decision-making process, the EAP on behalf of the applicant /proponent must make the hard copy of this EMPr available at a public location and where the applicant has a website, the EMPr should also be made available on such publicly accessible website.</p>
	2	Site specific information	Contains preliminary infrastructure layout and a declaration that the applicant/holder of the EA

Part	Section	Heading	Content
			<p>will comply with the pre-approved generic EMPr template contained in <u>Part B: Section 1</u>, and understands that the impact management outcomes and impact management actions are <b>legally binding</b>. The preliminary infrastructure layout must be finalized to inform the final EMPr that is to be submitted with the basic assessment report (BAR) or environmental impact assessment report (EIAR), ensuring that all impact management outcomes and impact management actions have been either pre-approved or approved in terms of <u>Part C</u>.</p> <p>This section <b>must be</b> submitted to the CA together with the final BAR or EIAR. The information submitted to the CA will be considered to be incomplete should a signed copy of <u>Part B: section 2</u> not be submitted. Once approved, this Section forms part of the EMPr for the development and is legally binding.</p>
C		Site specific sensitivities/ attributes	<p>If any specific environmental sensitivities/ attributes are present on the site which require site specific impact management outcomes and impact management actions, not included in the pre-approved generic EMPr, to manage impacts, these specific impact management outcomes and impact management actions must be included in this section. These specific environmental attributes must be referenced spatially and impact management outcomes and impact management actions must be provided. These specific impact management outcomes and impact management actions must be presented in the format of the pre-approved EMPr template (<u>Part B: section 1</u>)</p> <p>This section will not be required should the site contain no specific environmental sensitivities or attributes. However, if <u>Part C</u> is applicable to the site, it <b>is required</b> to be submitted together with the BAR or EIAR, for consideration of, and decision on, the application for EA. The information in this section must be prepared by an EAP and must contain his/her name and expertise including a curriculum vitae. Once</p>



Part	Section	Heading	Content
			<p>approved, Part C forms part of the EMPr for the site and is legally binding.</p> <p>This section applies only <b>to additional</b> impact management outcomes and impact management actions that are necessary for the avoidance, management and mitigation of impacts and risks associated with the specific development or expansion and which are not already included in <u>Part B: section 1</u>.</p>
		Appendix 1	<p>Contains the method statements to be prepared prior to commencement of the activity. The method statements are <b>not required</b> to be submitted to the competent authority.</p>

## 6. Completion of part B: section 1: the pre-approved generic EMPr template

The template is to be completed prior to commencement of the activity, by providing the following information for each environmental impact management action:

- For implementation
  - a 'responsible person',
  - a method for implementation,
  - a timeframe for implementation
- For monitoring
  - a responsible person
  - frequency
  - evidence of compliance.

The completed template must be signed and dated by the holder of the EA prior to commencement of the activity. The method statements prepared and agreed to by the holder of the EA must be appended to the template as Appendix 1. Each method statement must be signed and dated on each page by the holder of the EA. This template once signed and dated is legally binding. The holder of the EA will remain responsible for its implementation.

## 7. Amendments of the impact management outcomes and impact management actions

Once the activity has commenced, a holder of an EA may make amendments to the impact management outcomes and impact management actions in the following manner:

- Amendment of the impact management outcomes: in line with the process contemplated in Regulation 37 of the EIA Regulations; and
- Amendment of the impact management actions: in line with the process contemplated in Regulation 36 of the EIA Regulations.

## **8. Documents to be submitted as part of part B: section 2 site specific information and declaration**

Part B: Section 2 has three distinct sub-sections. The first and third sub-sections are in a template format. Sub-section two requires a map to be produced.

Sub-section 1 contains the project name, the applicant's name and contact details, the site information, which includes coordinates of the property or farm in which the proposed substation infrastructure is proposed as well as the 21-digit Surveyor General code of each cadastral land parcel and, where available, the farm name.

Sub-section 2 is to be prepared by an EAP and must contain his/her name and expertise including a curriculum vitae. This sub-section must include a map of the site sensitivity overlaid with the preliminary infrastructure layout using the national web based environmental screening tool, when available for compulsory use at: <https://screening.environment.gov.za/screeningtool>. The sensitivity map shall identify the nature of each sensitive feature e.g. threatened plant species, archaeological site, etc. Sensitivity maps shall identify features both within the planned working area and any known sensitive features and within 50 m from the development footprint.

Sub-section 3 is the declaration that the applicant (s)/proponent (s) or holder of the EA in the case of a change of ownership must complete which confirms that the applicant/EA holder will comply with the pre-approved 'generic EMPr' template in Section 1 and understands that the impact management outcomes and impact management actions are legally binding.

### **(a) Amendments to Part B: Section 2 – site specific information and declaration**

Should the EA be transferred, Part B: Section 2 must be completed by the new applicant/proponent and submitted with the application for an amendment of the EA in terms of regulations 29 or 31 of the EIA Regulations, whichever applies. The information submitted as part of such an application for an amendment to an EA will be considered to be incomplete should a signed copy of Part B: Section 2 not be submitted. Once approved, Part B: Section 2 forms part of the EMPr for the development and the EMPr becomes legally binding to the new EA holder.

## PART A – GENERAL INFORMATION

### 1. DEFINITIONS

In this EMPr any word or expression to which a meaning has been assigned in the NEMA or EIA Regulations has that meaning, and unless the context requires otherwise –

**"clearing"** means the clearing and removal of vegetation, whether partially or in whole, including trees and shrubs, as specified;

**"construction camp"** is the area designated for key construction infrastructure and services, including but not limited to offices, overnight vehicle parking areas, stores, the workshop, stockpile and lay down areas, hazardous 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"** - The Contractor has overall responsibility for ensuring that all work, activities, and actions linked to the delivery of the contract, are in line with the Environmental Management Programme and that Method Statements are implemented as described.

**"hazardous substance"** is a substance governed by the Hazardous Substances Act, 1973 (Act No. 15 of 1973) as well as the Hazardous Chemical and Substances Regulations, 1995;

**"method statement"** means a written submission by the Contractor to the Project Manager in response to this EMPr or a request by the Project Manager and ECO. The method statement must set out the equipment, materials, labour and method(s) the Contractor proposes using to carry out an activity identified by the Project Manager when requesting the Method Statement. This must be done in such detail that the Project Manager and ECO is able to assess whether the Contractor's proposal is in accordance with this specification and/or will produce results in accordance with this specification;

The method statement must cover as a minimum applicable details with regard to:

- (i) Construction procedures;
- (ii) Plant, materials and equipment to be used;
- (iii) Transporting the equipment to and from site;
- (iv) How the plant/ material/ equipment will be moved while on site;
- (v) How and where the plant/ material/ equipment will be stored;
- (vi) The containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur;
- (vii) Timing and location of activities;
- (viii) Compliance/ non-compliance; and
- (ix) Any other information deemed necessary by the Project Manager.

**"slope"** means the inclination of a surface expressed as one unit of rise or fall for so many horizontal units;

“**solid waste**” means all solid waste, including construction debris, hazardous waste, excess cement/ concrete, wrapping materials, timber, cans, drums, wire, nails, food and domestic waste (e.g. plastic packets and wrappers);

“**spoil**” means excavated material which is unsuitable for use as material in the construction works or is material which is surplus to the requirements of the construction works;

“**topsoil**” means a varying depth (up to 300 mm) of the soil profile irrespective of the fertility, appearance, structure, agricultural potential, fertility and composition of the soil;

“**works**” means the works to be executed in terms of the Contract

## 2. ACRONYMS and ABBREVIATIONS

<b>CA</b>	Competent Authority
<b>cEO</b>	Contractors Environmental Officer
<b>dEO</b>	Developer Environmental Officer
<b>DPM</b>	Developer Project Manager
<b>DSS</b>	Developer Site Supervisor
<b>EAR</b>	Environmental Audit Report
<b>ECA</b>	Environmental Conservation Act No. 73 of 1989
<b>ECO</b>	Environmental Control Officer
<b>EA</b>	Environmental Authorisation
<b>EIA</b>	Environmental Impact Assessment
<b>ERAP</b>	Emergency Response Action Plan
<b>EMPr</b>	Environmental Management Programme Report
<b>EAP</b>	Environmental Assessment Practitioner
<b>FPA</b>	Fire Protection Agency
<b>HCS</b>	Hazardous chemical Substance
<b>NEMA</b>	National Environmental Management Act, 1998 (Act No. 107 of 1998)
<b>NEMBA</b>	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)
<b>NEMWA</b>	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
<b>MSDS</b>	Material Safety Data Sheet
<b>RI&amp;AP's</b>	Registered Interested and affected parties

### 3. ROLES AND RESPONSIBILITIES FOR ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) IMPLEMENTATION

The effective implementation of this generic EMPr is dependent on established and clear roles, responsibilities and reporting lines within an institutional framework. This section of the EMPr gives guidance to the various environmental roles and reporting lines, however, project specific requirements will ultimately determine the need for the appointment of specific person(s) to undertake specific roles and or responsibilities. As such, it must be noted that in the event that no specific person, for example, an environmental control officer (ECO) is appointed, the holder of the EA remains responsible for ensuring that the duties indicated in this document for action by the ECO are undertaken.

**Table 1:** Guide to roles and responsibilities for implementation of an EMPr

Responsible Person(s)	Role and Responsibilities
Developer's Project Manager (DPM)	<p><u>Role</u></p> <p>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.</p> <p><u>Responsibilities</u></p> <ul style="list-style-type: none"> <li>- Be fully conversant with the conditions of the EA;</li> <li>- Ensure that all stipulations within the EMPr are communicated and adhered to by the Developer and its Contractor(s);</li> <li>- Issuing of site instructions to the Contractor for corrective actions required;</li> <li>- 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</li> <li>- Ensure that periodic environmental performance audits are undertaken on the project implementation.</li> </ul>

Responsible Person(s)	Role and Responsibilities
Developer Site Supervisor (DSS)	<p><u>Role</u> The DSS reports directly to the DPM, oversees site works, liaises with the contractor(s) and the ECO. The DSS is responsible for the day to day implementation of the EMPr and for ensuring the compliance of all contractors with the conditions and requirements stipulated in the EMPr.</p> <p><u>Responsibilities</u></p> <ul style="list-style-type: none"> <li>- Ensure that all contractors identify a contractor's Environmental Officer (cEO);</li> <li>- Must be fully conversant with the conditions of the EA. Oversees site works, liaison with Contractor, DPM and ECO;</li> <li>- Must ensure that all landowners have the relevant contact details of the site staff, ECO and cEO;</li> <li>- Issuing of site instructions to the Contractor for corrective actions required;</li> <li>- Will issue all non-compliances to contractors; and</li> <li>- Ratify the Monthly Environmental Report.</li> </ul>
Environmental Control Officer (ECO)	<p><u>Role</u> 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 DSS and 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.</p> <p>The ECO provides feedback to the DSS and Project Manager, who in turn reports back to the Contractor and potential and Registered Interested &amp; Affected Parties' (RI&amp;AP's), 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</p>

Responsible Person(s)	Role and Responsibilities
	<p>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.</p> <p><u>Responsibilities</u></p> <p>The responsibilities of the ECO will include the following:</p> <ul style="list-style-type: none"> <li>- Be aware of the findings and conclusions of all EA related to the development;</li> <li>- Be familiar with the recommendations and mitigation measures of this EMPr;</li> <li>- Be conversant with relevant environmental legislation, policies and procedures, and ensure compliance with them;</li> <li>- 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;</li> <li>- Educate the construction team about the management measures contained in the EMPr and environmental licenses;</li> <li>- Compilation and administration of an environmental monitoring plan to ensure that the environmental management measures are implemented and are effective;</li> <li>- Monitoring the performance of the Contractors and ensuring compliance with the EMPr and associated Method Statements;</li> <li>- 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;</li> <li>- Liaison between the DPM, Contractors, authorities and other lead stakeholders on all environmental concerns;</li> <li>- Compile a regular environmental audit report highlighting any non-compliance issues as well as satisfactory or exceptional compliance with the EMPr;</li> <li>- Validating the regular site inspection reports, which are to be prepared by the contractor Environmental Officer (cEO);</li> <li>- Checking the cEO's record of environmental incidents (spills, impacts, legal transgressions etc.) as well as corrective and preventive actions taken;</li> <li>- Checking the cEO's public complaints register in which all complaints are recorded, as well as action taken;</li> </ul>

Responsible Person(s)	Role and Responsibilities
	<ul style="list-style-type: none"> <li>- Assisting in the resolution of conflicts;</li> <li>- Facilitate training for all personnel on the site – this may range from carrying out the training, to reviewing the training programmes of the Contractor;</li> <li>- In case of non-compliances, the ECO must first communicate this to the Senior Site Supervisor, who has the power to ensure this matter is addressed. Should no action or insufficient action be taken, the ECO may report this matter to the authorities as non-compliance;</li> <li>- Maintenance, update and review of the EMPr;</li> <li>- Communication of all modifications to the EMPr to the relevant stakeholders.</li> </ul>
<p>developer Environmental Officer (dEO)</p>	<p><u>Role</u></p> <p>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.</p> <p><u>Responsibilities</u></p> <ul style="list-style-type: none"> <li>- Be fully conversant with the EMPr;</li> <li>- Be familiar with the recommendations and mitigation measures of this EMPr, and implement these measures;</li> <li>- Ensure that all stipulations within the EMPr are communicated and adhered to by the Employees, Contractor(s)</li> <li>- Confine the development site to the demarcated area;</li> <li>- Conduct environmental internal audits with regards to EMPr and authorisation compliance (on cEO);</li> <li>- Assist the contractors in addressing environmental challenges on site;</li> <li>- Assist in incident management:</li> <li>- Reporting environmental incidents to developer and ensuring that corrective action is taken, and lessons learnt shared;</li> <li>- Assist the contractor in investigating environmental incidents and compile investigation reports;</li> <li>- Follow-up on pre-warnings, defects, non-conformance reports;</li> <li>- Measure and communicate environmental performance to the Contractor;</li> </ul>



Responsible Person(s)	Role and Responsibilities
	<ul style="list-style-type: none"> <li>- Conduct environmental awareness training on site together with ECO and cEO;</li> <li>- Ensure that the necessary legal permits and / or licenses are in place and up to date;</li> <li>- Acting as Developer's Environmental Representative on site and work together with the ECO and contractor;</li> </ul>
Contractor	<p><u>Role</u></p> <p>The Contractor appoints the cEO and has overall responsibility for ensuring that all work, activities, and actions linked to the delivery of the contract are in line with the EMPr and that Method Statements are implemented as described. External contractors must ensure compliance with this EMPr while performing the onsite activities as per their contract with the Project Developer. The contractors are required, where specified, to provide Method Statements setting out in detail how the impact management actions contained in the EMPr will be implemented during the development or expansion of substation infrastructure for the transmission and distribution of electricity activities.</p> <p><u>Responsibilities</u></p> <ul style="list-style-type: none"> <li>- project delivery and quality control for the development services as per appointment;</li> <li>- employ a suitably qualified person to monitor and report to the Project Developer's appointed person on the daily activities on-site during the construction period;</li> <li>- ensure that safe, environmentally acceptable working methods and practices are implemented and that equipment is properly operated and maintained, to facilitate proper access and enable any operation to be carried out safely;</li> <li>- attend on site meeting(s) prior to the commencement of activities to confirm the procedure and designated activity zones;</li> <li>- ensure that contractors' staff repair, at their own cost, any environmental damage as a result of a contravention of the specifications contained in EMPr, to the satisfaction of the ECO.</li> </ul>
contractor Environmental Officer (cEO)	<p><u>Role</u></p> <p>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</p>

Responsible Person(s)	Role and Responsibilities
	<p>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 shall meet the following criteria:</p> <p><u>Responsibilities</u></p> <ul style="list-style-type: none"> <li>- Be on site throughout the duration of the project and be dedicated to the project;</li> <li>- Ensure all their staff are aware of the environmental requirements, conditions and constraints with respect to all of their activities on site;</li> <li>- Implementing the environmental conditions, guidelines and requirements as stipulated within the EA, EMPr and Method Statements;</li> <li>- Attend the Environmental Site Meeting;</li> <li>- Undertaking corrective actions where non-compliances are registered within the stipulated timeframes;</li> <li>- Report back formally on the completion of corrective actions;</li> <li>- Assist the ECO in maintaining all the site documentation;</li> <li>- Prepare the site inspection reports and corrective action reports for submission to the ECO;</li> <li>- Assist the ECO with the preparing of the monthly report; and</li> <li>- Where more than one Contractor is undertaking work on site, each company appointed as a Contractor will appoint a cEO representing that company.</li> </ul>

#### **4. ENVIRONMENTAL DOCUMENTATION REPORTING AND COMPLIANCE**

To ensure accountable and demonstrated implementation of the EMPr, a number of reporting systems, documentation controls and compliance mechanisms must be in place for all substation infrastructure projects as a minimum requirement.

##### **4.1 Document control/Filing system**

The holder of the EA is solely responsible for the upkeep and management of the EMPr file. As a minimum, all documentation detailed below will be stored in the EMPr file. A hard copy of all documentation shall be filed, while an electronic copy may be kept where relevant. A duplicate file will be maintained in the office of the DSS (where applicable). This duplicate file must remain current and up-to-date. The filing system must be updated and relevant documents added as required. The EMPr file must be made available at all times on request by the CA or other relevant authorities. The EMPr file will form part of any environmental audits undertaken as prescribed in the EIA Regulations.

##### **4.2 Documentation to be available**

At the outset of the project the following preliminary list of documents shall be placed in the filing system and be accessible at all times:

- Full copy of the signed EA from the CA in terms of NEMA, granting approval for the development or expansion;
- Copy of the generic and site specific EMPr as well as any amendments thereof;
- Copy of declaration of implementing generic EMPr and subsequent approval of site specific EMPr and amendments thereof;
- All method statements;
- Completed environmental checklists;
- Minutes and attendance register of environmental site meetings;
- An up-to-date environmental incident log;
- A copy of all instructions or directives issued;
- A copy of all corrective actions signed off. The corrective actions must be filed in such a way that a clear reference is made to the non-compliance record;
- Complaints register.

##### **4.3 Weekly Environmental Checklist**

The ECOs are required to complete a Weekly Environmental Checklist, the format of which is to be agreed prior to commencement of the activity. The ECOs are required to sign and date the checklist, retain a copy in the EMPr file and submit a copy of the completed checklist to the DSS on a weekly basis.

The checklists will form the basis for the Monthly Environmental Reports. Copies of all completed checklists will be attached as Annexures to the Environmental Audit Report as required in terms of the EIA Regulations.

#### 4.4 Environmental site meetings

Minutes of the environmental site meetings shall be kept. The minutes must include an attendance register and will be attached to the Monthly Report that is distributed to attendees. Each set of minutes must clearly record "Matters for Attention" that will be reviewed at the next meeting.

#### 4.5 Required Method Statements

The method statement will be done in such detail that the ECOs are enabled to assess whether the contractor's proposal is in accordance with the EMPr.

The method statement must cover applicable details with regard to:

- development procedures;
- materials and equipment to be used;
- getting the 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 EMPr; and
- any other information deemed necessary by the ECOs.

Unless indicated otherwise by the Project Manager, the Contractor shall provide the following method statements to the Project Manager no less than 14 days prior to the commencement date of the activity:

- Site establishment – Camps, Lay-down or storage areas, satellite camps, infrastructure;
- Batch plants;
- Workshop or plant servicing;
- Handling, transport and storage of Hazardous Chemical Substance's;
- Vegetation management – Protected, clearing, aliens, felling;
- Access management – Roads, gates, crossings etc.;
- Fire plan;
- Waste management – transport, storage, segregation, classification, disposal (all waste streams);
- Social interaction – complaints management, compensation claims, access to properties etc.;
- Water – use (source, abstraction and disposal), access and all related information, crossings and mitigation;
- Emergency preparedness – Spills, training, other environmental emergencies;
- Dust and noise management methodologies;
- Fauna interaction and risk management – only if the risk was identified – wildlife interaction especially on game farms; and
- Heritage and palaeontology management.

The ECOs shall monitor and ensure that the contractors perform in accordance with these method statements. Completed and agreed method statements between the holder of the EA and the contractor shall be captured in Appendix 1.

#### 4.6 Environmental Incident Log (Diary)

The ECOs are required to maintain an up-to-date and current Environmental Incident Log (environmental diary). The Environmental Incident Log is a means to record all environmental incidents and/or all non-compliance notice would not be issued. An environmental incident is defined as:

- Any deviation from the listed impact management actions (listed in this EMPr) that may be addressed immediately by the ECOs. (For example a contractor's staff member littering or a drip tray that has not been emptied);
- Any environmental impact resulting from an action or activity by a contractor in contravention of the environmental stipulations and guidelines listed in the EMPr which as a single event would have a minor impact but which if cumulative and continuous would have a significant effect (for example no toilet paper available in the ablutions for an afternoon); and
- General environmental information such as road kills or injured wildlife.

The ECOs are to record all environmental incidents in the Environmental Incident Log. All incidents regardless of severity must be reported to the Developer. The Log is to be kept in the EMPr file and at a minimum the following will be recorded for each environmental incident:

- The date and time of the incident;
- Description of the incident;
- The name of the Contractor responsible;
- The incident must be listed as significant or minor;
- If the incident is listed as significant, a non-compliance notice must be issued, and recorded in the log;
- Remedial or corrective action taken to mitigate the incident; and
- Record of repeat minor offences by the same contractor or staff member.

The Environmental Incident Log will be captured in the EAR.

#### 4.7 Non-compliance

A non-compliance notice will be issued to the responsible contractor by the ECOs via the DSS or Project Manager. The non-compliance notice will be issued in writing; a copy filed in the EMPr file and will at a minimum include the following:

- Time and date of the non-compliance;
- Name of the contractor responsible;
- Nature and description of the non-compliance;
- Recommended / required corrective action; and
- Date by which the corrective action to be completed.
- The contractors shall act immediately when a notice of non-compliance is received and correct whatever is the cause for the issuing of the notice. Complaints received regarding activities on the development site pertaining to the environment shall be

recorded in a dedicated register and the response noted with the date and action taken. The ECO should be made aware of any complaints. Any non-compliance with the agreed procedures of the EMPr is a transgression of the various statutes and laws that define the manner by which the environment is managed. Failure to redress the cause shall be reported to the relevant CA for them to deal with the transgression, as it deems fit. The contractor is deemed not to have complied with the EMPr if, inter alia, There is a deviation from the environmental conditions, impact management outcomes and impact management actions activities, as approved in generic and site specific EMPr as relevant as set out in the EMPr, which deviation has, or may cause, an environmental impact.

#### 4.8 Corrective action records

For each non-compliance notice issued, a documented corrective action must be recorded. On receiving a non-compliance notice from the DSS, the contractor's cEO will ensure that the corrective actions required take place within the stipulated timeframe. On completion of the corrective action the cEO is to issue a Corrective Action Report in writing to the ECOs. If satisfied that the corrective action has been completed, the ECOs are to sign-off on the Corrective Action Report, and attach the report to the non-compliance notice in the EMPr file. A corrective action is considered complete once the report has signed off by the ECOs.

#### 4.9 Photographic record

A digital photographic record will be kept. The photographic record will be used to show before, during and post rehabilitation evidence of the project as well used in cases of damages claims if they arise. Each image must be dated and a brief description note attached.

The Contractor shall:

1. Allow the ECOs access to take photographs of all areas, activities and actions.

The ECOs shall keep an electronic database of photographic records which will include:

1. Pictures of all areas designated as work areas, camp areas, development sites and storage areas taken before these areas are set up;
2. All bunding and fencing;
3. Road conditions and road verges;
4. Condition of all farm fences;
5. Topsoil storage areas;
6. All areas to be cordoned off during construction;
7. Waste management sites;
8. Ablution facilities (inside and out);
9. Any non-conformances deemed to be "significant";
10. All completed corrective actions for non-compliances;
11. All required signage;
12. Photographic recordings of incidents;
13. All areas before, during and post rehabilitation; and
14. Include relevant photographs in the Final Environmental Audit Report.

#### 4.10 Complaints register

The ECOs shall keep a current and up-to-date complaints register. The complaints register is to be a record of all complaints received from communities, stakeholders and individuals. The Complaints Record shall:

1. Record the name and contact details of the complainant;
2. Record the time and date of the complaint;
3. Contain a detailed description of the complaint;
4. Where relevant and appropriate, contain photographic evidence of the complaint or damage (ECOs to take relevant photographs); and
5. Contain a copy of the ECOs written response to each complaint received and keep a record of any further correspondence with the complainant. The ECO's written response will include a description of any corrective action to be taken and must be signed by the Contractor, ECO and affected party. Where a damage claim is issued by the complainant, the ECOs shall respond as described in **(section 4.11)** below.

#### 4.11 Claims for damages

In the event that a Claim for Damages is submitted by a community, landowner or individual, the ECOs shall:

1. Record the full detail of the complaint as described in **(section 4.10)** above;
2. The DPM will evaluate the claim and associated damage and submit the evaluation to the Senior Site Representative for approval;
3. Following consideration by the DPM, the claim is to be resolved and settled immediately, or the reason for not accepting the claim communicated in writing to the claimant. Should the claimant not accept this, the ECO shall, in writing report the incident to the Developer's negotiator and legal department; and
4. A formal record of the response by the ECOs to the claimant as well as the rectification of the method of making payments not amount will be recorded in the EMPr file.

#### 4.12 Interactions with affected parties

Open, transparent and good relations with affected landowners, communities and regional staff are an essential aspect to the successful management and mitigation of environmental impacts.

The ECOs shall:

1. Ensure that all queries, complaints and claims are dealt within an agreed timeframe;
2. Ensure that any or all agreements are documented, signed by all parties and a record of the agreement kept in the EMPr file;
3. Ensure that a complaints telephone numbers are made available to all landowners and affected parties; and
4. Ensure that contact with affected parties is courteous at all times;

#### 4.13 Environmental audits

Internal environmental audits of the activity and implementation of the EMPr must be undertaken. The findings and outcomes included in the EMPr file and submitted to the CA at intervals as indicated in the EA.

The ECOs must prepare a monthly EAR. The report will be tabled as the key point on the agenda of the Environmental Site Meeting. The Report is submitted for acceptance at the meeting and the final report will be circulated to the Project Manager and filed in the EMPr file. At a frequency determined by the EA, the ECOs shall submit the monthly reports to the CA. At a minimum the monthly report is to cover the following:

- Weekly Environmental Checklists;
- Deviations and non-compliances with the checklists;
- Non-compliances issued;
- Completed and reported corrective actions;
- Environmental Monitoring;
- General environmental findings and actions; and
- Minutes of the Bi-monthly Environmental Site Meetings.

#### 4.14 Final environmental audits

On final completion of the rehabilitation and/or requirements of the EA a final EAR is to be prepared and submitted to the CA. The EAR must comply with Appendix 7 of the EIA Regulations.



**PART B: SECTION 1: Pre-approved generic EMPr template**

**5. IMPACT MANAGEMENT OUTCOMES AND IMPACT MANAGEMENT ACTIONS**

This section provides a pre-approved generic EMPr template with aspects that are common to the development of substation infrastructure for the transmission and distribution of electricity. There is a list of aspects identified for the development or expansion of substation infrastructure for the transmission and distribution of electricity, and for each aspect a set of prescribed impact management outcomes and associated impact management actions have been identified. Holders of EAs are responsible to ensure the implementation of these outcomes and actions for all projects as a minimum requirement, in order to mitigate the impact of such aspects identified for the development or expansion of substation infrastructure for the transmission and distribution of electricity.

The template provided below is to be completed by providing the information under each heading for each environmental impact management action.

The completed template must be signed and dated on each page by both the contractor and the holder of the EA prior to commencement of the activity. The method statements prepared and agreed to by the holder of the EA must be appended to the template as Appendix 1. Each method statement must also be duly signed and dated on each page by the contractor and the holder of the EA. This template, once signed and dated, is legally binding. The holder of the EA will remain responsible for its implementation.

**5.1 Environmental awareness training**

**Impact management outcome:** All onsite staff are aware and understands 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
<ul style="list-style-type: none"> <li>- All staff must receive environmental awareness training prior to commencement of the activities;</li> <li>- The Contractor must allow for sufficient sessions to train all personnel with no more than 20 personnel attending each course;</li> <li>- Refresher environmental awareness training is available as and when required;</li> <li>- 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;</li> <li>- The Contractor must erect and maintain information posters at key locations on site, and the posters must include the following information as a minimum:               <ul style="list-style-type: none"> <li>a) Safety notifications; and</li> <li>b) No littering.</li> </ul> </li> <li>- Environmental awareness training must include as a minimum the following:               <ul style="list-style-type: none"> <li>a) Description of significant environmental impacts, actual or potential, related to their work activities;</li> </ul> </li> </ul>	<b>ECO and cEO</b>	<b>Environmental Induction training; Toolbox talks; other pertinent training aids</b>	<b>Initially prior to construction commencing ECO to induct Construction Management and cEO, and thereafter repeated for all new employees and yearly. Toolbox talks to be presented weekly</b>	<b>ECO</b>	<b>Monthly</b>	<b>Signed induction and toolbox talk, or training registers</b>

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>b) Mitigation measures to be implemented when carrying out specific activities;</li> <li>c) Emergency preparedness and response procedures;</li> <li>d) Emergency procedures;</li> <li>e) Procedures to be followed when working near or within sensitive areas;</li> <li>f) Wastewater management procedures;</li> <li>g) Water usage and conservation;</li> <li>h) Solid waste management procedures;</li> <li>i) Sanitation procedures;</li> <li>j) Fire prevention; and</li> <li>k) Disease prevention.</li> </ul> <ul style="list-style-type: none"> <li>– A record of all environmental awareness training courses undertaken as part of the EMPr must be available;</li> <li>– Educate workers on the dangers of open and/or unattended fires;</li> <li>– A staff attendance register of all staff to have received environmental awareness training must be available.</li> <li>– Course material must be available and presented in appropriate languages that all staff can understand.</li> </ul>						

**5.2 Site Establishment development**

**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
<ul style="list-style-type: none"> <li>- 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;</li> <li>- Location of 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;</li> <li>- Sites must be located where possible on previously disturbed areas;</li> <li>- The camp must be fenced in accordance with <b>Section 5.5: Fencing and gate installation</b>; and</li> <li>- The use of existing accommodation for contractor staff, where possible, is encouraged.</li> </ul>	<b>Contractor</b>	<b>Method Statement compilation and communication of Method Statements to employees. Use of EIA and Specialist Studies to locate site camps</b>	<b>Prior to construction</b>	<b>ECO</b>	<b>Monthly</b>	<b>Signed Method Statements; signed proof of communication register; Liaison with ECO regarding site camp placement</b>

### 5.3 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
<ul style="list-style-type: none"> <li>– Identification of access restricted areas is to be informed by the environmental assessment, site walk through and any additional areas identified during development;</li> <li>– 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; and</li> <li>– Unauthorised access and development related activity inside access restricted areas is prohibited.</li> </ul>	<b>Contractor</b>	<b>Use of EIA/BA and Specialist Studies to locate sensitive areas and 'no-go' areas</b>	<b>Prior to construction in new areas</b>	<b>ECO</b>	<b>Monthly</b>	<b>Contractor compliance with sensitive areas and 'no-go' areas identified in EIA/BA and Specialist Studies</b>

### 5.4 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

<ul style="list-style-type: none"> <li>- An access agreement must be formalised and signed by the DPM, Contractor and landowner before commencing with the activities;</li> <li>- 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</li> <li>- All contractors must be made aware of all these access routes.</li> <li>- Any access route deviation from that in the written agreement must be closed and re-vegetated immediately, at the contractor's expense;</li> <li>- Maximum use of both existing servitudes and existing roads must be made to minimize further disturbance through the development of new roads;</li> <li>- In circumstances where private roads must be used, the condition of the said roads must be recorded in accordance with <b>section 4.9: photographic record</b>; prior to use and the condition thereof agreed by the landowner, the DPM, and the contractor;</li> <li>- Access roads in flattish areas must follow fence lines and tree belts to avoid fragmentation of vegetated areas or croplands</li> <li>- Access roads must only be developed on a pre-planned and approved roads.</li> </ul>	<b>Contractor</b>	<b>Implementation of mitigation measures</b>	<b>Ongoing.</b>	<b>ECO</b>	<b>Monthly</b>	<b>Signed access agreements and maintenance of access roads</b>
---	-------------------	--	-----------------	------------	----------------	---

**5.5 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
<ul style="list-style-type: none"> <li>- Use existing gates provided to gain access to all parts of the area authorised for development, where possible;</li> <li>- Existing and new gates to be recorded and documented in accordance with <b>section 4.9: photographic record</b>;</li> <li>- All gates must be fitted with locks and be kept locked at all times during the development phase, unless otherwise agreed with the landowner;</li> <li>- At points where the line crosses a fence in which there is no suitable gate within the extent of the line servitude, on the instruction of the DPM, a gate must be installed at the approval of the landowner;</li> <li>- 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;</li> <li>- Where gates are installed in jackal proof fencing, a suitable reinforced concrete sill must be provided beneath the gate;</li> <li>- Original tension must be maintained in the fence wires;</li> <li>- All gates installed in electrified fencing must be re-electrified;</li> <li>- All demarcation fencing and barriers must be maintained in good working order for the duration of the development activities;</li> </ul>	<b>Contractor and Applicant</b>	<b>Implementation of the mitigation measures</b>	<b>Ongoing.</b>	<b>ECO</b>	<b>Monthly</b>	<b>Site observation; public complaints register</b>

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>- Fencing must be erected around the camp, batching plants, hazardous storage areas, and all designated access restricted areas, where applicable;</li> <li>- Any temporary fencing to restrict the movement of life-stock must only be erected with the permission of the land owner.</li> <li>- All fencing must be developed of high quality material bearing the SABS mark;</li> <li>- The use of razor wire as fencing must be avoided;</li> <li>- 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;</li> <li>- On completion of the development phase all temporary fences are to be removed;</li> <li>- The contractor must ensure that all fence uprights are appropriately removed, ensuring that no uprights are cut at ground level but rather removed completely.</li> </ul>						



## 5.6 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
<ul style="list-style-type: none"> <li>– All abstraction points or bore holes must be registered with the DWS and suitable water meters installed to ensure that the abstracted volumes are measured on a daily basis;</li> <li>– The Contractor must ensure the following:               <ul style="list-style-type: none"> <li>a. The vehicle abstracting water from a river does not enter or cross it and does not operate from within the river;</li> <li>b. No damage occurs to the river bed or banks and that the abstraction of water does not entail stream diversion activities; and</li> <li>c. All reasonable measures to limit pollution or sedimentation of the downstream watercourse are implemented.</li> </ul> </li> <li>– Ensure water conservation is being practiced by:               <ul style="list-style-type: none"> <li>a. Minimising water use during cleaning of equipment;</li> <li>b. Undertaking regular audits of water systems; and</li> <li>c. Including a discussion on water usage and conservation during environmental awareness training.</li> <li>d. The use of grey water is encouraged.</li> </ul> </li> </ul>	<b>Contractor and Applicant</b>	<b>Application to DWS where applicable. Implementation of mitigation measures</b>	<b>Construction</b>	<b>ECO</b>	<b>Monthly</b>	<b>Proof of water source used; submission of above proof to DWS</b>

**5.7 Storm and waste water management**

**Impact management outcome:** Impacts to the environment caused by storm water 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
<ul style="list-style-type: none"> <li>- 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;</li> <li>- 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;</li> <li>- Natural storm water 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;</li> <li>- 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.</li> </ul>	<b>Contractor</b>	<b>Employ methods to prevent water pollution</b>	<b>Construction</b>	<b>ECO</b>	<b>Weekly</b>	<b>Inspection of areas where construction takes place near watercourses</b>

**5.8 Solid and hazardous waste management**

**Impact management outcome:** Wastes are 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
<ul style="list-style-type: none"> <li>- All measures regarding waste management must be undertaken using an integrated waste management approach;</li> <li>- Sufficient, covered waste collection bins (scavenger and weatherproof) must be provided;</li> <li>- A suitably positioned and clearly demarcated waste collection site must be identified and provided;</li> <li>- The waste collection site must be maintained in a clean and orderly manner;</li> <li>- Waste must be segregated into separate bins and clearly marked for each waste type for recycling and safe disposal;</li> <li>- Staff must be trained in waste segregation;</li> <li>- Bins must be emptied regularly;</li> <li>- General waste produced onsite must be disposed of at registered waste disposal sites/ recycling company;</li> <li>- Hazardous waste must be disposed of at a registered waste disposal site;</li> <li>- Certificates of safe disposal for general, hazardous and recycled waste must be maintained.</li> </ul>	<b>Contractor</b>	<b>Following good waste management practices outlined in approved method statement</b>	<b>Construction</b>	<b>ECO</b>	<b>Weekly</b>	<b>Waste safe disposal slips; Service Level Agreements</b>

**5.9 Protection of watercourses and estuaries**

**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
<ul style="list-style-type: none"> <li>- 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;</li> <li>- In the event of a spill, prompt action must be taken to clear the polluted or affected areas;</li> <li>- Where possible, no development equipment must traverse any seasonal or permanent wetland</li> <li>- No return flow into the estuaries must be allowed and no disturbance of the Estuarine functional Zone should occur;</li> <li>- Development of permanent watercourse or estuary crossing must only be undertaken where no alternative access to tower position is available;</li> <li>- There must not be any impact on the long term morphological dynamics of watercourses or estuaries;</li> <li>- Existing crossing points must be favored over the creation of new crossings (including temporary access)</li> <li>- When working in or near any watercourse or estuary, the following environmental controls and consideration must be taken:               <ul style="list-style-type: none"> <li>a) Water levels during the period of construction;</li> </ul> </li> </ul>	<b>Contractor</b>	<b>Method statements; Stormwater Management Plan</b>	<b>Construction</b>	<b>ECO</b>	<b>Weekly</b>	<b>Method Statement compliance</b>

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<p>No altering of the bed, banks, course or characteristics of a watercourse</p> <p>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;</p> <p>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</p> <p>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.</p>						

## 5.10 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
<p><b>General:</b></p> <ul style="list-style-type: none"> <li>– Indigenous vegetation which does not interfere with the development must be left undisturbed;</li> <li>– Protected or endangered species may occur on or near the development site. Special care should be taken not to damage such species;</li> <li>– 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;</li> <li>– Permits for removal must be obtained from the relevant CA prior to the cutting or clearing of the affected species, and they must be filed;</li> <li>– 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;</li> <li>– Trees felled due to construction must be documented and form part of the Environmental Audit Report;</li> <li>– Rivers and watercourses must be kept clear of felled trees, vegetation cuttings and debris;</li> </ul>	<p><b>Contractor and Applicant</b></p>	<p><b>Specialist recommendations; Method statement; Search and Rescue Plan; Alien vegetation removal Plan (approved plans and strategies used by Eskom), site awareness</b></p>	<p><b>Pre-Construction and Construction and Operation</b></p>	<p><b>ECO</b></p>	<p><b>Pre-Construction and weekly during construction</b></p>	<p><b>Compliance to method statements and Search and Rescue Plan; Alien vegetation removal Plan. Approved plans and strategies used by Eskom.</b></p>

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>- 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, supervision of a registered pest control operator or is appropriately trained;</li> <li>- A daily register must be kept of all relevant details of herbicide usage;</li> <li>- No herbicides must be used in estuaries;</li> <li>- All protected species and sensitive vegetation not removed must be clearly marked and such areas fenced off in accordance to <b>Section 5.3: Access restricted areas</b>. Alien invasive vegetation must be removed and disposed of at a licensed waste management facility.</li> </ul>						

### 5.11 Protection of fauna

**Impact management outcome:** Disturbance to fauna is minimised.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>- No interference with livestock must occur without the landowner's written consent and with the landowner or a person representing the landowner being present;</li> </ul>	<b>Contractor</b>	<b>Method statement and adherence to</b>	<b>Construction</b>	<b>ECO</b>	<b>Weekly</b>	<b>Public complaints register;</b>

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>- The breeding sites of raptors and other wild birds species must be taken into consideration during the planning of the development programme;</li> <li>- 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;</li> <li>- Special recommendations of the avian specialist must be adhered to at all times to prevent unnecessary disturbance of birds;</li> <li>- 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;</li> <li>- No deliberate or intentional killing of fauna is allowed;</li> <li>- In areas where snakes are abundant, snake deterrents to be deployed on the pylons to prevent snakes climbing up, being electrocuted and causing power outages; and</li> <li>- 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.</li> </ul>		<b>exclusion/no-go zones; site awareness</b>				<b>adherence to exclusion/no-go zones and method statements</b>



## 5.12 Protection of heritage resources

**Impact management outcome:** Impact to heritage resources is minimised.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>- Identify, demarcate and prevent impact to all known sensitive heritage features on site in accordance with the No-Go procedure in <b>Section 5.3: Access restricted areas;</b></li> <li>- Carry out general monitoring of excavations for potential fossils, artefacts and material of heritage importance;</li> <li>- 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.</li> </ul>	<b>Contractor</b>	<b>Method Statement; Heritage management plan</b>	<b>Pre-construction and construction</b>	<b>ECO</b>	<b>Weekly and daily for zones highlighted by Heritage Specialist where potsherds were found</b>	<b>Monitoring of construction areas, adherence to management plan if change finds found.</b>

**5.13 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
<ul style="list-style-type: none"> <li>- 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.;</li> <li>- All unattended open excavations must be adequately fenced or demarcated;</li> <li>- Adequate protective measures must be implemented to prevent unauthorised access to and climbing of partly constructed towers and protective scaffolding;</li> <li>- Ensure structures vulnerable to high winds are secured;</li> <li>- Maintain an incidents and complaints register in which all incidents or complaints involving the public are logged.</li> </ul>	<b>Contractor</b>	<b>Landowner agreements; Method Statement</b>	<b>Construction</b>	<b>ECO</b>	<b>Weekly</b>	<b>Site works barricaded, safe working site maintained, public complaints register.</b>

## 5.14 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
<ul style="list-style-type: none"> <li>- Mobile chemical toilets are installed onsite if no other ablution facilities are available;</li> <li>- 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;</li> <li>- Where mobile chemical toilets are required, the following must be ensured:               <ul style="list-style-type: none"> <li>a) Toilets are located no closer than 100 m to any watercourse or water body;</li> <li>b) Toilets are secured to the ground to prevent them from toppling due to wind or any other cause;</li> <li>c) No spillage occurs when the toilets are cleaned or emptied and the contents are managed in accordance with the EMPr;</li> <li>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;</li> <li>e) Toilets are emptied before long weekends and workers holidays, and must be locked after working hours;</li> <li>f) Toilets are serviced regularly and the ECO must inspect toilets to ensure compliance to health standards;</li> </ul> </li> <li>- A copy of the waste disposal certificates must be maintained.</li> </ul>	<b>Contractor</b>	<b>Service level agreement with Service provider; Method statement; site awareness</b>	<b>Construction</b>	<b>ECO</b>	<b>Weekly</b>	<b>Service level agreement with service provider, proof of safe disposal of waste</b>

### 5.15 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
<ul style="list-style-type: none"> <li>– Undertake environmentally-friendly pest control in the camp area;</li> <li>– Ensure that the workforce is sensitised to the effects of sexually transmitted diseases, especially HIV AIDS;</li> <li>– The Contractor must ensure that information posters on AIDS are displayed in the Contractor Camp area;</li> <li>– Information and education relating to sexually transmitted diseases to be made available to both construction workers and local community, where applicable;</li> <li>– Free condoms must be made available to all staff on site at central points;</li> <li>– Medical support must be made available;</li> <li>– Provide access to Voluntary HIV Testing and Counselling Services.</li> </ul>	<b>Contractor</b>	<b>Method statement, awareness training</b>	<b>Construction</b>	<b>ECO</b>	<b>Monthly</b>	<b>Method statement, proof of awareness training</b>

**5.16 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
<ul style="list-style-type: none"> <li>- Compile an Emergency Response Action Plan (ERAP) prior to the commencement of the proposed project;</li> <li>- The Emergency Plan must deal with accidents, potential spillages and fires in line with relevant legislation;</li> <li>- All staff must be made aware of emergency procedures as part of environmental awareness training;</li> <li>- The relevant local authority must be made aware of a fire as soon as it starts;</li> <li>- In the event of emergency necessary mitigation measures to contain the spill or leak must be implemented (see <b>Hazardous Substances section 5.17</b>).</li> </ul>	<b>Contractor</b>	<b>Environmental Emergency Response Action Plan</b>	<b>Construction</b>	<b>ECO</b>	<b>Monthly</b>	<b>Adherence /compliance to ERAP</b>

**5.17 Hazardous substances**

**Impact management outcome:** Safe storage, handling, use and disposal of hazardous substances.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>- The use and storage of hazardous substances to be minimised and non-hazardous and non-toxic alternatives substituted where possible;</li> <li>- All hazardous substances must be stored in suitable containers as defined in the Method Statement;</li> <li>- Containers must be clearly marked to indicate contents, quantities and safety requirements;</li> <li>- All storage areas must be bunded. The bunded area must be of sufficient capacity to contain a spill / leak from the stored containers;</li> <li>- Bunded areas to be suitably lined with a SABS approved liner;</li> <li>- An Alphabetical Hazardous Chemical Substance (HCS) control sheet must be drawn up and kept up to date on a continuous basis;</li> <li>- All hazardous chemicals that will be used on site must have Material Safety Data Sheets (MSDS);</li> <li>- All employees working with HCS must be trained in the safe use of the substance and according to the safety data sheet;</li> <li>- 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;</li> </ul>	<b>Contractor</b>	<b>Method Statement, OHS requirements; adequate and responsible use and storage of Hazardous Substances, Hazardous Substances storage register</b>	<b>Construction</b>	<b>ECO</b>	<b>Weekly</b>	<b>Hazardous Substance Storage Register, MSDS, Method Statement</b>

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>- The Contractor must ensure that diesel and other liquid fuel, oil and hydraulic fluid is stored in appropriate storage tanks or in bowsers;</li> <li>- 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 110% of the total capacity of all the storage tanks/ bowsers;</li> <li>- The floor of the bund must be sloped, draining to an oil separator;</li> <li>- Provision must be made for refueling at the storage area 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;</li> <li>- All empty externally dirty drums must be stored on a drip tray or within a bunded area;</li> <li>- No unauthorised access into the hazardous substances storage areas must be permitted;</li> <li>- No smoking must be allowed within the vicinity of the hazardous storage areas;</li> <li>- Adequate fire-fighting equipment must be made available at all hazardous storage areas;</li> <li>- Where refueling away from the dedicated refueling station is required, a mobile refueling unit must be used. Appropriate ground protection such as drip trays must be used;</li> </ul>						

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>- 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;</li> <li>- The responsible operator must have the required training to make use of the spill kit in emergency situations;</li> <li>- An appropriate number of spill kits must be available and must be located in all areas where activities are being undertaken;</li> <li>- 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 <b>Section 5.7</b> for procedures concerning <b>storm and waste water management</b> and <b>5.8</b> for <b>solid and hazardous waste management</b>.</li> </ul>						



**5.18 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
<ul style="list-style-type: none"> <li>- Where possible and practical all maintenance of vehicles and equipment must take place in the workshop area;</li> <li>- 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. The relevant local authority must be made aware of a fire as soon as it starts;</li> <li>- Leaking equipment must be repaired immediately or be removed from site to facilitate repair;</li> <li>- Workshop areas must be monitored for oil and fuel spills;</li> <li>- Appropriately sized spill kit kept onsite relevant to the scale of the activity taking place must be available;</li> <li>- 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;</li> <li>- Water drainage from the workshop must be contained and managed in accordance Section <b>5.7: Storm and waste water management</b>.</li> </ul>	<b>Contractor</b>	<b>Method Statement, OHS requirements; Hazardous Substances storage register, vehicle daily checklist, vehicle service register</b>	<b>Construction</b>	<b>ECO</b>	<b>Weekly</b>	<b>Method Statement, Hazardous Substances storage register, vehicle daily checklist, vehicle service register</b>

**5.19 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
<ul style="list-style-type: none"> <li>- Concrete mixing must be carried out on an impermeable surface;</li> <li>- Batching plants areas must be fitted with a containment facility for the collection of cement laden water.</li> <li>- Dirty water from the batching plant must be contained to prevent soil and groundwater contamination</li> <li>- Bagged cement must be stored in an appropriate facility and at least 10 m away from any water courses, gullies and drains;</li> <li>- A washout facility must be provided for washing of concrete associated equipment. Water used for washing must be restricted;</li> <li>- Hardened concrete from the washout facility or concrete mixer can either be reused or disposed of at an appropriate licenced disposal facility;</li> <li>- Empty cement bags must be secured with adequate binding material if these will be temporarily stored on site;</li> <li>- Sand and aggregates containing cement must be kept damp to prevent the generation of dust (Refer to <b>Section 5.20: Dust emissions</b>)</li> <li>- 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;</li> </ul>	<b>Contractor</b>	<b>Method Statement</b>	<b>Construction</b>	<b>ECO</b>	<b>Weekly</b>	<b>Compliance to mitigation and method statement</b>

<ul style="list-style-type: none"> <li>Temporary fencing must be erected around batching plants in accordance with Section <b>5.5: Fencing and gate installation</b>.</li> </ul>						
--	--	--	--	--	--	--

**5.20 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
<ul style="list-style-type: none"> <li>Take all reasonable measures to minimise the generation of dust as a result of project development activities to the satisfaction of the ECO;</li> <li>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;</li> <li>Excavation, handling and transport of erodible materials must be avoided under high wind conditions or when a visible dust plume is present;</li> <li>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;</li> <li>Where possible, soil stockpiles must be located in sheltered areas where they are not exposed to the erosive effects of the wind;</li> </ul>	<b>Contractor</b>	<b>Method Statement, Vehicle Speed limit, dust suppression</b>	<b>Construction</b>	<b>ECO</b>	<b>Monthly</b>	<b>Site observations, dust suppression register</b>

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>– Where erosion of stockpiles becomes a problem, erosion control measures must be implemented at the discretion of the ECO;</li> <li>– Vehicle speeds must not exceed 40 km/h along dust roads or 20 km/h when traversing unconsolidated and non-vegetated areas;</li> <li>– Straw stabilisation must be applied at a rate of one bale/10 m<sup>2</sup> and harrowed into the top 100 mm of top material, for all completed earthworks;</li> <li>– For significant areas of excavation or exposed ground, dust suppression measures must be used to minimise the spread of dust.</li> </ul>						

### 5.21 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
<ul style="list-style-type: none"> <li>– Any blasting activity must be conducted by a suitably licensed blasting contractor; and</li> </ul>	<b>Contractor</b>	<b>Relevant legislation and regulation</b>	<b>Construction</b>	<b>ECO</b>	<b>Monthly</b>	<b>Public complaints register; proof of</b>

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>– Notification of surrounding landowners, emergency services site personnel of blasting activity 24 hours prior to such activity taking place on Site.</li> </ul>						<b>registration of blasting contractor.</b>

## 5.22 Noise

**Impact Management outcome:** Prevent unnecessary noise to the environment by ensuring that noise from development activity is mitigated.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>– The Contractor must keep noise level within acceptable limits, Restrict the use of sound amplification equipment for communication and emergency only;</li> <li>– All vehicles and machinery must be fitted with appropriate silencing technology and must be properly maintained;</li> <li>– 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;</li> <li>– 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</li> </ul>	<b>Contractor</b>	<b>Restriction of site hours to working hours Monday to Friday</b>	<b>Construction</b>	<b>ECO</b>	<b>Monthly</b>	<b>Public Complaints Register</b>

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
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.						

### 5.23 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
<ul style="list-style-type: none"> <li>- Designate smoking areas where the fire hazard could be regarded as insignificant;</li> <li>- Firefighting equipment must be available on all vehicles located on site;</li> <li>- The local Fire Protection Agency (FPA) must be informed of construction activities;</li> <li>- Contact numbers for the FPA and emergency services must be communicated in environmental awareness training and displayed at a central location on site;</li> <li>- Two-way swop of contact details between ECO and FPA.</li> </ul>	<b>Contractor</b>	<b>Emergency Response Action Plan; Method Statement</b>	<b>Construction</b>	<b>ECO</b>	<b>Monthly</b>	<b>Public complaints register; compliance to ERAP</b>

### 5.24 Stockpiling and stockpile areas

**Impact management outcome:** Reduce erosion and sedimentation as a result of stockpiling.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>- 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;</li> <li>- All stockpiled material must be maintained and kept clear of weeds and alien vegetation growth by undertaking regular weeding and control methods;</li> <li>- Topsoil stockpiles must not exceed 2 m in height;</li> <li>- During periods of strong winds and heavy rain, the stockpiles must be covered with appropriate material (e.g. cloth, tarpaulin etc.);</li> <li>- Where possible, sandbags (or similar) must be placed at the bases of the stockpiled material in order to prevent erosion of the material.</li> </ul>	<b>Contractor</b>	<b>Method Statement</b>	<b>Construction</b>	<b>ECO</b>	<b>Monthly</b>	<b>Method Statement and site observations</b>

**5.25 Civil works**

**Impact management outcome:** Impact to the environment minimised during civil works to create the substation terrace.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>- Where terracing is required, topsoil must be collected and retained for the purpose of re-use later to rehabilitate disturbed areas not covered by yard stone;</li> <li>- Areas to be rehabilitated include terrace embankments and areas outside the high voltage yards;</li> <li>- Where required, all sloped areas must be stabilised to ensure proper rehabilitation is effected and erosion is controlled;</li> <li>- These areas can be 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;</li> <li>- Rehabilitation of the disturbed areas must be managed in accordance with <b>Section 5.35: Landscaping and rehabilitation</b>;</li> <li>- All excess spoil generated during terracing activities must be disposed of in an appropriate manner and at a recognised landfill site; and</li> <li>- Spoil can however be used for landscaping purposes and must be covered with a layer of 150 mm topsoil for rehabilitation purposes.</li> </ul>	<b>Contractor</b>	<b>Method Statement</b>	<b>Construction</b>	<b>ECO</b>	<b>Monthly</b>	<b>Site observation</b>



**5.26 Excavation of foundation, cable trenching and drainage systems**

**Impact management outcome:** No environmental degradation occurs as a result of excavation of foundation, cable trenching and drainage systems.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>- All excess spoil generated during foundation excavation must be disposed of in an appropriate manner and at a licensed landfill site, if not used for backfilling purposes;</li> <li>- Spoil can however be used for landscaping purposes and must be covered with a layer of 150 mm topsoil for rehabilitation purposes;</li> <li>- Management of equipment for excavation purposes must be undertaken in accordance with <b>Section 5.18: Workshop, equipment maintenance and storage</b>; and</li> <li>- Hazardous substances spills from equipment must be managed in accordance with <b>Section 5.17: Hazardous substances</b>.</li> </ul>	<b>Contractor</b>	<b>Method Statement and Engineering Drawings</b>	<b>Construction</b>	<b>ECO</b>	<b>Weekly</b>	<b>Adherence to method statements</b>

**5.27 Installation of foundations, cable trenching and drainage systems**

**Impact management outcome:** No environmental degradation occurs during the installation of foundation, cable trenching and drainage system.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>– Batching of cement to be undertaken in accordance with <b>Section 5.19: Batching plants</b>; and</li> <li>– Residual solid waste must be disposed of in accordance with <b>Section 5.8: Solid waste and hazardous management</b>.</li> </ul>	<b>Contractor</b>	<b>Method Statement</b>	<b>Construction</b>	<b>Contractor and ECO</b>	<b>Weekly</b>	<b>Method Statement and site observations</b>

**5.28 Installation of equipment (circuit breakers, current Transformers, Isolators, Insulators, surge arresters, voltage transformers, earth switches)**

**Impact management outcome:** No environmental degradation occurs as a result of installation of equipment.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>– Management of dust must be conducted in accordance with Section <b>5.20: Dust emissions</b>;</li> <li>– Management of equipment used for installation must be conducted in accordance with Section <b>5.18: Workshop, equipment maintenance and storage</b>;</li> <li>– Management hazardous substances and any associated spills must be conducted in accordance with Section <b>5.17: Hazardous substances</b>; and</li> </ul>	<b>Contractor</b>	<b>Method Statement</b>	<b>Construction</b>	<b>ECO</b>	<b>Weekly</b>	<b>Method Statement and site observation</b>

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>Residual solid waste must be recycled or disposed of in accordance with <b>Section 5.8: Solid waste and hazardous management.</b></li> </ul>						

### 5.29 Steelwork Assembly and Erection

**Impact management outcome:** No environmental degradation occurs as a result of steelwork assembly and erection.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>During assembly, care must be taken to ensure that no wasted/unused materials are left on site e.g. bolts and nuts</li> <li>Emergency repairs due to breakages of equipment must be managed in accordance with <b>Section 5.18: Workshop, equipment maintenance and storage</b> and <b>Section 5.16: Emergency procedures.</b></li> </ul>	<b>Contractor</b>	<b>Method Statement</b>	<b>Construction</b>	<b>ECO</b>	<b>Weekly</b>	<b>Site Observations</b>

**5.30 Cabling and Stringing**

**Impact management outcome:** No environmental degradation occurs as a result of stringing.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>- Residual solid waste (off cuts etc.) shall be recycled or disposed of in accordance with <b>Section 6.8: Solid waste and hazardous Management;</b></li> <li>- Management of equipment used for installation shall be conducted in accordance with <b>Section 5.18: Workshop, equipment maintenance and storage;</b></li> <li>- Management hazardous substances and any associated spills shall be conducted in accordance with <b>Section 5.17: Hazardous substances.</b></li> </ul>	<b>Contractor</b>	<b>Method Statement, adherence to exclusion zones</b>	<b>Construction</b>	<b>ECO</b>	<b>Weekly</b>	<b>Site observations</b>

**5.31 Testing and Commissioning (all equipment testing, earthing system, system integration)**

**Impact management outcome:** No environmental degradation occurs as a result of Testing and Commissioning.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>Residual solid waste must be recycled or disposed of in accordance with <b>Section 5.8: Solid waste and hazardous management.</b></li> </ul>	<b>Contractor</b>	<b>Method Statement</b>	<b>Construction</b>	<b>ECO</b>	<b>Weekly</b>	<b>Site observation</b>

**5.32 Socio-economic**

**Impact management outcome:** enhanced socio-economic development.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>Develop and implement communication strategies to facilitate public participation;</li> <li>Develop and implement a collaborative and constructive approach to conflict resolution as part of the external stakeholder engagement process;</li> <li>Sustain continuous communication and liaison with neighboring owners and residents</li> </ul>	<b>Contractor</b>	<b>Landowner Agreements; Issues and Complaints Register</b>	<b>Construction</b>	<b>ECO</b>	<b>Monthly</b>	<b>Landowner Agreement; Issues and Complaints Register</b>

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>– Create work and training opportunities for local stakeholders; and</li> <li>– Where feasible, no workers, with the exception of security personnel, must be permitted to stay over-night on the site. This would reduce the risk to local farmers.</li> </ul>						

### 5.33 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
<ul style="list-style-type: none"> <li>– Bunds must be emptied (where applicable) and need to be undertaken in accordance with the impact management actions included in <b>sections 5.17: Hazardous substances and 5.18: Workshop, equipment maintenance and storage;</b></li> <li>– Hazardous storage areas must be well ventilated;</li> <li>– Fire extinguishers must be serviced and accessible. Service records to be filed and audited at last service;</li> <li>– Emergency and contact details displayed must be displayed;</li> <li>– Security personnel must be briefed and have the facilities to contact or be contacted by relevant management and emergency personnel;</li> </ul>	<b>Contractor</b>	<b>Method statement</b>	<b>Construction – when applicable</b>	<b>ECO</b>	<b>Monthly – when applicable</b>	<b>Method statement</b>  <b>ECO reports</b>

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>- Night hazards such as reflectors, lighting, traffic signage etc. must have been checked;</li> <li>- Fire hazards identified and the local authority must have been notified of any potential threats e.g. large brush stockpiles, fuels etc.;</li> <li>- Structures vulnerable to high winds must be secured;</li> <li>- Wind and dust mitigation must be implemented;</li> <li>- Cement and materials stores must have been secured;</li> <li>- Toilets must have been emptied and secured;</li> <li>- Refuse bins must have been emptied and secured;</li> <li>- Drip trays must have been emptied and secured.</li> </ul>						

### 5.34 Dismantling of old equipment

**Impact management outcome:** Impact to the environment to be minimised during the dismantling, storage and disposal of old equipment commissioning.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>- All old equipment removed during the project must be stored in such a way as to prevent pollution of the environment;</li> <li>- Oil containing equipment must be stored to prevent leaking or be stored on drip trays;</li> </ul>	<b>Contractor</b>	<b>Method statement</b>	<b>Construction and decommissioning</b>	<b>ECO</b>	<b>Monthly – when applicable</b>	<b>Site observation</b>

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>- All scrap steel must be stacked neatly and any disused and broken insulators must be stored in containers;</li> <li>- Once material has been scrapped and the contract has been placed for removal, the disposal Contractor must ensure that any equipment containing pollution causing substances is dismantled and transported in such a way as to prevent spillage and pollution of the environment;</li> <li>- The Contractor must also be equipped to contain and clean up any pollution causing spills; and</li> <li>- Disposal of unusable material must be at a licensed waste disposal site.</li> </ul>						

**5.35 Landscaping and rehabilitation**

**Impact management outcome:** Areas disturbed during the development phase are returned to a state that approximates the original condition.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>- All areas disturbed by construction activities must be subject to landscaping and rehabilitation; All spoil and waste must be disposed of to a registered waste site;</li> </ul>	<b>Contractor</b>	<b>Method Statements; erosion protection; alien eradication plan</b>	<b>Concurrent with Construction</b>	<b>ECO</b>	<b>Monthly</b>	<b>Adequately revegetated work areas; no erosion or</b>



Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>- 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</li> <li>- 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;</li> <li>- 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;</li> <li>- 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;</li> <li>- Rehabilitation of access roads outside of farmland;</li> <li>- Indigenous species must be used for with species and/grasses to where it compliments or approximates the original condition;</li> <li>- Stockpiled topsoil must be used for rehabilitation (refer to <b>Section 5.24: Stockpiling and stockpiled areas</b>);</li> <li>- Stockpiled topsoil must be evenly spread so as to facilitate seeding and minimise loss of soil due to erosion;</li> <li>- Before placing topsoil, all visible weeds from the placement area and from the topsoil must be removed;</li> <li>- Subsoil must be ripped before topsoil is placed;</li> <li>- The rehabilitation must be timed so that rehabilitation can take place at the optimal time for vegetation establishment;</li> </ul>						<b>invasive plant species</b>

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> <li>- Where impacted through construction related activity, all sloped areas must be stabilised to ensure proper rehabilitation is effected and erosion is controlled;</li> <li>- 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;</li> <li>- Spoil can be used for backfilling or landscaping as long as it is covered by a minimum of 150 mm of topsoil.</li> <li>- 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: <ul style="list-style-type: none"> <li>a) Annual and perennial plants are chosen;</li> <li>b) Pioneer species are included;</li> <li>c) Species chosen must be indigenous to the area with the seeds used coming from the area;</li> <li>d) Root systems must have a binding effect on the soil;</li> <li>e) The final product must not cause an ecological imbalance in the area</li> </ul> </li> </ul>						

## 6 ACCESS TO THE GENERIC EMPr

Once completed and signed, to allow the public access to the generic EMPr, the holder of the EA must make the EMPr available to the public in accordance with the requirements of Regulation 26(h) of the EIA Regulations.

## PART B: SECTION 2

### 7 SITE SPECIFIC INFORMATION AND DECLARATION

#### 7.1 Sub-section 1: contact details and description of the project

##### 7.1.1 Details of the applicant: **Genesis Koup 2 Wind Farm (Pty) Ltd**

Name of applicant: **Davin Chown**

Tel No: **083 460 3898**

Fax No: **086 689 0583**

Postal Address: **PO Box 363, Newlands, Cape Town**

Physical Address: **39 De Villiers Road, Kommetjie**

##### 7.1.2 Details and expertise of the EAP:

Name of applicant: **SIVEST SA (Pty) Ltd**

Tel No: **+27 31 581 1573**

Fax No: **N/A**

E-mail address: [michelleg@sivest.co.za](mailto:michelleg@sivest.co.za)

Expertise of the EAP (Curriculum Vitae included): **Yes, included in the BA Application**

##### 7.1.3 Project name:

Proposed Development of the On-site Switching Substation / Collector Substation and associated 132kV Power Line for the Koup 2 Wind Energy Facility (WEF), near Beaufort West in the Western Cape Province– SUBSTATION INFRASTRUCTURE EMPR

##### 7.1.4 Description of the project:

**Genesis Enertrag Koup 2 Wind Farm (Pty) Ltd is proposing to develop one (1) new 33/132kV on-site substation and/or collector substation as well as one (1) new associated 132kV overhead power line for the proposed Koup 2 Wind Energy Facility (WEF) (part of a separate EIA application), near the town of Beaufort West in the Western Cape Province of South Africa. The overall objective of the proposed development is to feed the electricity generated by the proposed Koup 2 WEF into the national grid. The grid connection and 33/132kV on-site substation and/or collector substation (this application) requires a separate Environmental Authorisation (EA), in order to allow the EA as well as the proposed infrastructure to be handed over to Eskom.**

**This EMPr forms part of one (1) of two (2) grid connection infrastructure developments that are being proposed on nearby properties by Genesis. In addition, two (2) WEF developments are also being proposed on adjacent properties by Genesis. The other proposed developments (i.e. WEF, substation and power line) which are being proposed on nearby properties by Genesis include the following:**

- Koup 1 WEF – DFFE Reference Number: 14/12/16/3/3/2/2120 (part of a separate EIA process / application);
- Koup 2 WEF – DFFE Reference Number: 14/12/16/3/3/2/2121 (part of a separate EIA process / application); and
- Koup 1 WEF Substation and Power Line – DFFE Reference Number: To be Allocated (part of separate BA process / application).

The grid connection infrastructure which is part of this application is being proposed to feed the electricity generated by the Koup 2 WEF into the national grid. The on-site and/or collector substation will include an Eskom portion and an Independent Power Producer (IPP) portion, hence the substation has been included in the WEF EIA (part of separate application) and in this associated grid connection infrastructure Basic Assessment (BA) (this application) to allow for handover to Eskom. Following construction, the substation will be owned and managed by Eskom. The current applicant will remain in control of the low voltage components (more specifically the 33kV yard) of the substation, while the high voltage components (i.e. 132kV components) of this substation will likely be ceded to Eskom shortly after the completion of construction.

Although the WEF (part of separate application) and associated grid connection infrastructure (part of this application) will be assessed separately, a single public participation process is being undertaken to consider all of the proposed developments [i.e. two (2) WEF EIAs and two (2) grid connection infrastructure BAs]. The potential environmental impacts associated with the proposed development which forms part of this application have been assessed as part of the cumulative impact assessment.

At this stage it is anticipated that the proposed grid connection infrastructure to serve the Koup 2 WEF (part of separate application) will include the following components:

- One (1) new 33/132kV on-site substation and/or collector substation, occupying an area of up to approximately 1ha. The proposed substation will be a step-up substation and will include an Eskom portion and an IPP portion; and
- One (1) new 132kV overhead power line connecting the on-site and/or collector substation via the proposed Koup 1 collector substation and thereby feeding the electricity into the national grid. Power line towers being considered for this development include self-supporting suspension monopole structures for relatively straight sections of the line and angle strain towers where the route alignment bends to a significant degree. Maximum tower height is expected to be approximately 25m.

The proposed overhead power line and 33/132kV on-site substation is subject to a BA process in terms of the NEMA (as amended) and Appendix 1 of the EIA Regulations, 2014 (as amended). The competent authority for this EIA process is the national Department of Forestry, Fisheries and the Environment (DFFE).

#### 7.1.5 Project location:

The proposed development is located approximately 55km south of the town of Beaufort West and is within the Beaufort West and Prince Albert Local Municipalities, in the Central Karoo District Municipality of the Western Cape Province (Figure 1). The proposed development (including all power line corridor route alternatives) will affect the following twelve (12) farms / properties:

NO	FARM NAME( if applicable)	FARM NUMBER( if applicable)	PORTION NAME	PORTION NUMBER	LATITUDE	LONGITUDE
1	Rietfontein	12	Portion 2 of the Farm Rietfontein No. 12;	2	Refer below	
2	Kaatjies	380	Portion 1 of the Farm Kaatjies Kraal No. 380;	1	Refer below	
3	Kaatjies	380	Portion 2 of the Farm Kaatjies Kraal No. 380;	2	Refer below	
4	Kaatjies	380	Portion 5 of the Farm Kaatjies Kraal No. 380;	5	Refer below	
5	Kaatjies	380	Portion 10 of the Farm Kaatjies Kraal No. 380;	10	Refer below	
6	Kaatjies	380	Portion 11 of the Farm Kaatjies Kraal No. 380;	11	Refer below	
7	Eigendom	374	Portion 11 of the Farm Brits Eigendom No. 374;	11	Refer below	
8	Eigendom	374	Portion 15 of the Farm Brits Eigendom No. 374;	15	Refer below	
9	Eigendom	374	Portion 24 of the Farm Brits Eigendom No. 374;	24	Refer below	
10	Antjesfontein	14	Portion 1 of the Farm Antjesfontein No. 14;	1	Refer below	
11	Riet Poort	13	Portion 1 of the Farm Riet Poort No. 13;	1	Refer below	
12	Riet Poort	231	The Farm Riet Poort No. 231.	-	Refer below	

KROUP 2 SUBSTATION COORDINATES AT CENTRE POINT		
SITE ALTERNATIVE	SOUTH	EAST
OPTION 1	S32°51'19.37"	E22°25'30.19"
OPTION 2	S32° 52' 6.234"	E22° 23' 54.829"

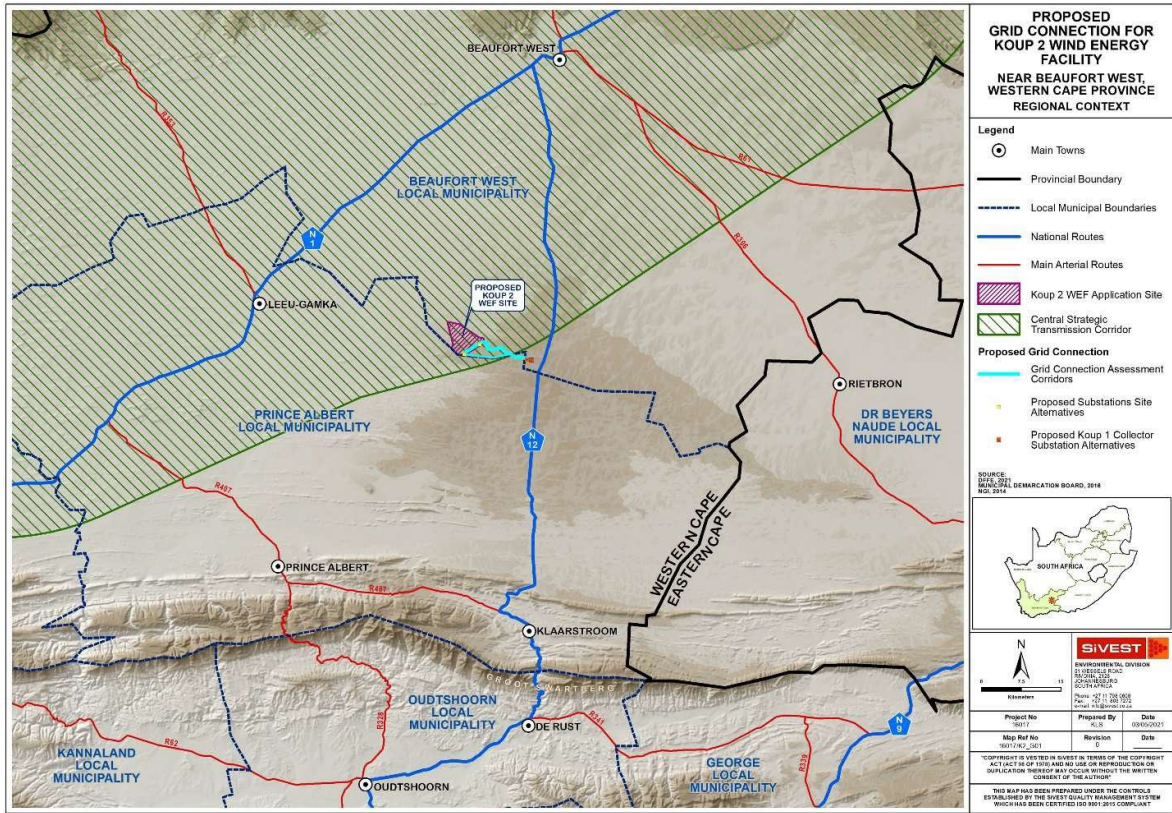


Figure 1: Regional Context

## 7.2 Sub-section 2: Development footprint site map

This sub-section must include a map of the site sensitivity overlaid with the preliminary infrastructure layout. The sensitivity map must be prepared from the national web based environmental screening tool, when available for compulsory use at: <https://screening.environment.gov.za/screeningtool>. The sensitivity map shall identify the nature of each sensitive feature e.g. threatened plant species, archaeological site, etc. Sensitivity maps shall identify features both within the planned working area and any known sensitive features within 50 m from the development footprint.



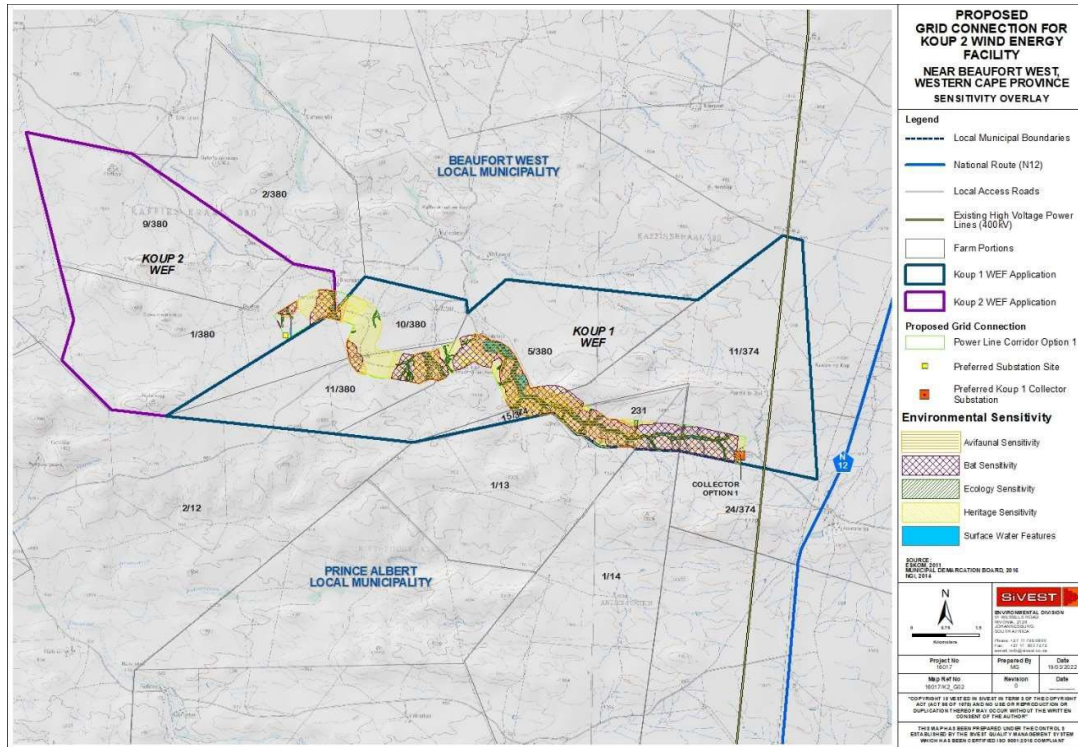


Figure 2: Environmental Sensitivity Overlay (Final)

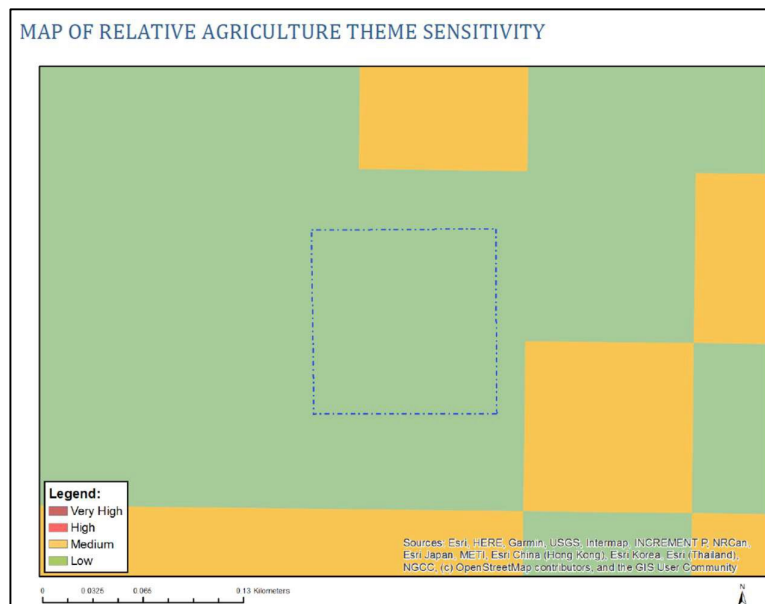


Figure 3: Map showing substation location in relation to the Agriculture Theme Sensitivity (DFFE Screening Tool)

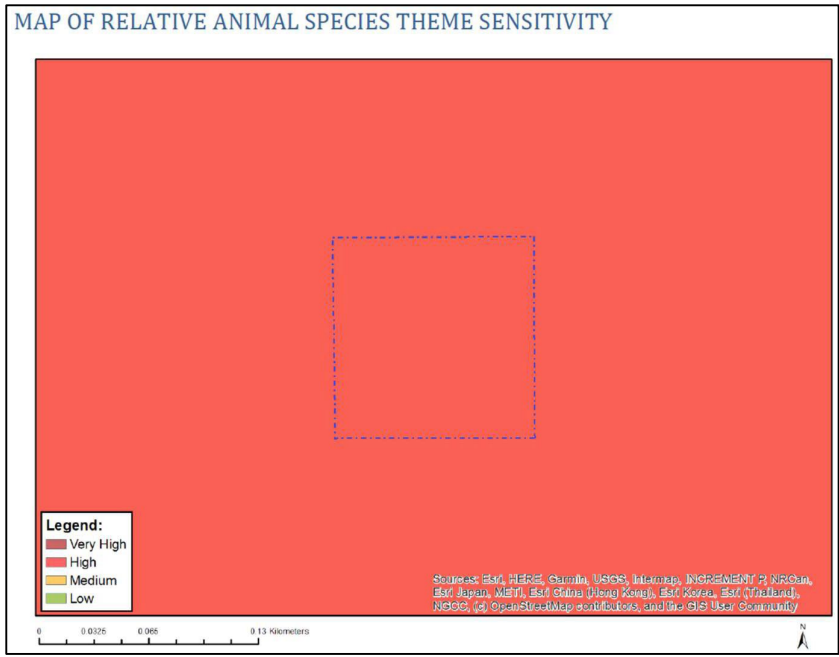


Figure 4: Map showing substation location in relation to the Animal Species Theme Sensitivity (DFE Screening Tool)

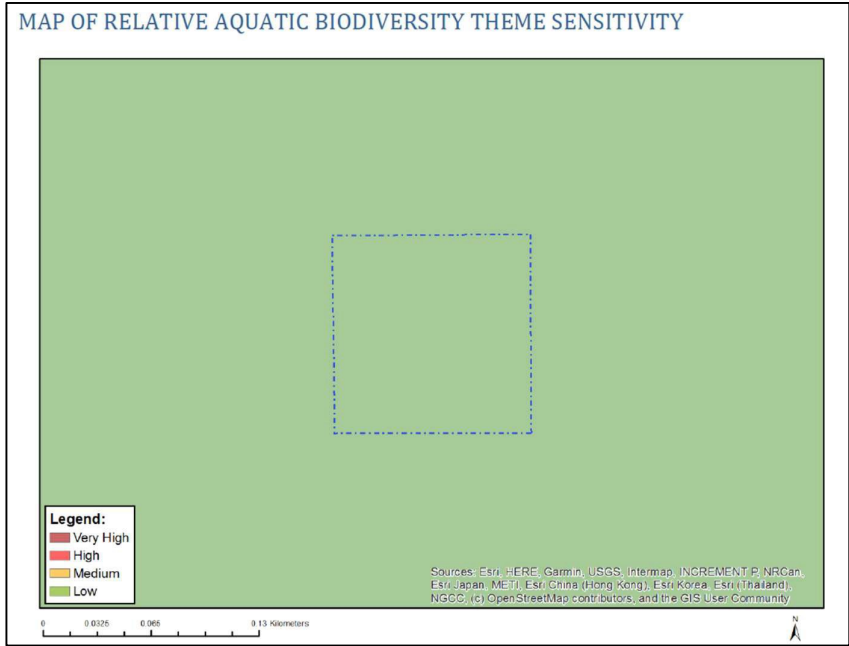


Figure 5: Map showing substation location in relation to the Aquatic Biodiversity Theme Sensitivity (DFE Screening Tool)



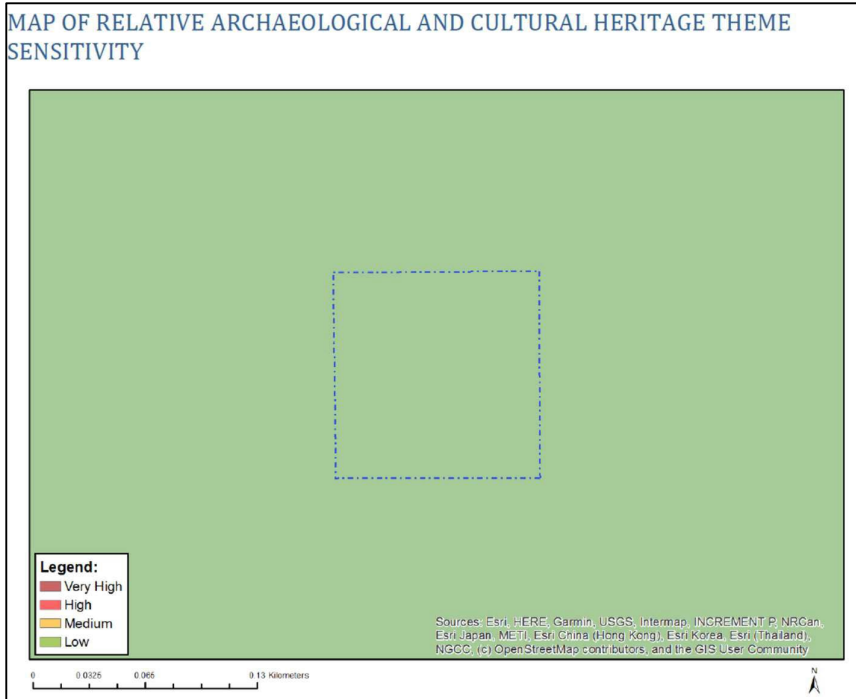


Figure 6: Map showing substation location in relation to the Archaeological and Cultural Heritage Theme Sensitivity (DFE Screening Tool)

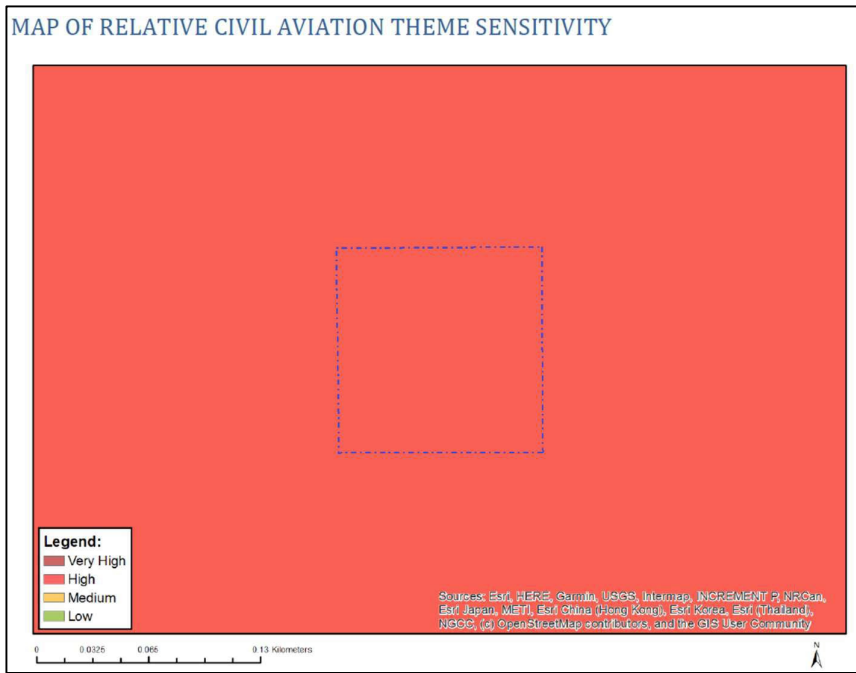


Figure 7: Map showing substation location in relation to the Civil Aviation Theme Sensitivity (DFE Screening Tool)

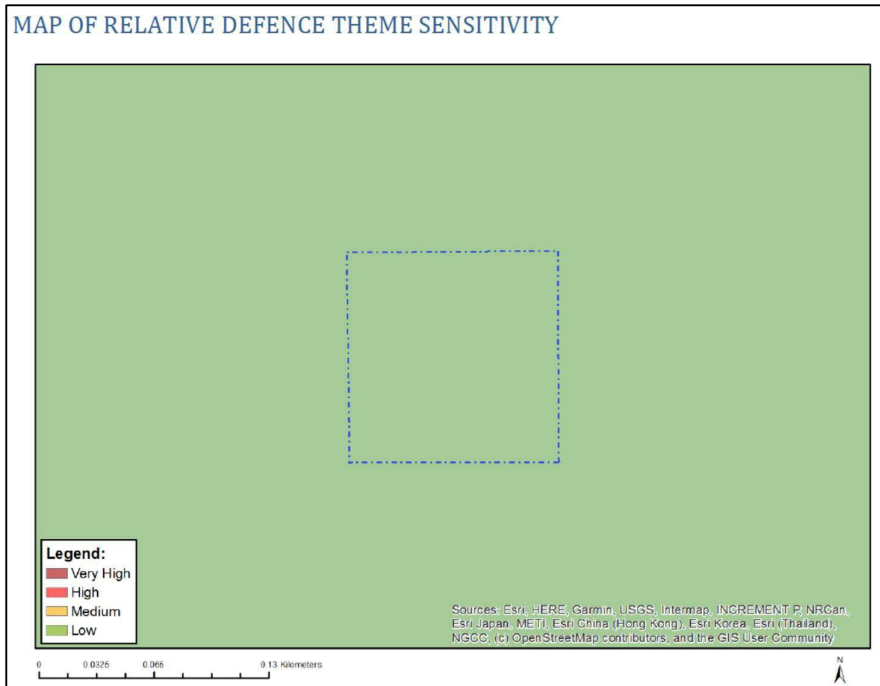


Figure 8: Map showing substation location in relation to the Defence Theme Sensitivity (DFFE Screening Tool)

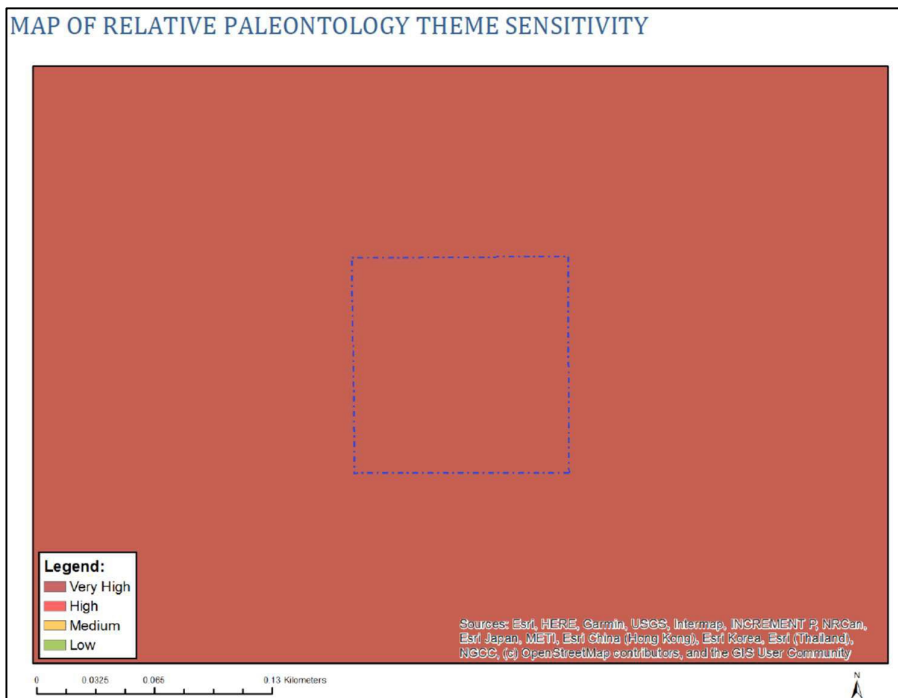


Figure 9: Map showing substation location in relation to the Paleontology Theme Sensitivity (DFFE Screening Tool)

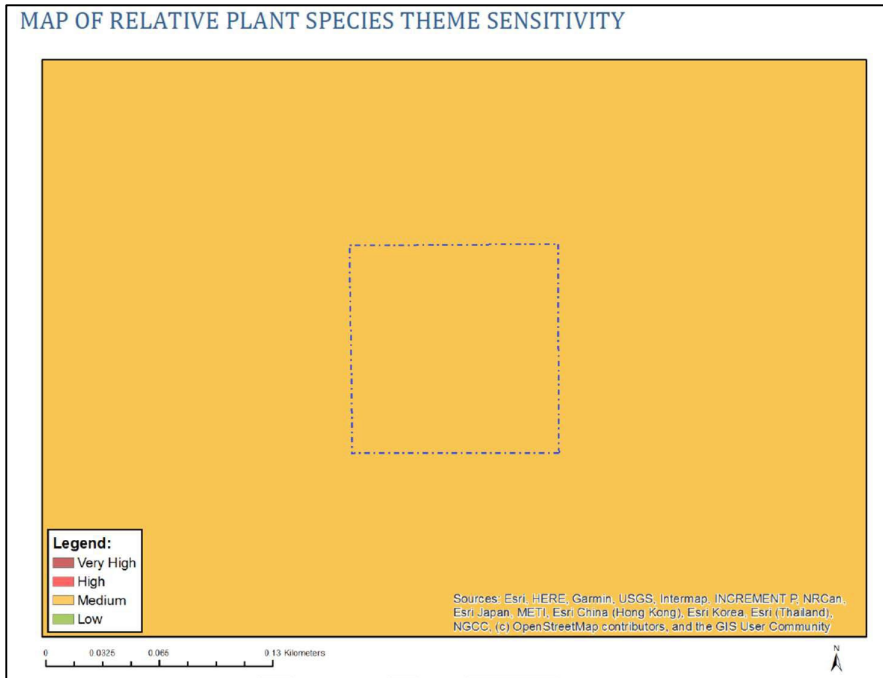


Figure 10: Map showing substation location in relation to the Plant Species Theme Sensitivity (DFFE Screening Tool)

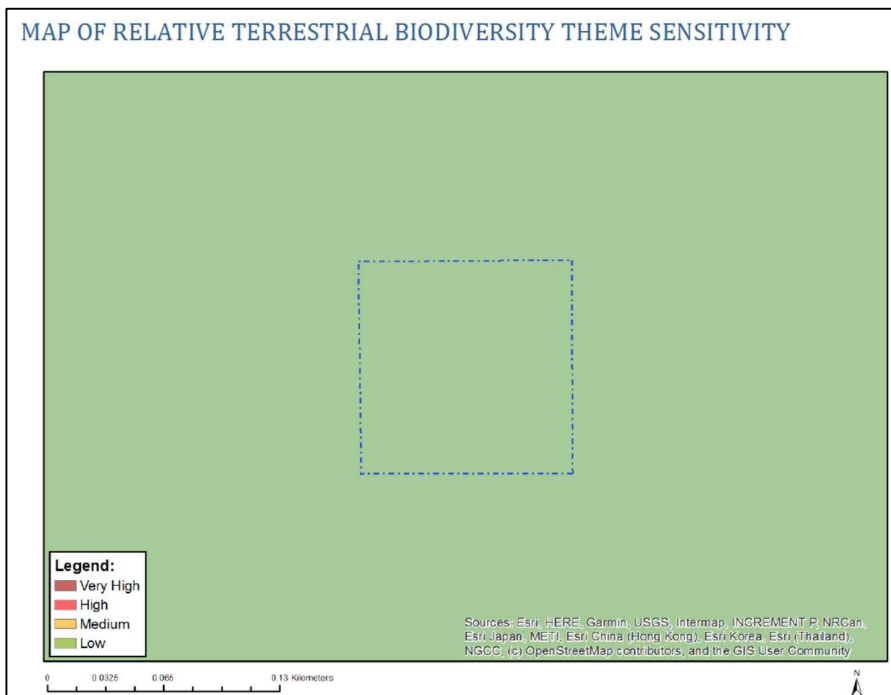


Figure 11: Map showing substation location in relation to the Terrestrial Biodiversity Theme Sensitivity (DFFE Screening Tool)

**7.3 Sub-section 3: Declaration**

The proponent/applicant or holder of the EA affirms that he/she will abide and comply with the prescribed impact management outcomes and impact management actions as stipulated in part B: section 1 of the generic EMPr and have the understanding that the impact management outcomes and impact management actions are legally binding. The proponent/applicant or holder of the EA affirms that he/she will provide written notice to the CA 14 day prior to the date on which the activity will commence or commencement of construction to facilitate compliance inspections.

Signature Proponent/applicant/holder of EA

Date:



.....

03/05/2024

.....

**7.4 Sub-section 4: amendments to site specific information (Part B; section 2)**

Should the EA be transferred to a new holder, Part B: Section 2 must be completed by the new holder and submitted with the application for an amendment of the EA in terms of Regulations 29 or 31 of the EIA Regulations, whichever applies. The information submitted for an amendment to an environmental authorisation will be considered to be incomplete should a signed copy of Part B: Section 2 not be submitted. Once approved, Part B: Section 2 forms part of the EMPr for the development and the EMPr becomes legally binding to the new EA holder.

## PART C

### 8 SITE SPECIFIC ENVIRONMENTAL ATTRIBUTES

If any specific environmental sensitivities/attributes are present on the site which require more specific impact management outcomes and actions, not included in the pre-approved generic EMPr template, to manage impacts, those impact management outcomes and impact management actions must be included in this section. These specific management controls must be referenced spatially, and must include impact management outcomes and impact management actions. The management controls including impact management outcomes and impact management actions must be presented in the format of the pre-approved generic EMPr template. This applies only to additional impact management outcomes and impact management actions that are necessary.

If Part C is applicable to the development as authorised in the EA, it is required to be submitted to the CA together with the BAR or EIAR, for consideration of, and decision on, the application for EA. The information in this section must be prepared by an EAP and the name and expertise of the EAP, including the curriculum vitae are to be included. Once approved, Part C forms part of the EMPr for the site and is legally binding.

This section will **not be required** should the site contain no specific environmental sensitivities or attributes.

The following specialist studies were undertaken as part of this project:

- o Avifauna Impact Assessment (incl. pre-construction monitoring);
- o Biodiversity Impact Assessment;
- o Desktop Geotechnical Impact Assessment;
- o Heritage Impact Assessment (including Palaeontology, Archaeology & Cultural Landscape);
- o Noise Impact Assessment;
- o Desktop Social Impact Assessment;
- o Surface Water Impact Assessment;
- o Transportation Impact Assessment; and
- o Visual Impact Assessment.

**The specific mitigation measures provide by the Specialists through the Impact Assessment process are included below.**

**Pre-construction walk-through of the approved development footprint will be conducted to ensure that sensitive habitats and species are avoided where possible.**

### **Specific Mitigations and Recommendations included in EAIr:**

- The avifaunal post-construction monitoring at the proposed WEF must be conducted in accordance with the latest version (2015) of the Best practice guidelines for avian monitoring and impact mitigation at proposed wind energy development sites in southern Africa;
- It is recommended that no turbines or associated infrastructure are allowed in the High sensitivity areas. High-medium sensitivity zones should preferably be avoided, but due to the general low bat activity in certain areas, could be developed with strict mitigation measures. Medium sensitivity zones could be developed, but with limited mitigation due to the low bat activity. It is therefore recommended that turbines will be shifted from High sensitivity areas and that curtailment is applied under certain weather conditions to the turbines situated in the High-medium sensitivity zone. Close observation during the bat monitoring to be conducted during the post-construction phase should refine the curtailment schedule and apply it to more turbines, if necessary. Should curtailed turbines show consistent low activity through static recordings, as well as mortality in the low threshold range, the bat specialist could adapt curtailment again.
- It is recommended that curtailment be applied during the specified time periods when the relevant temperatures and wind speeds prevail for the turbine situated in the High-medium sensitivity zone. If the developer decides to reduce the number of turbines, the first option, after the wind regime has been considered, should be to remove the turbine in the High-medium sensitivity zones. Operational monitoring and carcass searches will inform this decision.
- It is recommended that the turbines be constructed on relatively flat to gentle, open areas (0-8.7° slopes) in areas with maximum wind exposure
- It is recommended that a detailed geotechnical investigation be undertaken during the detailed design phase of the project. The detailed geotechnical investigation must entail the following:
  - Profiling and sampling exploratory trial pits to determine founding conditions for the substation, the construction laydown area and the BESS. An investigation for determining the subgrade conditions for internal roads and a materials investigation (if required) is also recommended
  - Profiling rotary core to determine foundation conditions for the turbines;
  - Geotechnical investigation for construction material – gravel and rock
  - Thermal resistivity and electrical resistivity geophysical testing for electrical design and ground earthing requirements
  - Groundwater sampling of existing boreholes to establish a baseline of the groundwater quality for construction purposes
  - Dynamic Probe Super Heavy (DPSH) tests and rotary core drilling may be required depending on the soil profiles and imposed loads of the structures
  - 50m buffer zones around grave sites
  - 30m buffer zone around farmsteads
  - 30 buffer zone around historical structures
  - Monitor find spot areas if construction is going to take place through them.
  - A management plan for the heritage resources then needs to be compiled and approved for implementation during construction and operations.
  - A specialist palaeontological walk-down of the final WEF and grid connection project area in the pre-construction phase,
  - Implementation of a Chance Fossil Finds Protocol (See Appendix 4) by the ECO / ESO during the construction phase. The specialist palaeontologist responsible will need to submit a Work Plan for approval by Heritage Western Cape
  - implement a noise monitoring program that will define the residual levels before the construction of the WEF, as well as to confirm noise levels once the WEF is operational. Residual and noise monitoring is recommended at NSDs 1, 2 and 3.
  - Investigate any reasonable and valid noise complaint if registered by a NSD staying within 2,000 m from the location where construction or operational activities are taking place;
  - evaluate the potential noise impact should the layout be revised where any proposed wind turbines are located closer than 1,000 m from a confirmed NSD; or

- if the developer decides to use a different wind turbine that has a sound power emission level higher than that of the WTG used in this report (sound power emission level exceeding 108.3 dBA re 1 pW).
- Existing access from the N12 Freeway has sufficient sight distance in both directions and hence an upgrade to the existing access will be required from the Western Cape Department of Transport & Public Works.
- The layout of the internal infrastructure should be such that the impact to the environment is kept to a minimum. We
- therefore propose that both Koup 1 & 2 share a central access to both facilities and that all other proposed temporary and permanent buildings and construction infrastructure be located close to the access point.
- An internal network of minimum 5m wide gravel roads will connect all the WTG and ancillary equipment to each other. The roads will have a horizontal and vertical alignment to accommodate vehicles and more specifically abnormal vehicles intended to use these roads for the delivery of the WTG equipment. A typical intersection and horizontal alignment would consist of radii and clearances similar to the requirements in Figure 8.1. We note that the larger WTG's are planned for these facilities and will need to be simulated once additional information becomes available.
- All internal access roads should be designed to have a minimum impact to the environment and thus are in most cases parallel to the contours and keep drainageline crossings to a minimum. The use of roads perpendicular to the contours for long sections should be avoided, as the risk of possible erosion is increased. Existing gravel roads should also be used to reduce the overall impact on the environment.

**Compliance with the Conditions of the EA in the EMPr:**

EA Condition	EMPr Reference
<b>Management of the Activity</b>	
<p>13. A final site layout plan for the Koup 1 Wind Energy Facility, substation and all associated infrastructure, as determined by the detailed engineering phase and micro-siting of the wind turbine positions, and all mitigation measures as dictated by the final site layout plan, must be submitted to the Department for approval prior to construction. A copy of the final site layout map must be made available for comments to registered Interested and Affected Parties and the holder of this Environmental Authorisation must consider such comments. Once amended, the final development layout map must be submitted to the Department for written approval prior to commencement of the activity. All available biodiversity information must be used in the finalisation of the layout map. Existing infrastructure must be used as far as possible e.g., roads. The layout map must indicate the following:</p> <p>The position of wind turbines and associated infrastructure;            Internal and access roads indicating width;            The BESS, substation(s) invertors and /or transformer(s) sites including their entire footprints;            Connection routes (including pylon positions) to the distribution/transmission network;            Buildings, including accommodation;            All existing infrastructure on the site;            Wetlands, drainage lines, rivers, stream and water crossing of roads and cables;            All sensitive features e.g., Important Bird Areas, Critical Biodiversity Areas, Ecological Support Areas, heritage sites, wetlands, pans and drainage channels that will be affected by the facility and associated infrastructure; and            All "no-go" and buffer areas.</p>	<p>EMPr Report, Section 2, Figure 2-1 and Table 2-4.</p>
<p>14. The Environmental Management Programme (EMPr) submitted as part of the final EIAR (Appendix 8) dated June 2022 is not approved and must be amended to include measures as dictated by the final site lay-out map and micro-siting; and the provisions 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.</p>	<p>N/A</p>
<p>15. The EMPr must include the following:</p>	
<p>15.1 All recommendations and mitigations measures recorded in the EIAR and the specialist reports as included in the final EIAR dated June 2022.</p>	<p>EMPr Report, Section 2</p>

15.2 The requirements and conditions of this authorisation.	EMPr Report, Section 3.8
15.3 The final site layout map.	EMPr Report, Figure 2-1
15.4 A construction and operational avifaunal and bat monitoring plan.	EMPr Report, Section 25
15.5 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 is undertaken.	EMPr Report, Section 12
15.6 A plant rescue and 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.	EMPr Report, Section 13
15.7 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 completion of construction activities to reduce the amount of habitat converted at any one time and to speed up the recovery to natural habitats.	EMPr Report, Section 14
15.8 A transportation plan for the transport of turbine components, main assembly cranes and other large equipment.	EMPr Report, Section 20
15.9 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 not to disturb existing retail and commercial operations.	EMPr Report, Section 19
15.10 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-site 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 lines so as not to impede natural surface and subsurface flows. Drainage measures must promote the dissipation of storm water run-off.	EMPr Report, Section 18
15.11 An erosion management plan for monitoring and rehabilitating 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.	EMPr Report, Section 15
15.12 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.	EMPr Report, Section 22
15.13 A fire management plan to be implemented during the construction and operational phases.	EMPr Report, Section 21
15.14 Measures to protect hydrological features such as streams, rivers, pans, wetlands, dams and their catchments, and other environmental sensitive areas from construction impacts including the direct or indirect spillage of pollutants.	EMPr Report, Section 22
15.15 An environmental sensitivity map indicating environmental sensitive areas and features identified during the EIA process.	EMPr Report, Figure 2-1
15.16 A map combining the final layout map superimposed (overlain) on the environmental sensitivity map. This map must reflect the proposed location of the turbines as stated in the EIAr in the amended layout and this authorisation.	EMPr Report, Figure 2-1
16. The generic EMPr (Appendix 8) for the substations and all associated infrastructure, submitted as part of the final EIAr dated June 2022, is not approved. Part C must be amended to include measures as dictated by the final site lay-out map and micro-siting, and the provisions of this Environmental Authorisation. Part C of the generic EMPr must be made available for comments to registered Interested and Affected Parties and the holder of this Environmental Authorisation must consider such comments. Once amended, the generic EMPr must be submitted to the Department for written approval of Part C prior to commencement of the activity. Part C of the generic EMPr must be amended to include the following: The requirements and conditions of this Environmental Authorisation; Measures as dictated by the final site lay-out map and micro-siting; All recommendations and mitigation measures recorded in the EIAr and the specialist reports as included in the final EIAr dated June 2022;	Appendix A



<p>All recommendations and mitigation measures to be implemented for the operational phase of the dangerous goods facility;</p> <p>An effective monitoring system to detect any leakage or spillage of any hazardous substances during their transportation, handling, use or storage. This must include precautionary measures to limit the possibility of oil and other toxic liquids from entering the soil or storm water systems;</p> <p>A fire management plan to be implemented during the construction and operation of the facility;</p> <p>A re-vegetation and habitat rehabilitation plan. The plan must provide for restoration to be undertaken as soon as possible after completion of construction activities, to reduce the amount of habitat converted at any one time and to speed up the recovery to natural habitats;</p> <p>An aquatic rehabilitation and monitoring plan, particularly for watercourse features that will be infilled and/ or excavated;</p> <p>A stormwater management plan; and</p> <p>The final site layout map.</p>	
<p>17. Once approved the EMPrs must be implemented and adhered to. They shall be seen as dynamic documents and shall be included in all contract documentation for the development.</p>	
<p>18. Changes to the approved EMPrs must be submitted in accordance with the EIA Regulations applicable at the time.</p>	
<p>19. The Department reserves the right to amend the approved EMPrs should any impacts that were not anticipated or covered in the EIAr be discovered.</p> <p>■ ☐ Condition 20: The EMPr must be updated where the findings of the environmental audit reports, contemplated in Condition 27 below, indicate insufficient mitigation of environmental impacts associated with the undertaking of the activity, or insufficient levels of compliance with the Environmental Authorisation or EMPr.</p> <p>Condition 21: The updated EMPr must contain recommendations to rectify the shortcomings identified in the environmental audit report.</p> <p>Condition 22: The updated EMPr must be submitted to the Department for approval together with the environmental audit report, as per Regulation 34 of GNR. 982, as amended. The updated EMPr must have been subjected to a public participation process, which process has been agreed to by the Department, prior to submission of the updated EMPr to the Department for approval.</p> <p>Condition 23: In assessing whether to grant approval of an EMPr which has been updated as a result of an audit, the Department will consider the processes prescribed in Regulation 35 of GNR. 982. Prior to approving an amended EMPr the Department may request such amendments to the EMPr as it deems appropriate to ensure that the EMPr sufficiently provides avoidance, management, and mitigation of environmental impacts associated with the undertaking of the activity.</p> <p>Condition 24: The holder of the authorisation may apply for an amendment of an EMPr, if such amendment is required before an audit is required. The amendment process is prescribed in Regulation 37 of the EIA Regulations, 2014, as amended. The holder of the authorisation must request comments on the amendments to the impact management outcomes of the EMPr or amendments to the closure objectives of the closure plan from potentially interested and affected parties, including the competent authority, by using any of the methods provided for in the Act for a period of at least 30 days.</p> <p>Condition 25: The holder of the authorisation must appoint an experienced Environmental Control Officer (ECO) for the construction phase of the development that will have the responsibility to ensure that the mitigation/rehabilitation measures and recommendations referred to in this Environmental Authorisation are implemented and to ensure compliance with the provisions of the approved EMPr.</p> <p>25.1 The ECO must be appointed before commencement of any authorised activities.</p> <p>25.2 Once appointed, the name and contact details of the ECO must be submitted to the Director: Compliance Monitoring of the Department.</p> <p>25.3 The ECO must keep record of all activities on site, problems identified, transgressions noted and a task schedule of tasks undertaken by the ECO.</p> <p>25.4 The ECO must remain employed until all rehabilitation measures, as required for implementation due to construction damage, are completed and the site is ready for operation.</p> <p>Condition 26: All documentation e.g., audit / monitoring / compliance reports and notifications, required to be submitted to the Department in terms of this Environmental Authorisation, must be submitted to the Director: Compliance Monitoring.</p> <p>Condition 27: The holder of the Environmental Authorisation must, for the period during which the Environmental Authorisation and EMPr remain valid, ensure that project compliance with the conditions of the Environmental Authorisation and the EMPr are audited, and that the audit reports are submitted to the Director: Compliance Monitoring of the Department.</p> <p>Condition 28: The frequency of auditing and of submission of the environmental audit reports must be per the frequency indicated in the EMPr, taking into account the processes for such auditing as prescribed in Regulation 34 of the EIA Regulations, 2014, as amended.</p>	

Condition 29: The holder of the environmental authorisation must, in addition, submit environmental audit reports to the Department within 30 days of completion of the construction phase (i.e., within 30 days of site handover) and a final environmental audit report within 30 days of completion of rehabilitation activities.

Condition 30: The environmental audit reports must be compiled in accordance with Appendix 7 of the EIA Regulations, 2014, as amended, and must indicate the date of the audit, the name of the auditor and the outcome of the audit in terms of compliance with the Environmental Authorisation conditions as well as the requirements of the approved EMPr.

Condition 31: Records relating to monitoring and auditing must be kept on site and made available for inspection to any relevant and competent authority in respect of this development.

Condition 32: A written notification of commencement must be given to the Department no later than fourteen (14) days prior to the commencement of the activity. Commencement for the purposes of this condition includes site preparation. The notice must include a date on which it is anticipated that the activity will commence, as well as a reference number.

Condition 33: A written notification of operation must be given to the department no later than fourteen (14) days prior to the commencement of the activity operational phase.

Condition 34: Should the activity ever cease or become redundant, the holder of the authorisation must undertake the required actions as prescribed by legislation at the time and comply with all relevant legal requirements administered by any relevant and Competent Authority at that time.

EA Condition No.	Condition in the EA	Status	EMPr Reference
Avifauna and bats			
35.	The results of the pre-construction bird monitoring assessment including all recommendations proposed by the reports dated June 2022, must inform the final layout and the construction schedule of the WEF.	Complete	Section 2
36.	The facility must be designed in a manner that, infrastructure components that could be used as perching or roosting substrates by birds and bats must be prohibited.	Complete	Section 2
37.	The holder of this Environmental Authorisation must restrict the construction activities to the footprint area. No access to the remainder of the property is allowed.	Pending for construction	Section 2
38.	Anti-collision devices such as bird flappers must be installed where power lines cross avifaunal corridors (e.g. grasslands, rivers, wetlands, and dams). The input of an avifaunal specialist must be obtained for the fitting of the anti-collision devices onto specific sections of the line once the exact positions of the towers have been surveyed and pegged. Additional areas of high sensitivity along the preferred alignment must also be identified by the avifaunal specialist for the fitment of anti-collision devices. These devices must be according to Eskom's Transmission and EWT's Guidelines.	Pending for construction	Section 2
39.	A pre-construction walk through of the approved power line alignment and turbine positions by a bat specialist, avifaunal specialist and ecologist, must be conducted to	Complete	Section 2

	ensure that the micro-siting of the turbines, pylons and power line alignment have the least possible impact, there are no nests sites of priority species on or close to the construction corridor, and all protected plant species impacted are identified.		
40.	A construction monitoring plan must be developed and be implemented to survey impacts resulting from the infrastructure installation on the bird communities with focus on assessing the displacement and disturbance effects of the development on the bird communities, as well as continue to gather information on the bird communities present in the area and monitor the effectiveness of the mitigation measures for a minimum duration of at least three years during operation.	Complete	Section 24
41.	A bat monitoring program to determine the actual impacts on the bat community must be carried out for a minimum of three years, and utilization of red lights in the turbines to minimize insect attraction and bat foraging behaviours near the turbines is encouraged.	Complete	Section 25
42.	All bird monitoring must be conducted in accordance with the latest Birdlife South Africa/Endangered Wildlife Trust: Best practice guidelines for avian monitoring and impact mitigation at proposed wind energy development sites in Southern Africa.	Pending for Operation	Section 24
Vegetation, wetlands and water resources			
43.	The 'no-go' areas of the development property must be clearly demarcated and must be excluded from the final layout plan.	Complete	Section 2
44.	All watercourses and associated wetlands are regarded as sensitive. All developments within 500m of watercourses must comply with the National Water Act.	Pending application	Section 3
45.	No transmission line towers, substations and construction camps will be placed within the delineated water courses as well as their respective buffers without obtaining the required approvals. A 32m buffer must be applied along all identified watercourses and a 50m buffer must be applied along all identified wetlands.	Pending application	Section 3
46.	A pre-construction survey of the final development footprint must be conducted by a qualified floral specialist to identify protected species affected by the proposed development. Prior to the commencement of construction, a rescue and rehabilitation operation for these species which could survive translocation must be conducted.	Complete	Section 2
47.	Construction activities must be restricted to demarcated areas to restrict the impact on sensitive environmental features.	Pending for Construction	Section 7
48.	All areas of disturbed soil must be reclaimed using only indigenous grass and shrubs. Reclamation activities shall be undertaken according to the rehabilitation plan to be included in the final EMPr.	Complete	Section 14
49.	Topsoil from all excavations and construction activities must be salvaged and reapplied during reclamation.	Pending for Construction	Section 7
50.	No exotic plants may be used for rehabilitation purposes; only indigenous plants of the area may be utilised.	Pending for Construction	Section 14

51.	Cleared alien vegetation must not be dumped on adjacent intact vegetation during clearing but must be temporarily stored in a demarcated area.	Pending for Construction	Section 12
52.	Removal of alien invasive species or other vegetation and follow-up procedures must be in accordance with the Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983).	Pending for Construction	Section 12
53.	Contractors and construction workers must be clearly informed of the no-go areas.	Pending for Construction	Section 7
54.	Where roads pass right next to major water bodies, provision shall be made for fauna such as toads to pass under the roads by using culverts or similar structures.	Pending for Construction	Section 7
55.	Bridge design must be such that it minimise impact to riparian areas with minimal alterations to water flow and must allow the movement of fauna and flora.	Pending for Construction	Section 7
56.	The final development area should be surveyed for species suitable for search and rescue, which should be trans-located prior to the commencement of construction.	Pending for Construction	Section 13
57.	Electric fencing should not have any strands within 30cm of the ground, which should be sufficient to allow smaller mammals, reptiles and tortoises to pass through, but still remain effective as a security barrier.	Pending for Construction	Section 7
58.	Disturbed areas must be rehabilitated as soon as possible after construction with locally indigenous plants to enhance the conservation of existing natural vegetation on site.	Pending for Construction	Section 7
59.	Wetlands, rivers and river riparian areas must be treated as "no-go" areas and appropriately demarcated as such. No vehicles, machinery, personnel, construction material, fuel, oil, bitumen or waste must be allowed into these areas without the express permission of and supervision by the ECO, except for rehabilitation work in these areas.	Pending for Construction	Section 7
60.	Workers must be made aware of the importance of not destroying or damaging the vegetation along rivers and in wetland areas and this awareness must be promoted throughout the construction phase.	Pending for Construction	Section 7
61.	Freshwater ecosystems located in close proximity to the construction areas must be inspected on a regular basis by the ECO for signs of disturbance from construction activities. If signs of disturbance are noted, immediate action must be taken to remedy the situation and, if necessary, a freshwater ecologist must be consulted for advice on the most suitable remediation measures.	Pending for Construction	Section 7
62.	No discharge of effluents or polluted water must be allowed into any rivers or wetland areas.	Pending for Construction	Section 7
63.	If construction areas are to be pumped of water (e.g. after rains), this water must be pumped into an appropriate settlement area, and not allowed to flow into any rivers or wetland areas.	Pending for Construction	Section 7
64.	Workers must be made aware of the importance of not polluting rivers or wetlands and of not undertaking activities that could result in such pollution, and this awareness must be promoted throughout the construction phase.	Pending for Construction	Section 7

65.	Freshwater ecosystems located in close proximity to the site must be inspected on a regular basis (but especially after rainfall) by the ECO for signs of sedimentation and pollution. If signs of sedimentation or pollution are noted, immediate action must be taken to remedy the situation and, if necessary, a freshwater ecologist must be consulted for advice on the most suitable remediation measures.	Pending for Construction	Section 7
Roads and transportation			
66.	Signs must be placed along construction roads to identify speed limits, travel restrictions, and other standard traffic control information. To minimize impacts on local commuters, consideration should be given to limiting construction vehicles travelling on public roadways during the morning and late afternoon commute time.	Pending for Construction	Section 20
67.	All structures crossing streams must be located and constructed so that they do not decrease channel stability or increase water velocity.	Pending for Construction	Section 20
68.	A designated access to the site must be created and clearly marked to ensure safe entry and exit.	Pending for Construction	Section 20
69.	Signage must be erected at appropriate points warning of turning traffic and the construction site.	Pending for Construction	Section 20
70.	Construction vehicles carrying materials to the site should avoid using roads through densely populated built-up areas so as not to disturb existing retail and commercial operations.	Pending for Construction	Section 20
71.	Road borders should be regularly maintained to ensure that vegetation remains short and that they therefore serve as an effective firebreak.	Pending for Construction	Section 20
72.	Roads must be designed so that changes to surface water runoff are avoided and erosion is not initiated.	Pending for Construction	Section 20
73.	All construction vehicles should adhere to a low speed limit to avoid collisions with susceptible species such as snakes and tortoises.	Pending for Construction	Section 20
Noise			
74.	The potential noise impact be re-evaluated should the layout be changed such that any wind turbines are located closer than 1,000m from a confirmed noise sensitive area.	Complete	Section 2
75.	The holder of this authorisation must ensure that the construction staff working in areas where the 8-hour ambient noise levels exceed 75dBA must wear ear protection equipment.	Pending for Construction	Section 7
76.	The holder of this authorisation must ensure that all equipment and machinery are well maintained and equipped with silencers.	Pending for Construction	Section 7
77.	The holder of this authorisation must provide a prior warning to the community when a noisy activity e.g. blasting is to take place.	Pending for Construction	Section 7
78.	Positions of turbines jeopardizing compliance with accepted noise levels should be revised during the micro-siting of the units in question and predicted noise levels re-modelled by the noise specialist, in order to ensure that the predicted noise levels are less than 45dB(A).	Complete	Section 2

79.	Construction staff must be trained in actions to minimise noise impacts.	Pending for Construction	Section 7
Visual resources			
80.	The holder of this authorisation must reduce visual impacts during construction by minimising areas of surface disturbance, controlling erosion, using dust suppression techniques and restoring exposed soil as closely as possible to their original contour and vegetation.	Pending for Construction	Section 7
81.	A lighting engineer must be consulted to assist in the planning and placement of light fixtures in order to reduce visual impacts associated with glare and light trespass.	Pending for Construction	Section 7
82.	Lighting of main structures (turbines) and ancillary buildings should be designed to minimise light pollution without compromising safety, and turbines must be lit according to Civil Aviation Regulations.	Pending for Construction	Section 7
83.	Signage on or near wind turbines must be avoided unless they serve to inform the public about wind turbines and their function.	Pending for Construction	Section 7
84.	Commercial messages and graffiti on turbines are prohibited.	Pending for Construction	Section 8
Human health and safety			
85.	A health and safety programme must be developed to protect both workers and the general public during construction, operation and decommissioning of the energy facility. The programme must establish a safety zone for wind turbines from residences and occupied buildings, roads, right-of-ways and other public access areas that is sufficient to prevent accidents resulting from the operation of the wind turbines.	Pending for Construction	Section 7
86.	Potentials interference with public safety communication systems (e.g. radio traffic related to emergency activities) must be avoided.	Pending for Construction	Section 7
87.	The holder of this authorisation must obtain approval from the South Africa Civil Aviation Authority that the wind facility will not interfere with the performance of aerodrome radio Communication, Navigation and Surveillance (CNS) equipment, especially the radar, prior to commencement of the activity. A copy of the approval must be kept on site by the ECO.	Pending for Construction	Section 7
88.	The holder of this authorisation must obtain approval from the South Africa Weather Services (WeatherSA) that the energy facility will not interfere with the performance of their equipment, especially radar, prior to commencement of the activity. A copy of the approval must be kept on site by the ECO.	Pending for Construction	Section 7
89.	The holder of this authorisation must train safety representatives, managers and workers in workplace safety. The construction process must be compliant with all safety and health measures as prescribed by the relevant act.	Pending for Construction	Section 7
90.	Liaison with land owners/farm managers must be done prior to construction in order to provide sufficient time for them to plan agricultural activities.	Pending for Construction	Section 7

91.	No unsupervised open fires for cooking or heating must be allowed on site.	Pending for Construction	Section 7
Hazardous materials and waste management			
92.	Areas around fuel tanks must be bunded or contained in an appropriate manner as per the requirements of SASS 089:1999 Part 1.	Pending for Construction	Section 7
93.	Leakage of fuel must be avoided at all times and if spillage occurs, it must be remedied immediately.	Pending for Construction	Section 7
94.	Hazardous waste such as bitumen, oils, oily rags, paint tins etc. must be disposed of at an approved waste landfill site licensed to accept such waste.	Pending for Construction	Section 7
95.	No dumping or temporary storage of any materials may take place outside designated and demarcated laydown areas, and these must all be located within areas of low environmental sensitivity.	Pending for Construction	Section 7
96.	Hazardous substances must not be stored where there could be accidental leakage into surface or subterranean water.	Pending for Construction	Section 7
97.	Hazardous and flammable substances must be stored and used in compliance to the applicable regulations and safety instructions. Furthermore, no chemicals 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.	Pending for Construction	Section 7
98.	Temporary bunds must be constructed around chemical storage to contain possible spills.	Pending for Construction	Section 7
99.	Spill kits must be made available on-site for the clean-up of spills.	Pending for Construction	Section 7
100.	An integrated waste management approach must be implemented that is based on waste minimisation and must incorporate reduction, recycling and re-use options where appropriate. Where solid waste is disposed of, such disposal shall only occur at a landfill licensed in terms of section 20(b) of the National Environment Management Waste Act, 2008 (Act 59 of 2008).	Pending for Construction	Section 7
101.	The holder of this authorisation must provide sanitation facilities within the construction camps and along the road so that workers do not pollute the surrounding environment. These facilities must be removed from the site when the construction phase is completed as well as associated waste to be disposed of at a registered waste disposal site.	Pending for Construction	Section 7
102.	The holder of this authorisation must take note that no temporary site camps will be allowed outside the footprint of the development area as the establishment of such structures might trigger a listed activity as defined in the Environmental Impact Assessment Regulations, 2014.	Pending for Construction	Section 7
Excavation and blasting activities			
103.	Underground cables and internal access roads must be aligned as much as possible along existing infrastructure to limit damage to vegetation and watercourses.	Pending for Construction	Section 7
104.	Foundations and trenches must be backfilled with originally excavated materials as much as possible. Excess excavation materials must be disposed of only in	Pending for Construction	Section 7

	approved areas or, if suitable, stockpiled for use in reclamation activities.		
105.	Borrow materials must be obtained only from authorised and permitted sites. Permits must be kept on site by the ECO.	Pending for Construction	Section 7
106.	Anti-erosion measures such as silt fences must be installed in disturbed areas.	Pending for Construction	Section 7
Air emissions			
107.	Dust abatement techniques must be used before and during surface clearing, excavation, or blasting activities.	Pending for Construction	Section 7
108.	Appropriate dust suppression techniques must be implemented on all exposed surfaces during periods of high wind. Such measures may include wet suppression, chemical stabilisation, the use of a wind fence, covering surfaces with straw chippings and re-vegetation of open areas.	Pending for Construction	Section 7
Historical /cultural/paleontological resources			
109.	A 30m buffer must be applied around all identified archaeological sites.	Pending for Construction	Section 27
110.	After initial vegetation clearance has taken place but before the ground is levelled for construction, a professional palaeontologist must undertake a walkthrough and document any identified paleontological findings. The survey/walkthrough must be conducted as per the South African Heritage Resources Agency (SAHRA) requirements.	Pending for Construction	Section 27
111.	Should any archaeological sites, artefacts, paleontological fossils or graves be exposed during construction work, work in the immediate vicinity of the find must be stopped, SAHRA must be informed and the services of an accredited heritage professional obtained for an assessment of the heritage resources to be made.	Pending for Construction	Section 27
112.	Construction managers/foremen must be informed before construction starts on the possible types of heritage sites and cultural material they may be encountered and the procedures to follow when they find sites.	Pending for Construction	Section 27
113.	All buffers and no-go areas stipulated in this report must be adhered to for both the facilities and all roads and power lines.	Pending for Construction	Section 27
114.	Should any human remains be uncovered during development they must be immediately protected in situ and reported to the heritage authorities or to an archaeologist. The remains will need to be exhumed at the cost of the developer.	Pending for Construction	Section 27
115.	All construction and maintenance crew and vehicles (except small vehicles which may use existing farm tracks) should be kept out of the buffer zones.	Pending for Construction	Section 27
116.	The final layout should be shown to the appointed archaeologist before implementation to confirm that all significant heritage resources have been adequately protected.	Pending for Construction	Section 27
Turbines position			
117.	No turbines or associated infrastructure are allowed in the high sensitivity areas.	Complete	Section 2



118.	50m buffer zones must be applied around grave sites.	Complete	Section 2
119.	A 30m buffer zone must be applied around farmsteads.	Complete	Section 2
120.	A 30m buffer zone must be applied around historical structures.	Complete	Section 2
121.	The laydown area and gridline must be located outside the 500m buffer of the significant historic Bloemendal - Reynartskraal Poort gateway cultural landscape feature.	Complete	Section 2
122.	Access roads must maintain a 200m buffer from historic structures, and 50m buffer from cultivated areas, especially within the Bloemendal - Reynartskraal Poort gateway.	Complete	Section 2
123.	The approved turbines must be placed in a manner to avoid all designated, "no-go" areas as well as its buffers.	Complete	Section 2
124.	The final placement of turbines must follow a micro siting procedure involving a walk-through and identification of any sensitive areas by botanical and avifaunal specialists.	Complete	Section 2
125.	1Exclusion of sensitive ecological, heritage and paleontological areas from construction activities must inform micro siting of all development activities.	Complete	Section 2
General			
126.	The recommendations of the EAP in the EIAR dated June 2022 and the specialist studies attached must be adhered to. In the event of any conflicting mitigation measures and conditions of the Environmental Authorisation, the specific condition of this Environmental Authorisation will take preference.	Complete	Section 2, 3 & 7
127.	A copy of this Environmental Authorisation, the audit and compliance monitoring reports, and the approved EMP, must be made available for inspection and copying - 127.1. at the site of the authorised activity; 127.2. to anyone on request; and 127.3. where the holder of the Environmental Authorisation has a website, on such publicly accessible website.	Pending for construction	Section 7
128.	National government, provincial government, local authorities or committees appointed in terms of the conditions of this authorisation or any other public authority shall not be held responsible for any damages or losses suffered by the holder of the authorisation or his/her successor in title in any instance where construction or operation subsequent to construction be temporarily or permanently stopped for reasons of non-compliance by the holder of the authorisation with the conditions of authorisation as set out in this document or any other subsequent document emanating from these conditions of authorisation.	Noted	

## Design Phase Management Plan

ASPECT / IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	METHOD	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
<b>General Measures during the Design Phase</b>					
Specialist Investigations	<ol style="list-style-type: none"> <li>1. An avifaunal walk-through must be undertaken by the avifaunal specialist prior to the construction commencing, to confirm the location and status of all priority species nests within the area of influence of the wind farm.</li> <li>2. Preconstruction biodiversity walk-through of the facility to micro-site roads and turbines.</li> <li>3. A preconstruction micro-survey for access roads, substations, laydown areas and gridlines should be completed with CLA specialist to ensure appropriate buffers are maintained during operational activities.</li> <li>4. Turbine layouts must adhere to the sensitivity areas and buffers, and the layout should be approved by a bat specialist upon finalisation of turbine specifications.</li> <li>5. A pre-construction walkthrough with an aquatic specialist is recommended and they can assist with the development of the stormwater management plan and Aquatic Rehabilitation and Monitoring plan, coupled to micro-siting of the final layout.</li> <li>6. Pre-construction walk down must be undertaken by the flora specialist in order to locate species</li> </ol>	Holder of the EA Relevant specialists	As per specialist requirements.	Ensure the EMPr is adhered to.	Pre-construction

	<p>of conservation concern that can be translocated as well as comply with the local permit conditions.</p> <p>7. A walk down of the final approved layout by the Heritage specialist will be required before construction commences.</p> <p>8. Any heritage features of significance identified during this walk down will require formal mitigation or where possible a slight change in design could accommodate such resources.</p> <p>9. A pre-construction palaeontological heritage walkdown of the final WEF and grid connection layout by a suitably qualified palaeontologist is recommended here.</p> <p>a. The recommended palaeontological walkdown should involve the recording and judicious collection of valuable fossil material as well as relevant geological data (e.g. on stratigraphic context, preservation style / taphonomy) within or close to (within ~10 m) the project footprint. This mitigation phase is essential because all fossil heritage resources in the RSA are protected by law and it is illegal to disturb, damage or destroy fossils here without a permit from the relevant provincial heritage resources agency (South African Heritage Resources Act, Act No. 25 of 1999). The palaeontological heritage mitigation report would then make</p>				
--	---	--	--	--	--

	<p>recommendations for further studies and mitigation (if any are necessary) during the construction phase of the renewable energy project. Since mitigation through recording and collection is almost invariably feasible, late-stage modifications to the final WEF / grid infrastructure layout (e.g. micro-siting changes to access roads, turbine or pylon locations) are not anticipated here.</p> <p>The palaeontologist responsible for the mitigation work will be required to submit a Work Plan for approval by Heritage Western Cape (HWC) and a Mitigation Report must be submitted to HWC for consideration. All fieldwork and reporting should meet the standards of international best practice as well as those developed for PIA reports by SAHRA(2013) and Heritage Western Cape (2021). Fossil material collected must be safeguarded and curated within an approved palaeontological repository (e.g. museum or university collection) with full collection data.</p> <p>10. It is recommended that a 5km turbine exclusion zone is implemented around the Martial Eagle nest a Tower 108 on the Droërvivier – Protheus 400kV transmission line (see Figure 4). The</p>				
--	---	--	--	--	--

	<p>current 28 turbine lay-out has taken this into account.</p> <ol style="list-style-type: none"> <li>11. It is recommended that a 150m turbine exclusion zone is implemented around all drainage lines at the project site, and a 200m turbine exclusion zone around dams and water troughs as a precautionary measure against SCC and other priority species collisions (Figure 4). The current 28 turbine lay-out has taken this into account.</li> <li>12. It is recommended that all internal medium voltage cables are buried if technically possible.</li> <li>13. Those sections where the 33kV medium voltage cable cannot be trenched due to technical or environmental reasons, but needs run on overhead poles, the proposed pole designs must be approved by the avifaunal specialist, to ensure that the designs are raptor-friendly.</li> <li>14. It is recommended that bird flight diverters are fitted to all internal 33kV overhead lines according to the applicable Eskom engineering standard at the time.</li> <li>15. Consideration should be given to painting one third of one blade on each turbine signal red as a mitigation measure against avifaunal collisions, if feasible. While this mitigation measure is still considered experimental, data from Norway indicates a high level of effectiveness, even up to 100% for large raptors. If this can be done</li> </ol>				
--	--	--	--	--	--

	during the manufacturing phase, it can be done inexpensively.				
Appointment of ECO	<p>16. Appoint an Environmental Control Officer.</p> <p>17. The Environmental Control Officer (ECO) or a responsible appointed person or site manager should contact a bat specialist before construction commences so that they know what to look out for during construction.</p>	Holder of the EA	Undertake regular audits	Avoid construction delays. Ensure the EMPr is adhered to.	Continuous.
Site demarcation	<p>18. Before construction begins, all areas to be developed must be clearly demarcated with fencing or orange construction barrier where applicable.</p> <p>19. All Construction Camps are to be fenced off in such a manner that unlawful entry is prevented and access is controlled. All access points to the Construction Camp should be controlled by a guard or otherwise monitored, to prevent unlawful access.</p> <p>20. Records of all environmental incidents (in line with Section 30 of NEMA, 1998) must be maintained and a copy of these records be made available to provincial department on request throughout the project execution.</p>	Contractor	Undertake regular audits	Prevent unauthorized impact on the environment. Ensure safety of the workers, public and prevent loss/ damage to equipment. Ensure the conditions of the EA are adhered to. Compliance to all legislative requirements.	Continuous
Site clearing	<p>21. Site clearing must take place in a phased manner, as and when required.</p> <p>22. Areas which are not to be constructed on within two months must not be cleared to reduce erosion risks.</p>	Holder of the EA Contractor	Undertake regular audits	Site establishment undertaken responsibly Sensitive areas identified and avoided Erosion management plan implemented and	Once off

	<p>23. The area to be cleared must be clearly demarcated and this footprint strictly maintained.</p> <p>24. Spoil that is removed from the site must be removed to an approved spoil site or a licensed landfill site.</p> <p>25. The necessary silt fences and erosion control measures must be implemented in areas where these risks are more prevalent</p>			<p>hydrological measures in place.</p> <p>Appropriate stormwater structures as informed by the Storm Water Management Plan</p>	
Construction Camp	<p>26. Site establishment shall take place in an orderly manner and all required amenities shall be installed at camp sites before the main workforce move onto site.</p> <p>27. All construction equipment must be stored within the construction camp.</p> <p>28. All associated oil changes etc. (no servicing) must take place within the camp over a sealed surface such as a concrete slab.</p> <p>29. An area for the storage of hazardous materials must be established that conforms to the relevant safety requirements and that provides for spillage prevention and containment</p> <p>30. All Construction Camps shall be provided with portable fire extinguishing equipment, in accordance with all relevant legislation and must be readily accessible.</p> <p>31. The Contractor must provide sufficient ablution facilities, in the form of portable / VIP toilets, at the Construction Camps, and shall conform to all relevant health and</p>	Contractor	Undertake regular audits	<p>Prevent unauthorized impact on the environment.</p> <p>Ensure safety of the public and prevent loss/ damage equipment</p> <p>Ensure EMPr is adhered to</p> <p>Compliance to all legislative requirements</p>	Continuous

	<p>safety standards and codes. No pit latrines, French drain systems or soak away systems shall be allowed and toilets may not be situated within 100 meters of any surface water body or 1:100-year flood line. A sufficient number of toilets shall be provided to accommodate the number of personnel working in the area.</p> <p>32. The Contractor shall inform all site staff to make use of supplied ablution facilities and under no circumstances shall indiscriminate sanitary activities be allowed.</p> <p>33. No fires will be allowed and the Contractor must make alternative arrangements for heating. LP Gas may be used, provided that all required safety measures are in place. The Contractor shall take specific measures to prevent the spread of fires, caused by activities at the campsites. These measures may include appropriate instruction of employees about fire risks and the construction of firebreaks around the site perimeter.</p>				
Training of site staff	<p>34. Environmental awareness training for construction staff, concerning at a minimum the general environmental awareness, conservation of fauna and flora, the prevention of accidental spillage of hazardous chemicals and oil; pollution of water resources (both surface and groundwater), air pollution and litter control and identification of archaeological artefacts.</p>	Contractor	Undertake regular audits	<p>All staff members are aware of the EMP requirements relevant to them.</p> <p>All waste managed according to approved the Method Statement compiled by the contractor and approved by the engineer and reviewed by ECO.</p>	Continuous



	<p>35. Staff operating equipment (such as loaders, etc.) shall be adequately trained and sensitised to any potential hazards associated with their tasks.</p> <p>36. No operator shall be permitted to operate critical items of mechanical equipment without having been trained by the Contractor and certified competent by the Project Manager.</p> <p>37. Staff should be educated as to the need to refrain from indiscriminate waste disposal and/or pollution of local soil and water resources and receive the necessary safety training.</p> <p>38. Staff must be trained in the hazards and required precautionary measures for dealing with these substances.</p> <p>39. Spillage packs must be available at construction areas.</p>				
<b>Consultation During the Design Phase</b>					
Consultation	<p>1. Provide a mechanism through which information could be exchanged between the project proponent and stakeholders.</p> <p>2. Identify relevant stakeholders and engage them at applicable stages of the EIA process.</p> <p>3. Inform the public about the proposed construction process.</p> <p>4. Surrounding communities must be kept informed, through the identified and agreed consultation channels, of the commencement of construction.</p>	Holder of the EA Contractor	n/a	Clear communication channels established.	Continuous

	<p>5. Work on site to be restricted to work hours.</p> <p>6. Financial provision must be included for rehabilitation in terms of the REIPPP financial model requirements.</p> <p>7. An agreement/contract should be formalised between the landowner and the applicant that will ensure that the rehabilitation does not leave any liability to future landowners.</p>				
Noise	<p>8. At all stages, surrounding receptors should be informed about the project, providing them with factual information without setting unrealistic expectations.</p> <p>9. 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.</p> <p>10. The proposed WEF should maintain a commitment to the local community (people staying within 2,000 m from construction or operational activities) and respond to noise concerns in an expedient fashion. Sporadic and legitimate noise complaints could be raised. For example, sudden and sharp increases in sound levels could result from mechanical malfunctions or perforations or slits in the blades. Problems of this nature can be corrected quickly and it is in the developer's interest to do so.</p>	Holder of the EA Contractor	n/a	Clear communication channels established.	Continuous

	11. Noise generated from all the proposed activities must comply with the Western Cape Noise Control Regulations promulgated in Provincial Notice 200/2013 (“WCNCR”).				
<b>Specialist Specific Mitigation Measures</b>					
<b>Erosion</b>					
Protection of soil resources	1. Design an effective system of storm water run-off control, where it is required - that is at any points where run-off water might accumulate. The system must effectively collect and safely disseminate any run-off water from all accumulation points and it must prevent any potential down slope erosion.	Engineer Contractor	Ensure that the storm water run-off control is included in the engineering design.	That disturbance and existence of hard surfaces causes no erosion on or downstream of the site.	Once-off during the design phase.
<b>Visual</b>					
<ul style="list-style-type: none"> <li>■ Potential alteration of the visual character and sense of place.</li> <li>■ Potential visual impact on receptors in the study area.</li> <li>■ Potential visual impact on the night time visual environment.</li> </ul>	<ol style="list-style-type: none"> <li>1. Ensure that wind turbines are not located within 1km of any farmhouses in order to minimise visual impacts on these dwellings.</li> <li>2. Where possible, fewer but larger turbines with a greater output should be utilised rather than a larger number of smaller turbines with a lower capacity.</li> <li>3. Where possible, the operation and maintenance buildings and laydown areas should be consolidated to reduce visual clutter.</li> <li>4. Where possible, underground cabling should be utilised</li> </ol>	Holder of the EA Contractor	Undertake regular audits	Ensure the EMPr is adhered to.	Continuous
<b>Biodiversity</b>					

Vegetation and protected plant species	<ol style="list-style-type: none"> <li>1. There should be no turbines within the Very High Sensitivity areas.</li> <li>2. The footprint within drainage lines should be minimized as much as possible.</li> <li>3. Preconstruction walk-through of the approved development footprint to ensure that sensitive habitats and species are avoided where possible.</li> <li>4. Ensure that lay-down and other temporary infrastructure is within low sensitivity areas, preferably previously transformed areas if possible.</li> <li>5. Minimise the development footprint as far as possible and rehabilitate disturbed areas that are no longer required by the operational phase of the development.</li> <li>6. A large proportion of the impact of the development stems from the access roads and the number of roads should be reduced to the minimum possible and routes should also be adjusted to avoid areas of high sensitivity as far as possible, as informed by a preconstruction walk-through survey.</li> <li>7. Preconstruction environmental induction for all construction staff on site to ensure that basic environmental principles are adhered to. This includes topics such as no littering, appropriate handling of pollution and chemical spills, avoiding fire hazards, minimizing wildlife interactions,</li> </ol>	Holder of the EA Contractor	Construction Monitoring and audit reports.	<p>Impacts avoided or managed as per specialist recommendations.</p> <p>Alien Plant Management Plan Implemented.</p> <p>Plant Rehabilitation Implemented.</p> <p>Ensure the conditions of the EA are adhered to.</p>	Continuous
--	--	--------------------------------	--	--	------------

	<p>remaining within demarcated construction areas etc.</p> <p>8. Demarcate all areas to be cleared with construction tape or other appropriate and effective means. However, caution should be exercised to avoid using material that might entangle fauna.</p>				
<b>Aquatic Systems</b>					
<p>Impact on aquatic systems through the possible increase in surface water runoff on form and function:</p> <p>Increase in hard surface areas, and roads that require stormwater management will increase through the concentration of surface water flows that could result in localised changes to flows (volume) that would result in form and function changes within aquatic systems, which are currently ephemeral. This then increases the rate of erosions and sedimentation of downstream areas.</p>	<p>1. A stormwater management plan must be developed in the preconstruction phase, detailing the stormwater structures and management interventions that must be installed to manage the increase of surface water flows directly into any natural systems. This stormwater control systems must be inspected on an annual basis to ensure these are functional. Effective stormwater management must include effective stabilisation (gabions and Reno mattresses) of exposed soil and the re-vegetation of any disturbed riverbanks.</p>	<p>Holder of the EA Contractor</p>	<p>All staff members are aware of the EMP requirements relevant to them.</p> <p>Align to Storm Water Plan.</p>	<p>Impacts avoided or managed as per specialist recommendations.</p> <p>Ensure the conditions of the EA are adhered to.</p>	<p>Continuous</p>
<p>Surface Water</p> <p>Damage or loss of riparian and or drainage line systems i.e. disturbance of the waterbodies in the construction phase.</p>	<p>2. A detailed monitoring plan must be developed in the pre- construction phase by an aquatic specialist, where any delineated system occurs within 50 m of existing crossings.</p>	<p>Holder of the EA to appoint aquatic specialist to implement.</p>	<p>Construction Monitoring and audit reports.</p>	<p>Impacts avoided or managed as per specialist recommendations.</p> <p>Ensure the conditions of the EA are adhered to.</p>	<p>Continuous</p>

Heritage					
Damage to 2 sites containing burial grounds and graves (KO-06 and KO-09).	<ol style="list-style-type: none"> <li>1. Demarcate sites as no-go areas (50m buffer).</li> <li>2. Demarcate and fence during construction if construction activities area to happened within 50 meters from a site.</li> <li>3. A management plan, after a walkdown of the final layout, for the heritage resources needs then to be compiled and approved for implementation during construction and operations.</li> </ol>	Applicant ECO Environmental Control Officer (ECO) Heritage / Archaeological specialist	n/a	Ensure the EMPr is adhered to.	Continuous
Damage to 3 historical farmsteads/structures (One structure is located near farm roads within the proposed development area. The expansion of existing farm roads may impact the site, two sites are located within the proposed grid corridor area).	<ol style="list-style-type: none"> <li>4. Demarcate sites as no-go areas (30m buffer).</li> <li>5. Demarcate and fence during construction if construction activities area to happened within 30 meters from a site.</li> <li>6. A management plan, after a walkdown of the final layout, for the heritage resources needs then to be compiled and approved for implementation during construction and operations.</li> </ol>	Applicant ECO Environmental Control Officer (ECO) Heritage / Archaeological specialist	n/a	Ensure the EMPr is adhered to.	Continuous
Unidentified heritage resources	<ol style="list-style-type: none"> <li>7. A management plan, after a walkdown of the final layout, for the heritage resources needs then to be compiled and approved for implementation during construction and operations.</li> </ol>	Applicant ECO Environmental Control Officer (ECO) Heritage / Archaeological specialist	n/a	Ensure the EMPr is adhered to.	Continuous
Fossil heritage resources: Disturbance, damage or destruction of fossils at or beneath the ground surface due to surface	<ol style="list-style-type: none"> <li>8. Pre-construction walkdown (with fossil recording / collection) of final footprint by specialist palaeontologist.</li> </ol>	Applicant ECO Environmental Control Officer (ECO)	n/a	Ensure the EMPr is adhered to.	Continuous

clearance and bedrock excavations.	9. Chance Fossil Finds Procedure during construction phase.	Heritage / Archaeological specialist			
Cultural landscape - Ecological	<p>10. Ecological Support Areas (along drainage lines), should be protected from development of the wind turbines or any associated development during all phases.</p> <p>11. No wind turbines should be placed within the 1:100-year flood line of the watercourses. In the context of the sensitivity to soil erosion in the area, as well as potential archaeological resources, it would be a risk to include any structures close to these drainage lines.</p> <p>12. Identified medicinal plants used for healing or ritual purposes should be conserved during all phases if threatened for use and continued access to these resources be maintained.</p> <p>13. Careful planning should incorporate areas for storm water runoff where the base of the structure disturbed the natural soil. Local rocks found on the site could be used to slow storm water (instead of concrete, or standard edge treatments), and prevent erosion that would be an unfortunate consequence that would alter the character of the site. By using rocks from site it helps to sensitively keep to the character.</p>	Holder of the EA	n/a	Ensure the EMPr is adhered to.	Continuous
Cultural landscape - Aesthetic	14. Where additional infrastructure (i.e. roads) is needed, the upgrade of existing roads to accommodate the development should be the first consideration.	Holder of the EA	n/a	Ensure the EMPr is adhered to.	Continuous

	<p>15. Avoid development of infrastructure (such as buildings, wind turbines and power lines), on crests or ridgelines due to the impact on the visual sensitivity of skylines. The visual impact of turbines can be reduced by distancing them from viewpoints such as roads and farmsteads, and placing them in lower lying plains to reduce their impact on the surrounding sensitive cultural landscape.</p> <p>16. Significant and place-making view sheds of surrounding ridgelines and distant mountain should be maintained by limiting the placement of turbines or associated infrastructure on opposing sides of any of the regional roads, so that at any time a turbine-free view can be found when travelling through the landscape or at the historic farmsteads.</p> <p>Retain view-lines and vistas focused on prominent natural features such as mountain peaks or hills, such as the Platdoring se Kop and the Koup 1 poort, as these are important place making and orientating elements for experiencing the cultural landscape.</p> <p>17. Prevent the construction of new buildings/structures/ new roads on visually sensitive, steep, elevated or exposed slopes, ridgelines and hillcrests.</p> <p>18. Turbine and new road placement to avoid slopes steeper than 10% with</p>				
--	---	--	--	--	--



	<p>existing farm roads to be used for access to turbines as far possible.</p> <p>19. Proposed turbines 4, 5 and 8 are not feasible in their current proposed locations due to steep slope gradients and high and visually prominent ridge lines in these locations which will have an overwhelming negative impact on the historic farm road.</p> <p>20. Proposed turbine 9 is not feasible in the current proposed location due to a combination of factors that cumulatively overwhelm the cultural landscape:</p> <ul style="list-style-type: none"> <li>■ Prominent location in relation to the Koup 1 landscape poort.</li> <li>■ Location at the top of a steep slope classified as 10% and higher.</li> <li>■ Location at one of the highest points in the Koup 1 landscape at close to 1050masl.</li> </ul> <p>21. Due to the scenic and historic significance of the regional road, a buffer of 1000m to either side of the N12 should be maintained for no development associated with the WEF other than sensitive road upgrades, which must not impact on the views from the road. The visual impact of the turbines will be 50% less at 1km distance and therefore this distance will greatly reduce the negative visual impact of the turbines on the experience of the historic road and the values that give it significance.</p> <p>22. Due to the nature of the landscape being largely devoid of high vertical elements such as the proposed</p>				
--	---	--	--	--	--

	<p>turbines, and the introduction of these turbines fundamentally altering the sense of place and character of the landscape for those living there, location of turbines should be limited to a 800m buffer around the farmsteads. The current turbine layout supports this recommendation in that there is nowhere more than a single turbine at the edge of these buffer zones.</p> <p>23. Due to the historic and local experience of the landscape from the farm roads, which link the historically significant farmsteads across the region, a buffer of 300m from the farm roads should be maintained for no development associated with the WEF other than sensitive road upgrades which must not impact on the views from the road.</p> <p>24. Alternatives Option 1(sub1) for the grid corridor and Option 1 for the laydown area, are preferred in terms of cultural landscape assessment as they limit the construction to a smaller footprint on the landscape and locate the infrastructure far enough from the N12 and out of the Koups 1 landscape as far possible. They should be moved as far away from the farm road as possible without impacting on a riverine corridor flood line or a slope over 3%.</p> <p>25. The substation location should be located on the same side as other development infrastructure and to the north of the farm road so as to limit the visual impact to one</p>				
--	---	--	--	--	--

	<p>viewshed. As there is a ridge behind this development area, for which turbine placement is proposed, location of the substation to the north of the farm road contains the impact to one side of the road and the infrastructure will not interrupt view lines of the mountain ranges in the distance.</p> <p>26. The impact of WEF turbine night lighting on the wilderness landscape is intrusive and overwhelms the rural character of the landscape, giving it an industrial sense of place after dark. Reduce the impact of turbine night lighting by minimizing the number of turbines with lighting to only those necessary for aviation safety, such as a few identified turbines on the outer periphery, or use aircraft triggered night lighting. Due to the reduced receptors on the roads at night, the impact of the lighting at night is reserved mainly for farmsteads and other places of overnight habitation such as the surrounding tourist facilities, which would be heavily impacted by the light pollution on a long term and ongoing basis.</p>				
Cultural landscape - Historic	<p>27. Due to the scenic and historic significance of the regional road, a buffer of 1000m to either side of the N12 should be maintained for no development associated with the WEF other than sensitive road upgrades, which must not impact on the views from the road. The visual impact of the turbines will be 50% less at 1000m distance and therefore this distance will greatly</p>	Holder of the EA	n/a	Ensure the EMPr is adhered to.	Continuous

	<p>reduce the negative visual impact of the turbines on the experience of the historic road and the values that give it significance.</p> <p>28. The integrity of the historic farmsteads and their associated cultivated areas and relationship to the riverine corridors and other natural elements, such as the ridgelines and poorts, should be maintained and protected. Due to the nature of the landscape being largely devoid of high vertical elements such as the proposed turbines, the introduction of turbines will fundamentally alter the sense of place and character of the landscape for those living there. Location of proposed turbines and power lines should be limited to a 800m buffer around the farmsteads as far possible to limit impact to the farmsteads. The current turbine layout supports this recommendation in that there is nowhere more than a single turbine at the edge of these buffer zones.</p> <p>29. Any development that impacts the inherent character of the werf component should be discouraged and a development buffer of 50m around the outer boundary of farm werfs and 200m around any graded heritage structure, must be maintained, including the associated cultivated areas, cemeteries and unmarked graves, for all new infrastructure. A preconstruction micro-survey for access roads, substations, laydown areas and gridlines should be</p>				
--	--	--	--	--	--

	<p>completed with CLA specialist to ensure appropriate buffers are maintained.</p> <p>30. The significant historical cultural element of the Bloemendal – Reynartskraal Poort settlement, graded IIIA, should be protected from heavy construction vehicles, WEF infrastructure, construction and operational traffic dust or water exploitation as this will impact heavily on the continued sustainable land use patterns and crop cultivation. A 500m buffer around this area is for all infrastructure, including laydown areas, other than minor sensitive road widening or upgrades.</p> <p>31. No infrastructure or operational upgrades, such as boreholes, should impact negatively or reduce natural, on site water quality, quantity or access for the residents within or around the development site. Any borehole or other water resource upgrade should also be made freely accessible to the residents living on site.</p> <p>32. Due to the historic and local experience of the landscape from the farm roads, which link the historically significant farmsteads across the region, a buffer of 300m from the farm roads should be maintained for no development associated with the WEF other than sensitive road upgrades which must not impact on the views from the road. A preconstruction micro-survey for access roads, substations, laydown areas and gridlines should</p>				
--	---	--	--	--	--

	<p>be completed with CLA specialist to ensure appropriate buffers are maintained.</p> <p>33. Buffers from identified stone markers and foundations should be in accordance with the AIA (PGS, 2021) where they are not directly associated with an historic farmstead.</p> <p>34. The existing names of places, routes, watercourses and natural features in the landscape that are related to its use, history and natural character should be retained and used as heritage resources related to intangible heritage.</p> <p>35. Burial grounds and places of worship are automatically regarded as Grade IIIa or higher. Any development that threatens the inherent character of family burial grounds must be assessed and should be discouraged. No development closer than 100m from the boundary of any burial grounds or unmarked graves. No turbines have been proposed for placement near known unmarked burials or family cemeteries. A preconstruction micro-survey for access roads, substations, laydown areas and gridlines should be completed with CLA specialist to ensure appropriate buffers are maintained. A preconstruction micro-survey of each turbine footprint and any new access roads should be conducted to ensure no</p>				
--	--	--	--	--	--

	<p>further unmarked graves are threatened.</p> <p>36. Commonages and outspans were located at water points, and these places were likely gathering points before the arrival of colonists and continued to provide communal resources. In the mid-20th century, many old commonages came under the ownership of the Municipality, and have since been rented out to private individuals or organisations. The Municipality should facilitate the use of common land in a way that promotes the well-being and quality of life of the public. These sites can play a restorative role within the community, for instance for those who have limited alternative opportunities for recreation.</p> <p>37. Respect existing patterns, typologies and traditions of settlement-making by promoting the continuity of heritage features. These include: (a) indigenous; (b) colonial; and (c) current living heritage in the form of tangible and intangible associations to place.</p> <p>38. Alterations and additions to conservation-worthy structures should be sympathetic to their architectural character and period detailing.</p>				
Cultural landscape - Socio-economic	<p>39. The findings of this report must be shared with identified interested and affected parties in the public participation process, including non-landowner residents on the development properties, in the EIA</p>	Holder of the EA	n/a	Ensure the EMPr is adhered to.	Continuous

	<p>public participation process in order to further ascertain any intangible cultural resources that may exist on the landscape that have not been identified. A specialist qualified in recognising and discussing significance of intangible heritage resources should be present during the public meetings. The findings should inform the recommendations for appropriate mitigation for impacts to the cultural landscape.</p> <p>40. The public participation process must include the non-owner residents on and surrounding the development site, which will be impacted on by the proposed WEF as identified by the SIA and VIA. The PPP must consider fully issues of sense of place in its process. A specialist qualified in recognising and discussing significance of intangible heritage resources should be present during the public meetings. The findings should inform the recommendations for appropriate mitigation for impacts to the cultural landscape.</p> <p>41. The continued use of the landscape for human habitation and cultivation by historic residents of the area, should be retained and encouraged as far possible to sustain the continual use pattern and human-environment relationship which is the ultimate significance of this cultural landscape element. The WEF development must allow and support this, including financially,</p>				
--	--	--	--	--	--



	<p>and not degrade this continued relationship.</p> <p>42. No infrastructure or operational upgrades, such as boreholes, should impact negatively or reduce natural, on site water quality, quantity or access for the residents within or around the development site. Preferably any borehole or other water resource upgrade should also be made freely accessible to the residents living on site.</p> <p>43. The local community on and around the development should benefit from job opportunities created by the proposed development and the development should not cause reduction in economic viability of surrounding properties in excess of those offered by the development. Short-term job opportunities at the expense of long term economic benefit and local employment opportunities must be prevented.</p> <p>44. Local residents must be offered employment on the construction/ decommissioning and operational phases before 'importing' staff from elsewhere.</p> <p>45. Local residents must be offered employment-training opportunities associated with WEF developments at all phases.</p>				
<b>Avifauna</b>					
Mortality of priority avifauna due to collisions with the wind turbines.	<p>1. The results of the pre-construction monitoring must guide the lay-out of the turbines, especially as far as proposed no-turbine zones are concerned. No turbines must be</p>	Project Developer	Design the facility with 200m buffers around dams and water troughs, and 150m buffers around major drainage lines.	Prevent mortality of priority avifauna.	Once-off during the planning phase.

	constructed in the buffer zones which were identified based on the results of the pre- construction monitoring, with a specific view to limiting the risk of collisions to a variety of birds, including several Red Data species.				
Electrocution of raptors on the internal 33kV poles.	<ol style="list-style-type: none"> <li>2. Use underground cabling as much as is practically possible.</li> <li>3. Where the use of overhead lines is unavoidable due to technical reasons, the Avifaunal Specialist must be consulted to ensure that a raptor friendly pole design is used, and that appropriate mitigation is implemented pro-actively for complicated pole structures e.g. insulation of live components to prevent electrocutions on terminal structures and pole transformers.</li> </ol>	Project Developer	Design the facility with underground cabling. Consult with Avifaunal Specialist during the design phase of the overhead lines.	Prevent electrocutions.	Once-off during the planning phase.
<b>Bats</b>					
Impact	Mitigation / Management Objectives	Mitigation / Management Actions	Monitoring		
			Method	Frequency	Responsibility
Future Impacts on Bats	<ol style="list-style-type: none"> <li>1. Mitigate impacts on Bat Habitat caused by destruction, disturbance, and displacement.</li> </ol>	Ensure the design of the WEF takes the sensitivity mapping of the bat specialist into account to avoid and reduce impacts on bat species and bat important features. Maintain buffers around these sensitive areas.	Ensure that No Go and high sensitivity areas are identified and excluded from turbine placement during the planning and design phase.	Prior to construction during design and planning phase.	Project Developer

	2. Mitigate impacts leading to bat population decline in future project phases.	Conduct one year of bat monitoring at height.	Relevant SABAA bat guidelines (Sowler, et al, 2017).	Prior to construction.	Project Developer
	3. Minimize footprint of the construction to an acceptable level i.e., no placement of turbines in sensitive areas as well as spacing of turbines.	Turbines need to be approximately 250 m apart from blade tip to blade tip.	Final layout design.	During design and prior to construction.	Project Developer
	4. Avoid attracting bats to sensitive areas.	Plan to minimise artificial light at night.	Choice and light placement on turbines.	Final design.	Project Developer

### **Construction Phase Management Plan**

ASPECT / IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	METHOD	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
<b>Construction Camp</b>					
Construction Camp: Site of construction camp	<ol style="list-style-type: none"> <li>The size of the construction camp must be aligned to the approved laydown area.</li> <li>Adequate parking must be provided for site staff and visitors. The Contractor must attend to drainage of the camp site to avoid standing water and / or sheet erosion.</li> <li>Suitable control measures over the Contractor's yard, plant and material storage to mitigate any visual impact of the construction activity must be implemented.</li> <li>No construction should occur in an area of high or unique agricultural value, or in an area under cultivation.</li> </ol>	Holder of the EA Contractor	As per specialist requirements.	Ensure the conditions of the EA are adhered to. Compliance to all legislative requirements. Impacts avoided or managed as per specialist recommendations.	Once-off
Construction Camp:	<ol style="list-style-type: none"> <li>Choice of location for storage areas must take into account prevailing winds, distances to water bodies,</li> </ol>	Holder of the EA Contractor	As per specialist requirements.	Choice of storage areas carefully considered to	Continuous

<p>Storage of materials (including hazardous materials)</p>	<p>general onsite topography and water erosion potential of the soil. Impervious surfaces must be provided where necessary.</p> <ol style="list-style-type: none"> <li>6. Storage areas must be designated, demarcated and fenced if necessary.</li> <li>7. Storage areas should be secure so as to minimize the risk of crime. They should also be safe from access by unauthorised persons i.e. children / animals etc.</li> <li>8. Fire prevention facilities must be present at all storage facilities.</li> <li>9. Storage areas containing chemical substances / materials must be clearly sign posted.</li> <li>10. Proper storage facilities for the storage of oils, paints, grease, fuels, chemicals and any hazardous materials to be used must be provided to prevent the migration of spillage into the ground and groundwater regime around the temporary storage area(s). These pollution prevention measures for storage must include a bund wall high enough to contain at least 110% of any stored volume, and this must be sited away from drainage lines in a site with the approval of the Project Manager. The bund wall must be high enough to contain 110% of the total volume of the stored hazardous material with an additional allocation for potential stormwater events.</li> <li>11. These storage facilities (including any tanks) must be on an impermeable surface that is protected from the ingress of storm water from surrounding areas and that will not</li> </ol>			<p>avoid impact to environment.</p> <p>Correct handling, storage and/or disposal and/or cleanup of all materials to prevent impact to environment.</p> <p>All hazardous substances managed according to approved Method Statement.</p>	
---	--	--	--	--	--

	<p>infiltrate into the ground in order to ensure that accidental spillage does not pollute local soil or water resources.</p> <p>12. All fuel storage areas must be roofed to avoid creation of dirty stormwater.</p> <p>13. Material Safety Data Sheets (MSDSs) shall be readily available on site for all chemicals to be used on site. Where possible the available, MSDS's must additionally include information on ecological impacts and measures to minimise negative environmental impacts during accidental releases or escapes.</p> <p>14. Staff dealing with these materials / substances must be aware of their potential impacts and follow the appropriate safety measures.</p> <p>15. An approved waste disposal contractor must be employed to remove and recycle waste oil, if practical. The contractor must ensure that its staff is made aware of the health risks associated with any hazardous substances used and has been provided with the appropriate protective clothing/equipment in case of spillages or accidents and have received the necessary training.</p> <p>16. All excess cement and concrete mixes are to be contained on the construction site prior to disposal off site.</p> <p>17. All major spills as specified in the contractor emergency response procedure of any materials, chemicals, fuels or other potentially hazardous or pollutant substances must be cleaned immediately, and</p>				
--	---	--	--	--	--

	the cause of the spill investigated. Preventative measures must be identified and submitted to the MC and ECO for information. Emergency response procedures to be followed and implemented.				
Construction Camp: Drainage of construction camp	18. Surface drainage measures must be established in the Construction Camps so as to prevent: ponding of water. erosion as a result of accelerated runoff; and, 19. Uncontrolled discharge of polluted runoff.	Holder of the EA Contractor	As per specialist requirements.	Storm Water Management Plan provided and accepted prior to construction commencing. Storm Water Management Plan implemented. Erosion plan implemented and hydrological measures in place.	Continuous.
<b>Construction Traffic and Access</b>					
Construction Traffic	<ol style="list-style-type: none"> <li>1. Construction routes and required access roads must be clearly defined.</li> <li>2. Recommendations of the stormwater management plan must be implemented.</li> <li>3. Delivery of equipment must be undertaken with the minimum amount of trips to reduce the carbon footprint of these activities</li> <li>4. Access of all construction and material delivery vehicles should be strictly controlled, especially during wet weather to avoid compaction and damage to the topsoil structure.</li> <li>5. Damping down of the un-surfaced roads must be implemented to reduce dust and nuisance.</li> </ol>	Holder of the EA Contractor	n/a	A traffic management strategy developed and implemented throughout the construction and operation phases. Storm Water Management Plan implemented. Ensure the EMPr is adhered to.	Continuous.

	<p>6. Vehicles and equipment shall be serviced regularly to avoid the contamination of soil from oil and hydraulic fluid leaks etc.</p> <p>7. Servicing must be done in dedicated service areas on site or else off site if no such area exists.</p> <p>8. Oil changes must take place on a concrete platform and over a drip tray to avoid pollution.</p> <p>9. Soils compacted by construction shall be deep ripped to loosen compacted layers and re-graded to even running levels.</p>				
Construction Access	<p>10. The main routes on the site must be clearly sign posted and printed delivery maps must be issued to all suppliers and Sub-contractors.</p> <p>11. Planning of access routes to the site for construction purposes shall be done in conjunction with the Contractor and the Landowner. All agreements reached should be documented and no verbal agreements should be made. The Contractor shall clearly mark all access roads. Roads not to be used shall be marked with a "NO ENTRY for construction vehicles" sign.</p> <p>12. Access to the site must be via secondary roads as requested by SANRAL.</p>	Holder of the EA Contractor	n/a	A traffic management strategy developed and implemented throughout the construction and operation phases.	Continuous.
Road Maintenance	<p>13. Where necessary suitable measures shall be taken to rehabilitate damaged areas.</p> <p>14. Contractors should ensure that access roads are maintained in good condition by attending to potholes,</p>	Holder of the EA Contractor	n/a	A traffic management strategy developed and implemented throughout the construction and operation phases.	Continuous.

	<p>corrugations, and stormwater damages as soon as these develop.</p> <p>15. If necessary, staff must be employed to clean surfaced roads adjacent to construction sites where materials have spilt.</p> <p>16. Recommendations of the surface water report must be taken into consideration.</p>				
General	<p>17. The contractor shall meet safety requirements under all circumstances. All equipment transported shall be clearly labelled as to their potential hazards according to specifications. All the required safety labelling on the containers and trucks used shall be in place.</p> <p>18. The Contractor shall ensure that all the necessary precautions against damage to the environment and injury to persons are taken.</p> <p>19. Care for the safety and security of community members crossing access roads should receive priority at all times.</p> <p>20. Where there are further changes/updates to the vertical and horizontal alignments of the road network and site laydown area, such sections/areas may require reassessed in order to determine any further risks and impacts to the ecology and/or species.</p>	Holder of the EA Contractor	n/a	A traffic management strategy developed and implemented throughout the construction and operation phases. Adhere to Health and Safety Regulations.	Continuous.
<b>Environmental Education and Training</b>					
Environmental Training	<p>1. Ensure that all site personnel have a basic level of environmental awareness training. The Contractor</p>	Contractor	n/a	Throughout induction to site.	Continuous



	<p>must submit a proposal for this training to the ECO for approval. Translators are to be used where necessary. Topics covered should include:</p> <ul style="list-style-type: none"> <li>■ What is meant by “Environment”?</li> <li>■ Why the environment needs to be protected and conserved.</li> <li>■ How construction activities can impact on the environment</li> <li>■ What can be done to mitigate against such impacts?</li> <li>■ Awareness of emergency and spills response provisions</li> <li>■ Social responsibility during construction e.g. being considerate to local residents.</li> </ul> <ol style="list-style-type: none"> <li>2. It is the Contractor’s responsibility to provide the site foreman with no less than 1 hour’s environmental training and to ensure that the foreman has sufficient understanding to pass this information onto the construction staff.</li> <li>3. Training should be provided to the staff members in the use of the appropriate fire-fighting equipment.</li> <li>4. Use should be made of environmental awareness posters on site.</li> <li>5. The need for a “clean site” policy also needs to be explained to the workers.</li> <li>6. Staff operating equipment (such as loaders, etc.) shall be adequately trained and sensitized to any potential hazards associated with their tasks.</li> </ol>				
--	--	--	--	--	--

Monitoring of environmental training	7. The Contractor must monitor the performance of construction workers to ensure that the points relayed during their introduction have been properly understood and are being followed. If necessary, the ECO and / or a translator should be called to the site to further explain aspects of environmental or social behaviour that are unclear. Toolbox talks are recommended.	Contractor	n/a	Throughout induction to site.	Continuous
<b>Waste Management</b>					
Litter management / general waste	<ol style="list-style-type: none"> <li>1. Refuse bins must be placed at strategic positions to ensure that litter does not accumulate within the construction site.</li> <li>2. The Contractor shall supply waste collection bins where such is not available, and all solid waste collected shall be disposed of at registered/licensed landfill.</li> <li>3. A housekeeping team should be appointed to regularly maintain the litter and rubble situation on the construction site.</li> <li>4. If possible and feasible, all waste generated on site must be separated into glass, plastic, paper, metal, and wood and recycled. An independent contractor can be appointed to conduct this recycling.</li> <li>5. Where vegetation is cleared and is suitable, chipping and/or mulching can be considered.</li> <li>6. Littering by the employees of the Contractor shall not be allowed under any circumstances.</li> </ol>	Contractor The ECO shall monitor the neatness of the work sites as well as the Contractor campsite.	n/a	All waste managed according to approved Method Statement.	Continuous

	<p>7. Skip waste containers should be maintained on site. These should be kept covered and arrangements made for them to be collected regularly.</p> <p>8. Any putrescible waste must be stored in containers that can keep out scavengers such as baboons and birds to prevent the spread of litter.</p> <p>9. All waste must be removed from the site and transported to a landfill site promptly to ensure that it does not attract vermin or produce odours.</p> <p>10. The Contractor shall provide a method statement with regard to waste management.</p> <p>11. A certificate of disposal shall be obtained by the Contractor and kept on file, if relevant.</p> <p>12. Under no circumstances may solid waste be burnt on site.</p> <p>13. All waste must be removed promptly to ensure that it does not attract vermin or produce odours.</p>				
Hazardous waste	<p>14. All waste hazardous materials, if present, must be carefully and appropriately stored, and then disposed of off-site at a licensed landfill site, where practical.</p> <p>15. Contaminants to be stored safely to avoid spillage.</p> <p>16. Machinery must be properly maintained to keep oil leaks in check.</p> <p>17. All necessary precaution measures shall be taken to prevent soil or surface water pollution from hazardous materials used during construction and any spills shall</p>	<p>Contractor The ECO shall monitor the neatness of the work sites as well as the Contractor campsite.</p>	n/a	All waste managed according to approved Method Statement.	Continuous

	immediately be cleaned up and all affected areas rehabilitated.				
Sanitation	<p>18. The Contractor shall install mobile chemical toilets on the site.</p> <p>19. The construction of “Long Drop” toilets are forbidden. Rather, portable toilets are to be used.</p> <p>20. Staff shall be sensitised to the fact that they should use these facilities at all times. No indiscriminate sanitary activities on site shall be allowed. Under no circumstances may open areas, neighbours’ fences or the surrounding bush be used as a toilet facility.</p> <p>21. Ablution facilities shall be within proximity from workplaces and not closer than 100m from any natural water bodies or boreholes. There should be enough toilets available to accommodate the workforce (minimum requirement 1: 15 workers). Male and females must be accommodated separately where possible.</p> <p>22. Toilets shall be serviced regularly, and the ECO shall inspect toilets regularly.</p> <p>23. Potable water must be provided for all construction staff.</p>	Contractor	n/a	Staff members aware of EMPr requirements and ablutions used and maintained accordingly.	Continuous
Remedial Actions	<p>24. In the event of an accidental spill or leakage of hazardous substances, such incident(s) must be reported to all relevant authorities, including the Directorate: Pollution and Chemicals Management, in accordance with section 30(5) of the NEMA, 1998 pertaining to the control of incidents.</p> <p>25. Depending on the nature and extent of the spill, contaminated soil must</p>	Contractor	n/a	All waste managed according to approved Method Statement.	Continuous

	<p>be either excavated or treated on-site.</p> <p>26. Excavation of contaminated soil must involve careful removal of soil using appropriate tools/machinery to storage containers until treated or disposed of at a licensed hazardous landfill site.</p> <p>27. The precise method of treatment for polluted soil must be identified by a suitable specialist. This could involve the application of soil absorbent materials as well as oil-digestive powders to the contaminated soil.</p> <p>28. If a spill occurs on an impermeable surface such as cement or concrete, the surface spill must be contained using oil absorbent material.</p> <p>29. If necessary, oil absorbent sheets or pads must be attached to leaky machinery or infrastructure.</p> <p>30. Materials used for the remediation of petrochemical spills must be used according to product specifications and guidance for use.</p> <p>31. Contaminated remediation materials must be carefully removed from the area of the spill so as to prevent further release of petrochemicals to the environment and stored in adequate containers until appropriate disposal.</p>				
<b>Agriculture and Soils</b>					
Erosion	<p>1. Implement an effective system of storm water run-off control, where it is required - that is at any points where run-off water might accumulate. The system must</p>	<p>Engineer Contractor</p>	<p>Undertake a periodic site inspection to verify and inspect the effectiveness and integrity of the storm water run-off control</p>	<p>That disturbance and existence of hard surfaces causes no erosion on or downstream of the site.</p>	<p>Every 2 months during the construction phase.</p>

	effectively collect and safely disseminate any run-off water from all accumulation points, and it must prevent any potential down slope erosion.		system and to specifically record the occurrence of any erosion on site or downstream. Corrective action must be implemented to the run-off control system in the event of any erosion occurring.		
	2. Maintain where possible all vegetation cover and facilitate re-vegetation of denuded areas throughout the site, to stabilize disturbed soil against erosion.	Engineer Contractor	Undertake a periodic site inspection to record the occurrence of and re-vegetation progress of all areas that require re-vegetation.	That vegetation clearing does not pose a high erosion risk.	Every 4 months during the construction phase.
Topsoil loss	3. If an activity will mechanically disturb the soil below surface in any way, then any available topsoil should first be stripped from the entire surface to be disturbed and stockpiled for re-spreading during rehabilitation. During rehabilitation, the stockpiled topsoil must be evenly spread over the entire disturbed surface.	Engineer Contractor	Record GPS positions of all occurrences of below-surface soil disturbance (e.g. excavations). Record the date of topsoil stripping and replacement. Check that topsoil covers the entire disturbed area.	That topsoil loss is minimised.	As required, whenever areas are disturbed.
Removal of subsoils (soil and rock): Displacement of natural earth material and overlying vegetation.	4. Identify protected areas prior to construction. 5. Construction of temporary berms and drainage channels to divert surface water. 6. Minimize earthworks and fills. 7. Use existing road network and access tracks. 8. Rehabilitation of affected areas (such as regrassing, mechanical stabilization). 9. Correct engineering design and construction of gravel roads and water crossings.	Engineer Contractor	Undertake regular audits	Erosion plan implemented and hydrological measures in place. All waste managed according to approved Method Statement. Ensure the EMPr is adhered to.	Continuous

	<ul style="list-style-type: none"> <li>10. Correct construction methods for foundation installations and cut to fill configurations.</li> <li>11. Vehicle repairs to be undertaken in designated areas.</li> <li>12. Control stormwater flow.</li> </ul>				
<b>Biodiversity</b>					
<p>Faunal disturbance and habitat loss:</p> <p>Increased levels of noise, pollution, disturbance and human presence during construction will be detrimental to fauna. Sensitive and shy fauna are likely to move away from the area during the construction phase as a result of the noise and human activities present, while some slow- moving species would not be able to avoid the construction activities and might be killed.</p>	<ul style="list-style-type: none"> <li>1. During construction any fauna directly threatened by the construction activities should be removed to a safe location by the ECO or other suitably qualified person.</li> <li>2. The illegal 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 construction site.</li> <li>3. No fires should be allowed within the site as there is a risk of runaway veld fires.</li> <li>4. No fuelwood collection should be allowed on-site.</li> <li>5. If any parts of site such as construction camps must be lit at night, this should be done with low-UV type lights (such as most LEDs) as far as practically possible, which do not attract insects, and which should be directed downwards.</li> <li>6. All hazardous materials should be stored in the appropriate manner to prevent contamination of the site. Any accidental chemical, fuel and oil spills that occur at the site should be cleaned up in the appropriate manner as related to the nature of the spill.</li> </ul>	Holder of the EA	Construction Monitoring and audit reports.	<p>Impacts avoided or managed as per specialist recommendations.</p> <p>Alien Plant Management Plan Implemented.</p> <p>Plant Rehabilitation Implemented Ensure the conditions of the EA are adhered to.</p>	Continuous

	<p>7. No unauthorized persons should be allowed onto the site and site access should be strictly controlled.</p> <p>8. All construction vehicles should adhere to a low-speed limit (40km/h for cars and 30km/h for trucks) to avoid collisions with susceptible species such as snakes and tortoises and rabbits or hares. Speed limits should apply within the facility as well as on the public gravel access roads to the site.</p> <p>9. All personnel should undergo environmental induction with regards to fauna and in particular awareness about not harming or collecting species such as snakes, tortoises and snakes which are often persecuted out of fear or superstition.</p>				
<b>Surface Water</b>					
Loss of aquatic species of special concern: During construction activities within watercourses could result in the disturbance or destruction of any listed and or protected plant or animal species. However none of these aquatic obligate species were observed during this assessment	<p>1. Develop and implement an Aquatic Rehabilitation and Monitoring plan post Environmental Authorisation. This must be developed following the finalisation of the turbine / road layout and a walk down has been completed.</p>	Holder of the EA	Construction Monitoring and audit reports	Impacts avoided or managed as per specialist recommendations. Ensure the conditions of the EA are adhered to.	Continuous
Damage or loss of riparian and or drainage line systems i.e. disturbance of the waterbodies in the construction phase:	<p>■ All alien plant re-growth, which is currently low within the greater region must be monitored and should it occur, these plants must be eradicated within the project footprints and especially in areas near</p>	Holder of the EA	Construction Monitoring and audit reports	Impacts avoided or managed as per specialist recommendations.	Continuous



<p>Construction could result in the loss of drainage systems that are fully functional and provide an ecosystem services within the site especially where new access roads are required or road upgrades will widen any current bridges or drifts.</p> <p>Loss can also include a functional loss, through change in vegetation type via alien encroachment for example.</p>	<p>the proposed crossings. <i>Prosopis</i> (alien invasive riparian tree) is prevalent in areas to the north of the site, thus care in transporting any material, while ensuring that such materials is free of alien seed, coupled with pre and post alien clearing must be stipulated in the EMPr. Where roads and crossings are upgraded, the following applies:</p> <ul style="list-style-type: none"> <li>■ Existing pipe culverts must be removed and replaced with suitable sized box culverts, especially where road levels are raised to accommodate any large vehicles.</li> <li>■ River levels, regardless of the current state of the river / water course must be reinstated thus preventing any impoundments from being formed. The related designs must be assessed by an aquatic specialist during a pre-construction walkdown.</li> <li>■ Where large cut and fill areas are required these must be stabilised and rehabilitated during the construction process, to minimise erosion and sedimentation.</li> <li>■ 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 through whatever additional interventions maybe necessary (i.e., extension, energy dissipaters, spreaders, etc).</li> </ul>			<p>Ensure the conditions of the EA are adhered to.</p>	
<p>Potential impact on localised surface water quality (construction materials and fuel storage facilities) during</p>	<p>2. All liquid chemicals including fuels and oil, including the BESS must be stored in with secondary containment (bunds or containers or berms) that can contain a leak or spill. Such</p>	<p>Holder of the EA Contractor</p>	<p>Construction Monitoring and audit reports</p>	<p>Impacts avoided or managed as per specialist recommendations.</p>	<p>Continuous</p>

<p>the construction and decommissioning phases. During construction earthworks will expose and mobilise earth materials, and a number of materials as well as chemicals will be imported and used on site and may end up in the surface water, including soaps, oils, grease and fuels, human wastes, cementitious wastes, paints and solvents, etc. Any spills during transport or while works area conducted in proximity to a watercourse has the potential to affect the surrounding biota.</p> <p>Although unlikely, consideration must also be provided for the proposed Battery Energy Storage System (BESS), with regard safe handling during the construction phase. This to avoid any spills or leaks from this system</p>	<p>facilities must be inspected routinely and must have the suitable PPE and spill kits needed to contain likely worst-case scenario leak or spill in that facility, safely.</p> <ol style="list-style-type: none"> <li>3. 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).</li> <li>4. Mechanical plant and bowsers must not be refuelled or serviced within 100m of a river channel.</li> <li>5. All construction camps, lay down areas, wash bays, batching plants or areas and any stores should be more than 50 m from any demarcated water courses. Note comment regards Camp A that requires micro-siting.</li> <li>6. Littering and contamination associated with construction activity must be avoided through effective construction camp management.</li> <li>7. No stockpiling should take place within or near a water course.</li> <li>8. All stockpiles must be protected and located in flat areas where run-off will be minimised and sediment recoverable.</li> <li>9. It is recommended that construction activities should ideally take place within the dry season to reduce the risk of sediment-laden runoff from the construction activities/sites washing into any nearby watercourses.</li> </ol>			<p>Ensure the conditions of the EA are adhered to.</p>	
--	---	--	--	--	--

Noise					
Noise Special Conditions	<ol style="list-style-type: none"> <li>1. The developer must investigate any reasonable and valid noise complaint if registered by a receptor staying within 2,000 m from the location where construction activities are taking place or operational wind turbine is present. A complaints register must be kept on site.</li> <li>2. The developer must minimize night-time construction traffic if the access roads are closer than 150 m from any NSD, alternatively, the access road must be relocated further than 120 m from NSDs (night-time traffic passing occupied houses).</li> <li>3. The developer must implement a noise monitoring program that will define the residual levels before the construction of the WEF, as well as to confirm noise levels once the WEF is operational.</li> <li>4. Noise generated from all the proposed activities must comply with the Western Cape Noise Control Regulations promulgated in Provincial Notice 200/2013 (“WCNCR”).</li> </ol>	Holder of the EA Contractor	n/a	Noise and lighting managed according to approved Method Statement. Ensure the EMPr is adhered to.	Continuous
Noise impacts during the day: Construction activities relating to hardstand areas, digging of foundations for wind turbines, civil works as well as erection of wind turbines.	<ol style="list-style-type: none"> <li>5. No specific mitigation measures recommended for construction activities at the WTG locations or for substations.</li> <li>6. Continuing management objectives would be: <ul style="list-style-type: none"> <li>■ Ensure that total daytime construction noise levels are less than 52 dBA at all potential NSDs (dwellings used for residential purposes);</li> </ul> </li> </ol>	Holder of the EA Contractor	n/a	Noise and lighting managed according to approved Method Statement. Ensure the EMPr is adhered to.	Continuous

	<ul style="list-style-type: none"> <li>■ Ensure that total night-time construction noise levels are less than 45 dBA at all potential NSDs (dwellings used for residential purposes);</li> <li>■ Ensure that total noise levels due to operational activities are less than 45 dBA at all potential NSDs (dwellings used for residential purposes); and</li> <li>■ Prevent the generation of nuisance noises.</li> </ul>				
Noise impacts at night: Construction activities relating to civil works as well as erection of wind turbines.	7. Night-time construction activities closer than 1,000 m from and NSD to be minimized. Night-time construction activities (closer than 800 m) are not recommended and it should be minimized where possible. If construction activities take place closer than 800 m at night (such as the pouring of concrete), NSD should be notified of the activity that will be taking place at night.	Holder of the EA Contractor	n/a	Noise and lighting managed according to approved Method Statement. Ensure the EMPr is adhered to.	Continuous
Noise impacts during the day: Construction of access roads.	8. Access routes to be relocated further than 120 m from dwellings used for residential purposes at night. If access roads cannot be relocated close to residential dwellings, the projected noise levels must be discussed with potentially affected receptors.	Holder of the EA Contractor	n/a	Noise and lighting managed according to approved Method Statement. Ensure the EMPr is adhered to.	Continuous
Noise impacts during the day: Noises relating to construction traffic.	9. Access routes to the relocated further than 120 m from dwellings used for residential purposes at night. If access roads cannot be relocated close to residential dwellings, the projected noise levels must be discussed with potentially affected receptors.	Holder of the EA Contractor	n/a	Noise and lighting managed according to approved Method Statement. Ensure the EMPr is adhered to.	Continuous
<b>Heritage</b>					

Palaeontology	<ol style="list-style-type: none"> <li>1. During the construction phase the Chance Fossil Finds Protocol summarized in Annexure D should be fully implemented.</li> <li>2. The Environmental Control Officer (ECO) / Environmental Site Officer (ESO) responsible for the development should be made aware of the possibility of important fossil remains (vertebrate bones, teeth, petrified wood, plant-rich horizons etc.) being found or unearthed during the construction phase of the development. Monitoring for fossil material of all major surface clearance and deeper (&gt;1m) excavations by the Environmental Site Officer on an on-going basis during the construction phase is therefore recommended. Significant fossil finds should be safeguarded and reported at the earliest opportunity to Heritage Western Cape for recording and sampling by a professional palaeontologist (Contact details: Heritage Western Cape. 3rd Floor Protea Assurance Building, 142 Longmarket Street, Green Market Square, Cape Town 8000. Private Bag X9067, Cape Town 8001. Tel: 021 483 5959 Email: ceoheritage@westerncape.gov.za).</li> </ol>	Palaeontologist ECO	n/a	Ensure the EMPr is adhered to.	Continuous
Cultural landscape - Ecological	<ol style="list-style-type: none"> <li>3. Critical Biodiversity Areas, and Ecological Support Areas (along drainage lines), should be protected from development of the wind turbines or any associated development during all phases.</li> <li>4. No wind turbines should be placed within the 1:100-year flood line of the</li> </ol>	Holder of the EA Contractor	n/a	Ensure the EMPr is adhered to.	Continuous

	<p>watercourses. In the context of the sensitivity to soil erosion in the area, as well as potential archaeological resources, it would be a risk to include any structures close to these drainage lines</p> <p>5. Remaining areas of endemic and endangered natural vegetation should be conserved.</p> <p>6. Areas of critical biodiversity should be protected from any damage during all phases; where indigenous and endemic vegetation should be preserved at all cost.</p> <p>7. Areas of habitat are found among the rocky outcrops and contribute to the character, as well as biodiversity of the area. Care should be taken that habitats are not needlessly destroyed.</p> <p>8. Identified medicinal plants used for healing or ritual purposes should be conserved during all phases if threatened for use.</p> <p>9. Careful planning should incorporate areas for storm water runoff where the base of the structure disturbed the natural soil. Local rocks found on the site could be used to slow storm water (instead of concrete, or standard edge treatments), and prevent erosion that would be an unfortunate consequence that would alter the character of the site. By using rocks from site it helps to sensitively keep to the character.</p>				
Cultural landscape - Aesthetic	10. Encourage mitigation measures (for instance use of vegetation) to 'embed' or disguise the proposed	Holder of the EA Contractor	n/a	Ensure the EMPr is adhered to.	Continuous

	<p>structures within the surrounding tourism and agricultural landscape at ground level, road edges etc.;</p> <p>11. The continuation of the traditional use of material could be enhanced with the use of the rocks on the site as building material. This would also help to embed structures into the landscape and should not consist of shipping containers or highly reflective untreated corrugated sheeting that clutters the landscape and is exacerbates the foreign intrusion on the natural matte landscape.</p> <p>12. Using material found on the site adds to the sense of place and reduces transportation costs of bringing materials to site.</p> <p>13. The local material such as the rocks found within the area could be applied to address storm water runoff from the road to prevent erosion.</p> <p>14. Duration and magnitude of construction/ decommissioning activity must be minimized as far possible to reduce the impact of heavy vehicles on the roads as well as the associated dust from the activity. Lightest vehicles possible should be used to reduce degradation to the farm roads and the need to upgrade roads to scale and extent that negatively impacts on the integrity of the historic farm roads. Construction/ decommissioning traffic must operate at speeds that reduce dust and noise as far possible.</p>				
--	--	--	--	--	--

	<p>15. Any new road network or widening must be returned to its original state at end of the operational time of the WEF, with full environmental and aesthetic rehabilitation to the approval of a qualified cultural landscapes assessment specialist.</p> <p>16. Turbine sites, substation and laydown areas should be returned to their original state at the end of the operational time of the WEF, with full environmental and aesthetic rehabilitation to the approval of a qualified cultural landscapes assessment specialist.</p>				
Cultural landscape - Historic	<p>17. Historic farmsteads must be protected from the impacts of heavy construction vehicles and increased numbers of people. No construction traffic should pass through or closer than 50m to the outer boundaries of a farm werf, or 200m from graded structures, which includes the associated historically cultivated lands, cemeteries, unmarked burials. The most appropriate use of existing farm roads must be found to avoid farm werfs as far as possible and reduce construction impact on these heritage features.</p> <p>18. A preconstruction micro-survey for turbines, access roads, substations, laydown areas and gridlines should be completed with CLA specialist to ensure appropriate buffers are maintained.</p> <p>19. Duration and magnitude of construction/ decommissioning activity must be minimized to reduce the impact of heavy vehicles on the</p>	Holder of the EA Contractor	n/a	Ensure the EMPr is adhered to.	Continuous



	<p>roads as well as the associated dust from the activity. Light vehicles should be used to reduce degradation to the farm roads and the need to upgrade roads to scale and extent that negatively impacts on the integrity of the historic farm roads. Construction decommissioning traffic must operate at speeds that reduce dust and noise.</p> <p>20. No infrastructure or operational upgrades, such as boreholes, should impact negatively or reduce natural, on site water quality, quantity or access for the residents within or around the development site. Preferably any borehole or other water resource upgrade should also be made freely accessible to the residents living on site.</p> <p>21. Accommodation of construction staff must not negatively impact on existing farm residents or degrade the integrity of the farmstead complexes and should, without negative impact to ecological or aesthetic resources, be located outside of the farmstead complexes or site. Farm residents should be consulted on the preferable location for construction staff accommodation.</p> <p>22. Traditional planting patterns should be protected by ensuring that existing trees are not needlessly destroyed, as these signify traces of cultural intervention in a harsh environment. These planting patterns include the trees planted around the werfs and along travel routes. Interpretation of these landscape features as historic</p>				
--	---	--	--	--	--

	<p>remnants should occur. A buffer of 50m around such planting patters should be maintained.</p> <p>23. Burial grounds and places of worship are automatically regarded as Grade IIIa or higher. Any development that threatens the inherent character of family burial grounds must be assessed and should be discouraged. No turbines have been proposed for placement near known unmarked burials or family cemeteries. A preconstruction micro-survey of each turbine footprint and any new access roads should be conducted to ensure no further unmarked graves are threatened. A preconstruction micro-survey for access roads, substations, laydown areas and gridlines should be completed with CLA specialist to ensure appropriate buffers are maintained.</p> <p>24. Mountain slopes have been used for traditional practices for many years, and care should be taken that any significant cultural sites, such as burials and veldkos/medicinal plant resources, are not disturbed.</p> <p>25. Farms in the area followed a system of stone markers to demarcate the farm boundaries in the area. Where these structures are found on the site, care should be taken that they are not needlessly destroyed, as they add to the layering of the area.</p> <p>26. Roads running through the area may have historic stone way markers. Where these are found care should be taken that they are left in tact and in place. Road upgrades must not</p>				
--	---	--	--	--	--

	<p>move or threaten their position and they should be visible from the road they are related to by passing travellers. A preconstruction micro-survey for access roads, substations, laydown areas and gridlines should be completed with CLA specialist to ensure appropriate buffers are maintained.</p> <p>27. Where the historic function of a building/site is still intact, the function has heritage value and should be protected.</p> <p>28. Surviving examples (wagon routes, outspans, and commonage), where they are owned in some public or communal way (or by a body responsible for acting in the public interest) and where they are found to be actively operating in a communal way, will have cultural and heritage value and should be enhanced and retained. The historic route running through Koup 1 should be maintained and integrity as a communal road for farm residents must be retained.</p>				
Cultural landscape - Socio- economic	<p>29. An updated cultural landscapes impact assessment report must be completed should the WEF continue to be used after the term granted in this application. This report should include a detailed assessment of the impacts to the cultural landscape and its outcomes and recommendations need to be considered in the decision for recommissioning and be implemented if recommissioning is approved.</p> <p>30. The continued use of the landscape for human habitation and cultivation</p>	Holder of the EA Contractor	n/a	Ensure the EMPr is adhered to.	Continuous

	<p>by historic residents of the area, should be retained and encouraged as far possible to sustain the continual use pattern and human-environment relationship which is the ultimate significance of this cultural landscape element. The WEF development must allow and support this, including financially, and not degrade this continued relationship.</p> <p>31. No infrastructure or operational upgrades, such as boreholes, should impact negatively or reduce natural, on site water quality, quantity or access for the residents within or around the development site. Preferably any borehole or other water resource upgrade should also be made freely accessible to the residents living on site.</p> <p>32. The local community on and around the development should benefit from job opportunities created by the proposed development and the development should not cause reduction in economic viability of surrounding properties in excess of those offered by the development. Short-term job opportunities at the expense of long term economic benefit and local employment opportunities must be prevented.</p> <p>33. Local residents must be offered employment on the construction/ decommissioning and operational phases before 'importing' staff from elsewhere.</p> <p>34. Local residents must be offered employment-training opportunities</p>				
--	---	--	--	--	--

	<p>associated with WEF developments at all phases.</p> <p>35. Sheep, cattle or game farming should be allowed to continue below the wind turbines, or be rehabilitated to increase biodiversity in the area.</p>				
<b>Visual</b>					
<p>Potential alteration of the visual character and sense of place.</p> <p>Potential visual impact on receptors in the study area.</p>	<ol style="list-style-type: none"> <li>1. Carefully plan to minimise the construction period and avoid construction delays.</li> <li>2. Inform receptors within 1km of the WEF development area of the construction programme and schedules.</li> <li>3. Minimise vegetation clearing and rehabilitate cleared areas as soon as possible.</li> <li>4. Vegetation clearing should take place in a phased manner.</li> <li>5. Maintain a neat construction site by removing rubble and waste materials regularly.</li> <li>6. Position storage / stockpile areas in unobtrusive positions in the landscape, where possible.</li> <li>7. Where possible, underground cabling should be utilised.</li> <li>8. Make use of existing gravel access roads where possible.</li> <li>9. Limit the number of vehicles and trucks travelling to and from the construction site, where possible.</li> <li>10. Ensure that dust suppression techniques are implemented: <ul style="list-style-type: none"> <li>■ on all access roads;</li> <li>■ in all areas where vegetation clearing has taken place;</li> </ul> </li> </ol>	Holder of the EA Contractor	n/a	Ensure the EMPr is adhered to.	Continuous

	<ul style="list-style-type: none"> <li>■ on all soil stockpiles.</li> </ul>				
<p>Potential alteration of the visual character and sense of place in the broader area.</p> <p>Potential visual impact on receptors in the study area.</p> <p>Potential visual impact on the night time visual environment.</p>	<ol style="list-style-type: none"> <li>11. Carefully plan to minimise the construction period and avoid construction delays.</li> <li>12. Position laydown areas and related storage/stockpile areas in unobtrusive positions in the landscape, where possible.</li> <li>13. Minimise vegetation clearing and rehabilitate cleared areas as soon as possible.</li> <li>14. Vegetation clearing should take place in a phased manner.</li> <li>15. Where possible, the operation and maintenance buildings should be consolidated to reduce visual clutter.</li> <li>16. As far as possible, limit the number of maintenance vehicles which are allowed to access the facility.</li> <li>17. Ensure that dust suppression techniques are implemented on all gravel access roads.</li> <li>18. As far as possible, limit the amount of security and operational lighting present on site.</li> <li>19. Light fittings for security at night should reflect the light toward the ground and prevent light spill.</li> <li>20. Lighting fixtures should make use of minimum lumen or wattage.</li> <li>21. Mounting heights of lighting fixtures should be limited, or alternatively foot-light or bollard level lights should be used.</li> <li>22. If possible, make use of motion detectors on security lighting.</li> </ol>	Holder of the EA Contractor	n/a	Ensure the EMPr is adhered to.	Continuous

	<p>23. The operations and maintenance (O&amp;M) buildings should not be illuminated at night.</p> <p>24. The O&amp;M buildings should be painted in natural tones that fit with the surrounding environment.</p>				
<b>Social</b>					
Incident register	<p>1. A public grievance and incident register should be established and should be monitored internally by the developer and made available for public scrutiny if requested. Any incident should be immediately recorded and reported to management and all actions pertaining to that incident, as well as the final outcome of the complaint, should be recorded and signed off by management. If an independent environmental monitor is appointed, this register should be audited on at least a monthly basis.</p>	Holder of the EA Contractor	n/a	Clear communication channels maintained.	Continuous
Health and well- being: Air quality	<p>2. Where appropriate apply dust suppression measures on a regular basis. Ensure that vehicles used to transport sand and building materials are fitted with tarpaulins or covers.</p> <p>3. Ensure that all vehicles are roadworthy and drivers are qualified and made aware of the potential noise and dust issues.</p> <p>4. Appoint a community liaison officer to deal with complaints and grievances from the public.</p> <p>5. Dust generated during the proposed development must comply with the National Dust Control Regulations (GN No. R. 827 of 1 November 2013)</p>	Holder of the EA Contractor	n/a	Clear communication channels maintained. Compliance to all legislative requirements. Ensure the EMPr is adhered to.	Continuous

	promulgated in terms of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004). These regulations prohibit a person from conducting any activity in such a way as to give rise to dust in such quantities and concentrations that the dust, or dust fallout, has a detrimental effect on the environment, including human health.				
Health and well-being: Noise	6. Refer to the mitigation measures suggested by the noise specialist.	Holder of the EA Contractor	n/a	Clear communication channels maintained. Compliance to all legislative requirements. Ensure the EMPr is adhered to.	Continuous
Health and well-being: Increase in crime	7. Ensure that construction workers are clearly identifiable. All workers should carry identification cards and wear identifiable clothing. 8. Fence off the construction sites and control access to these sites. 9. Appoint an independent security company to monitor the site. 10. Encourage local people to report any suspicious activity associated with the construction sites through the establishment of a community liaison forum. 11. Prevent loitering within the vicinity of the construction camp as well as construction sites.	Holder of the EA Contractor	n/a	Clear communication channels maintained. Compliance to all legislative requirements. Ensure the EMPr is adhered to.	Continuous
Health and well-being: Increased risk of HIV infections	12. Ensure that an onsite HIV Infections Policy is in place and that construction workers have easy access to condoms.	Holder of the EA Contractor	n/a	Clear communication channels maintained. Compliance to all legislative requirements.	Continuous



	<p>13. Expose workers to a health and HIV/AIDS awareness educational program.</p> <p>14. Extend the HIV/AIDS program into the community with a specific focus on schools and youth clubs.</p>			Ensure the EMPr is adhered to.	
Health and well-being: Influx of construction workers	<p>15. Communicate the limitation of opportunities created by the project through Community Leaders and Ward Councillors.</p> <p>16. Draw up a recruitment policy in consultation with the</p> <p>17. Community Leaders and Ward Councillors of the area and ensure compliance with this policy.</p>	Holder of the EA Contractor	n/a	Clear communication channels maintained. Compliance to all legislative requirements. Ensure the EMPr is adhered to.	Continuous
Health and well-being: Hazard exposure	<p>18. Ensure that all construction equipment and vehicles are properly maintained at all times.</p> <p>19. Ensure that operators and drivers are properly trained and make them aware, through regular toolbox talks, of any risk they may pose to the community. Place specific emphasis on the vulnerable sector of the population such as children and the elderly.</p> <p>20. Ensure that fires lit by construction staff are only ignited in designated areas and that the appropriate safety precautions, such as not lighting fires in strong winds and completely extinguishing fires before leaving them unattended, are strictly adhered to.</p> <p>21. Make staff aware of the dangers of fire during regular toolbox talks.</p>	Holder of the EA Contractor	n/a	Clear communication channels maintained. Compliance to all legislative requirements. Ensure the EMPr is adhered to.	Continuous

Quality of the living environment: Disruption of daily living patterns	22. Ensure that, at all times, people have access to their properties as well as to social facilities.	Holder of the EA Contractor	n/a	Clear communication channels maintained. Compliance to all legislative requirements. Ensure the EMPr is adhered to.	Continuous
Quality of the living environment: Disruptions to social and community infrastructure	23. Regularly monitor the effect that construction is having on infrastructure and immediately report any damage to infrastructure to the appropriate authority. 24. Ensure that where communities' access is obstructed that this access is restored to an acceptable state.	Holder of the EA Contractor	n/a	Clear communication channels maintained. Compliance to all legislative requirements. Ensure the EMPr is adhered to.	Continuous
Economic: Job creation and skills development	25. Wherever feasible, local residents should be recruited to fill semi and unskilled jobs. 26. Women should be given equal employment opportunities and encouraged to apply for positions. 27. A skills transfer plan should be put in place at an early stage and workers should be given the opportunity to develop skills which they can use to secure jobs elsewhere post construction.	Holder of the EA Contractor	n/a	Clear communication channels maintained. Compliance to all legislative requirements. Ensure the EMPr is adhered to.	Continuous
Economic: Socio-economic stimulation.	28. A procurement policy promoting the use of local business should, where possible, be put in place to be applied throughout the construction phase.	Holder of the EA Contractor	n/a	Clear communication channels maintained. Compliance to all legislative requirements. Ensure the EMPr is adhered to.	Continuous
<b>Traffic and Transportation</b>					
Increase in Traffic	1. Ensure staff transport is done in the 'off peak' periods and by bus.	Holder of the EA Contractor	n/a	All staff members are aware of the EMPr	Continuous

	<ul style="list-style-type: none"> <li>2. Stagger material, component and abnormal loads.</li> <li>3. Construction of an on-site concrete batching plant to reduce trips.</li> </ul>			<p>requirements relevant to them.</p> <p>Ensure the EMPr is adhered to.</p>	
Increase of Incidents with pedestrians and livestock	<ul style="list-style-type: none"> <li>4. Reduction in speed of vehicles.</li> <li>5. Adequate enforcement of the law.</li> <li>6. Implementation of pedestrian safety initiatives.</li> <li>7. Regular maintenance of farm fences &amp; access cattle grids.</li> <li>8. Construction of an on-site concrete batching plant to reduce trips.</li> </ul>	Holder of the EA Contractor	n/a	<p>All staff members are aware of the EMPr requirements relevant to them.</p> <p>Ensure the EMPr is adhered to.</p>	Continuous
Increase in Dust from gravel roads	<ul style="list-style-type: none"> <li>9. Reduction in speed of the vehicles.</li> <li>10. Use of dust suppressant techniques.</li> <li>11. Implement a road maintenance program under the auspices of the respective transport department.</li> <li>12. Construction of an on-site concrete batching plant to reduce trips.</li> </ul>	Holder of the EA Contractor	n/a	<p>All staff members are aware of the EMPr requirements relevant to them.</p> <p>Ensure the EMPr is adhered to.</p>	Continuous
Increase in Road Maintenance	<ul style="list-style-type: none"> <li>13. Implement a road maintenance program under the auspices of the respective transport department.</li> <li>14. Construction of an on-site batching plant to reduce trips.</li> </ul>	Holder of the EA Contractor	n/a	<p>All staff members are aware of the EMPr requirements relevant to them.</p> <p>Ensure the EMPr is adhered to.</p>	Continuous
Additional Abnormal Loads	<ul style="list-style-type: none"> <li>15. Ensure abnormal vehicles travel to and from the proposed development in the 'off peak' periods or stagger delivery.</li> <li>16. Adequate enforcement of the law.</li> </ul>	Holder of the EA Contractor	n/a	<p>All staff members are aware of the EMPr requirements relevant to them.</p> <p>Ensure the EMPr is adhered to.</p>	Continuous
Increase in Dust from gravel roads	<ul style="list-style-type: none"> <li>17. Enforce a maximum speed limit on the development.</li> <li>18. Use of dust suppressant techniques.</li> </ul>	Holder of the EA Contractor	n/a	<p>All staff members are aware of the EMPr requirements relevant to them.</p>	Continuous

	19. Adequate watering by means of water bowser.			Ensure the EMPr is adhered to.	
New / Larger Access points	20. Adequate road signage according to the SARTSM. 21. Approval from the respective roads department.	Holder of the EA Contractor	n/a	All staff members are aware of the EMPr requirements relevant to them. Ensure the EMPr is adhered to.	Continuous
<b>Avifauna</b>					
Displacement due to disturbance associated with the construction of the wind turbines and associated infrastructure.	<p>1. A site-specific CEMPr must be implemented, which gives appropriate and detailed description of how construction activities must be conducted. All contractors are to adhere to the CEMPr and should apply good environmental practice during construction. The CEMPr must specifically include the following:</p> <ul style="list-style-type: none"> <li>■ No off-road driving;</li> <li>■ Maximum use of existing roads, where possible;</li> <li>■ Measures to control noise and dust according to latest best practice;</li> <li>■ Restricted access to the rest of the property;</li> <li>■ Strict application of all recommendations in the botanical specialist report pertaining to the limitation of the footprint.</li> </ul> <p>2. Construction activity should be restricted to the immediate footprint of the infrastructure as far as possible. Access to the remainder of the area should be strictly controlled to prevent unnecessary disturbance of priority species.</p>	Contractor The ECO shall monitor	1. Implementation of the CEMPr. Oversee activities to ensure that the CEMPr is implemented and enforced via site audits and inspections. Report and record any non-compliance.	Prevent unnecessary displacement of avifauna by ensuring that contractors are aware of the requirements of the Construction Environmental Management Programme (CEMPr.)	On a daily basis
			2. Ensure that construction personnel are made aware of the impacts relating to off-road driving.		Weekly
			3. Construction access roads must be demarcated clearly. Undertake site inspections to verify.		Weekly
			4. Monitor the implementation of noise control mechanisms via site inspections and record and report non-compliance.		Weekly

	<ol style="list-style-type: none"> <li>3. Measures to control noise and dust should be applied according to current best practice in the industry.</li> <li>4. Construction activity should be restricted to the immediate footprint of the infrastructure as far as possible, 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.</li> <li>5. Removal of vegetation must be restricted to a minimum.</li> <li>6. Construction of new roads should only be considered if existing roads cannot be upgraded.</li> <li>7. The recommendations of the ecological and botanical specialist studies must be strictly implemented, especially as far as limitation of the activity footprint is concerned.</li> </ol>		<ol style="list-style-type: none"> <li>5. Ensure that the construction area is demarcated clearly and that construction personnel are made aware of these demarcations. Monitor via site inspections and report non-compliance.</li> </ol>		Weekly
<p>Displacement due to habitat transformation associated with the construction of the wind turbines and associated infrastructure.</p> <p>Total or partial displacement of avifauna due to habitat transformation associated with the vegetation clearance and the presence of the wind</p>	<ol style="list-style-type: none"> <li>8. Develop a Habitat Restoration Plan (HRP) and ensure that it is approved.</li> <li>9. Monitor rehabilitation via site audits and site inspections to ensure compliance. Record and report any non-compliance.</li> <li>10. Vehicle and pedestrian access to the site should be controlled and restricted to the facility footprint as much as possible to prevent unnecessary destruction of vegetation.</li> </ol>	<p>Operations Manager SHE Manager</p>	<ol style="list-style-type: none"> <li>1. Appointment of rehabilitation specialist to develop Habitat Restoration Plan (HRP).</li> </ol>	<p>Prevent unnecessary displacement of avifauna by ensuring that the rehabilitation of transformed areas is implemented by an appropriately qualified rehabilitation specialist, according to the recommendations of the botanical specialist study.</p>	Once-off

turbines and associated infrastructure.	<p>11. Removal of vegetation must be restricted to a minimum and must be rehabilitated to its former state where possible after construction.</p> <p>12. Construction of new roads should only be considered if existing roads cannot be upgraded.</p> <p>13. The recommendations of the ecological and botanical specialist studies must be strictly implemented, especially as far as limitation of the activity footprint is concerned.</p>		<p>2. Site inspections to monitor progress of HRP.</p>		Once a year
---	--	--	--	--	-------------

Bats					
Impact	Mitigation / Management Objectives	Mitigation / Management Actions	Monitoring		
			Method	Frequency	Responsibility
Avoid disturbance of foraging bats	Avoid Habitat loss and destruction caused by clearing vegetation for the working areas, construction and landscape modifications.	<p>1. Construction activities to be kept out of all No-go and High bat sensitive areas.</p> <p>2. Rock formations occurring along the ridge lines be avoided during construction, as these serve as roosting space for bats.</p> <p>3. Destruction of limited trees should be avoided during construction as far as possible, and where destruction of trees is unavoidable, careful investigation</p>	<ul style="list-style-type: none"> <li>■ Monitor the efficiency of the EMPR.</li> <li>■ Monitor whether proposed measures are adhered to.</li> <li>■ ECO should be trained to recognize bat species and roost locations before construction starts.</li> </ul>	<ul style="list-style-type: none"> <li>■ During construction phase.</li> <li>■ ECO should be trained before construction commences.</li> <li>■ Erosion and pollution monitoring during construction phase.</li> <li>■ Monitoring of off-road driving during construction phase.</li> <li>■ Monitor before anything is</li> </ul>	<ul style="list-style-type: none"> <li>■ Project Developer</li> <li>■ Bat specialist and ECO.</li> </ul>

		<p>for any bat roost should be conducted before the tree is removed.</p> <p>4. Where possible, dense bushes should not be destroyed, but if unavoidable, careful investigation for any bat roost should be conducted before the destruction of any bushes.</p> <p>5. Aardvark holes or any large derelict holes or excavations should not be destroyed before careful examination for bats. The Environmental Control Officer (ECO) or a responsible appointed person or site manager should contact a bat specialist before construction commences so that they know what to look out for during construction.</p>		<p>removed that could contain a bat roost.</p>	
<p>Active roost destruction and potential roost destruction and habitat loss</p>	<ul style="list-style-type: none"> <li>■ Minimise impacts on bats during construction activities</li> <li>■ Keep construction out of high bat sensitive areas</li> <li>■ Try to avoid destruction of rock formations, trees, aardvark holes, derelict</li> </ul>	<p>6. Adhere to No-go areas incorporated into the Final Layout.</p> <p>7. Appoint an independent ECO to oversee that the</p>	<ul style="list-style-type: none"> <li>■ Visual inspection and continuous monitoring of high sensitivity areas, erosion prevention, chemical pollution and vehicle activity</li> </ul>	<ul style="list-style-type: none"> <li>■ Throughout construction.</li> <li>■ ECO to be present during all site clearance activities.</li> </ul>	<ul style="list-style-type: none"> <li>■ Project Developer.</li> <li>■ Holder of EA to appoint ECO.</li> </ul>

	holes, excavations investigated for bat roosts before destruction.	<p>EMPR is being adhered to.</p> <p>8. Bat specialist to train ECO, if necessary, to identify possible bat roosts or signs of bat presence.</p> <p>9. Avoid destruction of trees or dense bushes, where possible.</p> <p>10. All aardvark holes, derelict holes or excavations should be carefully investigated for roosts before any destruction.</p> <p>11. Careful investigation of old telephone poles, before destroying them, if there are any on site.</p> <p>12. Avoid pollution of water courses.</p> <p>13. No off-road driving.</p>	<p>to prevent habitat destruction.</p> <ul style="list-style-type: none"> <li>■ If buildings, trees or structures providing potential roosts need to be demolished, the ECO is required to investigate the features before commencement of the works.</li> </ul>	<ul style="list-style-type: none"> <li>■ Access to bat specialist if ECO needs information or confirmation concerning bat presence.</li> </ul>	<ul style="list-style-type: none"> <li>■ Appointed bat specialist to train the ECO, if necessary.</li> </ul>
Creating new habitat amongst the turbines that might attract bats.	<ul style="list-style-type: none"> <li>■ Prevent bats from roosting in high-risk areas close to turbines and infrastructure, such as new roofs.</li> <li>■ Prevent the creation of features that could attract bats to the terrain.</li> </ul>	<p>14. Existing roosts in roofs should be left as such and treated with caution.</p> <p>15. All roofs of new buildings should be closed off during construction, before bat roosts could move in.</p> <p>16. Rehabilitate and close excavation</p>	<ul style="list-style-type: none"> <li>■ Continues inspection of sealed roofs – bats can move into holes as small as 1 X 1 cm.</li> <li>■ Oversee the rehabilitation of any excavation areas.</li> </ul>	Throughout construction phase	Project Developer, construction site manager and ECO.



		holes and quarries where water could accumulate.			
Construction noise, especially during night-time.	<ul style="list-style-type: none"> <li>Prevent disturbance to bat activity and behaviour.</li> </ul>	<p>17. Nightly construction activities should be avoided, or if necessary, minimised to the shortest period possible.</p> <p>18. Except for compulsory civil aviation lightning, artificial lightening during construction should be minimised, especially bright lights or spotlights. Lights should avoid skyward illumination. Turbine tower lights should be switched off when not in operation, where possible.</p>	<ul style="list-style-type: none"> <li>Monitor construction to reduce noise and minimise disturbance in bat sensitive areas.</li> <li>Avoid construction activities at night, as far as possible.</li> </ul>	Throughout construction phase.	Project Developer and construction site manager.

**Operational Phase Management Plan**

ASPECT / IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	METHOD	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
<b>Construction Site Decommissioning</b>					
Removal of equipment	<ol style="list-style-type: none"> <li>All structures comprising the construction camp are to be removed from site.</li> <li>The area that previously housed the construction camp is to be checked for spills of substances such as oil,</li> </ol>	Holder of the EA Contractor	n/a	Compliance to all legislative requirements. Ensure the EMPr is adhered to.	Following construction

	<p>paint, etc., and these shall be cleaned up.</p> <p>3. All hardened surfaces within the construction camp area should be ripped, all imported materials removed, and the area shall be top soiled and regressed using the guidelines set out in the re-vegetation that forms part of this document.</p>				
Temporary services	<p>4. The Contractor must arrange the cancellation of all temporary services.</p> <p>5. Temporary roads must be closed and access across these, blocked.</p> <p>6. All areas where temporary services were installed are to be rehabilitated to the satisfaction of the ECO.</p>	Holder of the EA Contractor	n/a	Compliance to all legislative requirements. Ensure the EMPr is adhered to.	Following construction
Associated infrastructure	<p>7. Surfaces are to be checked for waste products from activities such as concreting or asphaltting and cleared in a manner approved by the Engineer.</p> <p>8. All surfaces hardened due to construction activities are to be ripped and imported material thereon removed.</p> <p>9. All rubble is to be removed from the site to an approved disposal site as approved by the Engineer. Burying of rubble on site is prohibited.</p> <p>10. The site is to be cleared of all litter.</p> <p>11. The Contractor is to check that all watercourses are free from building rubble, spoil materials and waste materials.</p>	Holder of EA Contractor	n/a	All waste managed according to approved Method Statement.	Following construction

	<p>12. Fences, barriers and demarcations associated with the construction phase are to be removed from the site unless stipulated otherwise by the Engineer.</p> <p>13. All residual stockpiles must be removed to spoil or spread on site as directed by the Engineer.</p> <p>14. All leftover building materials must be returned to the depot or removed from the site.</p> <p>15. The Contractor must repair any damage that the construction works has caused to neighbouring properties, specifically, but not limited to, damage caused by poor storm water management.</p>				
Rehabilitation plan	16. Rehabilitate and re-vegetate cleared areas with indigenous plant species.	Holder of EA Contractor	n/a	Alien Plant Management Plan Plant Rehabilitation implemented	Following construction
<b>Operation and Maintenance</b>					
Maintenance	<p>1. All applicable standards, legislation, policies and procedures must be adhered to during operation.</p> <p>2. Noise generated from all the proposed activities must comply with the Western Cape Noise Control Regulations promulgated in Provincial Notice 200/2013 ("WCNCR").</p> <p>3. Regular ground inspection of the plants must take place to monitor their status.</p> <p>4. Compile and adhere to a procedure for the safe handling of battery cells.</p>	Holder of the EA	n/a	Ensure the conditions of the EA are adhered to. Compliance to all legislative requirements.	During operation

	<ol style="list-style-type: none"> <li>5. Lithium-ion batteries must have battery management systems (containment, automatic alarms, and shut-off systems) to monitor and protect cells from overcharging or damaging conditions, such as temperature extremes.</li> <li>6. Compile an Emergency Response Plan for implementation in the event of a spill or leakage.</li> <li>7. Record and report all significant fuel, oil, hydraulic fluid, or electrolyte spills or leaks so that appropriate clean-up measures can be implemented. A copy of these records must be made available to authorities on request throughout the project lifecycle.</li> <li>8. Frequent and appropriate disposal of both general and hazardous waste must be undertaken to prevent pollution of soil and groundwater.</li> <li>9. Install leak detection monitoring systems where possible.</li> <li>10. On-site battery maintenance should only be undertaken on impermeable surfaces with secondary containment measures. Any resulting hazardous substances must be disposed of appropriately.</li> <li>11. Provide for suitable emergency and safety signage on site, and demarcation of any areas which may pose a safety risk (including hazardous substances). Emergency numbers for the local police, fire department, Eskom and Beaufort West Local Municipality must be</li> </ol>				
--	---	--	--	--	--

	placed in a prominent clearly visible area on-site.				
Public awareness	12. The emergency preparedness plan must be ready for implementation at all times should an emergency situation arise.	Holder of the EA		Adhere to Emergency Evacuation Plan	During operation
<b>Waste Management</b>					
Recycling and litter management	<ol style="list-style-type: none"> <li>1. The site should be kept clear of litter at all times.</li> <li>2. Solid waste separation and recycling should take place for the duration of the operational phase for the development at the administration block.</li> <li>3. Where vegetation is cleared and is suitable, chipping and/or mulching can be considered.</li> <li>4. Any putrescible waste must be stored in containers that can keep out scavengers such as baboons and birds to prevent the spread of litter.</li> <li>5. All waste must be removed promptly to ensure that it does not attract vermin or produce odours.</li> <li>6. Solid waste should be collected on a regular basis.</li> </ol>	Holder of the EA		All waste managed according to approved Method Statement. Compliance to all legislative requirements.	Continuous
<b>Waste Management</b>					
Protection of soil resources	1. Maintain the storm water run-off control system. Monitor erosion and remedy the storm water control system in the event of any erosion occurring.	Facility Environmental Manager	Undertake a periodic site inspection to verify and inspect the effectiveness and integrity of the storm water run-off control system and to specifically record the occurrence of any erosion on site or downstream. Corrective action must be	That existence of hard surfaces causes no erosion on or downstream of the site.	Bi-annually

			implemented to the run-off control system in the event of any erosion occurring.		
Erosion	2. Facilitate re-vegetation of denuded areas throughout the site.	Facility Environmental Manager	Undertake a periodic site inspection to record the progress of all areas that require re-vegetation	That denuded areas are re-vegetated to stabilise soil against erosion.	Bi-annually
Displacement of natural earth material	3. Use of existing roads and tracks where feasible. 4. Rehabilitation of affected areas (such as erosion control mats). 5. Correct engineering design and construction of roads and water crossings. 6. Vehicle repairs to be undertaken in designated areas. 7. Maintenance of stormwater system.	Engineer Contractor Holder of EA (rehabilitation)	Undertake regular audits	Erosion plan implemented and hydrological measures in place All waste managed according to approved Method Statement. Ensure the EMPr is adhered to.	Continuous
<b>Avifauna</b>					
Mortality due to collisions with the wind turbines: Bird collisions with the wind turbines	1. No turbines should be located in the buffer zones around major drainage lines, waterpoints and dams. 2. A 5km circular No-Go (no turbines) buffer zone must be implemented around the Martial Eagle nest on Tower 108 of the Droërivier Proteus 1400kV transmission line. 3. Formal live-bird monitoring and carcass searches should be implemented at the start of the operational phase, as per the most recent edition of the Best Practice Guidelines at the time (Jenkins et al. 2015) to assess collision rates. The exact time when operational monitoring should commence, will depend on the construction	Operations Manager	1. Appoint Avifaunal Specialist to compile operational monitoring plan, including live bird monitoring and carcass searches. 2. Implement operational monitoring plan. 3. Design and implement mitigation measures if mortality thresholds are exceeded. 4. Compile quarterly and annual progress	Prevention of collision mortality on the wind turbines.	1. 1. Once-off 2. Years 1,2, 5 and every five years after that for the duration of the operational lifetime of the facility.

	<p>schedule, and should commence when the first turbines start operating. The Best Practice Guidelines require that, as an absolute minimum, operational monitoring should be undertaken for the first two (preferably three) years of operation, and then repeated again in year 5, and again every five years thereafter for the operational lifetime of the facility.</p> <ol style="list-style-type: none"> <li>4. If estimated annual collision rates indicate unacceptable mortality levels of priority species, i.e., if it exceeds mortality thresholds as determined by the avifaunal specialist in consultation with BLSA and other avifaunal specialists, additional measures will have to be implemented which could include shut down on demand or other proven measures.</li> <li>5. Vehicle and pedestrian access to the site should be controlled and restricted to access roads to prevent unnecessary disturbance of SCC.</li> <li>6. Formal monitoring should be resumed once the 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.</li> </ol>		<p>reports detailing the results of the operational monitoring and progress with any recommended mitigation measures.</p>		
--	---	--	---	--	--

	<p>7. 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 lifetime 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.</p> <p>8. Depending on the results of the carcass searches, a range of mitigation measures will have to be considered if mortality levels of SCC turn out to be biologically significant, including Shutdown on Demand (SDoD).</p> <p>9. Dismantling activity should be restricted to the immediate footprint of the infrastructure as far as possible. Access to the remainder of the area should be strictly controlled to prevent unnecessary disturbance of priority species.</p> <p>10. Measures to control noise and dust should be applied according to current best practice in the industry.</p>				
<p>Mortality due to collisions and electrocutions on the 33kV network:</p> <p>Bird electrocutions on the overhead sections of the internal 33kV cables</p>	<p>11. Underground cabling should be used as much as is practically possible.</p> <p>12. If the use of overhead lines is unavoidable due to technical reasons, the Avifaunal Specialist must be consulted timeously to ensure that a raptor friendly pole design is used, and that appropriate</p>	Operations Manager	<p>1. Carcass searchers under the supervision of the Avifaunal Specialist.</p> <p>2. Design and implement mitigation measures if mortality</p>	Prevention of electrocution mortality on the overhead sections of the 33kV internal cable network.	At least once every two months.



	<p>mitigation is implemented pro-actively for complicated pole structures e.g., insulation of live components to prevent electrocutions on terminal structures and pole transformers.</p> <p>13. Regular inspections of the overhead sections of the internal reticulation network must be conducted during the operational phase to look for carcasses, as per the most recent edition of the Best Practice Guidelines at the time (Jenkins et al. 2015).</p>		<p>thresholds are exceeded.</p> <p>3. Compile quarterly and annual progress reports detailing the results of the operational monitoring and progress with any recommended mitigation measures.</p>		
<p>Mortality due to collisions with the overhead sections of the internal 33kV cables.</p>	<p>14. Bird flight diverters should be installed on all the overhead line sections for the full span length according to Eskom guidelines - five metres apart. Light and dark colour devices must be alternated to provide contrast against both dark and light backgrounds respectively. These devices must be installed as soon as the conductors are strung.</p>	<p>Holder of the EA</p>	<p>Construction Monitoring and audit reports</p>	<p>Impacts avoided or managed as per specialist recommendations.</p> <p>Ensure the conditions of the EA are adhered to.</p> <p>Adhere to legislative requirements.</p>	<p>Continuous</p>
<p><b>Biodiversity</b></p>					
<p>Faunal disturbance and habitat degradation: Fauna will be negatively affected by the operation of the wind farm due to the human disturbance, the presence of vehicles on the site and possibly by noise generated by the wind turbines as well.</p>	<p>1. Management of the site should take place within the context of an Open Space Management Plan.</p> <p>2. No unauthorized persons should be allowed onto the site.</p> <p>3. Any potentially dangerous fauna such snakes or fauna threatened by the maintenance and operational activities should be removed to a safe location.</p> <p>4. The collection, hunting or harvesting of any plants or animals at the site should be strictly</p>	<p>Holder of the EA Contractor</p>	<p>Construction Monitoring and audit reports</p>	<p>Impacts avoided or managed as per specialist recommendations.</p> <p>Ensure the conditions of the EA are adhered to.</p> <p>Alien Plant Management Plan Implemented.</p> <p>Plant Rehabilitation Implemented.</p>	<p>Continuous</p>

	<p>forbidden by anyone except landowners or other individuals with the appropriate permits and permissions where required.</p> <p>5. If any parts of the site need to be lit at night for security purposes, this should be done with downward-directed low-UV type lights (such as most LEDs or HPS bulbs) as far as possible, which do not attract insects.</p> <p>6. All hazardous materials should be stored in the appropriate manner to prevent contamination of the site. Any accidental chemical, fuel and oil spills that occur at the site should be cleaned up in the appropriate manner as related to the nature of the spill.</p> <p>7. All vehicles accessing the site should adhere to a reduced speed limit (30km/h for heavy vehicles and 40km/h for light vehicles) to avoid collisions with susceptible species such as snakes and tortoises.</p> <p>8. If parts of the facility such as the substation are to be fenced, then no electrified strands should be placed within 30cm of the ground as some species such as tortoises are susceptible to electrocution from electric fences as they do not move away when electrocuted but rather adopt defensive behaviour and are killed by repeated shocks. Alternatively, the electrified strands should be placed on the inside of the fence and not the outside.</p>				
--	--	--	--	--	--

<p>Increased potential for soil erosion</p> <p>Following construction, the site will remain vulnerable to soil erosion for some time due to the disturbance created by site clearing and likely low natural revegetation of disturbed areas thereafter. It is important to note that while the site is arid, such areas can experience significant soil erosion as plant cover is low and occasional heavy showers generate large amounts of runoff.</p>	<ol style="list-style-type: none"> <li>9. Erosion management at the site should take place according to an Erosion Management Plan and Rehabilitation Plan.</li> <li>10. All roads and other hardened surfaces should have runoff control features which redirect water flow and dissipate any energy in the water which may pose an erosion risk.</li> <li>11. Regular monitoring for erosion post construction to ensure that no erosion problems have developed as result of the disturbance, as per the Erosion Management and Rehabilitation Plans for the project. Monitoring should take place every 6 months in the first year after construction and annually thereafter.</li> <li>12. All erosion problems observed should be rectified as soon as possible, using the appropriate erosion control structures and revegetation techniques.</li> <li>13. All cleared areas should be revegetated with indigenous perennial shrubs and succulents from the local area. Dead material from site clearing can be used to encourage this process and can be set aside during clearing and later placed on the cleared areas to encourage recovery.</li> </ol>	<p>Holder of the EA Contractor</p>	<p>Construction Monitoring and audit reports</p>	<p>Impacts avoided or managed as per specialist recommendations.</p> <p>Erosion Management Plan and Rehabilitation Plan Implemented.</p> <p>Ensure the conditions of the EA are adhered to.</p>	<p>Continuous</p>
<p>Ecological degradation due to alien plant invasion</p>	<ol style="list-style-type: none"> <li>14. There should be regular monitoring for alien plants within the development footprint as well as adjacent areas which receive runoff from the facility as there are also</li> </ol>	<p>Holder of the EA Contractor</p>	<p>Construction Monitoring and audit reports</p>	<p>Impacts avoided or managed as per specialist recommendations.</p> <p>Alien Plant Management Plan Implemented.</p>	<p>Continuous</p>

	<p>likely to be prone to invasion problems. Monitoring every 6 months for the first 2 years post-construction is recommended, followed by annual monitoring thereafter.</p> <p>15. Regular alien clearing should be conducted using the best-practice methods for the species concerned. The use of herbicides should be avoided as far as possible.</p>			<p>Plant Rehabilitation Implemented.</p> <p>Ensure the conditions of the EA are adhered to.</p>	
<p>Negative impact on ESAs, CBAs and broad- scale ecological processes.</p> <p>Transformation and presence of the facility will contribute to cumulative habitat loss within CBAs / ESAs and impacts on broad-scale ecological processes such as fragmentation.</p>	<p>16. Minimise the development footprint within the high sensitivity areas.</p> <p>17. There should be an integrated management plan for the development area during operation, which is beneficial to fauna and flora.</p> <p>18. All disturbed areas that are not used such as excess road widths, should be rehabilitated with locally occurring shrubs and grasses after construction to reduce the overall footprint of the development.</p> <p>19. Noise and disturbance on the site should be kept to a minimum during operation and maintenance activities.</p>	Holder of the EA Contractor	Construction Monitoring and audit reports	<p>Impacts avoided or managed as per specialist recommendations.</p> <p>Alien Plant Management Plan Implemented.</p> <p>Plant Rehabilitation Implemented.</p> <p>Ensure the conditions of the EA are adhered to.</p>	Continuous
<b>Surface Water</b>					
<p>Impact on aquatic systems through the possible increase in surface water runoff on form and function during the operational phase:</p> <p>Increase in hard surface areas, and roads that require stormwater management will increase through the</p>	<p>A stormwater management plan must be developed in the preconstruction phase, detailing the stormwater structures and management interventions that must be installed to manage the increase of surface water flows directly into any natural systems. This stormwater control systems must be inspected on an annual</p>	Holder of the EA Contractor	n/a	<p>All staff members are aware of the EMPr requirements relevant to them</p> <p>Align to Strom Water Plan</p> <p>Ensure the EMPr is adhered to.</p>	Continuous

<p>concentration of surface water flows that could result in localised changes to flows (volume) that would result in form and function changes within aquatic systems, which are currently ephemeral. This then increases the rate of erosions and sedimentation of downstream areas.</p>	<p>basis to ensure these are functional. Effective stormwater management must include effective stabilisation (gabions and Reno mattresses) of exposed soil and the re-vegetation of any disturbed riverbanks.</p>				
<b>Heritage</b>					
<p>Cultural landscape: Ecological</p>	<ol style="list-style-type: none"> <li>1. Areas of endemic and endangered natural vegetation should be conserved.</li> <li>2. Critical Biodiversity Areas, and Ecological Support Areas (along drainage lines), should be protected.</li> <li>3. Areas of habitat are found among the rocky outcrops and contribute to the character, as well as biodiversity of the area. Care should be taken that habitats are not needlessly destroyed.</li> <li>4. Identified medicinal plants used for healing or ritual purposes should be conserved during all phases if threatened for use. Access to these resources should be made available to those who have had historic access to them.</li> </ol>	<p>Holder of the EA Contractor</p>	<p>n/a</p>	<p>Ensure the EMPr is adhered to.</p>	<p>Continuous</p>
<p>Cultural Landscape: Aesthetic</p>	<ol style="list-style-type: none"> <li>5. Infrastructure improvement or maintenance work, including new roads and upgrades to the road network, should be appropriate to the rural context (scale, material etc.) and avoid steep slopes over 10% as well as ridges.</li> </ol>	<p>Holder of the EA Contractor</p>	<p>n/a</p>	<p>Ensure the EMPr is adhered to.</p>	<p>Continuous</p>

	<p>6. Prevent the construction of new buildings/structures on visually sensitive, steep (over 10%), elevated or exposed slopes, ridgelines and hillcrests or within 800m of the farmsteads, 1000m of the N12 and 300m of the farm roads.</p> <p>7. Avoid visual clutter in the landscape by intrusive signage, and the intrusion of commercial, corporate development along roads.</p> <p>8. Duration and magnitude of operational activity must be minimized as far possible to reduce the impact of heavy vehicles on the roads as well as the associated dust from the activity. Lightest vehicles possible should be used to reduce degradation to the farm roads and the need to upgrade roads to scale and extent that negatively impacts on the integrity of the historic farm roads. Operational traffic must operate at speeds that reduce dust and noise.</p> <p>9. The impact of WEF turbine night lighting on the wilderness landscape is intrusive and overwhelms the rural character of the landscape, giving it an industrial sense of place after dark. Reduce the impact of turbine night lighting by minimizing the number of turbines with lighting to only those necessary for aviation safety, such as a few identified turbines on the outer periphery, or use aircraft triggered night lighting. Due to the reduced receptors on the roads at night, the impact of the lighting at night is reserved mainly</p>				
--	--	--	--	--	--

	for farmsteads and other places of overnight habitation such as the surrounding tourist facilities, which would be heavily impacted by the light pollution on a long term and ongoing basis.				
Cultural landscape: Historic	<p>10. Historic farmsteads must be protected from the impacts of operational facility vehicles and increased numbers of people. No WEF operations traffic should pass through or closer than 50m to the outer boundaries of a farm werf, or 200m from graded structures, which includes the associated historically cultivated lands, cemeteries, unmarked burials. The most appropriate use of existing farm roads must be found to avoid farm werfs as far as possible and reduce construction impact on these heritage features.</p> <p>11. No infrastructure or operational upgrades, such as boreholes, should impact negatively or reduce natural, on site water quality, quantity or access for the residents within or around the development site. Preferably any borehole or other water resource upgrade should also be made freely accessible to the residents living on site.</p> <p>12. Traditional planting patterns should be protected by ensuring that existing trees are not needlessly destroyed, as these signify traces of cultural intervention in a harsh environment. These planting patterns include the trees planted around the werfs and along travel</p>	Holder of the EA Contractor	n/a	Ensure the EMPr is adhered to.	Continuous

	<p>routes. Interpretation of these landscape features as historic remnants should occur.</p> <p>13. Burial grounds and places of worship are automatically regarded as Grade IIIa or higher. Any development that threatens the inherent character of family burial grounds must be assessed and should be discouraged and a buffer of 100m around all burial ground or unmarked graves should be in place. No turbines have been proposed for placement near known unmarked burials or family cemeteries. A preconstruction micro-survey of each turbine footprint and any new access roads should be conducted to ensure no further unmarked graves are threatened.</p> <p>14. Mountain slopes have been used for traditional practices for many years, and care should be taken that any significant cultural sites, such as burials and veldkos/medicinal plant resources, are not disturbed.</p> <p>15. Farms in the area followed a system of stone markers to demarcate the farm boundaries in the area. Where these structures are found on the site, care should be taken that they are not needlessly destroyed, as they add to the layering of the area.</p> <p>16. Roads running through the area may have historic stone way markers. Where these are found care should be taken that they are left in tact and in place. Road upgrades must not move or</p>				
--	---	--	--	--	--



	<p>threaten their position and they should be visible from the road they are related to by passing travellers.</p> <p>17. Where the historic function of a building/site is still intact, the function has heritage value and should be protected.</p> <p>18. Surviving examples (wagon routes, outspans, and commonage), where they are owned in some public or communal way (or by a body responsible for acting in the public interest) and where they are found to be actively operating in a communal way, will have cultural and heritage value and should be enhanced and retained. The historic route running through Koup 1 should be maintained and integrity as a communal road for farm residents must be retained.</p> <p>19. Accommodation of WEF staff must not negatively impact on existing farm residents or degrade the integrity of the farmstead complexes and should, without negative impact to ecological or aesthetic resources, be located outside of the farmstead complexes or site. Farm residents should be consulted on the preferable location for construction staff accommodation.</p> <p>20. Light vehicles should be used to reduce degradation to the farm roads and the need to upgrade roads to scale and extent that negatively impacts on the integrity of the historic farm roads.</p>				
--	--	--	--	--	--

	<p>Operational traffic must operate at speeds that reduce dust and noise.</p> <p>21. A preconstruction micro-survey for access roads, substations, laydown areas and gridlines should be completed with CLA specialist to ensure appropriate buffers are maintained during operational activities.</p>				
<p>Cultural landscape: Socio-economic</p>	<p>22. The local community on and around the development should benefit from job opportunities created by the proposed development and the development should not cause reduction in economic viability of surrounding properties in excess of those offered by the development. Short-term job opportunities at the expense of long term economic benefit and local employment opportunities must be prevented.</p> <p>23. The continued use of the landscape for human habitation and cultivation by historic residents of the area should be retained and encouraged as far possible to sustain the continual use pattern and human-environment relationship which is the ultimate significance of this cultural landscape element. The WEF development must allow and support this, including financially, and not degrade this continued relationship.</p> <p>24. No infrastructure or operational upgrades, such as boreholes, should impact negatively or reduce natural, on site water quality, quantity or access for the residents within or</p>	<p>Holder of the EA Contractor</p>	<p>n/a</p>	<p>Ensure the EMPr is adhered to.</p>	<p>Continuous</p>

	<p>around the development site. Preferably any borehole or other water resource upgrade should also be made freely accessible to the residents living on site.</p> <p>25. The local community on and around the development should benefit from job opportunities created by the proposed development and the development should not cause reduction in economic viability of surrounding properties in excess of those offered by the development. Short-term job opportunities at the expense of long term economic benefit and local employment opportunities must be prevented.</p> <p>26. Local residents must be offered employment on the construction/ decommissioning and operational phases before 'importing' staff from elsewhere.</p> <p>27. Local residents must be offered employment-training opportunities associated with WEF developments at all phases.</p> <p>28. Crop cultivation, sheep, cattle or game farming should be allowed to continue below the wind turbines, or be rehabilitated to increase biodiversity in the area.</p>				
<b>Visual</b>					
<p>Potential alteration of the visual character and sense of place.</p> <p>Potential visual impact on receptors in the study area.</p> <p>Potential visual impact on the night time visual environment.</p>	<ol style="list-style-type: none"> <li>1. Turbine colours should adhere to CAA requirements. Bright colours and logos on the turbines should be kept to a minimum.</li> <li>2. Inoperative turbines should be repaired promptly, as they are considered more visually appealing</li> </ol>	<p>Holder of the EA Contractor</p>	n/a	<p>Noise and lighting managed according to approved Method Statement.</p>	<p>During operation.</p>

	<p>when the blades are rotating (or at work) (Vissering, 2011).</p> <ol style="list-style-type: none"> <li>3. If turbines need to be replaced for any reason, they should be replaced with the same model, or one of equal height and scale to lessen the visual impact.</li> <li>4. As far as possible, limit the number of maintenance vehicles which are allowed to access the site.</li> <li>5. Ensure that dust suppression techniques are implemented on all gravel access roads.</li> <li>6. As far as possible, limit the amount of security and operational lighting present on site.</li> <li>7. Light fittings for security at night should reflect the light toward the ground and prevent light spill.</li> <li>8. Lighting fixtures should make use of minimum lumen or wattage.</li> <li>9. Mounting heights of lighting fixtures should be limited, or alternatively foot- light or bollard level lights should be used.</li> <li>10. If possible, make use of motion detectors on security lighting.</li> <li>11. Where possible, the operation and maintenance buildings should be consolidated to reduce visual clutter.</li> <li>12. The operations and maintenance (O&amp;M) buildings should not be illuminated at night.</li> <li>13. The O&amp;M buildings should be painted in natural tones that fit with the surrounding environment.</li> </ol>			<p>All waste managed according to approved Method Statement. Plant Rehabilitation Implemented.</p>	
--	---	--	--	--	--

Social					
Incident register	1. A public grievance and incident register should be established and should be monitored internally by the developer and made available for public scrutiny if requested. Any incident should be immediately recorded and reported to management and all actions pertaining to that incident, as well as the final outcome of the complaint, should be recorded and signed off by management. If an independent environmental monitor is appointed, this register should be audited on at least a monthly basis.	Holder of the EA Contractor	n/a	Clear communication channels maintained.	Continuous
Health and social Wellbeing: Noise WEF Only	2. Refer to the mitigation measures suggested by the noise specialist. 3. Noise generated from all the proposed activities must comply with the Western Cape Noise Control Regulations promulgated in Provincial Notice 200/2013 ("WCNCR").	Holder of the EA Contractor	n/a	Clear communication channels maintained.	Continuous
Health and social Wellbeing: Shadow Flicker WEF only	4. Identifying receptor points and applying appropriate technical measures such as computer modelling in siting the wind turbines to limit the effect of shadow flicker. 5. Where necessary and appropriate apply tracking technology that will automatically shutoff and restart the affecting wind turbine to eliminate shadow flicker.	Holder of the EA Contractor	n/a	Clear communication channels maintained. Social Responsibility Programme implemented.	Continuous

	6. Consider the application of appropriate screening measures to reduce the effect of shadow flicker.				
Health and social Wellbeing: Blade glint	7. Calculate and factor in the risk of blade glint in siting the wind turbines. 8. Coat wind turbine blades with non-reflective coating to reduce blade glint. 9. Where appropriate adjust the angle of turbine blades to reduce blade glint.	Holder of the EA Contractor	n/a	Clear communication channels maintained. Social Responsibility Programme implemented.	Continuous
Health and social Wellbeing: Electromagnetic field and RF interference	10. Wind turbine mechanisms will be elevated and the risk of EMFs will be minimal. Notwithstanding this, it would be pertinent to regularly monitor the levels of EMFs emitted by the turbines and, if necessary, make the appropriate adjustments to ensure that these levels remain within acceptable parameters. 11. Ensure that power lines are not routed in close proximity (with 300 meters) of residential areas to limit the effect off EMFs. 12. Consult with the appropriate telecommunication authorities to ensure that the telecommunication installations identified within the vicinity of the project are not compromised through RFI.	Holder of the EA Contractor	n/a	Clear communication channels maintained. Social Responsibility Programme implemented.	Continuous
Health and social Wellbeing: Hazard exposure	13. Install early detection techniques to avoid or reduce structural damage. 14. Install lighting protection systems. 15. Install fire prevention and control measures.	Holder of the EA Contractor	n/a	Clear communication channels maintained. Social Responsibility Programme implemented.	Continuous

<p>Quality of the living Environment: Transformation of the sense of place</p>	<p>16. Apply the mitigation measures suggested in the Visual Impact Assessment Report.</p> <p>17. Communicate the benefits associated with renewable energy to the broader community.</p> <p>18. Ensure that all affected landowners and tourist associations are regularly consulted.</p> <p>19. A Grievance Mechanism should be put in place and all grievances should be dealt with transparently.</p> <p>20. The mitigation measures recommended in the Heritage and Palaeontology Impact Assessment should be followed.</p>	<p>Holder of the EA Contractor</p>	<p>n/a</p>	<p>Clear communication channels maintained. Social Responsibility Programme implemented.</p>	<p>Continuous</p>
<p>Economic: Job creation and skills development</p>	<p>21. Implement a training and skills development programme for locals.</p> <p>22. Work closely with the appropriate municipal structures regarding establishing a social responsibility programme.</p>	<p>Holder of the EA Contractor</p>	<p>n/a</p>	<p>Clear communication channels maintained. Social Responsibility Programme implemented.</p>	<p>Continuous</p>
<p>Economic: Socio- economic stimulation.</p>	<p>23. Ensure that the procurement policy supports local enterprises.</p> <p>24. Establish a social responsibility programme either in line with the REIPPP BID guidelines or equivalent.</p> <p>25. Work closely with the appropriate municipal structures regarding establishing a social responsibility programme.</p> <p>26. Ensure that any trusts or funds are strictly managed in respect of outcomes and funds.</p>	<p>Holder of the EA</p>	<p>n/a</p>	<p>Clear communication channels maintained. Social Responsibility Programme implemented.</p>	<p>Continuous</p>
<p><b>Transportation</b></p>					

Additional Traffic Generation: Increase in Traffic	1. The increase in traffic for this phase of the development is negligible and will not have a significant impact.	Holder of the EA Contractor	n/a	All staff members are aware of the EMPr requirements relevant to them. Ensure the EMPr is adhered to.	Continuous
Additional Traffic Generation: Increase of Incidents with pedestrians and livestock	2. The increase in traffic for this phase of the development is negligible and will not have a significant impact.	Holder of the EA Contractor	n/a	All staff members are aware of the EMPr requirements relevant to them. Ensure the EMPr is adhered to.	Continuous
Additional Traffic Generation: Increase in Dust from gravel roads	3. The increase in traffic for this phase of the development is negligible and will not have a significant impact.	Holder of the EA Contractor	n/a	All staff members are aware of the EMPr requirements relevant to them. Ensure the EMPr is adhered to.	Continuous
Additional Traffic Generation: Increase in Road Maintenance	4. The increase in traffic for this phase of the development is negligible and will not have a significant impact.	Holder of the EA Contractor	n/a	All staff members are aware of the EMPr requirements relevant to them. Ensure the EMPr is adhered to.	Continuous
Additional Abnormal Loads	5. The increase in traffic for this phase of the development is negligible and will not have a significant impact.	Holder of the EA Contractor	n/a	All staff members are aware of the EMPr requirements relevant to them. Ensure the EMPr is adhered to.	Continuous
Internal Access Roads: New / Larger Access points	6. Adequate road signage according to the SARTSM.	Holder of the EA Contractor	n/a	All staff members are aware of the EMPr requirements relevant to them. Ensure the EMPr is adhered to.	Continuous



Bats					
Impact	Mitigation / Management Objectives	Mitigation / Management Actions	Monitoring		
			Method	Frequency	Responsibility
Fatality of resident bats through direct collision or barotrauma.	<ul style="list-style-type: none"> <li>■ Mitigate potential impacts on bats during operation of wind farm.</li> <li>■ Reduce bat mortality during the operational lifetime of the wind farm.</li> <li>■ Supervise all bat monitoring activities.</li> <li>■ Stay aware of bat mortality.</li> </ul>	<ol style="list-style-type: none"> <li>1. All turbines and turbine components, including the rotor swept zone, should be kept out of all No-go and high bat sensitivity areas, Annexure E.</li> <li>2. Mitigation as proposed in Annexure E, should be applied as soon as the turbines start operating for the site as a whole.</li> <li>3. Mitigation as proposed for High-medium sensitivity zones proposed in Annexure E, must be adhered to as soon as the turbines start turning. Mitigation measures must be adapted by a bat specialist as data is collected</li> </ol>	<ul style="list-style-type: none"> <li>■ Regular bat monitoring reports, informed by the relevant SABAA operational bat monitoring guidelines.</li> <li>■ Adhere to the mitigation measures as indicated by the EA and Section 9 of the Bat Monitoring report.</li> <li>■ Maintain a register of bat mortality/injury.</li> <li>■ Regular communication between bat specialist and site manager.</li> </ul>	Throughout operation and during operational bat monitoring period.	Site manager Project developer

		<p>during the operational phase.</p> <ol style="list-style-type: none"><li>4. Where high bat mortality occurs, mitigation should be implemented without delay. Specific turbines should be mitigated, using Sections in Annexure E, as a starting point for discussions.</li><li>5. Freewheeling should be avoided, to a point where the turbines are not a threat to bats, when turbines do not generate power.</li><li>6. Except for compulsory lightning required in terms of civil aviation, artificial lightning should be minimised, especially bright lights. Lights should rather be turned downwards.</li><li>7. Turbine tower lights should be</li></ol>			
--	--	--	--	--	--

		<p>switched off when not in operation, if possible, depending on civil aviation laws.</p> <p>8. At least two years of post-construction bat monitoring is to be conducted and must be performed according to the South Africa Good Practice Guidelines for Operational Monitoring for Bats at Wind Energy facilities (Aronson, et.al., 2020) or later versions of the guidelines valid at the time of monitoring.</p> <p>9. Prolonged post construction mitigation, beyond the prescribed two years, might be necessary if advised by the operational bat specialist.</p> <p>10. The use of ultrasound as a mitigation</p>			
--	--	--	--	--	--

		measure to deter bats should be investigated if necessary and as advised by a bat specialist.			
Bat fatality of migratory species.	<ul style="list-style-type: none"> <li>■ Mitigate potential impacts on bats during operation of wind farm.</li> <li>■ Reduce bat mortality during the operational lifetime of the wind farm.</li> <li>■ Supervise all bat monitoring activities.</li> </ul>	<ol style="list-style-type: none"> <li>11. Care should be taken during post construction monitoring to verify the numbers of this species, especially within the rotor swept area of the turbine blades.</li> <li>12. All turbines and turbine components, including the rotor swept zone, should be kept out of all No-go and high bat sensitivity areas, Annexure E.</li> <li>13. Mitigation as proposed in Annexure E should be applied as soon as the turbines start operating for the site as a whole.</li> </ol>	<ul style="list-style-type: none"> <li>■ Regular bat monitoring reports, informed by the relevant SABAA operational bat monitoring guidelines.</li> <li>■ Adhere to the mitigation measures as indicated by the EA and Section 9 of the Bat Monitoring report.</li> </ul>	Throughout operation and during operational bat monitoring period.	Site manager Project developer

		<p>14. Mitigation as proposed for High-medium sensitivity zones proposed in Annexure E, must be adhered to as soon as the turbines start turning. Mitigation measures must be adapted by a bat specialist as data is collected during the operational phase.</p> <p>15. Where high bat mortality occurs, mitigation should be implemented without delay. Specific turbines should be mitigated, using Annexure E, as a starting point for discussions.</p> <p>16. Freewheeling should be avoided, to a point where the turbines are not a threat to bats, when turbines do not generate power.</p> <p>17. Except for compulsory</p>			
--	--	---	--	--	--

		<p>lightning required in terms of civil aviation, artificial lightning should be minimised, especially bright lights. Lights should rather be turned downwards.</p> <p>18. Turbine tower lights should be switched off when not in operation, if possible, depending on civil aviation laws.</p> <p>19. At least two years of post-construction bat monitoring is to be conducted and must be performed according to the South Africa Good Practice Guidelines for Operational Monitoring for Bats at Wind Energy facilities (Aronson, et.al., 2020) or later versions of the guidelines valid at the time of monitoring.</p>			
--	--	---	--	--	--

		<p>20. Prolonged post construction mitigation, beyond the prescribed two years, might be necessary if advised by the operational bat specialist.</p> <p>21. The use of ultrasound as a mitigation measure to deter bats should be investigated if necessary and as advised by a bat specialist.</p>			
Loss of bats of conservation value.	<ul style="list-style-type: none"> <li>■ Mitigate potential impacts on bats during operation of wind farm.</li> <li>■ Reduce bat mortality during the operational lifetime of the wind farm.</li> <li>■ Supervise all bat monitoring activities.</li> </ul>	<p>22. Care should be taken during post construction monitoring to verify the numbers of this species, especially within the rotor swept area of the turbine blades.</p> <p>23. All turbines and turbine components, including the rotor swept zone, should be kept out of all No-go and high</p>	<ul style="list-style-type: none"> <li>■ Regular bat monitoring reports, informed by the relevant SABAA operational bat monitoring guidelines.</li> <li>■ Adhere to the mitigation measures as indicated by the EA and Section 9 of the Bat Monitoring report.</li> <li>■ Regular communication between bat</li> </ul>	Throughout operation and during operational bat monitoring period.	Site manager Project developer

		<p>bat sensitivity areas, Annexure E.</p> <p>24. Mitigation as proposed in Annexure E should be applied as soon as the turbines start operating for the site as a whole.</p> <p>25. Mitigation as proposed for High-medium sensitivity zones proposed in Annexure E, must be adhered to as soon as the turbines start turning. Mitigation measures must be adapted by a bat specialist as data is collected during the operational phase.</p> <p>26. Where high bat mortality occurs, mitigation should be implemented without delay. Specific turbines should be mitigated, using Annexure E, as a</p>	<p>specialist and site manager.</p>		
--	--	---	-------------------------------------	--	--



		<p>starting point for discussions.</p> <p>27. Freewheeling should be avoided, to a point where the turbines are not a threat to bats, when turbines do not generate power.</p> <p>28. Except for compulsory lightning required in terms of civil aviation, artificial lightning should be minimised, especially bright lights. Lights should rather be turned downwards.</p> <p>29. Turbine tower lights should be switched off when not in operation, if possible, depending on civil aviation laws.</p> <p>30. At least two years of post-construction bat monitoring is to be conducted and must be performed</p>			
--	--	--	--	--	--

		<p>according to the South Africa Good Practice Guidelines for Operational Monitoring for Bats at Wind Energy facilities (Aronson, et.al., 2020) or later versions of the guidelines valid at the time of monitoring.</p> <p>31. Prolonged post construction mitigation, beyond the prescribed two years, might be necessary if advised by the operational bat specialist.</p> <p>32. The use of ultrasound as a mitigation measure to deter bats should be investigated if necessary and as advised by a bat specialist.</p>			
Bat fatality due to the attraction of bats to turbine blades.	Avoid activities that will attract bats to turbines.	33. Minimise artificial light at night as far as possible, at the turbines as well as the site	Reduce lights as far as possible.	Ongoing	Site manager Project Developer

		<p>management offices.</p> <p>34. Where possible, lights should shine downwards.</p> <p>35. Avoid any activities that might attract flying insects to the areas amongst the turbines.</p>			
Loss of habitat and foraging space during operation of the wind turbines.	<ul style="list-style-type: none"> <li>■ Mitigate the loss of habitat and foraging space to avoid bat mortality.</li> <li>■ Reduce bat mortality during the operational lifetime of the wind farm.</li> </ul>	<p>36. Adhere to the sensitivity zones as indicated in the bat monitoring report and bat sensitivity map.</p> <p>37. No off-road driving on site.</p>	Adaptive mitigation plan.	During operations.	Site manager Project Developer ECO
Reduction in size, genetic diversity, resilience, and persistence of bat populations.	<ul style="list-style-type: none"> <li>■ Monitor potential impacts on bats during operation of wind farm.</li> <li>■ Prevent activities that will attract bats to high-risk areas on site.</li> </ul>	<p>38. All turbines and turbine components, including the rotor swept zone, should be kept out of all No-go and high bat sensitivity areas, Annexure E.</p> <p>39. Mitigation as proposed in Annexure E should be applied as soon as the turbines</p>	Adaptive mitigation plan.	During operations.	Site manager Project Developer ECO

		<p>start operating for the site.</p> <p>40. Mitigation as proposed for High-medium sensitivity zones proposed in Annexure E, must be adhered to as soon as the turbines start turning. Mitigation measures must be adapted by a bat specialist as data is collected during the operational phase.</p> <p>41. Where high bat mortality occurs, mitigation should be implemented without delay. Specific turbines should be mitigated, using Annexure E, as a starting point for discussions.</p> <p>42. Freewheeling should be avoided, to a point where the turbines are not a threat to bats, when turbines</p>			
--	--	--	--	--	--

		<p>do not generate power.</p> <p>43. Except for compulsory lightning required in terms of civil aviation, artificial lightning should be minimised, especially bright lights. Lights should rather be turned downwards.</p> <p>44. Turbine tower lights should be switched off when not in operation, if possible, depending on civil aviation laws.</p> <p>45. At least two years of post-construction bat monitoring is to be conducted and must be performed according to the South Africa Good Practice Guidelines for Operational Monitoring for Bats at Wind Energy facilities (Aronson, et.al., 2020) or later</p>			
--	--	---	--	--	--

		<p>versions of the guidelines valid at the time of monitoring.</p> <p>46. Prolonged post construction mitigation, beyond the prescribed two years, might be necessary if advised by the operational bat specialist.</p>			
--	--	---	--	--	--

**Decommissioning Phase Management Plan**

ASPECT / IMPACT	IMPACT MANAGEMENT ACTIONS	RESPONSIBILITY	METHOD	IMPACT MANAGEMENT OUTCOMES	TIMEFRAMES
<b>On-going Stakeholder Involvement</b>					
Ongoing Stakeholder Involvement	<ol style="list-style-type: none"> <li>Community to be notified, as culturally appropriate, timeously of the planned decommissioning, e.g.: <ul style="list-style-type: none"> <li>Proposed decommissioning start date; and</li> <li>Process to be followed.</li> </ul> </li> <li>Recommend that a meeting with community leader(s) be held before decommissioning commence to inform them: <ul style="list-style-type: none"> <li>What activities will take place during the decommissioning phase.</li> <li>How these activities will impact upon the communities and/or their properties.</li> </ul> </li> </ol>	Holder of the EA	n/a	Clear communication channels maintained	During decommissioning

	<ul style="list-style-type: none"> <li>■ Regarding the timeframes of scheduled activities.</li> </ul> <ol style="list-style-type: none"> <li>3. Regular interaction between the client and community leader(s) during the decommissioning phase</li> <li>4. A reporting office/ channel to be established should community members experience problems with contractors/ sub-contractors during the decommissioning phase.</li> <li>5. Formalise agreements or contracts between the landowner and the applicant that will ensure that the rehabilitation does not leave any liability to future landowners.</li> <li>6. A register to be kept of problems reported by community members and the steps taken to address / resolve it.</li> <li>7. Noise generated from all the proposed activities must comply with the Western Cape Noise Control Regulations promulgated in Provincial Notice 200/2013 ("WCNCR").</li> </ol>				
<b>Waste Management</b>					
Waste Management Mitigation	<ol style="list-style-type: none"> <li>1. All decommissioned equipment must be removed from site and disposed of at a registered land fill. Records of disposal must be kept.</li> <li>2. Any putrescible waste must be stored in containers that can keep out scavengers such as baboons and birds to prevent the spread of litter.</li> <li>3. Wind turbines must be returned to the manufacturer or relevant recycling agent to be recycled.</li> </ol>	Holder of the EA	n/a	All waste managed according to approved Method Statement.	During decommissioning
<b>Agriculture and Soils</b>					

Aspect: Protection of soil resources Erosion	1. Implement an effective system of storm water run-off control, where it is required - that is at any points where run-off water might accumulate. The system must effectively collect and safely disseminate any run-off water from all accumulation points and it must prevent any potential down slope erosion.	Environmental Control Officer (ECO)	Undertake a periodic site inspection to verify and inspect the effectiveness and integrity of the storm water run-off control system and to specifically record the occurrence of any erosion on site or downstream. Corrective action must be implemented to the run-off control system in the event of any erosion occurring.	That disturbance and existence of hard surfaces causes no erosion on or downstream of the site.	Every 2 months during the decommissioning phase, and then every 6 months after completion of decommissioning, until final sign-off is achieved.
Erosion	2. Maintain where possible all vegetation cover and facilitate re-vegetation of denuded areas throughout the site, to stabilize disturbed soil against erosion.	Environmental Control Officer (ECO)	Undertake a periodic site inspection to record the occurrence of and re-vegetation progress of all areas that require re-vegetation.	That vegetation clearing does not pose a high erosion risk.	Every 4 months during the decommissioning phase, and then every 6 months after completion of decommissioning, until final sign-off is achieved.
Topsoil	3. If an activity will mechanically disturb the soil below surface in any way, then any available topsoil should first be stripped from the entire surface to be disturbed and stockpiled for re-spreading during rehabilitation. During rehabilitation, the stockpiled topsoil must be evenly spread over the entire disturbed surface.	Holder of the EA	Record GPS positions of all occurrences of below-surface soil disturbance (e.g. excavations). Record the date of topsoil stripping and replacement. Check that topsoil covers the entire disturbed area.	That topsoil loss is minimised.	As required, whenever areas are disturbed.



<p>Removal of subsoils (soil, rock): Decommissioning of the structure will disturb the geological environment.</p>	<ol style="list-style-type: none"> <li>4. Use of temporary berms and drainage channels to divert surface water were feasible.</li> <li>5. Minimize earthworks and demolish footprints.</li> <li>6. Use of existing roads and tracks were feasible.</li> <li>7. Rehabilitation of affected areas (such as regrassing).</li> <li>8. Develop a chemical spill response plan.</li> <li>9. Develop dust and demolition fly suppression plan.</li> <li>10. Vehicle repairs to be undertaken in designated areas.</li> <li>11. Reinstate channelized drainage features.</li> </ol>	<p>Holder of the EA</p>	<p>Undertake regular audits</p>	<p>Erosion plan implemented and hydrological measures in place.  All waste managed according to approved Method Statement.  Ensure the EMPr is adhered to.</p>	<p>Continuous</p>
<p><b>Avifauna</b></p>					
<p>Avifauna: Displacement due to disturbance: The noise and movement associated with the de-commissioning activities at the WEF footprint will be a source of disturbance which would lead to the displacement of avifauna from the area.</p>	<p>A site-specific EMPr must be implemented, which gives appropriate and detailed description of how construction activities must be conducted. All contractors are to adhere to the EMPr and should apply good environmental practice during construction. The EMPr must specifically include the following:</p> <ul style="list-style-type: none"> <li>■ No off-road driving;</li> <li>■ Maximum use of existing roads, where possible;</li> <li>■ Measures to control noise and dust according to latest best practice;</li> <li>■ Restricted access to the rest of the property;</li> <li>■ Strict application of all recommendations in the botanical</li> </ul>	<p>Contractor ECO</p>	<ol style="list-style-type: none"> <li>1. Implementation of the EMPr. Oversee activities to ensure that the EMPr is implemented and enforced via site audits and inspections. Report and record any non-compliance.</li> <li>2. Ensure that construction personnel are made aware of the impacts</li> </ol>	<p>Prevent unnecessary displacement of avifauna by ensuring that contractors are aware of the requirements of the Environmental Management Programme (EMPr.)</p>	<ol style="list-style-type: none"> <li>1. On a daily basis.</li> <li>2. Weekly.</li> </ol>

	specialist report pertaining to the limitation of the footprint.		relating to off-road driving.		
			3. Construction access roads must be demarcated clearly. Undertake site inspections to verify.		3. Weekly.
			4. Monitor the implementation of noise control mechanisms via site inspections and record and report non-compliance.		4. Weekly
			5. Ensure that the construction area is demarcated clearly and that construction personnel are made aware of these demarcations. Monitor via site inspections and report non-compliance.		5. Weekly
Displacement due to disturbance associated with the dismantling of the wind turbines and associated infrastructure.	1. Dismantling activity should be restricted to the immediate footprint of the infrastructure as far as possible. Access to the remainder of the area should be strictly controlled to prevent unnecessary disturbance of priority species.	Holder of the EA	Construction Monitoring and audit reports	Impacts avoided or managed as per specialist recommendations. Ensure the conditions of the EA are adhered to.	Continuous

	2. Measures to control noise and dust should be applied according to current best practice in the industry.			Adhere to legislative requirements	
<b>Biodiversity</b>					
<p>Faunal disturbance and habitat loss</p> <p>Fauna will be negatively affected by the decommissioning of the wind farm due to the human disturbance, the presence and operation of vehicles and heavy machinery on the site and the noise generated.</p>	<ol style="list-style-type: none"> <li>1. Any potentially dangerous fauna such as snakes or fauna threatened by the decommissioning activities should be removed to a safe location prior to the commencement of decommissioning activities.</li> <li>2. All hazardous materials should be stored in the appropriate manner to prevent contamination of the site. Any accidental chemical, fuel and oil spills that occur at the site should be cleaned up in the appropriate manner as related to the nature of the spill.</li> <li>3. All vehicles accessing the site should adhere to a low- speed limit (40km/h max) to avoid collisions with susceptible species such as snakes and tortoises.</li> <li>4. No excavated holes or trenches should be left open for extended periods as fauna may fall in and become trapped.</li> <li>5. All above-ground infrastructure should be removed from the site. Below-ground infrastructure such as cabling can be left in place if it does not pose a risk, as removal of such cables may generate additional disturbance and impact, however, this should be in accordance with the facilities' decommissioning and recycling plan, and as per the agreements with the land owners concerned.</li> </ol>	Holder of the EA	Construction Monitoring and audit reports	<p>Impacts avoided or managed as per specialist recommendations.</p> <p>Alien Plant Management Plan Implemented.</p> <p>Plant Rehabilitation Implemented.</p> <p>Ensure the conditions of the EA are adhered to.</p>	Continuous

<p>Increased potential for soil erosion</p> <p>Following decommissioning, the site will be highly vulnerable to soil erosion due to the disturbance created by the removal of infrastructure from the site.</p>	<p>6. Any roads that will not be rehabilitated should have runoff control features which redirect water flow and dissipate any energy in the water which may pose an erosion risk.</p> <p>7. There should be regular monitoring (annual) for erosion for at least 5 years after decommissioning by the applicant to ensure that no erosion problems develop as a result of the disturbance, and if they do, to immediately implement erosion control measures.</p> <p>8. All erosion problems observed should be rectified as soon as possible, using the appropriate erosion control structures and revegetation techniques.</p> <p>9. All disturbed and cleared areas should be revegetated with indigenous perennial shrubs and grasses from the local area during the rehabilitation process.</p>	<p>Holder of the EA Contractor</p>	<p>Construction Monitoring and audit reports</p>	<p>Impacts avoided or managed as per specialist recommendations.</p> <p>Alien Plant Management Plan Implemented.</p> <p>Plant Rehabilitation Implemented.</p> <p>Ensure the conditions of the EA are adhered to.</p>	<p>Continuous</p>
<p>Ecological degradation due to alien plant invasion.</p>	<p>10. Wherever excavation is necessary for decommissioning, topsoil should be set aside and replaced after construction to encourage natural regeneration of the local indigenous species.</p> <p>11. Indigenous vegetation seeds that occur naturally in the area should be reintroduced during the rehabilitation process.</p> <p>12. Due to the disturbance at the site alien plant species are likely to be a long-term problem at the site following decommissioning and regular control will need to be</p>	<p>Holder of the EA Contractor</p>	<p>Construction Monitoring and audit reports</p>	<p>Impacts avoided or managed as per specialist recommendations.</p> <p>Alien Plant Management Plan Implemented.</p> <p>Plant Rehabilitation Implemented.</p> <p>Ensure the conditions of the EA are adhered to.</p>	<p>Continuous</p>

	<p>implemented until a cover of indigenous species has returned.</p> <p>13. Annual monitoring for alien plants within the disturbed areas for at least three years after decommissioning or until alien invasives are no longer a problem at the site.</p> <p>14. Regular alien clearing should be conducted using the best-practice methods for the species concerned. The use of herbicides should be avoided as far as possible</p>				
<b>Surface Water</b>					
Loss of aquatic species of special concern: During decommissioning activities within watercourses could result in the disturbance or destruction of any listed and or protected plant or animal species. However none of these aquatic obligate species were observed during this assessment.	<p>1. Develop and implement an Aquatic Rehabilitation and Monitoring plan post Environmental Authorisation. This must be developed following the finalisation of the turbine / road layout and a walk down has been completed.</p>	Holder of the EA	Decommissioning Monitoring and audit reports.	Impacts avoided or managed as per specialist recommendations. Ensure the conditions of the EA are adhered to.	Continuous
Damage or loss of riparian and or drainage line systems i.e. disturbance of the waterbodies in the construction phase:	<p>2. All alien plant re-growth, which is currently low within the greater region must be monitored and should it occur, these plants must be eradicated within the project footprints and especially in areas near the proposed crossings. <i>Prosopis</i> (alien invasive riparian tree) is prevalent in areas to the north of the site, thus care in transporting any material, while ensuring that such materials is free of alien seed, coupled with pre and post alien clearing must be stipulated in the EMPr.</p>	Holder of the EA	Decommissioning Monitoring and audit reports.	Impacts avoided or managed as per specialist recommendations. Ensure the conditions of the EA are adhered to.	Continuous

	<p>Where roads and crossings are upgraded, the following applies:</p> <ul style="list-style-type: none"> <li>■ Existing pipe culverts must be removed and replaced with suitable sized box culverts, especially where road levels are raised to accommodate any large vehicles.</li> <li>■ River levels, regardless of the current state of the river / water course must be reinstated thus preventing any impoundments from being formed. The related designs must be assessed by an aquatic specialist during a pre-decommissioning walkdown.</li> <li>■ Where large cut and fill areas are required these must be stabilised and rehabilitated during the decommissioning process, to minimise erosion and sedimentation.</li> <li>■ 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 through whatever additional interventions maybe necessary (i.e., extension, energy dissipaters, spreaders, etc).</li> </ul>				
<p>Potential impact on localised surface water quality (decommissioning materials and fuel storage facilities) during the decommissioning phases. During decommissioning earthworks will expose and</p>	<p>3. All liquid chemicals including fuels and oil, including the BESS must be stored in with secondary containment (bunds or containers or berms) that can contain a leak or spill. Such facilities must be inspected routinely and must have the suitable PPE and spill kits needed to contain likely worst-case</p>	<p>Holder of the EA</p>	<p>Construction Monitoring and audit reports.</p>	<p>Impacts avoided or managed as per specialist recommendations. Ensure the conditions of the EA are adhered to.</p>	<p>Continuous</p>

<p>mobilise earth materials, and a number of materials as well as chemicals will be imported and used on site and may end up in the surface water, including soaps, oils, grease and fuels, human wastes, cementitious wastes, paints and solvents, etc. Any spills during transport or while works area conducted in proximity to a watercourse has the potential to affect the surrounding biota. Leaks or spills from storage facilities also pose a risk and due consideration to the safe design and management of the 30 000l fuel storage facility must be given.</p> <p>Although unlikely, consideration must also be provided for the proposed Battery Energy Storage System (BESS), with regard safe handling during the decommissioning phase. This to avoid any spills or leaks from this system.</p>	<p>scenario leak or spill in that facility, safely.</p> <ol style="list-style-type: none"> <li>4. 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).</li> <li>5. Mechanical plant and bowsers must not be refuelled or serviced within 100m of a river channel.</li> <li>6. All construction camps, lay down areas, wash bays, batching plants or areas and any stores should be more than 50 m from any demarcated water courses. Note comment regards Camp A that requires micro-siting.</li> <li>7. Littering and contamination associated with decommissioning activity must be avoided through effective construction camp management.</li> <li>8. No stockpiling should take place within or near a water course.</li> <li>9. All stockpiles must be protected and located in flat areas where run-off will be minimised and sediment recoverable.</li> </ol>				
<b>Heritage</b>					
Palaeontology	<ol style="list-style-type: none"> <li>1. During the construction phase the Chance Fossil Finds Protocol summarized in Annexure D should be fully implemented.</li> <li>2. The Environmental Control Officer (ECO ) / Environmental Site Officer (ESO) responsible for the</li> </ol>	Palaeontologist ECO	n/a	Ensure the EMPr is adhered to.	Continuous

	<p>development should be made aware of the possibility of important fossil remains (vertebrate bones, teeth, petrified wood, plant-rich horizons etc.) being found or unearthed during the construction phase of the development. Monitoring for fossil material of all major surface clearance and deeper (&gt;1m) excavations by the Environmental Site Officer on an on-going basis during the construction phase is therefore recommended. Significant fossil finds should be safeguarded and reported at the earliest opportunity to Heritage Western Cape for recording and sampling by a professional palaeontologist (Contact details: Heritage Western Cape. 3rd Floor Protea Assurance Building, 142 Longmarket Street, Green Market Square, Cape Town 8000. Private Bag X9067, Cape Town 8001. Tel: 021 483 5959 Email: ceoheritage@westerncape.gov.za).</p>				
<p>Cultural landscape: Ecological</p>	<p>3. Critical Biodiversity Areas, and Ecological Support Areas (along drainage lines), should be protected from development of the wind turbines or any associated development during all phases.</p> <p>4. No wind turbines should be placed within the 1:100-year flood line of the watercourses. In the context of the sensitivity to soil erosion in the area, as well as potential archaeological resources, it would be a risk to include any structures close to these drainage lines</p>	<p>Holder of the EA Contractor</p>	<p>n/a</p>	<p>Ensure the EMP is adhered to.</p>	<p>Continuous</p>



	<p>5. Remaining areas of endemic and endangered natural vegetation should be conserved.</p> <p>6. Areas of critical biodiversity should be protected from any damage during all phases; where indigenous and endemic vegetation should be preserved at all cost.</p> <p>7. Areas of habitat are found among the rocky outcrops and contribute to the character, as well as biodiversity of the area. Care should be taken that habitats are not needlessly destroyed.</p> <p>8. Identified medicinal plants used for healing or ritual purposes should be conserved during all phases if threatened for use.</p> <p>9. Careful planning should incorporate areas for storm water runoff where the base of the structure disturbed the natural soil. Local rocks found on the site could be used to slow storm water (instead of concrete, or standard edge treatments), and prevent erosion that would be an unfortunate consequence that would alter the character of the site. By using rocks from site it helps to sensitively keep to the character.</p>				
Cultural landscape: Aesthetic	<p>10. Encourage mitigation measures (for instance use of vegetation) to 'embed' or disguise the proposed structures within the surrounding tourism and agricultural landscape at ground level, road edges etc.</p> <p>11. The continuation of the traditional use of material could be enhanced with the use of the rocks on the site as building material. This would also help</p>	Holder of the EA Contractor	n/a	Ensure the EMPr is adhered to.	Continuous

	<p>to embed structures into the landscape and should not consist of shipping containers or highly reflective untreated corrugated sheeting that clutters the landscape and is exacerbates the foreign intrusion on the natural matte landscape.</p> <p>12. Using material found on the site adds to the sense of place and reduces transportation costs of bringing materials to site.</p> <p>13. The local material such as the rocks found within the area could be applied to address storm water runoff from the road to prevent erosion.</p> <p>14. Duration and magnitude of construction/ decommissioning activity must be minimized as far possible to reduce the impact of heavy vehicles on the roads as well as the associated dust from the activity. Lightest vehicles possible should be used to reduce degradation to the farm roads and the need to upgrade roads to scale and extent that negatively impacts on the integrity of the historic farm roads. Construction/ decommissioning traffic must operate at speeds that reduce dust and noise as far possible.</p> <p>15. Any new road network or widening must be returned to its original state at end of the operational time of the WEF, with full environmental and aesthetic rehabilitation to the approval of a qualified cultural landscapes assessment specialist.</p> <p>16. Turbine sites, substation and laydown areas should be returned to their original state at the end of the</p>				
--	--	--	--	--	--

	operational time of the WEF, with full environmental and aesthetic rehabilitation to the approval of a qualified cultural landscapes assessment specialist.				
Cultural landscape: Historic	<p>17. Historic farmsteads must be protected from the impacts of heavy construction vehicles and increased numbers of people. No construction traffic should pass through or closer than 50m to the outer boundaries of a farm werf, or 200m from graded structures, which includes the associated historically cultivated lands, cemeteries, unmarked burials. The most appropriate use of existing farm roads must be found to avoid farm werfs as far as possible and reduce construction impact on these heritage features.</p> <p>18. A preconstruction micro-survey for turbines, access roads, substations, laydown areas and gridlines should be completed with CLA specialist to ensure appropriate buffers are maintained.</p> <p>19. Duration and magnitude of construction/ decommissioning activity must be minimized to reduce the impact of heavy vehicles on the roads as well as the associated dust from the activity. Light vehicles should be used to reduce degradation to the farm roads and the need to upgrade roads to scale and extent that negatively impacts on the integrity of the historic farm roads. Construction decommissioning traffic must operate at speeds that reduce dust and noise.</p> <p>20. No infrastructure or operational</p>	Holder of the EA Contractor	n/a	Ensure the EMPr is adhered to.	Continuous

	<p>upgrades, such as boreholes, should impact negatively or reduce natural, on site water quality, quantity or access for the residents within or around the development site. Preferably any borehole or other water resource upgrade should also be made freely accessible to the residents living on site.</p> <p>21. Accommodation of construction staff must not negatively impact on existing farm residents or degrade the integrity of the farmstead complexes and should, without negative impact to ecological or aesthetic resources, be located outside of the farmstead complexes or site. Farm residents should be consulted on the preferable location for construction staff accommodation.</p> <p>22. Traditional planting patterns should be protected by ensuring that existing trees are not needlessly destroyed, as these signify traces of cultural intervention in a harsh environment. These planting patterns include the trees planted around the werfs and along travel routes. Interpretation of these landscape features as historic remnants should occur. A buffer of 50m around such planting patters should be maintained.</p> <p>23. Burial grounds and places of worship are automatically regarded as Grade IIIa or higher. Any development that threatens the inherent character of family burial grounds must be assessed and should be discouraged. No turbines have been proposed for placement near known unmarked</p>				
--	--	--	--	--	--

	<p>burials or family cemeteries. A preconstruction micro-survey of each turbine footprint and any new access roads should be conducted to ensure no further unmarked graves are threatened. A preconstruction micro-survey for access roads, substations, laydown areas and gridlines should be completed with CLA specialist to ensure appropriate buffers are maintained.</p> <p>24. Mountain slopes have been used for traditional practices for many years, and care should be taken that any significant cultural sites, such as burials and veldkos/medicinal plant resources, are not disturbed.</p> <p>25. Farms in the area followed a system of stone markers to demarcate the farm boundaries in the area. Where these structures are found on the site, care should be taken that they are not needlessly destroyed, as they add to the layering of the area.</p> <p>26. Roads running through the area may have historic stone way markers. Where these are found care should be taken that they are left in tact and in place. Road upgrades must not move or threaten their position and they should be visible from the road they are related to by passing travellers. A preconstruction micro-survey for access roads, substations, laydown areas and gridlines should be completed with CLA specialist to ensure appropriate buffers are maintained.</p> <p>27. Where the historic function of a building/site is still intact, the function</p>				
--	---	--	--	--	--

	<p>has heritage value and should be protected.</p> <p>28. Surviving examples (wagon routes, outspans, and commonage), where they are owned in some public or communal way (or by a body responsible for acting in the public interest) and where they are found to be actively operating in a communal way, will have cultural and heritage value and should be enhanced and retained. The historic route running through Koup 1 should be maintained and integrity as a communal road for farm residents must be retained.</p>				
Cultural landscape: Socio-economic	<p>29. An updated cultural landscapes impact assessment report must be completed should the WEF continue to be used after the term granted in this application. This report should include a detailed assessment of the impacts to the cultural landscape and its outcomes and recommendations need to be considered in the decision for recommissioning and be implemented if recommissioning is approved.</p> <p>30. The continued use of the landscape for human habitation and cultivation by historic residents of the area, should be retained and encouraged as far possible to sustain the continual use pattern and human-environment relationship which is the ultimate significance of this cultural landscape element. The WEF development must allow and support this, including financially, and not degrade this continued relationship.</p> <p>31. No infrastructure or operational</p>	Holder of the EA Contractor	n/a	Ensure the EMPr is adhered to.	Continuous

	<p>upgrades, such as boreholes, should impact negatively or reduce natural, on site water quality, quantity or access for the residents within or around the development site. Preferably any borehole or other water resource upgrade should also be made freely accessible to the residents living on site.</p> <p>32. The local community on and around the development should benefit from job opportunities created by the proposed development and the development should not cause reduction in economic viability of surrounding properties in excess of those offered by the development. Short-term job opportunities at the expense of long term economic benefit and local employment opportunities must be prevented.</p> <p>33. Local residents must be offered employment on the construction/ decommissioning and operational phases before 'importing' staff from elsewhere.</p> <p>34. Local residents must be offered employment-training opportunities associated with WEF developments at all phases.</p> <p>35. Sheep, cattle or game farming should be allowed to continue below the wind turbines, or be rehabilitated to increase biodiversity in the area.</p>				
<b>Visual</b>					
Potential visual intrusion resulting from vehicles and	1. All infrastructure that is not required for post-decommissioning use should be removed.	Holder of the EA	n/a	Noise and lighting managed according to	During decommissioning

<p>equipment involved in the decommissioning process.</p> <p>Potential visual impacts of increased dust emissions from decommissioning activities and related traffic.</p> <p>Potential visual intrusion of any remaining infrastructure on the site.</p>	<ol style="list-style-type: none"> <li>2. Carefully plan to minimize the decommissioning period and avoid delays.</li> <li>3. Maintain a neat decommissioning site by removing rubble and waste materials regularly.</li> <li>4. Ensure that dust suppression procedures are maintained on all gravel access roads throughout the decommissioning phase.</li> <li>5. All cleared areas should be rehabilitated as soon as possible.</li> <li>6. Rehabilitated areas should be monitored post-decommissioning and remedial actions implemented as required.</li> </ol>			<p>approved Method Statement.</p> <p>All waste managed according to approved Method Statement.</p> <p>Plant Rehabilitation Implemented.</p>	
<b>Transportation</b>					
<p>Additional Traffic Generation: Increase in Traffic.</p>	<ol style="list-style-type: none"> <li>1. Ensure staff transport is done in the 'off peak' periods and by bus.</li> <li>2. Stagger material, component and abnormal loads.</li> <li>3. Construction of an on-site concrete batching plant to reduce trips.</li> </ol>	<p>Holder of the EA Contractor</p>	<p>n/a</p>	<p>All staff members are aware of the EMPr requirements relevant to them.</p> <p>Ensure the EMPr is adhered to.</p>	<p>Continuous</p>
<p>Additional Traffic Generation: Increase of Incidents with pedestrians and livestock.</p>	<ol style="list-style-type: none"> <li>4. Reduction in speed of vehicles.</li> <li>5. Adequate enforcement of the law.</li> <li>6. Implementation of pedestrian safety initiatives.</li> <li>7. Regular maintenance of farm fences &amp; access cattle grids.</li> <li>8. Construction of an on-site concrete batching plant to reduce trips.</li> </ol>	<p>Holder of the EA Contractor</p>	<p>n/a</p>	<p>All staff members are aware of the EMPr requirements relevant to them.</p> <p>Ensure the EMPr is adhered to.</p>	<p>Continuous</p>
<p>Additional Traffic Generation: Increase in Dust from gravel roads.</p>	<ol style="list-style-type: none"> <li>9. Reduction in speed of the vehicles.</li> <li>10. Use of dust suppressant techniques.</li> </ol>	<p>Holder of the EA Contractor</p>	<p>n/a</p>	<p>All staff members are aware of the EMPr requirements relevant to them.</p>	<p>Continuous</p>



	<p>11. Implement a road maintenance program under the auspices of the respective transport department.</p> <p>12. Construction of an on-site concrete batching plant to reduce trips.</p>			Ensure the EMPr is adhered to.	
Additional Traffic Generation: Increase in Road Maintenance.	<p>13. Implement a road maintenance program under the auspices of the respective transport department.</p> <p>14. Construction of an on-site batching plant to reduce trips.</p>	Holder of the EA Contractor	n/a	<p>All staff members are aware of the EMPr requirements relevant to them.</p> <p>Ensure the EMPr is adhered to.</p>	Continuous
Additional Abnormal Loads.	<p>15. Ensure abnormal vehicles travel to and from the proposed development in the 'off peak' periods or stagger delivery.</p> <p>16. Adequate enforcement of the law.</p>	Holder of the EA Contractor	n/a	<p>All staff members are aware of the EMPr requirements relevant to them.</p> <p>Ensure the EMPr is adhered to.</p>	Continuous
Internal Access Roads: Increase in Dust from gravel roads.	<p>17. Enforce a maximum speed limit on the development.</p> <p>18. Use of dust suppressant techniques.</p> <p>19. Adequate watering by means of water bowser.</p>	Holder of the EA Contractor	n/a	<p>All staff members are aware of the EMPr requirements relevant to them.</p> <p>Ensure the EMPr is adhered to.</p>	Continuous
Internal Access Roads: New / Larger Access points.	<p>20. Adequate road signage according to the SARTSM.</p> <p>21. Approval from the respective roads department.</p>	Holder of the EA Contractor	n/a	<p>All staff members are aware of the EMPr requirements relevant to them.</p> <p>Ensure the EMPr is adhered to.</p>	Continuous

**Cumulative impacts:**

- Where possible, limit the number of maintenance vehicles using access roads.
- Non-reflective surfaces should be utilised where possible.
- Where possible, limit the amount of security and operational lighting present at the on-site substation.
- Light fittings for security at night should reflect the light toward the ground and prevent light spill.

### **High Level BESS Risk Assessment**

<b>Possible Risk</b>	<b>Likelihood of occurrence</b>	<b>Resultant Impact</b>	<b>Management / Mitigation</b>
<b>General leakage:</b> - Leakage of Coolant - Leakage of Electrolyte	<b>Low</b>	- On site fires. - Electrical failure. - Potential spillage of electrolytes or refrigerant - Soil contamination - Groundwater contamination	- Latest BESS technologies to be used as far as possible. - BESS installation is to adhere to the appropriate international standards and South African National Standard (SANS) requirements. - Training of all staff and employees on how to handle spillages, fires and electrocutions. - Records kept for well managed operations and maintenance.
<b>Mishandling:</b> - Batteries incorrectly connected - Batteries left disconnected - Short circuits - Forced discharged - Venting of Electrolyte - Punctured/Crushed or damaged modules and battery casing	<b>Low</b>	- On site fires. - Electrical failure - Electrocution - Potential spillage of electrolytes or refrigerant - Vented gasses - Staff and personal injury - Contaminated Runoff - Soil and microbe contamination - Groundwater seepage - Downstream effects on the current terrestrial ecosystem.	- Bunding of containers and batteries to be placed on an impermeable barrier/layer (e.g., concrete surface with acid lining). - In case of a spillage of hazardous chemicals where contamination of soil occurs, depending on the degree of contamination, excavation and removal to a hazardous waste disposal site might be necessary. If the spillage is widespread, a specialist will need to be immediately appointed to deal with the issue, the DFFE must be notified, and the notification process stipulated in the National Norms and Standards for the Remediation of Contaminated Land and Soil Quality (GN 331, 2 May 2014) should be followed. - Implementation of spill handling and management in line with the EMPr. - Demarcate all no-go and sensitive areas. - Avoid the placement of batteries near watercourses and sensitive features. - Material Safety Data Sheets (MSDS) Records to be kept, as well as incidents reporting register.

			<ul style="list-style-type: none"> <li>- Source batteries from reputable suppliers, and batteries to arrive on site pre-assembled in suitable containers.</li> <li>- Battery inspection prior to installation.</li> </ul>
<b>Thermal Runaway:</b> <ul style="list-style-type: none"> <li>- Thermal and/or Mechanical failure in one or more battery cells</li> <li>- Overheating</li> <li>- Short circuiting</li> </ul>	<b>Low</b>	<ul style="list-style-type: none"> <li>- On site fires.</li> <li>- Electrical failure</li> <li>- Potential spillage of electrolytes or refrigerant</li> <li>- Downstream effects on the current terrestrial ecosystem.</li> </ul>	<ul style="list-style-type: none"> <li>- Maintenance.</li> <li>- Latest BESS technologies to be used as far as possible.</li> <li>- Appropriate battery design and venting control.</li> <li>- Source from reputable manufacturers.</li> <li>- Safe and appropriate storage in line with the above and the EMPr. Safe handling which must include battery inspection prior to installation.</li> <li>- Should electrolyte solutions be stored on site, these should be stored away from incompatible materials such as all peroxides, such as hydrogen peroxide; chemicals that react with acid to generate a gaseous product, such as carbonate and bicarbonates, sulfites and bisulfites; strong reducing agents, such as alkaline metals (Li, Na, K) and alkaline earth metals (Be Mg Ca, Sr, Ba); reactive metals such as aluminum and zinc, all hydrides (such as LiAlH<sub>4</sub>, NaBH<sub>4</sub>), and some carbides (such as CaC<sub>2</sub>).</li> <li>- Development and implementation of Thermal Management Plan prior to installation/construction.</li> </ul>
<b>Limited Employee Training and Experience:</b> <ul style="list-style-type: none"> <li>- Device Monitoring Failure (SCADA)</li> <li>- Poor incidents reporting</li> <li>- Poor first responders training</li> <li>- Distance to nearest fire station and response time.</li> </ul>	<b>Low</b>	<ul style="list-style-type: none"> <li>- Time lag for first respondent</li> <li>- Inability to contain spillage</li> <li>- Fire</li> <li>- Electrocutation</li> <li>- Damage to exiting/surrounding infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>- During the construction phase the proposed project, first responders from the nearest major center (such as fire fighters and paramedics) must be given appropriate training on dealing with any emergency situation that may occur as a result of the operation of BESS. Such training must be provided by the technology suppliers or an appointed service provider.</li> </ul>
<b>Inappropriate Storage</b> <ul style="list-style-type: none"> <li>- Hydrocarbon Spill</li> <li>- Leaked battery pack coolant</li> <li>- Leaked refrigerant</li> <li>- Leaked cell electrolyte</li> <li>- Rapid heating of individual cells</li> <li>- Fires</li> </ul>	<b>Low</b>	<ul style="list-style-type: none"> <li>- On site fires.</li> <li>- Electrical failure</li> <li>- Electrocutation</li> <li>- Potential spillage of electrolytes or refrigerant</li> <li>- Vented gasses</li> <li>- Staff and personal injury</li> <li>- Contaminated Runoff</li> </ul>	<ul style="list-style-type: none"> <li>- Solid State Li-Ion technologies to be preferred where possible.</li> <li>- Training of all staff and employees on how to handle spillages, fires and electrocutations.</li> <li>- In terms of appropriate design measures, the holder of the EA must identify a secondary containment facility, which is to be constructed with a capacity of at least 110% of the largest storage tank's capacity and the off-loading point must be located in the bunded area to ensure that any potential spill during the off-loading of the electrolyte solutions is contained.</li> </ul>

		<ul style="list-style-type: none"> <li>- Soil and microbe contamination</li> <li>- Groundwater seepage</li> <li>- Downstream effects on the current terrestrial ecosystem.</li> </ul>	<ul style="list-style-type: none"> <li>- Records kept for well managed operations and maintenance.</li> <li>- Bunding of containers.</li> <li>- Implementation of spill handling and management in line with the EMPr which ensures that run-off and dirty water does not mix with electrolyte spill.</li> <li>- Containment areas to be sloped towards a sump.</li> <li>- All drains to be covered.</li> <li>- Demarcate all no-go and sensitive areas.</li> <li>- Avoid the placement of batteries near watercourses and sensitive features.</li> <li>- MSDS Records to be kept, as well as incidents reporting register.</li> <li>- The batteries should be placed in a well-ventilated area, include vents (where necessary and applicable) and appropriate PPE (appropriate gloves, safety glasses/face shield, appropriate clothing) should be worn when handling the electrolyte solutions.</li> <li>- Source batteries from reputable suppliers.</li> <li>- The transport vehicle should be identified with symbols.</li> <li>- Transport schedule and map must be implemented and kept on each drivers person, with a copy kept in the admin offices on site.</li> <li>- Battery inspection prior to installation.</li> </ul>
<p><b>Inappropriate disposal at the end of life</b></p> <ul style="list-style-type: none"> <li>- Landfill Disposal</li> <li>- Heavy Metal Pollution</li> </ul>	<p><b>Medium</b></p>	<ul style="list-style-type: none"> <li>- Potential scenario of fluids from the batteries leaking into environment. The release of such chemicals through leaching, spills or air emissions can harm communities, ecosystems and food production.</li> <li>- The potentially toxic materials contained in batteries means that they are classified as hazardous materials in terms of NEM:WA. There are only a few licensed hazardous waste sites in South Africa and recycling of batteries and e-waste has been identified as a</li> </ul>	<ul style="list-style-type: none"> <li>- The recycling of batteries and their potential use as e-waste.</li> <li>- Disposal at a licensed hazardous waste site.</li> <li>- Prior to construction of the WEF, and BESS, the holder of the EA is to develop a dedicated Battery Recycling Programme to be adopted on-site.</li> <li>- Records of disposal at a licensed facility must be kept.</li> </ul>

		sure way of improving the lifespans of such sites.	
--	--	--	--

## **Fire Management Plan**

The National Veld and Forest Fires Act (Act 101 of 1998) states that it is the landowner' and / or relevant contractors in the context of the WEFs' responsibility to ensure that the appropriate equipment as well as trained personnel are available to combat fires.

Although fires are not a regular occurrence at the site, fires may occasionally occur under the right circumstances. Ignition risk sources in the area include the following:

- Lightning strikes.
- Personnel within the facility.
- Infrastructure such as transmission lines.

A fire management plan in compliance with Veld Fire Management Act should be compiled by the main contractor prior to the commencement of construction.

### **Firebreaks**

Extensive firebreaks are not recommended as a fire risk management strategy at the site. The site is very large compared to the extent of the infrastructure and the maintenance of firebreaks would impose a large management burden on the operation of the facility. In addition, the risk of fires is not distributed equally across the site and within many of the lowlands of the site, there is not sufficient biomass to carry fires and the risk of fires within these areas is very low. Rather targeted risk management must be implemented around vulnerable or sensitive elements of the facility such as substations or other high risk components. Within such areas, the extent over which management action needs to be applied is relatively limited and it is recommended that firebreaks are created by mowing and that burning to create firebreaks is not used as this in itself poses a risk of runaway fires. Where such firebreaks need to be built such as around substations, a strip of vegetation 5 - 10 m wide can be cleared manually and maintained relatively free of vegetation through manual clearing on an annual basis. However, if alien species colonise these areas, more regular clearing must be implemented.

## **Re-vegetation and habitat rehabilitation plan**

The Revegetation and Habitat Rehabilitation Plan addresses the need to mitigate all impacts leading to disturbed vegetation, loss of species and/or agricultural potential, disturbed soil surfaces, and generally bare soils prone to erosion and further degradation on the proposed development site. The plan overlaps to some degree with the Erosion Management Plan, and for successful rehabilitation, it is imperative that this plan is at all times used in conjunction with other EMPs mentioned.

The objective of the plan is therefore to provide:

- Protocols for the removal, temporary storage and replanting of plant species of conservation concern  
Protocols for the rehabilitation of vegetative cover across the project area;
- Tools for planning the rehabilitation work and responding to unforeseen events Guidelines on implementation and post-implementation tasks Criteria for evaluating rehabilitation success; and
- A summary of items to be included in the rehabilitation budget to ensure that there is sufficient allocation of resources on the project budget so that the scale of EMP-related activities is consistent with the significance of project impacts.

The objective of rehabilitation and revegetation of the development area is:

- Preventing the loss of species either directly or through future extinction and minimising impacts of development on population dynamics of species of conservation concern.
- Preserving the natural configuration of habitats as part of ecosystems, thus ensuring a diverse but stable hydrology, substrate and general environment for species to be able to become established and persist.
- Preserving or re-creating the structural integrity of natural plant communities. Actively aid the improvement of indigenous biodiversity according to a desirable end state according to a previously recorded reference state. This reference state, if healthy, will be dynamic and able to recover after occasional disturbances without returning to a degraded state.

- Improving the ecosystem function of natural landscapes and their associated vegetation.
- Successful rehabilitation can only be achieved with: »A long-term commitment »Practical, adaptive management »Viable goals of desired outcomes

Prior to vegetation rehabilitation, all stakeholders involved must be consulted to determine:

- What the rehabilitation is ultimately aiming for– rehabilitation of cropping/grazing lands or rehabilitation of indigenous vegetation, after soil erosion and storm water management is in place and IAPs have been cleared?
- A clear definition of incompatible and compatible vegetation on and in the immediate surroundings of the development must be defined and maintained as such. No tree or shrubs shall be allowed to grow to a height in excess of the horizontal distance of that tree or shrub from the nearest newly developed structure or to grow in such a manner as to endanger the development or its operation
- Who will take long-term ownership and hence responsibility for the rehabilitation and its subsequent monitoring and management? Continued monitoring of vegetation establishment and composition, as well as erosion detection will have to be coupled with continued follow-up maintenance of rehabilitation and erosion control from commencement of activity up to the decommissioning phase.
- The ultimate objective for rehabilitation must focus on the stabilisation of soil erosion, retaining agricultural potential of transformed areas and /or the establishment of a dense and protective plant cover and the maintenance of habitats to enable vegetation to persist and flourish on rehabilitated areas indefinitely, ultimately relying only on environmental resources.

Map and Create Management Areas

The entire project area must be mapped and divided into management areas indicating:

- Current land cover
- Roads and residential
- Areas with IAPs, subdivided further in sparse or dense infestations where applicable
- Transformed areas
- Untransformed indigenous vegetation

For every one of the management areas, the project proponent, in consultation with the land users, will have to decide what intervention will be necessary, desirable, and feasible to enable the development of the project and long-term sustainable maintenance of infrastructure. Thus for every management area there must be an operational outline on:

- what will happen there
- what needs to be mitigated – including storm water- and erosion management
- which management units need priority intervention/mitigation
- how will this mitigation / intervention be done (method statements) including schedule of work
- realistic and desirable end states including list of species that must be established to initiate rehabilitation after initial revegetation
- approximate timeframes
- monitoring protocol to evaluate success or failures of interventions
- establish permanently marked transects and monitor with fixed-point photography who will be responsible for doing what how will different actions be integrated to achieve and maintain or improve the desirable end state of the environment of that management unit

Special attention will have to be given to drainage zones, as these not only have very active morphodynamics, but are also distributors of seeds – both indigenous and of IAPs. Thus clearing a downstream invasion of aliens to enable

maintenance of the development will be futile if the upstream IAPs are not cleared or at least aggressively controlled.

#### Setting Realistic Rehabilitation Goals

Rehabilitation efforts typically aim at improving ecosystem function that consists of a series of processes, which can in the end be evaluated against a desired outcome or reference state of the vegetation and environment.

Attainable goals of rehabilitation on the project area must be possible and viable for at least the following:

- Stabilisation of soils
- Stabilisation of riparian areas
- Storm water reduction through management and wetland integrity
- Clearing of IAPs
- The degree to which IAPs can be cleared from the project area needs to be determined according to desirability, available project funding, personnel and project requirements
- Restoring and/or rehabilitating vegetative cover on non-transformed areas to obtain an acceptable vegetation cover that can be maintained or persists on its own indefinitely.

#### Remove or Ameliorate the Cause of Degradation

This will include:

- Physical rehabilitation of topsoil where it has been removed.
- Topsoil on areas that have not been cultivated are considered as the upper 20 - 30 cm only. These contain the most important nutrients, micro flora and –fauna essential for nutrient cycling processes. Topsoils are also an important source of seeds.
- Subsoils and overburden substrata lack the above elements and will first have to be used for physical rehabilitation of landscapes as and where necessary, and then overlain with topsoils.
- Stabilisation of topsoils and prevention of erosion – refer to the Erosion management plan.
- Removal of all invasive vegetation – refer to the Alien Invasive Management Plan

Where it is desirable to use brush or logs of the cleared vegetation for soil stabilisation, such material must be free of regenerative material – e.g. seeds or root suckers.

#### Initial Revegetation

Immediately after clearing of vegetation, the soil surface must be inspected for signs of erosion and stabilised as soon as possible. After completion of construction, such erosion stabilisation must preferably be with a cover of vegetation. A dense initial grass or other perennial cover will be desirable. The appropriate seed mix must be determined in consultation with an ecologist familiar with the area. The aim of the first vegetation cover is to form a protective, relatively dense indigenous layer to slow runoff, increase moisture infiltration into the soil, and gradually change the soil nutrient status in order for it to be more favourable for other desirable indigenous vegetation to become established.

#### Natural seed banks and improvement of plant structural and compositional diversity

It is expected that soil seed banks of indigenous vegetation will be present to initiate initial vegetation cover, but may not be sufficient to establish an acceptable cover of desirable species. After deciding which indigenous species must be re-introduced, seed must be ideally collected from site or an environmentally-matched site nearby.

Seed collection may be done throughout the year as seed ripens, but can also be restricted to summer, when a large amount of the perennial seed should have ripened. Seeds must be stored in paper or canvas bags dusted with insecticide, and sown at the onset of the rainy season.

Alternatively, slower-growing perennials may be raised from seed or cuttings in a nursery and then transplanted once established. It will be beneficial to investigate if community members would be able to create and maintain such a nursery, or if there are nurseries in the area, that raise indigenous flora from the area.



The final vegetation cover must resemble the original (non-encroached) vegetation composition and structure as far as practicable possible or permissible within each management unit.

*For drainage areas:*

- First restore drainage line morphology following the guidelines of the Erosion Management Plan – without that ecological recovery cannot be initiated;
- Determine if natural seed sources may be present further upstream;
- If such upstream seed sources are still present, rehabilitation of riparian vegetation after soil erosion management will most likely occur naturally, PROVIDED that follow-up monitoring of the establishment of vegetation is carried out, and all invasive species eradicated as they emerge. This can only be achieved with a long-term commitment (> 5 years minimum); and
- Should no upstream seed resources be available, suitable species (as determined in consultation with an ecologist) must be sown or planted.

Monitoring and Follow-Up Action

Throughout the lifecycle of the development, regular monitoring and adaptive management must be in place to detect any new degradation of ecosystems affected by the development, and remedy these as soon as detected.

During the construction phase, the ECO and contractor will be responsible for initiating and maintaining a suitable monitoring system. Once the development is operational, the project proponent will have to identify a suitable entity that will be able to take over and maintain the monitoring cycle and initiate adaptive management as soon as it is required. Monitoring personnel must be adequately trained.

The following are the minimum criteria that must be monitored:

- Composition and density of replanted vegetation, distinguishing between species introduced for initial revegetation only and species that are part of the pre-determined desirable end state;
- Associated nature and stability of surface soils
  - It is recommended that permanent transects are marked and surveyed annually according to the LFA technique (Tongway and Hindley 2004), adapted to integrate both surface soil characteristics and the vegetation to be monitored
- Re-emergence of IAPs
  - If noted, remedial action must be taken immediately according to Working for Water specifications
- Nature and dynamics of riparian zones
  - Stability of riparian vegetation,
  - Any form of bank erosion, slumping or undercutting, and
  - Stability of channel form and width of streams – if this increases, it shows that vegetation on plains and/or riparian areas and upper drainage lines are not yet in a stable enough state to be fully functional in reducing excess runoff and the ecosystem overall is losing valuable resources.

Timeframes and Duration

- Rehabilitation will occur during construction, as areas for the re-application of topsoil and revegetation become available or where revegetation can be initiated after clearing of invasives or to stabilise erosion.
- The initial revegetation period post construction is estimated to be over a period of 6 (minimum) to 12 months (maximum), or a time period specified by the Horticultural Landscape Contractor, particularly if planting of trees and shrubs occurs.
- The rehabilitation phase (including post seeding maintenance) must be at least 12 months (depending on time of seeding and rainfall) to ensure establishment of an acceptable plant cover is achieved (excluding invasive plant species or weeds).

- If the plants have not established and the acceptable plant cover is not achieved within the specified maintenance period, maintenance of these areas shall continue until at acceptable plant cover is achieved (excluding alien plant species or weeds).
- Additional seeding or planting may be necessary to achieve acceptable plant cover. Hydroseeding may have to be considered as an option in this case.
- Any plants that die, during the maintenance period, shall be replaced by the Horticultural Landscape Contractor (at the Horticultural Landscape Contractor's cost if it was due to insufficient maintenance).
- Succession of natural plant species must be encouraged
- Monitoring of rehabilitation success and follow-up adaptive management, together with clearing of emerging invasives shall be carried on until the decommissioning phase has been completed.

#### **Freshwater and Wetlands (Aquatic) Management and Monitoring Plan**

Based on the results of the walkdown, several sensitive areas are present within the region, but based on the field assessments, the final layouts and alignments were found to be located outside the majority of the high sensitive area identified during the EIA. All that remains are the recommendations made in above, that will then see the avoidance of any additional impacts on the minor drainage lines shown. The further the following recommendations are reiterated:

- Vegetation clearing should occur in a phased manner in accordance with the construction programme to minimise erosion and/or run-off.
- 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. Washing and cleaning of equipment should also be done in berms or bunds, in order to trap any cement and prevent excessive soil erosion. 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.
- All cleared areas must be re-vegetated after construction has been completed.
- All alien plant re-growth 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.

#### **Stormwater management plan**

The objective of the storm water management plan (SWMP) is to prevent increased soil erosion, to contain any contaminated run-off and to avoid water logging and pollution.

The Erosion Management Plan (see below) must therefore be seen in conjunction with the SWMP. Actions are listed that will ensure that storm water is channelled in a controlled manner from roads and substations towards natural drainage lines, without impeding natural surface flows.

- Develop and implement a site-specific storm water management plan during the detailed design phase of the projects and prior to construction;
- In the detailed design phase of the project minimise any water crossings and utilise existing roads wherever possible;
- Enforce 32 m construction buffers of all rivers, streams and waterbodies;
- Should new roads be required to cross any banks or channels these must be secured with erosion protection (i.e. gabions etc);
- Monitor for erosion during the clearing of vegetation;
- Avoid hard-engineered surfaces (i.e. construct gravel roads and not asphalt roads wherever possible);
- Roads in steep areas must be equipped with side drainages and culverts that channel the run-off to natural drainage lines without gaining velocity and causing erosion;
- Construction camps and temporary ablution facilities must be located beyond the 1:100 year floodline;

- Stockpiles must be located on flat areas and protected from erosion;
- The substation site design must include side water outlets and an adequate slope to allow storm water run-off from the paved areas;
- Any run-off from the BESS area must be controlled and managed before entering any stormwater channel; and
- Prevent surface run-off from areas of potential contamination.

Guidelines and Stormwater Management:

Where buildings/ infrastructure occur on-site, the developer should ensure that all stormwater flow paths are protected against erosion. All inlets to piped systems must be fitted with a screen/grating to prevent debris and refuse from entering the stormwater system. Screens/ grating must be installed immediately after the installation of piped infrastructure. Buildings, earthworks, or any other infrastructure may obstruct or encroach on a watercourse inside or outside the site without approved plans. The approved plans must not compromise the SWMP or any other required Authority approvals.

Designs must ensure that rainfall run-off from roofing, not subjected to increases in pollution, can be captured for re-use for on-site irrigation and non-potable water uses. Where storage for re-use and ground conditions permit, rainwater run-off should connect to detention areas to maximise groundwater recharge. Detention areas must be designed to attenuate run-off.

Parking or paved areas should be structured to reduce stormwater runoff by allowing ponding or infiltration. Stormwater from these areas should be discharged and controlled as overland sheet flow or attenuation facilities.

Designed roads must avoid concentration of flow along and off the road. Where flow concentration is unavoidable, incorporating the road into the major stormwater system must be considered.

Subsurface disposal must be designed to ensure that slope instability, concentrated saturation or inundation does not occur.

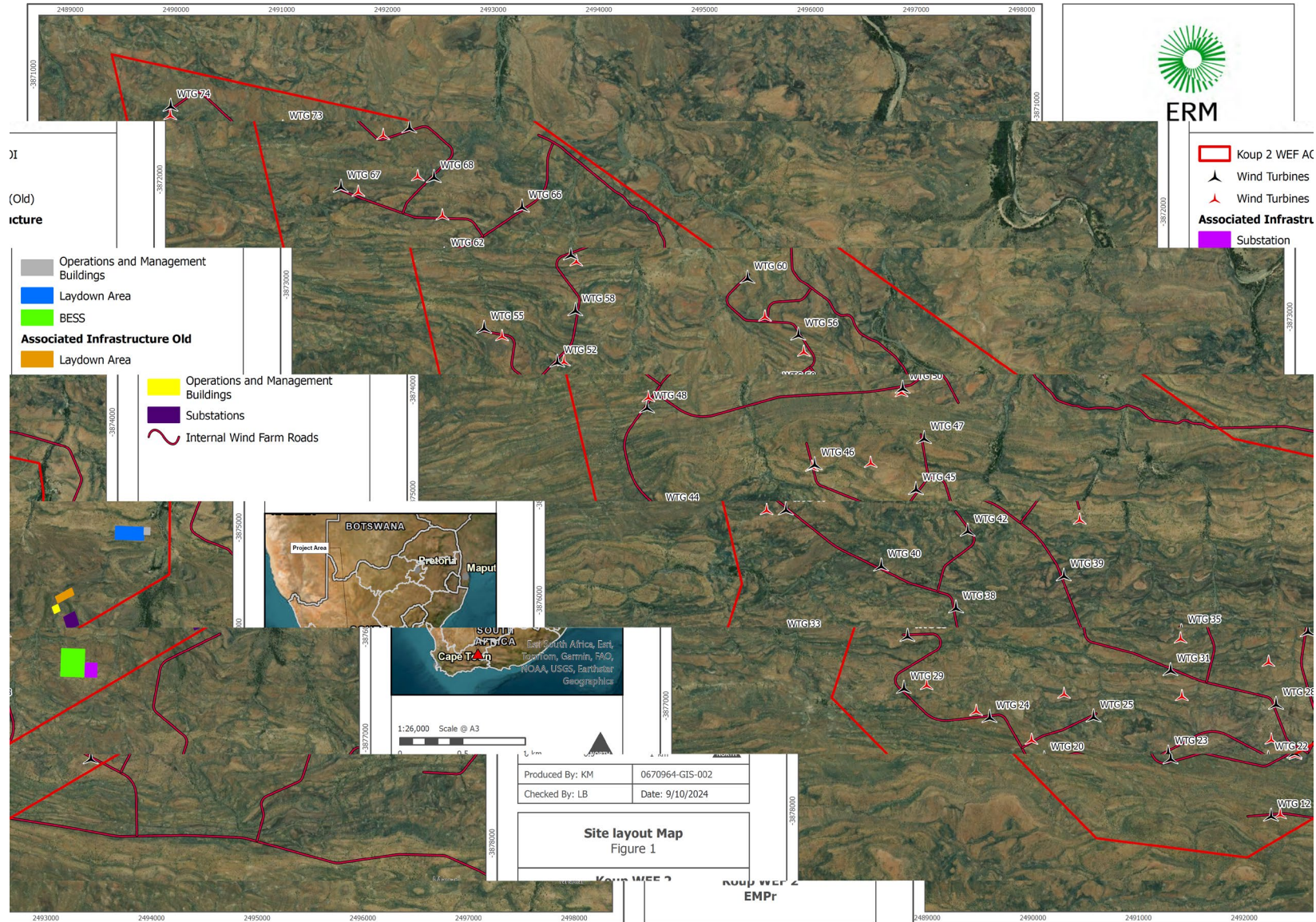
Channels may be constructed to convey stormwater directly to a natural watercourse where deemed necessary and unavoidable. The channels must be suitably lined to prevent erosion and provide maximum possible energy dissipation of the flow.

Open trenches should not be unprotected for extended periods and should be progressively backfilled as construction proceeds. Excavated material to be used as a backfill must be placed close to the trench on the upstream side to avoid loose material from washing away.

Materials to be stockpiled away from drainage paths and loose material such as stone, sand or gravel must be covered or kept damp to minimise dust. The stormwater systems should be free from materials that could harm the water systems' fauna, flora, and aquatic life.



Figure 0-1 Final Site Layout Map



**APPENDIX 1: METHOD STATEMENTS**

To be prepared by the contractor prior to commencement of the activity. The method statements are **not required** to be submitted to the CA.

---