

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

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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 not legally binding	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 is not required 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 legally binding. 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 must be 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 is required to be submitted together with the BAR or EIAR, for consideration of, and decision on, the application for EA. The</p>

Part	Section	Heading	Content
			<p>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> <p>This section applies only to additional 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	Contains the method statements to be prepared prior to commencement of the activity. The method statements are not required 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 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

CA	Competent Authority
cEO	Contractors Environmental Officer
dEO	Developer Environmental Officer
DPM	Developer Project Manager
DSS	Developer Site Supervisor
EAR	Environmental Audit Report
ECA	Environmental Conservation Act No. 73 of 1989
ECO	Environmental Control Officer
EA	Environmental Authorisation
EIA	Environmental Impact Assessment
ERAP	Emergency Response Action Plan
EMPr	Environmental Management Programme Report
EAP	Environmental Assessment Practitioner
FPA	Fire Protection Agency
HCS	Hazardous chemical Substance
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEMBA	National Environmental Management: Biodiversity Act ,2004 (Act No. 10 of 2004)
NEMWA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
MSDS	Material Safety Data Sheet
RI&AP's	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"> - Be fully conversant with the conditions of the EA; - Ensure that all stipulations within the EMPr are communicated and adhered to by the Developer and its Contractor(s); - Issuing of site instructions to the Contractor for corrective actions required; - Monitor the implementation of the EMPr throughout the project by means of site inspections and meetings. Overall management of the project and EMPr implementation; and - Ensure that periodic environmental performance audits are undertaken on the project implementation.

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"> - Ensure that all contractors identify a contractor's Environmental Officer (cEO); - Must be fully conversant with the conditions of the EA. Oversees site works, liaison with Contractor, DPM and ECO; - Must ensure that all landowners have the relevant contact details of the site staff, ECO and cEO; - Issuing of site instructions to the Contractor for corrective actions required; - Will issue all non-compliances to contractors; and - Ratify the Monthly Environmental Report.
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 & Affected Parties' (RI&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</p>

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

Responsible Person(s)	Role and Responsibilities
	<ul style="list-style-type: none"> - Assisting in the resolution of conflicts; - Facilitate training for all personnel on the site – this may range from carrying out the training, to reviewing the training programmes of the Contractor; - 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; - Maintenance, update and review of the EMPr; - Communication of all modifications to the EMPr to the relevant stakeholders.
<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"> - Be fully conversant with the EMPr; - Be familiar with the recommendations and mitigation measures of this EMPr, and implement these measures; - Ensure that all stipulations within the EMPr are communicated and adhered to by the Employees, Contractor(s) ; - Confine the development site to the demarcated area; - Conduct environmental internal audits with regards to EMPr and authorisation compliance (on cEO); - Assist the contractors in addressing environmental challenges on site; - Assist in incident management: - Reporting environmental incidents to developer and ensuring that corrective action is taken, and lessons learnt shared; - Assist the contractor in investigating environmental incidents and compile investigation reports; - Follow-up on pre-warnings, defects, non-conformance reports;

Responsible Person(s)	Role and Responsibilities
	<ul style="list-style-type: none"> - Measure and communicate environmental performance to the Contractor; - Conduct environmental awareness training on site together with ECO and cEO; - Ensure that the necessary legal permits and / or licenses are in place and up to date; - Acting as Developer's Environmental Representative on site and work together with the ECO and contractor;
Contractor	<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"> - project delivery and quality control for the development services as per appointment; - 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; - 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; - attend on site meeting(s) prior to the commencement of activities to confirm the procedure and designated activity zones; - 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.

Responsible Person(s)	Role and Responsibilities
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"> - Be on site throughout the duration of the project and be dedicated to the project; - Ensure all their staff are aware of the environmental requirements, conditions and constraints with respect to all of their activities on site; - Implementing the environmental conditions, guidelines and requirements as stipulated within the EA, EMPr and Method Statements; - Attend the Environmental Site Meeting; - Undertaking corrective actions where non-compliances are registered within the stipulated timeframes; - Report back formally on the completion of corrective actions; - Assist the ECO in maintaining all the site documentation; - Prepare the site inspection reports and corrective action reports for submission to the ECO; - Assist the ECO with the preparing of the monthly report; and - Where more than one Contractor is undertaking work on site, each company appointed as a Contractor will appoint a cEO representing that company.

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"> - All staff must receive environmental awareness training prior to commencement of the activities; - The Contractor must allow for sufficient sessions to train all personnel with no more than 20 personnel attending each course; - Refresher environmental awareness training is available as and when required; - 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; - 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"> a) Safety notifications; and b) No littering. - Environmental awareness training must include as a minimum the following: <ul style="list-style-type: none"> a) Description of significant environmental impacts, actual or potential, related to their work activities; b) Mitigation measures to be implemented when carrying out specific activities; 						

<p>c) Emergency preparedness and response procedures;</p> <p>d) Emergency procedures;</p> <p>e) Procedures to be followed when working near or within sensitive areas;</p> <p>f) Wastewater management procedures;</p> <p>g) Water usage and conservation;</p> <p>h) Solid waste management procedures;</p> <p>i) Sanitation procedures;</p> <p>j) Fire prevention; and</p> <p>k) Disease prevention.</p> <p>– A record of all environmental awareness training courses undertaken as part of the EMPr must be available;</p> <p>– Educate workers on the dangers of open and/or unattended fires;</p> <p>– A staff attendance register of all staff to have received environmental awareness training must be available.</p> <p>– Course material must be available and presented in appropriate languages that all staff can understand.</p>						
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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"> - 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; - 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; - Sites must be located where possible on previously disturbed areas; - The camp must be fenced in accordance with Section 5.5: Fencing and gate installation; and - The use of existing accommodation for contractor staff, where possible, is encouraged. 						

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"> - Identification of access restricted areas is to be informed by the environmental assessment, site walk through and any additional areas identified during development; - 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 - Unauthorised access and development related activity inside access restricted areas is prohibited. 						

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"> - An access agreement must be formalised and signed by the DPM, Contractor and landowner before commencing with the activities; - 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 - All contractors must be made aware of all these access routes. 						

<ul style="list-style-type: none"> - Any access route deviation from that in the written agreement must be closed and re-vegetated immediately, at the contractor's expense; - Maximum use of both existing servitudes and existing roads must be made to minimize further disturbance through the development of new roads; - In circumstances where private roads must be used, the condition of the said roads must be recorded in accordance with section 4.9: photographic record; prior to use and the condition thereof agreed by the landowner, the DPM, and the contractor; - Access roads in flattish areas must follow fence lines and tree belts to avoid fragmentation of vegetated areas or croplands - Access roads must only be developed on a pre-planned and approved roads. 						
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5.5 Fencing and Gate installation

<p>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.</p>		
<p>Impact Management Actions</p>	<p>Implementation</p>	<p>Monitoring</p>

	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - Use existing gates provided to gain access to all parts of the area authorised for development, where possible; - Existing and new gates to be recorded and documented in accordance with section 4.9: photographic record; - All gates must be fitted with locks and be kept locked at all times during the development phase, unless otherwise agreed with the landowner; - 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; - 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; - Where gates are installed in jackal proof fencing, a suitable reinforced concrete sill must be provided beneath the gate; - Original tension must be maintained in the fence wires; - All gates installed in electrified fencing must be re-electrified; - All demarcation fencing and barriers must be maintained in good working order for the duration of the development activities; - Fencing must be erected around the camp, batching plants, hazardous storage areas, and all designated access restricted areas, where applicable; - Any temporary fencing to restrict the movement of life-stock must only be erected with the permission of the land owner. - All fencing must be developed of high quality material bearing the SABS mark; 						

<ul style="list-style-type: none"> - The use of razor wire as fencing must be avoided; - 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; - On completion of the development phase all temporary fences are to be removed; - The contractor must ensure that all fence uprights are appropriately removed, ensuring that no uprights are cut at ground level but rather removed completely. 						
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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"> - 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; - The Contractor must ensure the following: <ul style="list-style-type: none"> a. The vehicle abstracting water from a river does not enter or cross it and does not operate from within the river; b. No damage occurs to the river bed or banks and that the abstraction of water does not entail stream diversion activities; and c. All reasonable measures to limit pollution or sedimentation of the downstream watercourse are 						

<p>implemented.</p> <ul style="list-style-type: none"> - Ensure water conservation is being practiced by: <ul style="list-style-type: none"> a. Minimising water use during cleaning of equipment; b. Undertaking regular audits of water systems; and c. Including a discussion on water usage and conservation during environmental awareness training. d. The use of grey water is encouraged. 						
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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"> - 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; - 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; - 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; - Water that has been contaminated with suspended solids, 						

<p>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.</p>						
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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"> - All measures regarding waste management must be undertaken using an integrated waste management approach; - Sufficient, covered waste collection bins (scavenger and weatherproof) must be provided; - A suitably positioned and clearly demarcated waste collection site must be identified and provided; - The waste collection site must be maintained in a clean and orderly manner; - Waste must be segregated into separate bins and clearly marked for each waste type for recycling and safe disposal; - Staff must be trained in waste segregation; - Bins must be emptied regularly; 						

<ul style="list-style-type: none"> - General waste produced onsite must be disposed of at registered waste disposal sites/ recycling company; - Hazardous waste must be disposed of at a registered waste disposal site; - Certificates of safe disposal for general, hazardous and recycled waste must be maintained. 						
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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"> - 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; - In the event of a spill, prompt action must be taken to clear the polluted or affected areas; - Where possible, no development equipment must traverse any seasonal or permanent wetland - No return flow into the estuaries must be allowed and no disturbance of the Estuarine functional Zone should occur; - Development of permanent watercourse or estuary crossing must only be undertaken where no alternative access to tower position is available; 						

<ul style="list-style-type: none"> - There must not be any impact on the long term morphological dynamics of watercourses or estuaries; - Existing crossing points must be favored over the creation of new crossings (including temporary access) - When working in or near any watercourse or estuary, the following environmental controls and consideration must be taken: <ul style="list-style-type: none"> a) Water levels during the period of construction; No altering of the bed, banks, course or characteristics of a watercourse b) During the execution of the works, appropriate measures to prevent pollution and contamination of the riparian environment must be implemented e.g. including ensuring that construction equipment is well maintained; c) Where earthwork is being undertaken in close proximity to any watercourse, slopes must be stabilised using suitable materials, i.e. sandbags or geotextile fabric, to prevent sand and rock from entering the channel; and 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. 						
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5.10 Vegetation clearing

<p>Impact management outcome: Vegetation clearing is restricted to the authorised development footprint of the proposed infrastructure.</p>		
<p>Impact Management Actions</p>	<p>Implementation</p>	<p>Monitoring</p>

	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<p>General:</p> <ul style="list-style-type: none"> - Indigenous vegetation which does not interfere with the development must be left undisturbed; - Protected or endangered species may occur on or near the development site. Special care should be taken not to damage such species; - 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; - 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; - 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; - Trees felled due to construction must be documented and form part of the Environmental Audit Report; - Rivers and watercourses must be kept clear of felled trees, vegetation cuttings and debris; - 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; - A daily register must be kept of all relevant details of 						

<p>herbicide usage;</p> <ul style="list-style-type: none"> - No herbicides must be used in estuaries; - All protected species and sensitive vegetation not removed must be clearly marked and such areas fenced off in accordance to Section 5.3: Access restricted areas. <p>Alien invasive vegetation must be removed and disposed of at a licensed waste management facility.</p>						
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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"> - No interference with livestock must occur without the landowner's written consent and with the landowner or a person representing the landowner being present; - The breeding sites of raptors and other wild birds species must be taken into consideration during the planning of the development programme; - 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; - Special recommendations of the avian specialist must be adhered to at all times to prevent unnecessary disturbance of birds; - No poaching must be tolerated under any circumstances. 						

<p>All animal dens in close proximity to the works areas must be marked as Access restricted areas;</p> <ul style="list-style-type: none"> - No deliberate or intentional killing of fauna is allowed; - 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 - 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. 						
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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"> - Identify, demarcate and prevent impact to all known sensitive heritage features on site in accordance with the No-Go procedure in Section 5.3: Access restricted areas; - Carry out general monitoring of excavations for potential fossils, artefacts and material of heritage importance; - 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.						
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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"> - 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.; - All unattended open excavations must be adequately fenced or demarcated; - Adequate protective measures must be implemented to prevent unauthorised access to and climbing of partly constructed towers and protective scaffolding; - Ensure structures vulnerable to high winds are secured; - Maintain an incidents and complaints register in which all incidents or complaints involving the public are logged. 						

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"> - Mobile chemical toilets are installed onsite if no other ablution facilities are available; - 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; - Where mobile chemical toilets are required, the following must be ensured: <ul style="list-style-type: none"> a) Toilets are located no closer than 100 m to any watercourse or water body; b) Toilets are secured to the ground to prevent them from toppling due to wind or any other cause; c) No spillage occurs when the toilets are cleaned or emptied and the contents are managed in accordance with the EMPr; d) Toilets have an external closing mechanism and are closed and secured from the outside when not in use to prevent toilet paper from being blown out; e) Toilets are emptied before long weekends and workers holidays, and must be locked after working hours; f) Toilets are serviced regularly and the ECO must inspect toilets to ensure compliance to health standards; - A copy of the waste disposal certificates must be maintained. 						

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"> - Undertake environmentally-friendly pest control in the camp area; - Ensure that the workforce is sensitised to the effects of sexually transmitted diseases, especially HIV AIDS; - The Contractor must ensure that information posters on AIDS are displayed in the Contractor Camp area; - Information and education relating to sexually transmitted diseases to be made available to both construction workers and local community, where applicable; - Free condoms must be made available to all staff on site at central points; - Medical support must be made available; - Provide access to Voluntary HIV Testing and Counselling Services. 						

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"> - Compile an Emergency Response Action Plan (ERAP) prior to the commencement of the proposed project; - The Emergency Plan must deal with accidents, potential spillages and fires in line with relevant legislation; - All staff must be made aware of emergency procedures as part of environmental awareness training; - The relevant local authority must be made aware of a fire as soon as it starts; - In the event of emergency necessary mitigation measures to contain the spill or leak must be implemented (see Hazardous Substances section 5.17). 						

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"> - The use and storage of hazardous substances to be minimised and non-hazardous and non-toxic alternatives 						

<p>substituted where possible;</p> <ul style="list-style-type: none"> - All hazardous substances must be stored in suitable containers as defined in the Method Statement; - Containers must be clearly marked to indicate contents, quantities and safety requirements; - All storage areas must be bunded. The bunded area must be of sufficient capacity to contain a spill / leak from the stored containers; - Bunded areas to be suitably lined with a SABS approved liner; - An Alphabetical Hazardous Chemical Substance (HCS) control sheet must be drawn up and kept up to date on a continuous basis; - All hazardous chemicals that will be used on site must have Material Safety Data Sheets (MSDS); - All employees working with HCS must be trained in the safe use of the substance and according to the safety data sheet; - 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; - The Contractor must ensure that diesel and other liquid fuel, oil and hydraulic fluid is stored in appropriate storage tanks or in bowsers; - 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); 						
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<ul style="list-style-type: none"> - The floor of the bund must be sloped, draining to an oil separator; - 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; - All empty externally dirty drums must be stored on a drip tray or within a bunded area; - No unauthorised access into the hazardous substances storage areas must be permitted; - No smoking must be allowed within the vicinity of the hazardous storage areas; - Adequate fire-fighting equipment must be made available at all hazardous storage areas; - 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; - 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; - The responsible operator must have the required training to make use of the spill kit in emergency situations; - An appropriate number of spill kits must be available and must be located in all areas where activities are being undertaken; - 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 Section 5.7 for procedures concerning storm and waste water management and 5.8 for solid and hazardous waste management. 						
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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"> - Where possible and practical all maintenance of vehicles and equipment must take place in the workshop area; - 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; - Leaking equipment must be repaired immediately or be removed from site to facilitate repair; - Workshop areas must be monitored for oil and fuel spills; - Appropriately sized spill kit kept onsite relevant to the scale of the activity taking place must be available; - 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; - Water drainage from the workshop must be contained and managed in accordance Section 5.7: Storm and waste water management. 						

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"> - Concrete mixing must be carried out on an impermeable surface; - Batching plants areas must be fitted with a containment facility for the collection of cement laden water. - Dirty water from the batching plant must be contained to prevent soil and groundwater contamination - Bagged cement must be stored in an appropriate facility and at least 10 m away from any water courses, gullies and drains; - A washout facility must be provided for washing of concrete associated equipment. Water used for washing must be restricted; - Hardened concrete from the washout facility or concrete mixer can either be reused or disposed of at an appropriate licenced disposal facility; - Empty cement bags must be secured with adequate binding material if these will be temporarily stored on site; - Sand and aggregates containing cement must be kept damp to prevent the generation of dust (Refer to Section 5.20: Dust emissions) - Any excess sand, stone and cement must be removed or 						

<p>reused from site on completion of construction period and disposed at a registered disposal facility;</p> <ul style="list-style-type: none"> – Temporary fencing must be erected around batching plants in accordance with Section 5.5: Fencing and gate installation. 						
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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"> – Take all reasonable measures to minimise the generation of dust as a result of project development activities to the satisfaction of the ECO; – 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; – Excavation, handling and transport of erodible materials must be avoided under high wind conditions or when a visible dust plume is present; – 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; – Where possible, soil stockpiles must be located in sheltered 						

<p>areas where they are not exposed to the erosive effects of the wind;</p> <ul style="list-style-type: none"> - Where erosion of stockpiles becomes a problem, erosion control measures must be implemented at the discretion of the ECO; - Vehicle speeds must not exceed 40 km/h along dust roads or 20 km/h when traversing unconsolidated and non-vegetated areas; - Straw stabilisation must be applied at a rate of one bale/10 m² and harrowed into the top 100 mm of top material, for all completed earthworks; - For significant areas of excavation or exposed ground, dust suppression measures must be used to minimise the spread of dust. 						
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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"> - Any blasting activity must be conducted by a suitably licensed blasting contractor; and - Notification of surrounding landowners, emergency services site personnel of blasting activity 24 hours prior to such activity taking place on Site. 						

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"> - The Contractor must keep noise level within acceptable limits, Restrict the use of sound amplification equipment for communication and emergency only; - All vehicles and machinery must be fitted with appropriate silencing technology and must be properly maintained; - 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; - 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. 						

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"> - Designate smoking areas where the fire hazard could be regarded as insignificant; - Firefighting equipment must be available on all vehicles located on site; - The local Fire Protection Agency (FPA) must be informed of construction activities; - Contact numbers for the FPA and emergency services must be communicated in environmental awareness training and displayed at a central location on site; - Two way swop of contact details between ECO and FPA. 						

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"> - 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; - All stockpiled material must be maintained and kept clear of weeds and alien vegetation growth by undertaking regular weeding and control methods; - Topsoil stockpiles must not exceed 2 m in height; - During periods of strong winds and heavy rain, the stockpiles must be covered with appropriate material (e.g. cloth, tarpaulin etc.); - Where possible, sandbags (or similar) must be placed at the bases of the stockpiled material in order to prevent erosion of the material. 						

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	Method of	Timeframe for	Responsible	Frequency	Evidence of

	person	implementation	implementation	person		compliance
<ul style="list-style-type: none"> - 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; - Areas to be rehabilitated include terrace embankments and areas outside the high voltage yards; - Where required, all sloped areas must be stabilised to ensure proper rehabilitation is effected and erosion is controlled; - 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; - Rehabilitation of the disturbed areas must be managed in accordance with Section 5.35: Landscaping and rehabilitation; - All excess spoil generated during terracing activities must be disposed of in an appropriate manner and at a recognised landfill site; and - Spoil can however be used for landscaping purposes and must be covered with a layer of 150 mm topsoil for rehabilitation purposes. 						

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"> - 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; - Spoil can however be used for landscaping purposes and must be covered with a layer of 150 mm topsoil for rehabilitation purposes; - Management of equipment for excavation purposes must be undertaken in accordance with Section 5.18: Workshop, equipment maintenance and storage; and - Hazardous substances spills from equipment must be managed in accordance with Section 5.17: Hazardous substances. 						

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
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	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> – Batching of cement to be undertaken in accordance with Section 5.19: Batching plants; and – Residual solid waste must be disposed of in accordance with Section 5.8: Solid waste and hazardous management. 						

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"> – Management of dust must be conducted in accordance with Section 5.20: Dust emissions; – Management of equipment used for installation must be conducted in accordance with Section 5.18: Workshop, equipment maintenance and storage; – Management hazardous substances and any associated spills must be conducted in accordance with Section 5.17: Hazardous substances; and – Residual solid waste must be recycled or disposed of in accordance with Section 5.8: Solid waste and hazardous management. 						

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"> - During assembly, care must be taken to ensure that no wasted/unused materials are left on site e.g. bolts and nuts - Emergency repairs due to breakages of equipment must be managed in accordance with Section 5. 18: Workshop, equipment maintenance and storage and Section 5.16: Emergency procedures. 						

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"> - Residual solid waste (off cuts etc.) shall be recycled or disposed of in accordance with Section 6.8: Solid waste and hazardous Management; - Management of equipment used for installation shall be conducted in accordance with Section 5.18: Workshop, equipment maintenance and storage; - Management hazardous substances and any associated spills shall be conducted in accordance with Section 5.17: Hazardous substances. 						
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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"> - Residual solid waste must be recycled or disposed of in accordance with Section 5.8: Solid waste and hazardous management. 						

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"> - Develop and implement communication strategies to facilitate public participation; - Develop and implement a collaborative and constructive approach to conflict resolution as part of the external stakeholder engagement process; - Sustain continuous communication and liaison with neighboring owners and residents - Create work and training opportunities for local stakeholders; and - 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. 						

5.33 Temporary closure of site

<p>Impact management outcome: Minimise the risk of environmental impact during periods of site closure greater than five days.</p>						
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"> - Bunds must be emptied (where applicable) and need to be undertaken in accordance with the impact management actions included in sections 5.17: Hazardous substances and 5.18: Workshop, equipment maintenance and storage; - Hazardous storage areas must be well ventilated; - Fire extinguishers must be serviced and accessible. Service records to be filed and audited at last service; - Emergency and contact details displayed must be displayed; - Security personnel must be briefed and have the facilities to contact or be contacted by relevant management and emergency personnel; - Night hazards such as reflectors, lighting, traffic signage etc. must have been checked; - Fire hazards identified and the local authority must have been notified of any potential threats e.g. large brush stockpiles, fuels etc.; - Structures vulnerable to high winds must be secured; - Wind and dust mitigation must be implemented; - Cement and materials stores must have been secured; - Toilets must have been emptied and secured; - Refuse bins must have been emptied and secured; - Drip trays must have been emptied and secured. 						

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"> - All old equipment removed during the project must be stored in such a way as to prevent pollution of the environment; - Oil containing equipment must be stored to prevent leaking or be stored on drip trays; - All scrap steel must be stacked neatly and any disused and broken insulators must be stored in containers; - 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; - The Contractor must also be equipped to contain and clean up any pollution causing spills; and - Disposal of unusable material must be at a licensed waste disposal site. 						

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"> - 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; - 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 - 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; - 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; - 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; - Rehabilitation of access roads outside of farmland; - Indigenous species must be used for with species and/grasses to where it compliments or approximates the original condition; - Stockpiled topsoil must be used for rehabilitation (refer to Section 5.24: Stockpiling and stockpiled areas); - Stockpiled topsoil must be evenly spread so as to facilitate seeding and minimise loss of soil due to erosion; - Before placing topsoil, all visible weeds from the placement area and from the topsoil must be removed; - Subsoil must be ripped before topsoil is placed; 						

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

Name of applicant: Business Venture Investments No. 1733 (Pty) Ltd (BVI)

Tel No: +27 21 670 1423

Fax No: -

Postal Address: PO Box 23101, Claremont, 7735

Physical Address: 2nd Floor, Fernwood House, The Oval, Oakdale Road, Newlands, 7700

7.1.2 Details and expertise of the EAP:

Name of EAP: Charles Norman

Tel No: +27 44 8055433

Fax No: +27 44 8055454

E-mail address: Charles.Norman@arecongroup.com

Expertise of the EAP (Curriculum Vitae included):

Charles is a principal environmental practitioner with nearly three decades' experience in environmental services. His technical proficiency and strategic thinking, along with his international environmental experience, place him in a strong position to advise environmental impact assessment (EIA) teams on the integration of technical pragmatism and due environmental processes. His extensive review experience has placed him in a key role mentoring environmental assessment practitioners within Aurecon and coordinating the advisory and delivery functions of projects.

He was the assistant project leader and technical coordinator for Vale's Moatize mine expansion and Nacala corridor EIAs in Mozambique and Malawi, where he managed a team of up to 80 practitioners, specialists and technical advisors. He has worked extensively in rural Africa and was based in Maputo during the implementation of the aforementioned projects.

He has carried out a variety of environmental assessments for a range of public and private sector projects locally and internationally, predominantly related to mining, infrastructure and manufacturing in Southern and East Africa. He also provides advice to in-house engineering teams and oversees the appointment and management of external EIA consultants when required.

In addition, he has extensive experience in environmental management, including soil and plant mapping, EIAs, environmental auditing and reviews. He spent a number of years with the Department of Environmental Affairs and Development Planning

(DEA&DP), during which time he was responsible for reviewing and evaluating EIAs and appeals as well as advising the competent authority and the minister on law enforcement and environmental management matters.

Charles holds a Master of Philosophy in Environmental Law from the University of Cape Town in South Africa. He also obtained a Bachelor of Technology in Forestry from the Port Elizabeth Technikon (now Nelson Mandela Metropolitan University) in 1999.

Refer to CV below:

	<p>Charles Norman Environmental Specialist</p>
<p>Qualifications</p> <p>BTech Forestry MPhil: Environmental Law NDip Forestry Member, International Association for Impact Assessment South Africa (IAIASa)</p> <p>Specialisation</p> <p>Environmental assessments</p> <p>Years in industry</p> <p>31</p>	<p>Charles is a principal environmental practitioner with nearly three decades' experience in environmental services. His technical proficiency and strategic thinking, along with his international environmental experience, place him in a strong position to advise environmental impact assessment (EIA) teams on the integration of technical pragmatism and due environmental processes. His extensive review experience has placed him in a key role mentoring environmental assessment practitioners within Zutari and coordinating the advisory and delivery functions of projects.</p> <p>He was the assistant project leader and technical coordinator for Vale's Moatize mine expansion and Nacala corridor EIAs in Mozambique and Malawi, where he managed a team of up to 80 practitioners, specialists and technical advisors. He has worked extensively in rural Africa and was based in Maputo during the implementation of the aforementioned projects.</p> <p>He has carried out a variety of environmental assessments for a range of public and private sector projects locally and internationally, predominantly related to mining, infrastructure and manufacturing in Southern and East Africa. He also provides advice to in-house engineering teams and oversees the appointment and management of external EIA consultants when required.</p> <p>In addition, he has extensive experience in environmental management, including soil and plant mapping, EIAs, environmental auditing and reviews. He spent a number of years with the Department of Environmental Affairs and Development Planning (DEA&DP), during which time he was responsible for reviewing and evaluating EIAs and appeals as well as advising the competent authority and the minister on law enforcement and environmental management matters.</p> <p>Charles holds a Master of Philosophy in Environmental Law from the</p>

	<p>University of Cape Town in South Africa. He also obtained a Bachelor of Technology in Forestry from the Port Elizabeth Technikon (now Nelson Mandela Metropolitan University) in 1999.</p>
<p>Experience</p> <p>Aga Khan Hospital Kampala, Kampala, Uganda, Aga Khan University Hospital (AKUH), 09/2016 - 06/2020, Reviewer</p> <p>Zutari provided full engineering services including geotechnical; civil; structural; wet services; fire safety and protection; mechanical; electrical; electronic (ICT, fire detection, audio visual and security) and acoustics; environmentally sustainable design (ESD) monitoring and management. Responsible for review of project reporting and liaison with sub-consultants.</p> <p>Environmental impact assessment for Penhill greenfields development project, Western Cape Province, South Africa, Provincial Government of the Western Cape (PGWC): Department of Human Settlements, 12/2016 - 06/2018, Project Leader</p> <p>Zutari was appointed to undertake an environmental impact assessment (EIA) for this greenfields housing development. Responsible as project leader.</p> <p>Design of Mizingani seawall and promenade, Phase IIA, Zanzibar City, Zanzibar, Tanzania Ministry of Finance, 12/2013 - 05/2018, Environmental Control Officer (ECO)</p> <p>Zutari's scope of work included detailed design of the seawall and promenade; the preparation of construction drawings, specifications, contract packages and tender documents; building condition assessment and review of the environmental and social management plan (ESMP). Responsible for auditing the site to ensure adequate implementation of environmental controls.</p> <p>Upgrading of DR1609 and portion of DR01625, Western Cape Province, South Africa, Provincial Government of the Western Cape (PGWC): Department of Transport and Public Works, 12/2005 - 12/2017, Environmental Specialist</p> <p>Zutari was appointed to undertake design and authorisation services for the upgrading of the DR1609 and a portion of DR01625 in Rondevlei, Western Cape, which is adjacent to the Garden Route National Park and crosses within a Ramsar protected wetland. The scope of works included the preparation of an environmental impact assessment (EIA). Responsible as project leader for the EIA component, including leading the compilation of the EIA and coordinating specialist inputs.</p> <p>Mossel Bay NUSP participatory based planning support, Western Cape Province, South Africa, Department of Human Settlement (DHS), 08/2015 - 11/2017, Environmental Specialist</p> <p>Zutari's scope of works included the production of an assignment implementation plan, upgrading plans and sustainable livelihoods programmes for 18 settlements, community capacity building programme, and a skills transfer report. Responsible as project leader for the screening of environmental constraints and preparation of applicability checklists for the competent environmental authority.</p> <p>Upgrading of Plettenberg Bay Airport, Western Cape Province, South Africa, Bitou Local Municipality, 09/2016 - 06/2017, Environmental Specialist</p> <p>Bitou Municipality intends to upgrade the Plettenberg Bay Airport in the Western Cape Province, including adding additional infrastructure and hangars to comply with Civil</p>	

Aviation Authority (CAA) regulations. Responsible for compilation of an environmental constraints analysis.

Proposed hydropower station and associated infrastructure at Riemvasmaak, Northern Cape Province, South Africa, Riemvasmaak Hydro Electric Power (Pty) Ltd, 02/2012 - 06/2017, Technical Advisor

Zutari was appointed to provide the lead consultancy services for the environmental impact assessment (EIA) for the proposed 25 MW hydropower station at Riemvasmaak on the Orange River, adjacent to the Augrabies National Park. Responsible for providing advice on legal procedure and technical project aspects.

Perdekraal East Wind Farm environmental and social due diligence (ESDD), Western Cape Province, South Africa, African Infrastructure Investment Managers (AIIM), 11/2016 - 04/2017, Project Leader

Zutari was appointed undertake an environmental and social due diligence (ESDD) study, including an environmental and social action plan (ESAP), to ensure that environmental authorisations in place were compliant with the requirements of the IFC. Responsible for the compilation of the ESDD and ESAP and coordination of specialist inputs.

Curepipe Point wind farm assessment, Mauritius, Southern Energy Holdings, 05/2016 - 06/2016, Environmental Specialist

Zutari was appointed to undertake a fatal flaw review of a 29 MW wind energy development near the town of Curepipe in Mauritius. Responsible for the review of an environmental impact assessment (EIA) study as well as the identification and evaluation of environmental risks.

Environmental and social impact assessment (ESIA) for the Makambako Wind Farm, Njombe Region, Tanzania, Windlab Limited, 11/2015 - 03/2017, Project Leader

Zutari was appointed to undertake the requisite environmental process on behalf of Windlab as required in terms of the Environmental Management Act (Act 20 of 2004) (EMA). Responsible for leading the team of specialists and sub-consultants to develop an IFC compliant ESIA.

Working for Wetlands Plan 2014 - 2017, National, South Africa, South African National Biodiversity Institute (SANBI), 06/2013 - 09/2016, Environmental Advisor

Zutari was appointed for the design, planning, environmental, project and risk management of the South African Government's Working for Wetlands Programme.

Environmental impact assessment (EIA) for the Mtwara super base, Mtwara Region, Tanzania, Schlumberger Seaco Inc, 01/2015 - 06/2016, Project Leader

Zutari was appointed to undertake the environmental impact assessment (EIA). Responsible for client liaison and coordination of sub-consultants as well as review.

Kinangop Wind Farm Phase 1A status review and risk assessment, Nakuru, Kenya, Kinangop Wind Park, 11/2015 - 03/2016, Environmental Specialist

Zutari was appointed to assess the project status and risks associated with remobilising the Kinangop Wind Farm project. Responsible for environmental review.

Pre-feasibility study for Rukwa coal-to-power project, Mbeya, Tanzania, Rukwa Development Company, 11/2014 - 09/2015, Team Member

Zutari was engaged by Kibo Mining to carry out a pre-feasibility study for a coal-fired power station to be located adjacent to an opencast coal mine in the Rukwa region of Tanzania.

Project information memoranda (PIM) for Mtwara Port and the Mtwara/Mikindani municipal master plan, Mtwara Region, Tanzania, Development Bank of Southern Africa (DBSA), 08/2014 - 09/2015, Environmental Process Advisor

The project entailed the development of project information memoranda (PIM) for Mtwara Port, which entailed a review of the Mtwara Port feasibility study of 2012 and other related material that would assist in the preparation of a bankable PIM.

Environmental impact assessment (EIA) for the construction of the AfriSam cement factory, Western Cape Province, South Africa, AfriSam South Africa (Pty) Ltd, 02/2011 - 09/2015, Project Leader

Zutari was appointed to undertake an environmental impact assessment (EIA) process for the cement plant, mine and associated infrastructure located on Farm 1139 in the Saldanha industrial area. Responsible for project management, client and authority liaison, coordination of technical information and specialists inputs, management of public processes, EIA and compilation of an environmental management plan (EMP) report.

Environmental screening of a potential wind energy site, Tanzania, Windlab Limited, 02/2015 - 04/2015, Project Leader/Technical Coordinator

Zutari was appointed to determine the feasibility of establishing a wind energy facility (WEF) in Tanzania

Western Cape road materials supply strategy, Western Cape Province, South Africa, Provincial Government of the Western Cape (PGWC): Department of Transport and Public Works (DTPW), 06/2008 - 03/2015, Principal Environmental Practitioner

Zutari was responsible for prospecting suitable road making materials, sampling, testing, and identifying technically suitable sources to be used for both identified projects and as strategic pits, as well as for getting all the required approvals. Responsible for planning of authorisation processes and review of submissions. Also responsible for liaison with authorities and partner consultants.

Upgrading of Distillery Road in Wellington, Western Cape Province, South Africa, Drakenstein Local Municipality, 10/2013 - 02/2015, Project Manager

The project entailed a basic environmental impact assessment (EIA) for the proposed upgrading of Distillery Road in Wellington, including a heritage assessment. Responsible for project management, client and authority liaison, coordination of specialist input and review of final reports.

George mobility strategy for the improvement of public transport, Western Cape Province, South Africa, Provincial Government of the Western Cape (PGWC): Department of Transport and Public Works (DTPW), 09/2003 - 02/2015, Consulting Team Member

Work has included detailed operational design and costing; contract development as well as planning for the upgrading of road and other infrastructure, including a bus stop, a temporary bus depot, and an inter-urban bus station. The project has also comprised a considerable amount of engagement with the local bus and minibus industry representatives as well as broad based public consultation. Responsible for the advisory role on environmental constraints for implementation of public transport initiative.

Feasibility study for the Knysna-Bitou water supply scheme, Western Cape Province, South Africa, Eden District Municipality, 01/2013 - 12/2014, Project Member

The project involved the identification of the water resource and bulk water requirements of the local municipalities of Knysna and Bitou for the next 20 years and exploring the technical and economic viability of integrating the bulk water supply systems serving the towns of Knysna and Plettenberg Bay. Responsible for the identification and evaluation of environmental constraints for the screening of options exercise.

Environmental constraints analysis of potential wind energy sites near Aberdeen, Eastern Cape Province, South Africa, Juwi Renewable Energies (Pty) Ltd, 06/2013 - 08/2014, Project Leader/Technical Coordinator

Zutari was appointed to undertake a comparative environmental constraints analysis, including the biophysical, social and heritage aspects of the identified sites. Responsible for contributing to identification and assessment of environmental constraints. Also responsible for constraints identification and evaluation as well as a review.

Water augmentation study for the Bitou Local Municipality, Western Cape Province, South Africa, Bitou Local Municipality, 10/2009 - 03/2014, Environmental Scientist

Zutari's project scope focused on the Wadrif 1E off-channel dam and included a basic assessment process for an emergency pipeline and the remainder of the pipeline in terms of the relevant environmental legislation.

Independent review of environmental impact assessment (EIA) applications, Western Cape Province, South Africa, Department of Environmental Affairs and Development Planning (DEA&DP), 03/2011 - 12/2013, Task Leader

The purpose of the project was to review contentious environmental impact assessment (EIA) applications in terms of the National Environmental Management Act 107 of 1998 (NEMA) to support authority decision making. Responsible for project management, client liaison, advisory role to team members and review and coordination of final products.

Pilot catchment management plan: Kyoga water management zone, Kampala, Uganda, The World Bank, 12/2012 - 12/2013, Co-author of report

Zutari was appointed to prepare a pilot catchment management plan (CMP) for the Awoja Catchment. Responsible for contributing to the coordination of and reporting on implementation options.

Update to rapid strategic environmental assessment (RSEA): development of a pilot catchment management plan (CMP), Kampala and Mbale, Uganda, Ministry of Water and Environment (Uganda), 12/2012 - 11/2013, Project Member

This water management and development project (WMDP) for Uganda comprised the development of a pilot catchment management plan (CMP) in the Kyoga water management zone (WMZ). Responsible for the coordination of and reporting on implementation options.

Operational environmental management plan (EMP) for Shoprite Checkers, Western Cape Province, South Africa, Shoprite Checkers, 04/2010 - 07/2013, Task Leader

The project included the compilation of an operational environmental management plan (EMP) to meet the local municipality's requirements for the new shopping centre at Sandown Road in Cape Town. Responsible for project management, client and authority liaison and

the compilation of EMP report.

Environmental impact assessment (EIA) for the Riemvasmaak Hydropower Station, Northern Cape Province, South Africa, Mulilo Renewable Energy (Pty) Ltd (MRE), 12/2011 - 06/2013, Technical Advisor

Zutari was appointed to submit a proposal to undertake an environmental impact assessment (EIA) for the construction of a hydropower station on the Riemvasmaak Farm north of Augrabies Falls National Park. Responsible for providing advice on the legal procedure and technical project aspects.

Exploratory drilling environmental management plan (EMP), Tete Province, Mozambique, Coal India Africana Limitada (CIAL), 02/2012 - 04/2013, Project Leader

The project entailed the compilation of an environmental management plan (EMP) for exploratory drilling operations for coal prospecting in Moatize. Responsible for client liaison, project management, coordination of team members and review of final products.

Environmental management plans (EMPs) for coal bed methane prospecting activities, Tete Province, Mozambique, Rio Tinto Coal Mozambique (RTCM), 07/2012 - 02/2013, Project Member

Zutari was appointed by Rio Tinto to compile the environmental management plan (EMP) for the coal bed methane (CBM) prospecting activities in each of the lease areas, ensuring the necessary licensing of the activities. Responsible for project management, coordination of information and team inputs.

Social and environmental impact assessment (SEIA) for the Rössing Uranium Mine expansion project, Erongo Region, Namibia, Rössing Uranium Mine, 09/2009 - 08/2012, Project Member

Zutari undertook a social and environmental impact assessment (SEIA) to determine the environmental impacts brought about by the proposed activities, proposed measures to minimise detrimental impacts or enhance positive impacts and presented the findings to the Namibian authorities.

Bankable feasibility study (BFS) for a Zuma Energy project, Kogi State, Nigeria, Zuma Energy Nigeria Limited, 10/2011 - 01/2012, Project Leader

Zutari prepared a bankable feasibility study (BFS) using a gap analysis of all existing documents and work already done by Zuma Energy.

Independent review of environmental impact assessment (EIA) for report, KwaZulu-Natal Province, South Africa, Knight Piésold, 11/2011 - 12/2011, Consulting Team Member

The purpose of the project was to review the environmental impact assessment (EIA) process undertaken by Knight Piésold for a bulk water supply pipeline in KwaZulu-Natal. Responsible for the review of impact assessment methodology.

Pre-feasibility study on the Great Lakes Railway, Burundi, Rwanda, Tanzania, Uganda and Zambia, Common Market for Eastern and Southern Africa (COMESA), 03/2010 - 12/2011, Consulting Team Member

The work included a pre-feasibility study that consisted of resource mapping, traffic forecasts, alignment surveys, engineering cost estimates, an environmental impact assessment (EIA), institutional review, financing mechanisms review and economic evaluation and feasibility study. Responsible for authority consultation, site inspection and review of proposed rail alignments and reporting on environmental constraints.

Application for an atmospheric emissions licence (AEL) in Albertinia, Western Cape Province, South Africa, South Cape Poles, 03/2007 - 11/2011, Task Leader

The project entailed facilitating an application for an atmospheric emissions licence (AEL) in terms of the National Environment Management (NEM): Air Quality Act (No 39 of 2004) for the operation of a creosote treatment facility in Albertinia. Responsible for project management, client and authority liaison, coordination of specialist inputs and final report compilation.

Environmental impact assessment (EIA) for the Moatize Coal Mine expansion, Tete Province, Mozambique, Vale Moçambique Limitada, 03/2010 - 09/2011, Assistant Project Leader

Zutari was appointed to undertake separate environmental impact assessments (EIAs) for each of the proposed components of the project. Responsible for client and specialist liaison, coordination of technical information and review of final reporting.

Environmental impact assessment (EIA) for the Nacala Rail Corridor, Malawi and Mozambique, Vale Moçambique Limitada, 03/2010 - 09/2011, Project Member

The project entailed the completion of four environmental impact assessments (EIAs) for the upgrading of existing and the construction of new railway sections along the Nacala Corridor from the Moatize Coal Mine in Mozambique, through Malawi, to the Port of Nacala, and a new coal handling terminal. This particular work plan addressed Packages 2 to 5, which were for the components of the Nacala Logistics Corridor. Responsible for client and specialist liaison, coordination of technical information and review of final reporting.

Decommissioning of the Sonae Novobord board manufacturing plant in George, Western Cape Province, South Africa, Sonae Novobord, 07/2009 - 07/2011, Project Leader/Manager

Zutari was appointed to prepare an environmental management plan (EMP) for the decommissioning of Sonae Novobord's board manufacturing and veneering plant in George. Responsible for project management, client and authority liaison and review of the final EMP report.

Upgrading of Merweville wastewater treatment works (WWTW), Western Cape Province, South Africa, Beaufort West Local Municipality, 02/2007 - 06/2011, Project Manager

The project entailed the facilitation of the required environmental authorisation and waste licence for the upgrading of the wastewater treatment works (WWTW) in Merweville. Responsible for project management, review of final reports.

Emergency desalination plant for Mossel Bay, Western Cape Province, South Africa, Mossel Bay Local Municipality, 05/2010 - 01/2011, Environmental Assessment Practitioner

Zutari was responsible for consultation with the authorities throughout the EIA to confirm that all potential issues were identified; for the compilation of a report that provided a detailed description of the potential impacts associated with the development, and the findings; an evaluation of the potential impacts; and recommendations regarding mitigation and the way forward. Responsible for project management, review of EIA and environmental management plan (EMP) reports.

Environmental impact assessment (EIA) for infrastructure upgrades at the Etosha National Park, Oshikoto Region, Namibia, Millennium Challenge Account (MCA), 04/2010 - 11/2010, Consulting Team Member

The project entailed the completion of two environmental impact assessments (EIAs), including environmental management plans (EMPs), for the construction of staff housing and

management centres at the Ombika and Galton gates as well as the Okaukuejo and Otjovasandu villages in the Etosha National Park. Responsible for the review of specialist reports and final reporting.

Pre-feasibility (FEL 2) social and environmental screening of rail corridor alternatives through Malawi, Southern Region, Malawi, Vale Moçambique Limitada, 09/2009 - 09/2010, Principal Environmental Practitioner

Zutari prepared the social and environmental screening report, which provided a background to the methodology for environmental (social and biophysical) screening. A high-level impact study and comparative assessment of alternative alignments were undertaken to determine the most environmentally responsible and sustainable options. Responsible for gathering field data and contribution to the screening report.

Independent review of environmental impact assessment (EIA) applications for the Department of Economic Development, Environment and Tourism, Eastern Cape Province, South Africa, Department of Economic Development, Environmental Affairs and Tourism, 02/2007 - 07/2010, Project Manager

The project entailed the review of environmental impact assessment (EIA) applications to assist with the processing of backlog applications in terms of the Environment Conservation Act (Act 73 of 1989) (Cacadu Region). Responsible for project management, liaison with authorities and applicants, advising authorities on fatal flaws and policy conflicts, drafting environmental authorisations and training authority staff.

Relocation of the Sedgefield water treatment works (WTW) and associated infrastructure, Western Cape Province, South Africa, Knysna Local Municipality, 12/2004 - 06/2010, Project Manager

Responsible for managing the basic assessment reporting procedure for the relocation. Also responsible for project management, client liaison and the identification and assessment of impacts.

Independent review of environmental impact assessment (EIA) applications for the Department of Environmental Affairs and Development Planning (DEA&DP), Western Cape Province, South Africa, Department of Environmental Affairs and Development Planning (DEA&DP), 04/2009 - 05/2010, Project Leader

The project entailed the review of environmental impact assessment (EIA) applications and appeals to assist the competent authority with the processing of backlog applications in terms of the Environment Conservation Act (Act 73 of 1989) and the National Environmental Management Act 107 of 1998 (NEMA). Responsible for project management, client liaison, staff advisory and review of all final submissions.

Decommissioning of creosote treatment facility at Tergniet, Western Cape Province, South Africa, Outeniqua Pale (Pty) Ltd, 06/2007 - 04/2010, Project Manager

Zutari was appointed to facilitate the relocation of Outeniqua Pale's timber treatment works, including a waste licence for the decommissioning of a site contaminated with hazardous waste and the drafting of an environmental and health impact assessment (EHIA) on instruction from the Environmental Management Inspectorate (EMI). Responsible for project management, client and authority liaison, advising legal representatives, managing public process and the compilation of the final EHIA and environmental management plan (EMP) reports.

Environmental management plan (EMP) for Garden Route Casino, Western Cape Province, South Africa, Garden Route Casino (Pty) Ltd, 12/2008 - 04/2010, Project Leader

Zutari was appointed to update the environmental management plan (EMP) to accommodate various proposed upgrades to the casino and associated facilities. Responsible for project management, client and authority liaison and review of the final report.

Upgrading of creosote treatment facility at Albertinia, Western Cape Province, South Africa, Outeniqua Pale (Pty) Ltd, 05/2008 - 02/2010, Project Leader

The purpose of the project was to facilitate the upgrading of an unlicensed timber treatment works, including the formulation of environmental management plans (EMPs), at Albertinia, Western Cape. Responsible for project management, client and authority liaison, coordination of specialist input, impact assessment and, advising the client's legal representatives.

Upgrading of the Outeniqua effluent pump station and pipeline, Western Cape Province, South Africa, George Local Municipality, 09/2009 - 08/2010, Project Member

Zutari was appointed for the design, tender compilation and contract supervision for the upgrading of the plant from a capacity of 9.3 Ml/day to 15 Ml/day. Responsible for managing an application for amendment to an existing authorisation and facilitating the public process.

Upgrading of Hartenbos wastewater treatment works (WWTW), Western Cape Province, South Africa, Mossel Bay Local Municipality, 04/2009 - 07/2009, Project Leader

Zutari was appointed to facilitate the requisite environmental process for the upgrading of the wastewater treatment works (WWTW) in Hartenbos. Responsible for project management, client and authority liaison and review of the final reports.

Environmental processes for the Beaufort West wastewater reclamation plant, Western Cape Province, South Africa, Water & Wastewater Engineering, 10/2008 - 07/2009, Project Manager

The purpose of the project was to facilitate the requisite environmental processes for the implementation of a wastewater reclamation plant for Beaufort West Municipality, inclusive of a waste licence and environmental authorisation. Responsible for project management, client and authority liaison, management of specialists and public processes and the compilation of final reports.

Alien vegetation eradication and rehabilitation, Fancourt Estate, George, Western Cape Province, South Africa, Fancourt Golf and Country Estate, 2008, Project Manager

The project entailed the formulation of an alien vegetation eradication and rehabilitation plan for the Fancourt landholding on the Malgas River. Responsible for project management, client liaison and report compilation.

Review of the biodiversity components of municipal spatial development frameworks (SDFs) in the C.A.P.E. domain, Western Cape Province, South Africa, South African National Biodiversity Institute (SANBI), 2008, Consulting Team Member

The aim of the project was to provide an overview of the requirements for biodiversity in spatial development frameworks (SDFs), and an assessment of the current status of biodiversity in these SDFs. Responsible for the review of SDFs and final reports.

Additional units at the open cycle gas turbine (OCGT) plant in Mossel Bay, Western Cape

Province, South Africa, Eskom, 01/2005 - 01/2006, Consulting Team Member

The project entailed the management of a comprehensive and multi-disciplinary environmental impact assessment (EIA) process for three additional gas turbine units at the peaking generation power plant in Mossel Bay. Responsible for project management assistance, liaison with specialists and report review.

Review of environmental impact assessment (EIA) applications and appeals, South Africa, Provincial Department of Environmental Affairs and Development Planning (DEA&DP), 2004 - 2006, Principal Environmental Officer

The project entailed reviewing environmental impact assessment (EIA) applications and appeals and drafting environmental authorisations. Responsible for reviewing EIA applications, advisory role to competent authority and the drafting of environmental authorisations.

Assessment of plantation plans, George, Western Cape Province, South Africa, Woodfield Farm, 2004, Consultant

The project entailed the evaluation of Woodfield Farm's existing management plans and making recommendations for optimising forestry operations.

Proprietor of Southern Cape environmental services, Western Cape Province, South Africa, 1992 - 2004, Consultant

The project entailed the compilation of a number of environmental management plans (EMPs) and environmental assessments and evaluations for a variety of developments in the Southern Cape. Responsible for financial management, project management, report compilation and client liaison.

Plantation environmental auditing, Western Cape Province, South Africa, NCT Forestry Co-operative Limited (NCT), 2003, Consultant

The project entailed the auditing of Van Reenen plantations for compliance with Forestry Stewardship Council (FSC) requirements. Responsible for environmental auditing.

Alien vegetation mapping, Western Cape Province, South Africa, EnviroGIS, 2001 - 2003, Consulting Team Member

Appointed to map and quantify alien vegetation status in the Barrydale, Botvlei, Kamanassi and Karatara catchments.

Western Cape forestry land use study, Western Cape Province, South Africa, Department of Water and Sanitation (DWS), 2001, Project Manager

Appointed and commissioned by Department of International Development (DFID) as project leader and co-author to conduct a study on the Western Cape land forestry land use.

Mapping of soils for forest planning, Western Cape Province, South Africa, Department of Water and Sanitation (DWS), 1988 - 1992, Consulting Team Member

As part of a function while employed at the Council for Scientific and Industrial Research (CSIR), mapped extensive soil bodies within the Southern Cape catchments for productivity evaluation and species choice. Responsible for mapping soil bodies.

7.1.3 Project name: Development of the 160MW Kokerboom 4 (60MW) Wind Energy Facility, on Farm Aan De Karree Doorn Pan No. 213, near Loeriesfontein in the Northern Cape

7.1.4 Description of the project:

The Proponent, Business Venture Investments No. 1733 (Pty) Ltd (BVI), proposes to construct a 60MW Wind Energy Facility (WEF), known as the Kokerboom 4 WEF, and associated infrastructure on the remaining extent (RE) of Farm Aan de Karree Doorn Pan, farm No.213 within ward 5 of the Hantam Local Municipality. The proposed site is located approximately 60-kilometre (km) north of Loeriesfontein, 85 km west of Brandvlei and 160 km south east of Springbok in the Namakwa District Municipality, in the Northern Cape. The proposed Kokerboom 4 WEF would have a maximum generation capacity of up to 60 MW. This WEF will be located adjacent to the authorised Kokerboom 1 (DEA1 ref. no.: 14/12/16/3/3/2/985) and Kokerboom 2 (DEA ref.no.:14/12/16/3/3/2/986) Wind Farms. The proposed site of the Kokerboom 3 Wind Farm is located approximately 60 kilometres (km) north of Loeriesfontein, 85 km west of Brandvlei and 160 km southeast of Springbok in the Northern Cape.

Access to the site is directly off the public Granaatsboskolk Road. Two access points are proposed (one or both may be developed). For the Kokerboom 4 Wind Farm, approximately 12 turbine locations are being considered to achieve the targeted generation capacity of a maximum of up to 60MW. A facility substation, Operations & Maintenance building and a battery energy storage system (BESS) are proposed to be included as part of the Kokerboom 4 Wind Farm. The Kokerboom 4 Wind Farm footprint is approximately 36.5ha (temporary) and 52.4ha (permanent) and will be located on the farm.

The wind energy facility will be connecting to the Helios Main Transmission Substation by means of a 132 kV overhead powerline. This grid connection infrastructure will be assessed in a separate application and does not form part of the current application.

Additional ancillary infrastructure would include underground cabling between project components, onsite substation/s, foundations to support turbine towers, hardstands to support cranes at each turbine, and permanent operations/maintenance buildings, office and workshop areas.

Service and access roads will be constructed in addition to upgrading existing roads, with the relevant stormwater infrastructure and gates constructed as required. The total length of all access and internal site roads will equate to approximately 16km that will be developed as part of the wind energy facility. This includes all roads required to access the turbines and Facility substation, O&M and BESS complex, as well as access roads directly off adjacent public roads onto the site.

The property of the proposed WEF may be enclosed with suitable fencing erected along the perimeter, if required. One or more formal laydown areas for the construction period, containing temporary site offices, storage & workshop areas, batching plant along with a guard cabin, will be established.

7.1.5 Project location:

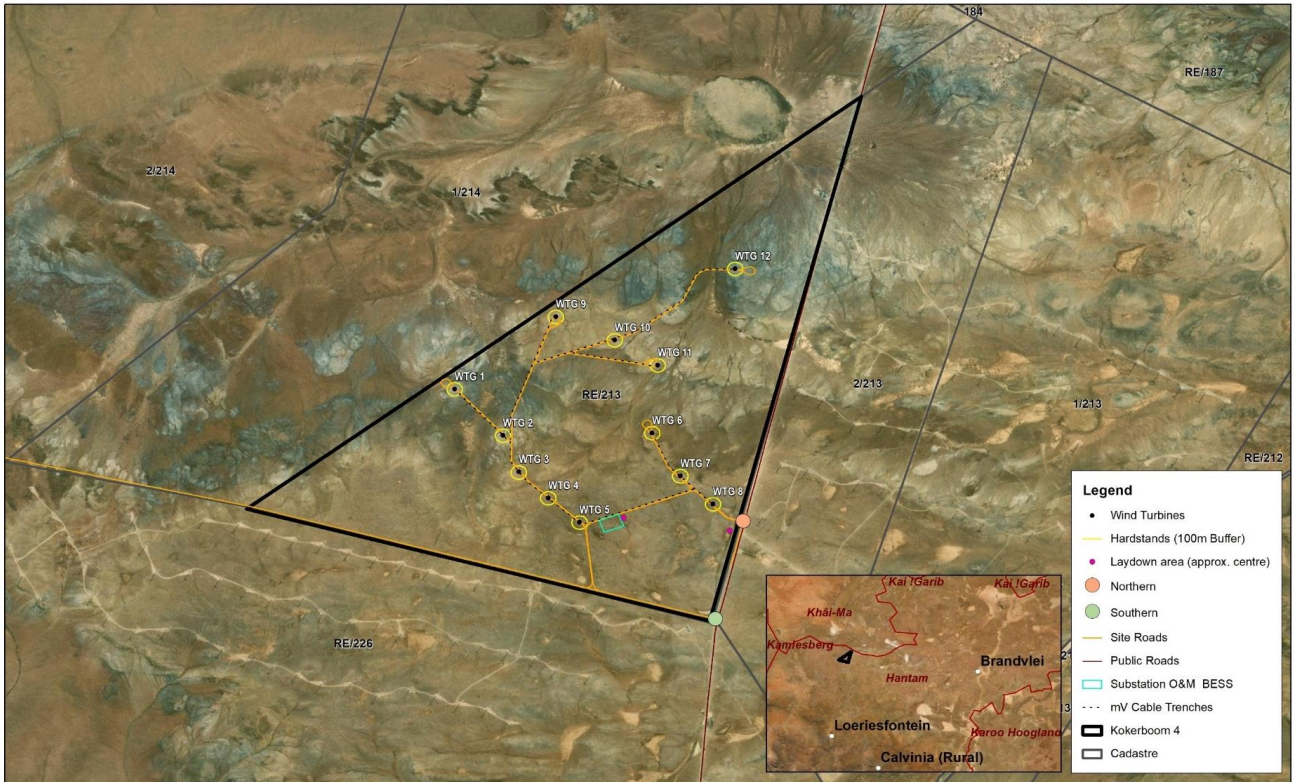
NO	FARM NAME(if	FARM NUMBER(if	PORTION NAME	PORTION NUMBER	LATITUDE	LONGITUDE
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¹ DEA has had a name change to DFFE effective 1 April 2021.

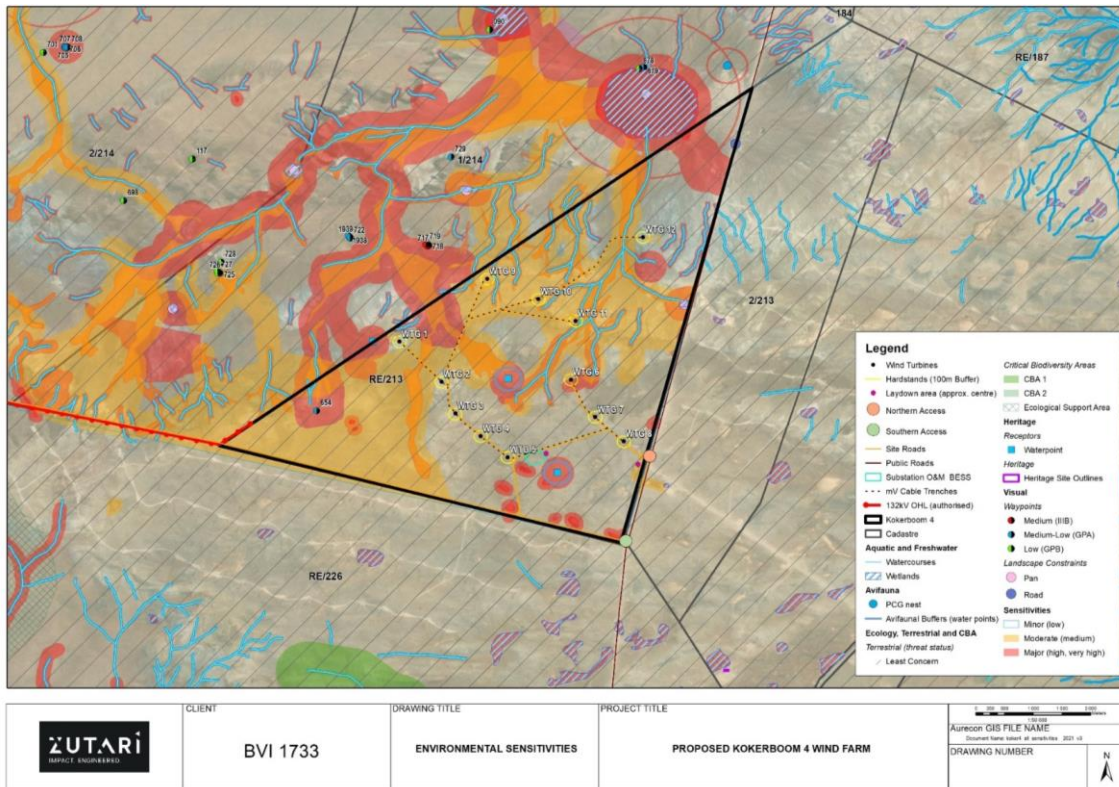
	applicable)	applicable)				
1	Remainder of Aan de Karree Doorn Pan No 213	Re/213	-	-	30°25'10.29"S	19°32'39.01"E

7.16 Preliminary technical specification of the overhead transmission and distribution:

7.2 Sub-section 2: Development footprint site maps



	CLIENT	DRAWING TITLE	PROJECT TITLE	
	BVI 1733	LOCALITY and FINAL LAYOUT (inclusive of infrastructure)	PROPOSED KOKERBOOM 4 WIND FARM	Aurecon GIS FILE NAME Document Name: Kokerboom4_locality_2021_17 DRAWING NUMBER



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 days 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:

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 impact management actions, not included in the pre-approved generic EMPr template, to manage impacts, those impact management outcomes and 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.

Pre-Construction
Terrestrial Ecology
Implement the Plant and Animal Search and Rescue Plan prior to any construction activities with the requisite permits in place as supplied by DAEARDL
Aquatic Ecology

A pre-construction walkthrough with an aquatic specialist is recommended and they can assist with the development of the stormwater management plan and Rehabilitation and Monitoring plan.
Agriculture
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. Ensure the storm water run-off control is included in the engineering design
Socio-Economic
Before the construction phase commences the proponent should meet with representatives from the Hantam LM to establish the existence of a skills database for the area. If such a database exists it should be made available to the contractors appointed for the construction phase.
Transport
Abnormal Vehicle route identification and assessment including road infrastructure assessment and proposals (to be undertaken during detailed planning phase pre-construction)
A Pre and Post road condition assessment of the Granaatboskolk Road used to site
Construction
Terrestrial Ecology
Implement the alien management plan, during the construction phase. The management should then continue into all future phases of the project.
Bats
It is recommended that construction activities are limited as much as possible in areas identified as high and medium sensitivity of the bat sensitivity map.
Before destruction of features with possible roosts, the ECO needs to investigate the area so as to establish whether there is a bat roost. The ECO must be in contact with the bat specialist so as to be instructed what to look for. If a roost is found, a bat specialist must be contacted before further disturbance of the roost.
All roofs of new buildings must be carefully sealed off so that no bats can start new roosts in the buildings; keeping in mind that some bat species, such as <i>Neoromicia capensis</i> , could enter at a hole the size of a finger. Sealing of roofs should be maintained throughout the lifespan of the wind farm.
All excavation areas or artificial ditches formed during construction must be filled and rehabilitated so that no new open water sources are created during rainy periods.
Avifauna
Do not allow any access to the remainder of the property during the construction period
For the construction period, a 200m exclusion zone should be implemented around the existing water points where no construction activity or disturbance should take place
To prevent unnecessary habitat destruction (i.e. more than is inevitable), the recommendations of the specialist ecological study must be strictly adhered to. It is especially important that maximum use is made of existing roads.
Aquatic
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 tree) is prevalent in areas to the south 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
Mechanical plant and bowsers must not be refuelled or serviced within 100m of a river channel
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
Heritage
Educate construction staff to understand the importance of remaining within the authorised footprints for all aspects of the development.
If any archaeological material or human burials are uncovered during the course of development, then the find should be protected from further disturbance and work in the immediate area should be halted. The find would need to be reported to the heritage authorities and may require inspection by an archaeologist. Such heritage is the property of the state and may require excavation and curation in an approved institution
Socio-economic
Where reasonable and practical the proponent should appoint local contractors and implement a 'locals first' policy, especially for semi and low-skilled job categories. Due to the low skills levels in the area, the majority of skilled posts are likely to be filled by people from outside the area.
Where feasible, efforts should be made to employ suitably qualified and experienced local contractors that are compliant with Broad Based Black Economic Empowerment (BBBEE) criteria.
Before the construction phase commences the proponent should meet with representatives from the Hantam LM to establish the existence of a skills database for the area. If such a database exists it should be made available to the contractors appointed for the construction phase
The local authorities and relevant community representatives should be informed of the final decision regarding the project and the potential job opportunities for locals and the employment procedures that the proponent intends following for the construction phase of the project.
The need to implement a training and skills development programme for local workers should be investigated prior to the initiation of the construction phase. The aim of the programme would be to maximise local employment opportunities.
The recruitment selection process should seek to promote gender equality and the employment of women wherever possible
The proponent should liaise with the Hantam LM with regard to the establishment of a database of local companies, specifically BBBEE companies, which qualify as potential service providers (e.g. construction companies, catering companies, waste collection companies, security companies etc.) prior to the commencement of the tender process for construction contractors. These companies should be notified of the tender process and invited to bid for project-related work;
Where possible and permissible in terms of fair procurement policies, the proponent should assist local BBBEE companies to complete and submit the required tender forms and associated information
The proponent should consider the need for establishing a Monitoring Forum in order to monitor the construction phase and the implementation of the recommended mitigation measures. The Forum should be established before the construction phase commences, and should include key stakeholders, including representatives from the Hantam LM, farmers and the contractor(s). The Monitoring Forum should also be briefed on the potential risks to the local community and farm workers associated with construction workers.
The proponent and the contractor(s) should, in consultation with representatives from the Monitoring Forum, if applicable, develop a code of conduct for the construction phase. The code should identify which types of behaviour and activities are not acceptable. Construction workers in breach of the code should be dismissed or subject to suitable disciplinary action. All dismissals must comply with the South African labour legislation.
The proponent and contractor(s) should implement an HIV/Aids awareness programme for all construction workers at the outset of the construction phase.
No workers should be permitted to trespass onto adjacent properties. Failure to adhere to this should be made a dismissible offence.
In the event of workers being accommodated in Loeriesfontein or another remote location off site, the contractor should provide transport to and from the site on a daily basis for workers. This will enable the contractor to

effectively manage and monitor the movement of construction workers on and off the site.
Where necessary, the contractors should make the necessary arrangements to enable workers from outside the area to return home over weekends and/ or on a regular basis. This would reduce the risk posed to local family structures and social networks.
The proponent should implement a policy that no employment will be available at the gate.
The proponent should enter into an agreement with the local farmers in the area whereby damages to farm property etc. during the construction phase proven to be associated with the construction activities for the WEF will be compensated for, if evidence can be provided. The contractor may be liable for such compensation costs, as per the contract between the proponent and the contractor/s. The relevant agreement/s should be signed before the construction phase commences;
No workers should be permitted to trespass onto adjacent properties. Failure to adhere to this should be made a dismissible offence, or subject to strict disciplinary action. In this regard contractors appointed by the proponent must ensure that construction workers who are found guilty of trespassing, stealing livestock and/or damaging farm infrastructure are dismissed and charged. This should be contained in the Code of Conduct. All dismissals must be in accordance with South African labour legislation;
Contractors appointed by the proponent should provide daily transport for low and semi-skilled workers to and from the site. This would reduce the potential risk of trespassing on the remainder of the farm and adjacent properties;
The proponent should consider the option of establishing a MF that includes local farmers and develop a Code of Conduct for construction workers. This forum/committee should be established prior to commencement of the construction phase. The Code of Conduct should be signed by the proponent and the contractors before the contractors move onto site;
The proponent should hold contractors liable for compensating farmers in full for any stock losses and/or damage to farm infrastructure that can be linked to construction workers. This should be contained in the Code of Conduct to be signed between the proponent and the contractors. The agreement should also cover losses and costs associated with fires caused by construction workers or construction related activities
The Environmental Management Programme (EMPr) should outline procedures for managing and storing waste on site, specifically plastic waste that poses a threat to livestock if ingested;
Contractors appointed by the proponent must ensure that all workers are informed at the outset of the construction phase of the conditions contained on the Code of Conduct, specifically consequences of stock theft and trespassing on adjacent farms;
It is recommended that no construction workers, with the exception of security personnel, should be permitted to stay over-night on the site. However, it is recognised that there may need to establish accommodation on site. If this is the case then the movement of workers should be contained to the construction camp area.
Contractor/s should ensure that no open fires are allowed on the site
Contractor to ensure that construction related activities that pose a potential fire risk, such as welding, are properly managed and are confined to areas where the risk of fires has been reduced;
Measures to reduce the risk of fires include avoiding working in high wind conditions when the risk of fires is greater. In this regard, special care should be taken during the high risk dry, windy summer months
Contractor should provide adequate fire-fighting equipment on-site
Contractor should provide fire-fighting training to selected construction staff;
As per the conditions of the Code of Conduct, in the event of a fire proven to be caused by construction workers and or construction activities, the appointed contractors should compensate farmers for any damage caused to their farms. The contractor should also compensate the fire-fighting costs borne by farmers and local authorities.
As far as possible, the transport of components to the site along the N7 should be planned to avoid weekends, holiday periods and the Spring Flower (typically August-September) season if possible.
The contractor must ensure that damage caused by construction related traffic to the Nuwepos Road and local

farm roads is repaired on a regular basis throughout the construction phase. The costs associated with the repair must be borne by the contractor;
All vehicles must be road-worthy and drivers must be licensed and made aware of the potential road safety issues and need for strict speed limits;
The Contractor should liaise with the affected farmers regarding timing and location of construction activities so they can make alternative arrangements for their sheep;
The Contractor should ensure that workers are informed that no waste can be thrown out of the windows while being transported to and from the site. Workers who throw waste out windows should be fined;
The Contractor should be required to collect waste along the access road on a weekly basis;
Waste generated during the construction phase should be transported to the local landfill site or other appropriate recycling/disposal facility.
All areas disturbed by construction related activities, such as access roads on the site, construction platforms, workshop area, etc., should be rehabilitated at the end of the construction phase except where such facilities are required during the operational phase. The rehabilitation plan should be informed by input from an appropriately qualified professional, with experience in arid regions.
Visual
Dust suppression measures to reduce dust generated by moving vehicles and earth cleared of vegetation. Signage on the Nuwepos Road should be moderated (approximately 1m high x 1.5m wide) and natural colours used in the signage as much as possible.
The buildings should be painted a suitable colour in keeping with the surrounding landscape e.g. grey-brown or light brown) or built of materials (e.g. brickwork) in keeping with the colour of the surrounding landscape to assist in reducing colour contrast.
Fencing should be simple and appear transparent from a distance. The fences should be checked monthly for the collection of litter caught on the fence.
Transport
Road maintenance & monitoring plan for the construction phase, for public roads (like Granaatboskolk Road) as well as internal site roads
Clear information published to public regarding dates, times and routes of abnormal vehicle transportation through various towns
Clear information published to public regarding risks associated with driving near or behind abnormal roads
Agriculture
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.
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.
Maintain where possible all vegetation cover and facilitate re-vegetation of denuded areas throughout the site, to stabilize disturbed soil against erosion.
Undertake a periodic site inspection to record the occurrence of and re-vegetation progress of all areas that require re-vegetation.
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.
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
Palaeontology
All major clearance operations and deeper (> 1 m) excavations should be monitored for fossil remains on an on-going basis by the ECO and on-site Environmental Officer (EO). Should substantial fossil remains - such as vertebrate bones and teeth, or petrified logs of fossil wood - be encountered at surface or exposed during construction, the ECO or EO should safeguard these, preferably in situ. They should then alert the South African Heritage Resources Agency, SAHRA, as soon as possible (Contact details: Dr Ragna Redelstorff, Heritage Officer Archaeology, Palaeontology & Meteorites Unit, SAHRA. 111 Harrington Street, Cape Town, 8001. Tel: +27 (0)21 202 8651. Fax: +27 (0)21 202 4509 E-mail: rredelstorff@sahra.org.za). This is to ensure that appropriate action (i.e. recording, sampling or collection of fossils, recording of relevant geological data) can be taken by a professional paleontologist at the proponent's expense.
Strictly follow the chance fossil finds procedure
Operation
Terrestrial
Management of alien management plan should be maintained
Bats
Where lights need to be used such as at the substation and elsewhere, these should have low attractiveness for insects such as low-pressure sodium and warm white LED lights (Rydell 1992; Stone 2012). High pressure sodium and white mercury lighting is attractive to insects (Blake et al. 1994; Rydell 1992) and should not be used as far as possible.
Avifauna
Lighting of the wind farm (for example security lights) should be kept to a minimum. Lights should be directed downwards (provided this complies with Civil Aviation Authority regulations).
Socio-economic
Use the project to promote and increase the contribution of renewable energy to the national energy supply
Implement a training and skills development programme for locals during the first 5 years of the operational phase (unless sufficient suitably trained individuals are already available in the local area). The aim of the programme should be to maximise the number of South African's employed during the operational phase of the project.
The relevant lease agreements between the proponent and landowners must be put in place and signed off prior to commencement.
The Hantam LM should be consulted as to the structure and identification of potential beneficiaries of the Trust. The key departments in the Hantam LM that should be consulted include the Municipal Managers Office, IDP Manager, and the LED Manager.
Clear criteria for identifying and funding community projects and initiatives in the area should be identified. The criteria should be aimed at maximising the benefits for the community as a whole and not individuals within the community.
Visual
To reduce colour contrast, if permitted by the Original Equipment Manufacturer, the container structure should preferably be painted a suitable colour (e.g. light brown) so as to blend with the surrounding arid region landscapes.
Light spillage reduction management should be implemented
Agriculture
Maintain the storm water run-off control system. Monitor erosion and remedy the storm water control system in the event of any erosion occurring.
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
Undertake a periodic site inspection to record the progress of all areas that require re-vegetation.
Decommissioning phase
Terrestrial
Management of the implemented plant and animal search and rescue plan should be maintained
Bats
It is recommended that construction activities are limited as much as possible in areas identified as medium sensitivity of the bat sensitivity map. Blasting/removal of trees/removal of pre-existing buildings is prohibited within high bat sensitivity areas.
Before destruction of features with possible roosts, the ECO needs to investigate the area so as to establish whether there is a bat roost. The ECO must be in contact with the bat specialist so as to be instructed what to look for. If a roost is found, a bat specialist must be contacted before further disturbance of the roost.
Avifauna
Do not allow any access to the remainder of the property during the decommissioning period
Aquatic
Mechanical plant and bowsers must not be refuelled or serviced within 100m of a river channel.
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.
No stockpiling should take place within or near a water course
All stockpiles must be protected and located in flat areas where run-off will be minimised and sediment recoverable.
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 or similar) of exposed soil and the re-vegetation of any disturbed watercourses.
Socio-economic
As far as possible, the transport of components to the site along the N7 should be planned to avoid weekends, holiday periods and the Spring Flower (typically August-September) season if possible.
The contractor must ensure that damage caused by construction related traffic to the Nuwepos Road and local farm roads is repaired on a regular basis throughout the construction phase. The costs associated with the repair must be borne by the contractor;
The Contractor should liaise with the affected farmers regarding timing and location of construction activities so they can make alternative arrangements for their sheep;
The Hantam LM should be consulted as to the structure and identification of potential beneficiaries of the Trust. The key departments in the Hantam LM that should be consulted include the Municipal Managers Office, IDP Manager, and the LED Manager.
The proponent should establish an Environmental Rehabilitation Trust Fund to cover the costs of decommissioning and rehabilitation of disturbed areas. The Trust Fund should be funded by a percentage of the revenue generated from the sale of energy to the national grid over the 20-year operational life of the facility or funded via other feasible and reliable mechanisms. The rationale for the establishment of a Rehabilitation Trust Fund is linked to the experiences with the mining sector in South Africa and failure of many mining companies to allocate sufficient funds during the operational phase to cover the costs of rehabilitation and closure. Alternatively, the funds from the sale of the WEF as scrap metal should be allocated to the rehabilitation of the

site.
Visual
Fencing should be simple and appear transparent from a distance. The fences should be checked monthly for the collection of litter caught on the fence.
Transport
A Pre and Post road condition assessment of the Granaatboskolk Road used to site
Road maintenance & monitoring plan for the construction phase, for public roads (like Granaatboskolk Road) as well as internal site roads
Clear information published to public regarding dates, times and routes of abnormal vehicle transportation through various towns
Clear information published to public regarding risks associated with driving near or behind abnormal roads
Site accesses to be sufficiently large to safely accommodate turning radius of abnormal vehicles
Adequate warning signage of construction and abnormal vehicles in advance of site access point
Agriculture
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.
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.
Maintain where possible all vegetation cover and facilitate re-vegetation of denuded areas throughout the site, to stabilize disturbed soil against erosion
Undertake a periodic site inspection to record the occurrence of and re-vegetation progress of all areas that require re-vegetation.
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.

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.