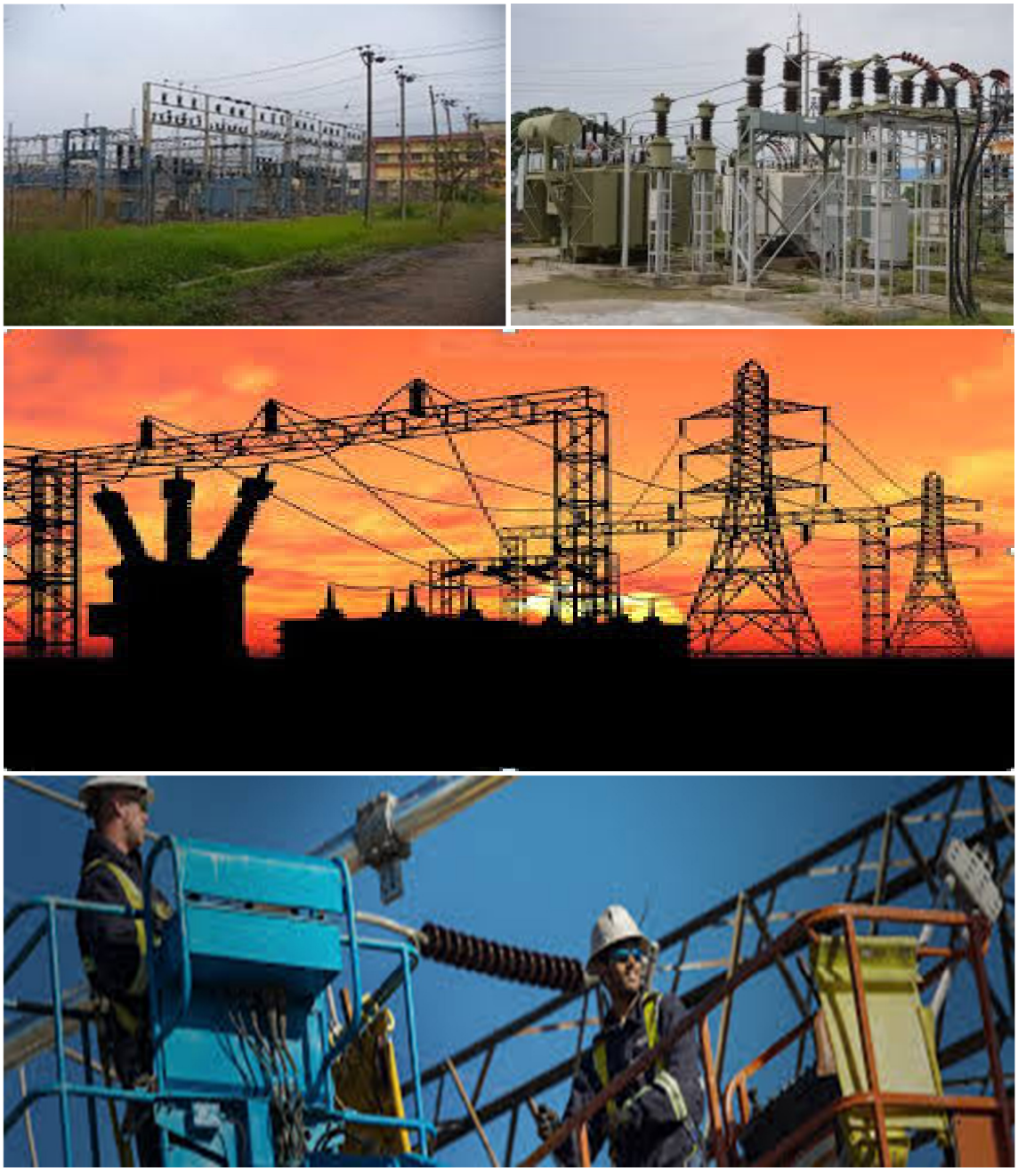
# SUN GARDEN PV FACILITY, EASTERN CAPE PROVINCE

## Environmental Management Programme for the 132kV switching station and a 132/33kV on-site collector substation associated with the Sun Garden PV Facility

January 2022

# 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 | 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.<br><br>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.<br><br>Where an impact management outcome is not relevant, the words "not applicable" can be inserted in the template under the "responsible persons" column.<br><br>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.<br><br>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. |
| | 2 | Site specific information | Contains preliminary infrastructure layout and a declaration that the applicant/holder of the EA |

| Part | Section | Heading | Content |
|---|---|---|---|
| | | | will comply with the pre-approved generic EMPr template contained in Part B: Section 1, 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 Part C.<br><br>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 Part B: section 2 not be submitted. Once approved, this Section forms part of the EMPr for the development and is legally binding. |
| C | | Site specific sensitivities/ attributes | 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 (Part B: section 1)<br><br>This section will not be required should the site contain no specific environmental sensitivities or attributes. However, if Part C 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 information in this section must be prepared by an EAP and must contain his/her name and expertise including a curriculum vitae. Once |

| Part | Section | Heading | Content |
|---|---|---|---|
| | | | approved, Part C forms part of the EMPr for the site and is legally binding.<br><br>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 Part B: section 1. |
| 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) | Role<br>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.<br><br>Responsibilities<br>- Be fully conversant with the conditions of the EA;<br>- Ensure that all stipulations within the EMPr are communicated and adhered to by the Developer and its Contractor(s);<br>- Issuing of site instructions to the Contractor for corrective actions required;<br>- 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<br>- Ensure that periodic environmental performance audits are undertaken on the project implementation. |

| Responsible Person(s) | Role and Responsibilities |
|---|---|
| Developer Site Supervisor (DSS) | Role<br>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.<br><br>Responsibilities<br>- Ensure that all contractors identify a contractor's Environmental Officer (cEO);<br>- Must be fully conversant with the conditions of the EA. Oversees site works, liaison with Contractor, DPM and ECO;<br>- Must ensure that all landowners have the relevant contact details of the site staff, ECO and cEO;<br>- Issuing of site instructions to the Contractor for corrective actions required;<br>- Will issue all non-compliances to contractors; and<br>- Ratify the Monthly Environmental Report. |
| Environmental Control Officer (ECO) | Role<br>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.<br><br>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 variation, not allowed for in the |

| Responsible Person(s) | Role and Responsibilities |
|---|---|
| | 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.<br><br><u>Responsibilities</u><br>The responsibilities of the ECO will include the following:<br>- Be aware of the findings and conclusions of all EA related to the development;<br>- Be familiar with the recommendations and mitigation measures of this EMPr;<br>- Be conversant with relevant environmental legislation, policies and procedures, and ensure compliance with them;<br>- 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;<br>- Educate the construction team about the management measures contained in the EMPr and environmental licenses;<br>- Compilation and administration of an environmental monitoring plan to ensure that the environmental management measures are implemented and are effective;<br>- Monitoring the performance of the Contractors and ensuring compliance with the EMPr and associated Method Statements;<br>- 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;<br>- Liaison between the DPM, Contractors, authorities and other lead stakeholders on all environmental concerns;<br>- Compile a regular environmental audit report highlighting any non-compliance issues as well as satisfactory or exceptional compliance with the EMPr;<br>- Validating the regular site inspection reports, which are to be prepared by the contractor Environmental Officer (cEO);<br>- Checking the cEO's record of environmental incidents (spills, impacts, legal transgressions etc.) as well as corrective and preventive actions taken;<br>- Checking the cEO's public complaints register in which all complaints are recorded, as well as action taken; |

| Responsible Person(s) | Role and Responsibilities |
|---|---|
| | - Assisting in the resolution of conflicts;<br>- Facilitate training for all personnel on the site – this may range from carrying out the training, to reviewing the training programmes of the Contractor;<br>- 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;<br>- Maintenance, update and review of the EMPr; and<br>- Communication of all modifications to the EMPr to the relevant stakeholders. |
| developer Environmental Officer (dEO) | <u>Role</u><br>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.<br><br><u>Responsibilities</u><br>- Be fully conversant with the EMPr;<br>- Be familiar with the recommendations and mitigation measures of this EMPr, and implement these measures;<br>- Ensure that all stipulations within the EMPr are communicated and adhered to by the Employees, Contractor(s);<br>- Confine the development site to the demarcated area;<br>- Conduct environmental internal audits with regards to EMPr and authorisation compliance (on cEO);<br>- Assist the contractors in addressing environmental challenges on site;<br>- Assist in incident management:<br>- Reporting environmental incidents to developer and ensuring that corrective action is taken, and lessons learnt shared;<br>- Assist the contractor in investigating environmental incidents and compile investigation reports;<br>- Follow-up on pre-warnings, defects, non-conformance reports; |

| Responsible Person(s) | Role and Responsibilities |
|---|---|
| | - Measure and communicate environmental performance to the Contractor;<br>- Conduct environmental awareness training on site together with ECO and cEO;<br>- Ensure that the necessary legal permits and / or licenses are in place and up to date; and<br>- Acting as Developer's Environmental Representative on site and work together with the ECO and contractor. |
| Contractor | <u>Role</u><br>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.<br><br><u>Responsibilities</u><br>- project delivery and quality control for the development services as per appointment;<br>- 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;<br>- 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;<br>- attend on site meeting(s) prior to the commencement of activities to confirm the procedure and designated activity zones; and<br>- 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) | Role<br>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:<br><br>Responsibilities<br>- Be on site throughout the duration of the project and be dedicated to the project;<br>- Ensure all their staff are aware of the environmental requirements, conditions and constraints with respect to all of their activities on site;<br>- Implementing the environmental conditions, guidelines and requirements as stipulated within the EA, EMPr and Method Statements;<br>- Attend the Environmental Site Meeting;<br>- Undertaking corrective actions where non-compliances are registered within the stipulated timeframes;<br>- Report back formally on the completion of corrective actions;<br>- Assist the ECO in maintaining all the site documentation;<br>- Prepare the site inspection reports and corrective action reports for submission to the ECO;<br>- Assist the ECO with the preparing of the monthly report; and<br>- 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; and
- 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 Environmental Audit Report (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 contactor 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 |
| – All staff must receive environmental awareness training prior to commencement of the activities; | ECO / cEO / dEO | Hold environmental awareness training workshops | Pre-construction Construction and Operations | ECO dEO | Monthly and as and when required | Attendance register and training minutes / notes for the record |
| – The Contractor must allow for sufficient sessions to train all personnel with no more than 20 personnel attending each course; | Contractor | Scheduling of sufficient sessions through consultation with the ECO / cEO / dEO | Pre-construction Construction | ECO dEO | Monthly and as and when required | Attendance register and training minutes / notes for the record |
| – Refresher environmental awareness training is available as and when required; | cEO / dEO in consultation with the ECO | Hold refresher environmental awareness training workshops | During the construction phase | ECO dEO | Monthly and as and when required | Attendance register and training minutes / notes for the record |
| – 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; | cEO / dEO | Hold training workshops and ensure that the EA and EMPr is readily available | During the construction phase | ECO dEO | Monthly and as and when required | Attendance register and training minutes / notes for the record |

| | | | | | | |
|---|---|---|---|---|---|---|
| – The Contractor must erect and maintain information posters at key locations on site, and the posters must include the following information as a minimum:<br>a) Safety notifications; and<br>b) No littering. | Contractor | Develop and place appropriate posters at key locations | Pre-construction<br>Construction | ECO<br>dEO<br>cEO | Monthly | Photographic record |
| – Environmental awareness training must include as a minimum the following:<br>a) Description of significant environmental impacts, actual or potential, related to their work activities;<br>b) Mitigation measures to be implemented when carrying out specific activities;<br>c) Emergency preparedness and response procedures;<br>d) Emergency procedures;<br>e) Procedures to be followed when working near or within sensitive areas;<br>f) Wastewater management procedures;<br>g) Water usage and conservation;<br>h) Solid waste management procedures;<br>i) Sanitation procedures;<br>j) Fire prevention; and<br>k) Disease prevention. | cEO / dEO in consultation with the ECO | Develop environmental awareness training material which covers the minimum requirements | Pre-construction<br>Construction | ECO<br>dEO | Prior to the commencement of the environmental awareness training | Environmental awareness training material requirements checklist |
| – A record of all environmental awareness training courses undertaken as part of the EMPr must be available; | ECO / cEO / dEO | Filing system including all proof of training (i.e. attendance register and training minutes / notes for the record) | During the construction phase | ECO<br>dEO | Monthly | Completed and up to date filing system with proof of training |
| – Educate workers on the dangers of open and/or unattended fires; | cEO / dEO in consultation with the ECO | Develop environmental awareness training | Pre-construction<br>Construction | ECO<br>dEO | Prior to the commencement of the | Environmental awareness training |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | material which covers the dangers of open and/or unattended fire | | | environmental awareness training | material requirements checklist |
| – A staff attendance register of all staff to have received environmental awareness training must be available. | ECO / cEO / dEO | Filing system including all proof of training (i.e. attendance register) | During the construction phase | ECO dEO | Monthly | Completed and up to date filing system inclusive of all attendance registers |
| – Course material must be available and presented in appropriate languages that all staff can understand. | ECO / cEO / dEO | Develop environmental awareness training material in the required languages. Training material must by readily available to all staff | During the construction phase | ECO dEO | Monthly | Environmental awareness training material requirements checklist and the training register which must indicate the language of the training |

### *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 |
| – A method statement must be provided by the contractor prior to any onsite activity that includes the layout of the construction camp in the form of a plan showing the location of key infrastructure and services (where applicable), including but not limited to offices, overnight vehicle parking areas, stores, the workshop, stockpile and lay down areas, hazardous materials storage areas (including fuels), the batching plant (if one is located at the construction camp), designated access routes, equipment cleaning areas and the placement of staff accommodation, cooking and ablution facilities, waste and wastewater management; | Contractor | Development of an appropriate method statement | Pre-construction | ECO<br>dEO | Once, prior to construction | Availability of the method statement which complies with the minimum requirements listed |
| – 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; | DPM | Place construction camps outside of sensitive areas identified in the Basic Assessment Report | Pre-construction<br>Construction | ECO<br>dEO | Once, prior to construction | Availability of a layout and sensitivity map indicating avoidance of sensitive areas |
| – Sites must be located where possible on previously disturbed areas; | DPM | Place site outside of sensitive areas and within previously disturbed areas | Pre-construction | ECO<br>dEO | Once, prior to construction | Availability of a layout and sensitivity map indicating |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | identified in the BA Report | | | | avoidance of sensitive areas and placement within disturbed areas |
| – The camp must be fenced in accordance with ***Section 5.5: Fencing and gate installation***; and | DPM | Design and implementation of fencing as per the requirements of Section 5.5 of this EMPr | Pre-construction & Construction | ECO<br>dEO | Once, prior to construction and once during the construction of the fencing | The camp is fenced in accordance with Section 5.5 of this EMPr |
| – The use of existing accommodation for contractor staff, where possible, is encouraged. | Not applicable – the development of temporary staff accommodation is proposed as part of the Redding Wind Farm | | | | | |

### *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 |
| – Identification of access restricted areas is to be informed by the environmental assessment, site walk through and any additional areas identified during development; | dEO / cEO in consultation with the ECO | Spatially demarcate access restricted areas informed by the BA Report | Pre-construction | ECO | Once, prior to construction | Access restricted areas are identified and provided in a spatial format |
| – 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 | dEO / cEO in consultation with the ECO | Erect appropriate temporary barriers around access restricted areas | At the commencement and for the duration of the construction phase | ECO | Monthly | Access restricted areas are closed-off through temporary barriers and barriers are maintained to a sufficient standard |
| – Unauthorised access and development related activity inside access restricted areas is prohibited. | Contractor / dEO / cEO | Erect appropriate temporary barriers around access restricted areas and provide clear signage of restricted status | During the construction phase | ECO | Monthly, and as and when required | Photographic evidence and notes of compliance that no unauthorised access or |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | | | | | activities has taken place within the access restricted areas |

### *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 |
| – An access agreement must be formalised and signed by the DPM, Contractor and landowner before commencing with the activities; | DPM<br>Contractor | Develop access agreements with the affected landowners.<br>Ensure that agreements are approved and signed | Pre-construction | dEO<br>ECO | Once, prior to construction | Availability of approved and signed negotiations |
| – All private roads used for access to the servitude must be maintained and upon completion of the works, be left in at least the original condition | Contractor | Undertake maintenance activities on private roads used for construction as | During the construction phase | cEO / ECO | Weekly | Photographic record of the pre-construction condition |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | degradation takes place | | | | and degradation of roads, and records of the implementation and effectiveness of maintenance activities |
| – All contractors must be made aware of all these access routes. | dEO / cEO | Develop a map illustrating all access routes associated with the project and present and provide the map to all contractors | Pre-construction Construction | ECO | Once, prior to construction | Access routes map readily available |
| – Any access route deviation from that in the written agreement must be closed and re-vegetated immediately, at the contractor's expense; | Contractor | All access routes developed that are not in-line with the access route agreements must be closed and re-habilitated to the pre-disturbance state | Construction and Rehabilitation | cEO ECO | Bi-weekly (every two weeks) | Photographic record of the closure of access roads and re-vegetation |
| – Maximum use of both existing servitudes and existing roads must be made to minimize further disturbance through the development of new roads; | Contractor (and Eskom maintenance | Existing access routes to be used must be specified | Construction and operation | cEO Operation and | Weekly | Implementation of the |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | staff where relevant to operation) | and the development of new roads must be avoided as far as possible | | maintenance team | | approved layout |
| – 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; | dEO / cEO | Record the conditions of private roads to be used (prior to use) as per the requirements of section 4.9 and agree on the required condition of the roads with the landowner, DPM and contractor | During the construction phase | ECO | Prior to the use of private roads | Photographic record and proof of the road conditions agreed upon with the relevant parties |
| – Access roads in flattish areas must follow fence lines and tree belts to avoid fragmentation of vegetated areas or croplands | DPM and Contractor | Design access roads to follow fence lines and avoid vegetated areas | Pre-construction | ECO | Once during the design and once prior to constructio n | Implementati on of the approved layout |
| – Access roads must only be developed on pre-planned and approved roads. | Contractor | Construction of access roads only on pre-planned and approved access roads | During the construction phase | ECO once during the design dEO | Once during the design and weekly during the constructio | Implementati on of the approved layout |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | | | | n of access roads | |

### *5.5 Fencing and Gate installation*

**Impact management outcome:** Minimise impact to the environment and ensure safe and controlled access to the site through the erection of fencing and gates where required.

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – Use existing gates provided to gain access to all parts of the area authorised for development, where possible; | Contractor | Identify and inform all relevant staff of the existing gates to be used | Pre-construction & Construction | dEO | Monthly | Existing gates are utilised on a frequent basis and only limited new access gates are developed |
| – Existing and new gates to be recorded and documented in accordance with **section 4.9: photographic record**; | ECO | Existing and new gates will be recorded and documented as per the requirements of section 4.9 | During the construction phase | ECO | Once, when the constructio n of all new gates have been completed | Photographic record of the existing and new gates as per the requirements of section4.9 |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – All gates must be fitted with locks and be kept locked at all times during the development phase, unless otherwise agreed with the landowner; | Contractor | Ensure all relevant gates are fitted with locks and are always locked | Construction and Operation | ECO monthly, Operation and maintenance team and cEO | Bi-weekly (every second week) | All gates are locked and no complaints from landowners are received in this regard |
| – 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; | dEO | Install new gates where required with the approval of the affected landowner | During the construction phase | ECO | Once, prior to construction and during the construction phase, as and when required | New gates are installed where the power line crosses fences |
| – Care must be taken that the gates must be so erected that there is a gap of no more than 100 mm between the bottom of the gate and the ground; | Contractor | Install gates in a manner so that there is a gap of no more than 100mm between the bottom of the gate and the ground | During the construction phase | cEO | Once, during the erection of the gates during the construction phase | New gates installed as per the requirement |
| – Where gates are installed in jackal proof fencing, a suitable reinforced concrete sill must be provided beneath the gate; | Contractor | Implement a reinforced concrete sill beneath gates installed for jackal proofing | During the construction phase | cEO | Once, during the erection of the gates during the construction phase | New gates installed as per the requirement |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – Original tension must be maintained in the fence wires; | Contractor | Maintain original tension of fences through required activities | During the construction phase | ECO | Monthly | No tension reduction on fence wires |
| – All gates installed in electrified fencing must be re-electrified; | Contractor | Electrify gates installed in electrified fencing | During the construction phase | ECO | Once, during the erection of the gates during the constructio n phase | Gates installed in electrified fencing is electrified |
| – All demarcation fencing and barriers must be maintained in good working order for the duration of the development activities; | Contractor | Undertake maintenance activities on fences and barriers | During the construction phase | ECO | Monthly | Photographic record of maintained fences and barriers |
| – Fencing must be erected around the camp, batching plants, hazardous storage areas, and all designated access restricted areas, where applicable; | Contractor | Fence construction camps, batching plants, hazardous storage areas and access restricted areas. Avoid sensitive flora | During the construction phase | ECO | Once during the erection of fencing | Photographic record of fences erected |
| – Any temporary fencing to restrict the movement of life-stock must only be erected with the permission of the land owner. | dEO/ cEO Contractor | Obtain written approval from the relevant landowner where temporary fencing is required to | During the construction phase | ECO | To be monitored as temporary fencing is required | Written approval to be provided by the dEO |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | restrict livestock movement | | | | |
| – All fencing must be developed of high quality material bearing the SABS mark; | Contractor | Make use of high quality materials approved by SABS | During the construction phase | cEO | To be monitored as fencing is erected during the constructio n phase | Use of high quality materials for fencing approved by SABS |
| – The use of razor wire as fencing must be avoided; | Contractor | Razor wire must not be sourced or used for the erection of fencing | During the construction phase | ECO | To be monitored as fencing is erected during the constructio n phase | Fences erected do not make use of razor wire |
| – Fenced areas with gate access must remain locked after hours, during weekends and on holidays if staff is away from site. Site security will be required at all times; | DSS and Contractor | Ensure fenced areas are locked as required through the implementation of a formalised process. Appoint a security company | During the construction phase | cEO | Weekly and as and when required | Fences are locked and no complaints from landowners are received. A security company is appointed |
| – On completion of the development phase all temporary fences are to be removed; | Contractor | Removal of all temporary fences | At the end of the Construction Phase | ECO dEO | Once, following the completion | No temporary fences associated |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | | | | of the construction phase | with the project is present following the completion of the construction phase |
| – The contractor must ensure that all fence uprights are appropriately removed, ensuring that no uprights are cut at ground level but rather removed completely. | Contractor | Appropriate removal of all fence uprights | At the end of the Construction Phase | ECO dEO | Once, following the completion of the construction phase | No fence uprights associated with the project is present following the completion of the construction phase |

### *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 |
| – 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; | DPM and Contractor | Obtaining relevant registrations from DWS and installation of water meters | Pre-construction | cEO | To be monitored with the installation of water meters and daily during construction and operation | Use of high quality water meters |
| – The Contractor must ensure the following:<br>a. The vehicle abstracting water from a river does not enter or cross it and does not operate from within the river;<br>b. No damage occurs to the river bed or banks and that the abstraction of water does not entail stream diversion activities; and<br>c. All reasonable measures to limit pollution or sedimentation of the downstream watercourse are implemented. | Not applicable - water will not be abstracted from a river | | | | | |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – Ensure water conservation is being practiced by:<br>a. Minimising water use during cleaning of equipment;<br>b. Undertaking regular audits of water systems; and<br>c. Including a discussion on water usage and conservation during environmental awareness training.<br>d. The use of grey water is encouraged. | Contractor / dEO / cEO in consultation with the ECO | Implement the required water conservation measures throughout on-site construction processes | During the construction phase | ECO | Monthly, and as and when required | Successful implementation of water conservation |

### *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 |
| – Runoff from the cement/ concrete batching areas must be strictly controlled, and contaminated water must be collected, stored and either treated or disposed of off-site, at a location approved by the project manager; | Contractor | Implement measures for the control and management of runoff | During the construction phase | cEO | Weekly | No mismanagement of runoff or contaminated water due to the temporary concrete batching plant |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – All spillage of oil onto concrete surfaces must be controlled by the use of an approved absorbent material and the used absorbent material disposed of at an appropriate waste disposal facility; | Contractor and cEO | Obtain approved absorbent material and make use of licensed waste disposal facilities for disposal of oil | During the Construction Phase | ECO | Monthly | Availability of approved absorbent material at the construction site and proof of disposal of oil at licensed disposal facilities |
| – 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; | DPM in consultation with the ECO | Consultation between the DPM and the ECO to determine if water can be discharged directly into water bodies (where present). The necessary water quality testing must be undertaken prior to discharge | During the construction phase | ECO | As and when the need arises to discharge natural stormwater runoff and clean water | Proof of consultation between the DPM and ECO and the outcomes thereof to be provided. Proof of water quality testing and the results thereof. |
| – Water that has been contaminated with suspended solids, such as soils and silt, may be released into watercourses or water bodies only once all suspended solids have been removed from the water by settling out these solids in settlement ponds. The release of settled water back into the environment must be subject to the Project Manager's approval and support by the ECO. | DPM in consultation with the ECO | Consultation between the DPM and the ECO to determine if water can be released following settling. | During the construction phase | ECO | As and when the need arises to discharge settled water | Proof of consultation between the DPM and ECO and the outcomes |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | | | | | thereof to be provided. |

### *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 |
| – All measures regarding waste management must be undertaken using an integrated waste management approach; | Contractor | Develop and implement a waste management plan | During the construction phase | ECO | Monthly | Implementation of the waste management plan and proof of waste management through proof of responsible disposal |
| – Sufficient, covered waste collection bins (scavenger and weatherproof) must be provided; | Contractor | Provision of appropriate waste collection bins | During the construction phase | cEO | Weekly | Appropriate waste collection |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | strategically placed throughout the site | | | | bins are available throughout the site |
| – A suitably positioned and clearly demarcated waste collection site must be identified and provided; | DPM and Contractor | Identify an appropriate location for the waste collection site which must be clearly demarcated through signage and temporary fencing | Design and Construction Phase | ECO | Once, prior to the commencement of construction | A waste collection site is appropriately placed and demarcated |
| – The waste collection site must be maintained in a clean and orderly manner; | Contractor | Regular collection of waste and maintenance of the area must be undertaken as per the waste requirements for the project during construction | During the Construction Phase | cEO | Weekly | The waste collection site is maintained and clean |
| – Waste must be segregated into separate bins and clearly marked for each waste type for recycling and safe disposal; | Contractor | Provide separate and marked bins for the different waste types associated with the construction phase | During the Construction Phase | cEO | Weekly | Separate waste bins are available on site and waste generated is separated |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | | | | | into the relevant bins |
| – Staff must be trained in waste segregation; | cEO / dEO in consultation with the ECO | Include waste segregation as part of the environmental awareness training material. | Pre-construction Construction | ECO | Monthly, and as and when required | Environmental awareness training material requirements checklist |
| – Bins must be emptied regularly; | Contractor | Bins must be emptied before reaching total capacity and on a regular basis as required for the project | During the construction phase | ECO | Monthly | No mismanagement of bins. |
| – General waste produced onsite must be disposed of at registered waste disposal sites/ recycling company; | Contractor | Disposal of general waste at licensed waste disposal facilities must be undertaken as per the waste management plan | During the construction phase | ECO | Monthly | Disposal certificates of disposal at licensed facilities to be provided |
| – Hazardous waste must be disposed of at a registered waste disposal site; | Contractor | Disposal of hazardous waste at licensed waste disposal facilities must be undertaken as per the waste | During the construction phase | ECO | Monthly | Disposal certificates of disposal at licensed facilities to be provided |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | management plan | | | | |
| – Certificates of safe disposal for general, hazardous and recycled waste must be maintained. | Contractor | Obtain certificates for safe disposal of waste | During the construction phase | ECO | Monthly | Disposal certificates of disposal at licensed facilities to be provided and filed as part of the filing system |

### *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 |
| – All watercourses must be protected from direct or indirect spills of pollutants such as solid waste, sewage, cement, oils, fuels, chemicals, aggregate tailings, wash and contaminated water or organic material resulting from the Contractor's activities; | Contractor | Contractor to undertake activities which can cause spills of pollutants outside of watercourses | During the construction phase | cEO | Weekly | No incidents reported of spillage of pollutants into watercourses |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – In the event of a spill, prompt action must be taken to clear the polluted or affected areas; | Contractor and cEO | Develop a management plan or process for implementation should a spill take place | During the construction phase | cEO | Weekly | Feedback must be provided by the contractor in terms of how the spill was handled and photographic evidence of the feedback must be provided and kept on record |
| – Where possible, no development equipment must traverse any seasonal or permanent wetland | cEO and Contractor | Ensure layout has been informed by the environmental sensitivities as determined by the basic assessment and specialist studies | Construction Phase | ECO | Once off review that the layout used is the approved one | Confirm no development equipment traverses any seasonal or permanent wetland as per the authorised layout by reviewing the as-built designs (once-off |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | | | | | confirmation) . |
| – No return flow into the estuaries must be allowed and no disturbance of the Estuarine functional Zone should occur; | Not applicable – no estuaries present | | | | | |
| – Development of permanent watercourse or estuary crossing must only be undertaken where no alternative access to tower position is available; | cEO, Contractor | Ensure that permanent crossings (access roads) are provided for access to the substations if no alternative crossing is available. | During the construction phase | cEO | Weekly | Ensure that permanent crossings are developed if there is no alternative. |
| – There must not be any impact on the long term morphological dynamics of watercourses or estuaries; | DPM, cEO | Develop a management plan or process for implementation should a spill take place within a watercourse and ensure continuous monitoring | During the construction and operation phase | ECO, dEO | For all phases of the project life cycle (i.e. construction, operation, decommissioning) | No incidents reported of spillage of pollutants into watercourses |
| – Existing crossing points must be favored over the creation of new crossings (including temporary access) | DPM, cEO | Develop a management plan or process for implementation should a spill take | During the pre-construction and construction phase | ECO, dEO | During the construction phase of the project. | Existing crossing points utilised as opposed to new ones |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | place within a watercourse and ensure continuous monitoring | | | | created and no incidents reported of spillage of pollutants into watercourses |
| – When working in or near any watercourse or estuary, the following environmental controls and consideration must be taken:<br>a) Water levels during the period of construction;<br>No altering of the bed, banks, course or characteristics of a watercourse<br>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;<br>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<br>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. | Contractor | Activities undertaken near watercourses must be in-line with and consider the specified environmental controls | During the construction phase | ECO | Monthly, and as and when required | No degradation of the watercourses and no incidents of destruction reported |

### *5.10 Vegetation clearing*

**Impact management outcome:** Vegetation clearing is restricted to the authorised development footprint of the proposed infrastructure.

| **Impact Management Actions** | **Implementation** | | | **Monitoring** | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| **General:** | | | | | | |
| – Indigenous vegetation which does not interfere with the development must be left undisturbed; | cEO and contractor | Demarcate areas of indigenous vegetation to be avoided before clearance is undertaken | Construction and operation (i.e. for maintenance purposes) | ECO monthly, Operation and maintenance team weekly | Weekly, and as and when required | No unnecessary clearance of indigenous vegetation is undertaken |
| – Protected or endangered species may occur on or near the development site. Special care should be taken not to damage such species; | Contractor | Demarcate areas containing protected or endangered species to be avoided by construction activities | During the Construction Phase | ECO monthly and Operation and maintenance team weekly | Weekly, and as and when required | No clearance of protected or endangered species other than those permitted to be removed |
| – Search, rescue and replanting of all protected and endangered species likely to be damaged during project development must be identified by the relevant specialist and completed prior to any development or clearing; | Relevant specialist in consultation with the Contractor | Develop and implement a Plant Search and Rescue Plan | Pre-construction & Construction | cEO | Weekly, and as and when required | Implementation of the Plant Search and Rescue Plan and photographic evidence and notes of the |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | | | | | implementation of the plan |
| – 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; | DPM | Undertake the permitting process in order to obtain the relevant permits for the removal of protected species. Permits must be kept on file | Pre-construction | ECO | Once, prior to the commencement of the construction phase and removal of the protected species | CA permits on file |
| – The Environmental Audit Report must confirm that all identified species have been rescued and replanted and that the location of replanting is compliant with conditions of approvals; | ECO | Ensure that the audit report indicates all species rescued and replanted and provides feedback in terms of compliance with the conditions of permits for replanting | During the Construction Phase and following the completion of the Construction Phase | ECO | Once off or as and when required | ECO confirmed rescued and replanted programme implemented correctly. |
| – Trees felled due to construction must be documented and form part of the Environmental Audit Report; | ECO | Ensure that the audit report documents the details of trees felled | During the Construction Phase and following the completion of the | ECO | Once, prior to the commencement of the construction phase | CA permits on file |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | | Construction Phase | | and removal of the protected species | |
| – Rivers and watercourses must be kept clear of felled trees, vegetation cuttings and debris; | Contractor | Felled trees, vegetation cuttings and debris must be disposed of at a licensed waste disposal facility | During the Construction Phase | ECO | Monthly | No felled trees, vegetation cuttings and debris are dumped in inappropriate locations and disposal certificates are available as proof of responsible disposal |
| – Only a registered pest control operator may apply herbicides on a commercial basis and commercial application must be carried out under the supervision of a registered pest control operator, supervision of a registered pest control operator or is appropriately trained; | DPM and Contractor | A suitably qualified pest control operator must be appointed | Construction and Operation | ECO | As and when the use of herbicides is required | Only registered pest control operators must be appointed and proof of their registration must be provided |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – A daily register must be kept of all relevant details of herbicide usage; | DPM and Contractor | A suitably qualified pest control operator must be appointed | Construction and Operation | ECO | As and when the use of herbicides is required | Only registered pest control operators must be appointed and proof of their registration must be provided |
| – No herbicides must be used in estuaries | Not Applicable – no estuaries applicable | | | | | |
| – 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**. | Contractor in consultation with the cEO | Spatially demarcate protected species and sensitive vegetation and implement appropriate fencing where required as per section 5.3 | During the construction phase | ECO | Once, during the undertaking of the demarcation of the areas and the erection of the fencing | Demarcation and fencing is undertaken in-line with the requirements of section 5.3 |
| – Alien invasive vegetation must be removed and disposed of at a licensed waste management facility. | Contractor | Undertake removal of alien invasive vegetation in accordance with the relevant guideline and ensure the vegetation is | Construction and Operation | ECO Operation and maintenance team | Monthly, and as and when required | Proof must be provided that alien invasive vegetation has been cleared in accordance to the relevant |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | disposed of at a licensed waste disposal facility | | | | guideline and that the vegetation was disposed of at a licensed waste disposal facility |

### *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 |
| – No interference with livestock must occur without the landowner's written consent and with the landowner or a person representing the landowner being present; | dEO / cEO Contractor | Develop a procedure for dealing with livestock within the affected properties | Pre-construction and during the construction phase | ECO | Once, prior to the commencement of construction and as and when required during the | Written consent provided by the landowner and proof of representation of the landowner |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | | | | construction phase | during interference |
| – The breeding sites of raptors and other wild birds species must be taken into consideration during the planning of the development programme; | dEO / cEO in consultation with the Contractor | Ensure that the planning and development programme considers breeding sites for wild bird species | Pre-construction & Construction | ECO | Once, prior to the commencement of construction and as and when required | The planning and development programme includes the consideration of breeding sites for wild bird species |
| – Breeding sites must be kept intact and disturbance to breeding birds must be avoided. Special care must be taken where nestlings or fledglings are present; | dEO / cEO in consultation with the Contractor | Avoid breeding sites and ensure that special care is taken in the presence of nestlings and fledglings | During the Construction Phase Operation Phase | ECO monthly, cEO and Operation and maintenance team weekly | Weekly, and as an when required during the construction. Monthly, and as and when required during operation | Photographic record of intact breeding sites |
| – Special recommendations of the avian specialist must be adhered to at all times to prevent unnecessary disturbance of birds; | dEO / cEO in consultation with the Contractor | All mitigation measures recommended by the avifauna specialist must be implemented | During the Construction Phase Operation Phase | ECO Operation and maintenance team | Monthly during construction and monthly during operation | Photographic record of compliance and successful implementation of the |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | | | | | recommend ed measures |
| – No poaching must be tolerated under any circumstances. All animal dens in close proximity to the works areas must be marked as Access restricted areas; | dEO / cEO in consultation with the Contractor | All site staff must be informed of this requirement during the Environmental Awareness Training and the consequences of not adhering to the requirement. These areas must be demarcated as Access Restricted Areas | During the Construction Phase | ECO | Monthly, and as and when required | No instances of poaching is reported |
| – No deliberate or intentional killing of fauna is allowed; | dEO / cEO in consultation with the Contractor | All site staff must be informed of this requirement during the Environmental Awareness Training and the consequences of not adhering to the requirement. These areas must be demarcated as Access Restricted Areas | During the Construction Phase | ECO | Monthly, and as and when required | No instances of deliberate or intentional killing is reported |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – 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 | dEO / cEO in consultation with the Contractor | Implement and maintain snake deterrents on pylons in areas where snakes are abundant | During the Construction Phase<br>Operation Phase | ECO<br>Operation and maintenance team | Once, during the construction of the pylons and as and when required.<br>Monthly during operation | Photographic record of the implementation and maintenance of snake deterrents |
| – No Threatened or Protected species (ToPs) and/or protected fauna as listed according NEMBA (Act No. 10 of 2004) and relevant provincial ordinances may be removed and/or relocated without appropriate authorisations/permits. | DPM in consultation with the dEO | Undertake a permitting process to obtain the required permits | Pre-construction | ECO | Once, prior to the commencement of construction and as and when required | Permits for removal and/relocation must be kept on file and be readily available |

### *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 |
| – 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**; | DPM and a suitably qualified specialist<br><br>dEO / cEO in consultation with the Contractor and ECO | Spatially identify and demarcate areas of heritage significance as per the Heritage Impact Assessment and the Heritage Walk-through Report and as per the requirements of section 5.3 | Pre-construction | ECO | Once, prior to the commencement of construction | Proof of avoidance of sensitive heritage features through details of avoidance and photographic records |
| – Carry out general monitoring of excavations for potential fossils, artefacts and material of heritage importance; | dEO (in consultation with specialists if/as required). | Ensure construction staff are adequately informed (via environmental awareness training) to carry out monitoring of excavations for fossils, artefacts and important heritage material | During the Construction Phase | ECO | Monthly, or as required | Environmental awareness training includes measures relating to monitoring for chance finds |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – All work must cease immediately, if any human remains and/or other archaeological, palaeontological and historical material are uncovered. Such material, if exposed, must be reported to the nearest museum, archaeologist/ palaeontologist (or the South African Police Services), so that a systematic and professional investigation can be undertaken. Sufficient time must be allowed to remove/collect such material before development recommences. | dEO / cEO in consultation with the Contractor and ECO | Develop and implement procedures for situations where human remains, archaeological, palaeontolgoical or historical material are uncovered | During the Construction Phase | ECO | As and when required | Proof of work ceased and the required procedures followed in cases where material is discovered. |

### *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 |
| – Identify fire hazards, demarcate and restrict public access to these areas as well as notify the local authority of any potential threats e.g. large brush stockpiles, fuels etc.; | cEO in consultation with the Contractor | Develop an Emergency Preparedness, Response and Fire Management Plan specific to the project | Pre-construction Construction | cEO | Once, prior to the commencement of construction and weekly during the | Compliance with the Emergency Preparedness, Response and Fire Management Plan |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | | | | construction phase | |
| – All unattended open excavations must be adequately fenced or demarcated; | Contractor | Ensure that all excavations undertaken is fenced and demarcated within a reasonable timeframe and in instances where excavations will be open for long-periods of time | During the Construction Phase | cEO | Weekly | Excavations are fenced where required and photographic proof can be provided |
| – Adequate protective measures must be implemented to prevent unauthorised access to and climbing of partly constructed towers and protective scaffolding; | Contractor | All staff must be easily identifiable and the climbing of towers and scaffolding must only be undertaken by authorised personnel as managed by the Contractor | During the construction phase | ECO | Monthly, and as and when required | No incidents of unauthorised climbing is reported |
| – Ensure structures vulnerable to high winds are secured; | Contractor | Ensure that sufficient stabilisation measures are implemented to | During the construction phase | cEO | Weekly, and as and when required | No incidents of unstable structures due to high |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | secure structures vulnerable to high winds | | | | winds is reported |
| – Maintain an incidents and complaints register in which all incidents or complaints involving the public are logged. | cEO | Compile and regularly update as incidents and complaints are submitted from the public and indicate the actions taken to resolve the complaint | During the construction phase | ECO | Monthly, and as and when required | The incidents and complaints register is complete and provides all the required details |

### *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 |
| – Mobile chemical toilets are installed onsite if no other ablution facilities are available; | Contractor | Mobile chemical toilets must be placed appropriately and in areas that avoid | During the Construction Phase | cEO | Weekly | Mobile toilets are installed and avoid environmental sensitivities |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | environmental sensitivities | | | | |
| – The use of ablution facilities and or mobile toilets must be used at all times and no indiscriminate use of the veld for the purposes of ablutions must be permitted under any circumstances; | Contractor in consultation with the cEO | All site staff must be informed of this requirement during the Environmental Awareness Training and the consequences of not adhering to the requirement. | Pe-construction & Construction | ECO | Monthly, and as and when required | No evidence of non-compliance identified |
| – Where mobile chemical toilets are required, the following must be ensured:<br>a) Toilets are located no closer than 100 m to any watercourse or water body;<br>b) Toilets are secured to the ground to prevent them from toppling due to wind or any other cause;<br>c) No spillage occurs when the toilets are cleaned or emptied and the contents are managed in accordance with the EMPr;<br>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;<br>e) Toilets are emptied before long weekends and workers holidays, and must be locked after working hours;<br>f) Toilets are serviced regularly and the ECO must inspect toilets to ensure compliance to health standards; | Contractor in consultation with the cEO | The installation of the toilets by the Contractor must be as per the listed requirements | During the Construction Phase | cEO | Weekly | No evidence of non-compliance identified |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – A copy of the waste disposal certificates must be maintained. | Contractor | Certificates obtained from the licensed waste disposal facility with the emptying of the toilets must be kept on file | During the Construction Phase | ECO | Monthly, and as and when required | Certificates for waste disposal from the licensed waste disposal facility available on site |

### *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 |
| – Undertake environmentally-friendly pest control in the camp area; | Contractor | Only environmentally-friendly pest control must be used, when required | During the Construction Phase | ECO | As and when pest control is required for the project | Contractor to provide proof of pest control used being environmentally-friendly |
| – Ensure that the workforce is sensitised to the effects of sexually transmitted diseases, especially HIV AIDS; | cEO / Contractor in | The effects of sexually transmitted | Pre-construction & Construction | ECO | Once, prior to the commence | Environmental awareness training |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | consultation with the ECO | diseases and HIV/ AIDS must be covered in the Environmental Awareness Training | | | ment of construction and monthly during construction | material requirements checklist |
| – The Contractor must ensure that information posters on AIDS are displayed in the Contractor Camp area; | Contractor | Develop and place information posters on HIV/ AIDS | During the Construction Phase | cEO | Weekly | Photographic evidence of poster placement |
| – Information and education relating to sexually transmitted diseases to be made available to both construction workers and local community, where applicable; | cEO / Contractor in consultation with the ECO | Information and education of sexually transmitted diseases must be covered in the Environmental Awareness Training. | Pre-construction & Construction | ECO | Monthly | Environmental awareness training material requirements checklist |
| – Free condoms must be made available to all staff on site at central points; | Contractor | Placement of free condoms in mobile toilets and at the construction camps | During the Construction Phase | ECO | Monthly | Proof of placement of free condoms by the contractor to be provided |
| – Medical support must be made available; | dEO / cEO in consultation with the Contractor | Ensure that designated personnel with first aid training are | Construction and Operations | ECO | Monthly | Check the availability of first aid trained |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | available on site and that first aid kits to provide medical support is readily available | | | | personnel and medical kits (including if these are complete in terms of supplies) |
| – Provide access to Voluntary HIV Testing and Counselling Services. | Contractor | Compile a HIV testing schedule and provide counselling services where required | During the Construction Phase | ECO | Quarterly, and as and when required | Voluntary testing schedules and proof of counselling (where undertaken) |

### *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 |
| – Compile an Emergency Response Action Plan (ERAP) prior to the commencement of the proposed project; | Contractor | Develop an Emergency Preparedness, Response and Fire Management Plan specific to the project | Pre-construction | ECO | Once, prior to the commencement of construction | Emergency Preparedness, Response and Fire Management Plan compiled |
| – The Emergency Plan must deal with accidents, potential spillages and fires in line with relevant legislation; | Contractor | Develop an Emergency Preparedness, Response and Fire Management Plan specific to the project which covers accidents, potential spillages and fires | Pre-construction | ECO | Once, prior to the commencement of construction | Emergency Preparedness, Response and Fire Management Plan includes required specifications |
| – All staff must be made aware of emergency procedures as part of environmental awareness training; | cEO / dEO in consultation with the ECO | Develop environmental awareness training material which covers the relevant | Pre-construction | ECO | Prior to the commencement of the environmental | Environmental awareness training material requirements checklist |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | emergency procedures | | | awareness training | |
| – The relevant local authority must be made aware of a fire as soon as it starts; | Contractor in consultation with the ECO | Develop and include a procedure in the Emergency Preparedness, Response and Fire Management Plan for the event of a fire and the procedure to be followed for informing the local authority | Construction | ECO | As and when a fire occurs | The local authority was informed as per the relevant procedure set out in the Emergency Preparedness, Response and Fire Management Plan |
| – In the event of emergency necessary mitigation measures to contain the spill or leak must be implemented (see **Hazardous Substances section 5.17**). | Contractor | Implement the required mitigation measures in the event of a spill or leak as per the requirements of Section 5.17. | Construction and Operations | ECO | As and when a spill or leak occurs | The mitigation measures included under Section 5.17 have been adhered to |

### *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 |
| – The use and storage of hazardous substances to be minimised and non-hazardous and non-toxic alternatives substituted where possible; | cEO in consultation with the Contractor | Develop a strategy of how hazardous substances can be and should be minimised | Pre-construction & Construction | ECO | Once, prior to the commencement of construction and monthly during the construction phase | Contractor to provide evidence of substances used for proof of compliance |
| – All hazardous substances must be stored in suitable containers as defined in the Method Statement; | Contractor | Develop a Method Statement for the storage of hazardous substances in suitable containers | Pre-construction & Construction | ECO | Once, prior to the commencement of construction and monthly during the construction phase | Photographic proof that hazardous substances are stored in suitable containers as per the requirements of the relevant Method Statements |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – Containers must be clearly marked to indicate contents, quantities and safety requirements; | Contractor | Where hazardous waste is stored these must be clearly marked indicating the required details of the contents | During the Construction Phase | ECO | Monthly | Photographic proof that containers are marked as per the requirements |
| – All storage areas must be bunded. The bunded area must be of sufficient capacity to contain a spill / leak from the stored containers; | Contractor | Ensure that storage areas are sufficiently bunded which are of sufficient capacity to contain a spill / leak from the stored containers | During the Construction Phase | ECO | Monthly during the Constructio n Phase | Photographic proof that storage areas are bunded and proof that the bund areas are of sufficient capacity to contain a spill / leak from the stored containers |
| – Bunded areas to be suitably lined with a SABS approved liner; | Contractor | Ensure that bunded storage areas are suitably lined | During the Construction Phase | ECO | Once, during the Constructio n Phase | Photographic proof that bunded storage areas are suitably lined |
| – An Alphabetical Hazardous Chemical Substance (HCS) control sheet must be drawn up and kept up to date on a continuous basis; | cEO / Contractor | Compile and update an Alphabetical Hazardous Chemical | During the Construction Phase | ECO | Monthly, and as and when required | Complete and up to date control sheet provided by |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | Substance (HCS) control sheet specific to the project | | | | the Contractor |
| – All hazardous chemicals that will be used on site must have Material Safety Data Sheets (MSDS); | cEO / Contractor | Keep a record of all hazardous chemicals and the respective MSDS | During the Construction Phase | ECO | Monthly, and as and when required | Record of hazardous chemicals and the respective MSDS |
| – All employees working with HCS must be trained in the safe use of the substance and according to the safety data sheet; | cEO / Contractor | Provide training for personnel working with HCS | Pre-construction | ECO | Once, prior to the commencement of construction and as and when required | Record of training provided to personnel working with HCS |
| – Employees handling hazardous substances / materials must be aware of the potential impacts and follow appropriate safety measures. Appropriate personal protective equipment must be made available; | cEO / Contractor | Develop environmental awareness training material which covers the relevant impacts and safety measures.<br><br>Provide appropriate training and personal | Pre-construction & Construction | ECO | Prior to the commencement of the environmental awareness training and monthly during the construction phase for personal | Environmental awareness training material requirements checklist and all relevant personnel have undergone appropriate training and have access |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | protective equipment for the relevant personnel handling hazardous substances and materials | | | protective equipment | to personal protective equipment |
| – The Contractor must ensure that diesel and other liquid fuel, oil and hydraulic fluid is stored in appropriate storage tanks or in bowsers; | Contractor | Appropriate storage facilities must be constructed or obtained for the storing of diesel, other liquid fuel, oil and hydraulic fluid | During the Construction Phase | ECO | Monthly, and as and when required | Storage tanks for the project are appropriate and no incidents are reported in this regard |
| – The tanks/ bowsers must be situated on a smooth impermeable surface (concrete) with a permanent bund. The impermeable lining must extend to the crest of the bund and the volume inside the bund must be 130% of the total capacity of all the storage tanks/ bowsers (110% statutory requirement plus an allowance for rainfall); | Contractor | Appropriate storage facilities must be constructed or obtained for tanks as per the requirements listed | During the Construction Phase | ECO | Monthly, and as and when required | Storage areas for the tanks/ bowsers for the project are appropriate and no incidents are reported in this regard |
| – The floor of the bund must be sloped, draining to an oil separator; | Contractor | Appropriate storage facilities must be constructed as per | During the Construction Phase | ECO | Once, during construction | Bunded storage areas are constructed according to |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | the requirements listed | | | | the requirements |
| – 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; | Contractor | Appropriately constructed refuelling facility must be developed as per the requirements. Drip trays must be provided for use | During the Construction Phase | ECO<br>cEO | Monthly<br>Weekly | Soils at the refuelling facility are protected as required and drip trays are provided and used |
| – All empty externally dirty drums must be stored on a drip tray or within a bunded area; | Contractor | Ensure that empty dirty drums are stored appropriately as per the requirements | During the Construction Phase | ECO<br>cEO | Monthly<br>Weekly | Drip trays or bunded areas are used for the storage of dirty drums |
| – No unauthorised access into the hazardous substances storage areas must be permitted; | Contractor | Ensure through the implementation of procedures that no unauthorised access is undertaken into the storage areas | During the Construction Phase | ECO | Monthly | Proof of the implementation of the relevant procedure must be provided by the contractor |
| – No smoking must be allowed within the vicinity of the hazardous storage areas; | Contractor | Inform all employees of the requirement and develop and place relevant | During the Construction Phase | ECO<br>cEO | Monthly<br>Weekly | Photographic record of the signage placed must be provided |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | signage in the relevant areas | | | | |
| – Adequate fire-fighting equipment must be made available at all hazardous storage areas; | Contractor | Hazardous storage areas must be fitted with adequate fire-fighting equipment | During the Construction Phase | ECO | Monthly | Adequate fire-fighting equipment is available and has been serviced |
| – 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; | Contractor | Provide a mobile refuelling unit as well as suitable ground protection, where required | During the Construction Phase | ECO | Monthly, and as and when required | A mobile refuelling unit and suitable ground protection is available for use |
| – An appropriately sized spill kit kept onsite relevant to the scale of the activity/s involving the use of hazardous substance must be available at all times; | Contractor | Provide an appropriate spill kit for the project for the use of hazardous substances | During the Construction Phase | ECO | Monthly, and as and when required | Appropriate spill kits are available for use |
| – The responsible operator must have the required training to make use of the spill kit in emergency situations; | cEO and Contractor | Provide training on the use of spill kits to the relevant employees | Pre-construction | ECO | Once, prior to the commencement of construction | Proof of training to be provided by the contractor |
| – An appropriate number of spill kits must be available and must be located in all areas where activities are being undertaken; | cEO and Contractor | Provide an appropriate number of spill kits in relevant areas | During the Construction Phase | ECO | Monthly | Proof of appropriate number of spill kits in |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | | | | | appropriate areas to be provided by the contractor |
| – 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**. | cEO and Contractor | Storage and disposal of contaminated soil must be in accordance with the National Environmental Management: Waste Act and sections 5.7 and 5.8 of this EMPr | During the Construction Phase | ECO | Monthly, and as and when required | Proof of storage and disposal in terms of the National Environmental Management: Waste Act must be provided.<br><br>Certificates of disposal at licensed waste disposal facilities must be provided |

### *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 |
| – Where possible and practical all maintenance of vehicles and equipment must take place in the workshop area; | Contractor | Demarcate specific areas for the maintenance of vehicles and equipment | During the Construction Phase | ECO | Monthly | A dedicated area for the maintenance of vehicles and machinery is used. |
| – During servicing of vehicles or equipment, especially where emergency repairs are effected outside the workshop area, a suitable drip tray must be used to prevent spills onto the soil. The relevant local authority must be made aware of a fire as soon as it starts; | Contractor | Ensure that a drip tray is available for any emergency repairs required | During the Construction Phase | ECO | Monthly | Contractor to provide evidence of drip tray use for emergency repairs |
| – Leaking equipment must be repaired immediately or be removed from site to facilitate repair; | Contractor | Ensure that where leaking equipment is identified it is repaired immediately or removed from site for repairs | During the Construction Phase | ECO | Monthly | Contractor to provide details of equipment repaired or removed from site |
| – Workshop areas must be monitored for oil and fuel spills; | cEO | Undertake regular inspections of the workshop areas for oil and fuel spills | During the Construction Phase | ECO | Monthly | Register of inspection |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | and keep an updated register of inspection on site | | | | |
| – Appropriately sized spill kit kept onsite relevant to the scale of the activity taking place must be available; | Contractor | Provide an appropriate spill kit for the project | During the Construction Phase | ECO | Monthly, and as and when required | Appropriate spill kits are available for use |
| – The workshop area must have a bunded concrete slab that is sloped to facilitate runoff into a collection sump or suitable oil / water separator where maintenance work on vehicles and equipment can be performed; | Contractor | Ensure that the workshop area is sufficiently bunded in accordance with the required specification | During the Construction Phase | ECO | Once, during the Construction Phase and as and when required | Workshop area is bunded in accordance with the required specification |
| – Water drainage from the workshop must be contained and managed in accordance **Section 5.7: Storm and waste water management.** | Contractor | Ensure that water drainage from workshop area is managed as per the requirements of section 5.7 | During the Construction Phase | ECO | Monthly | Workshop drainage is managed in accordance with the requirements |

### *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 |
| – Concrete mixing must be carried out on an impermeable surface; | Contractor | Provide impermeable surface for the mixing of concrete | During the Construction Phase | cEO | Weekly | No concrete mixing is undertaken on open ground |
| – Batching plants areas must be fitted with a containment facility for the collection of cement laden water. | Contractor | Implement measures for the control and management of cement laden water | During the construction phase | cEO | Weekly | No mismanagement of laden water due to the temporary concrete batching plant |
| – Dirty water from the batching plant must be contained to prevent soil and groundwater contamination | Contractor | Implement measures for the control and management of dirty water to prevent soil and groundwater contamination | During the construction phase | cEO | Weekly | No mismanagement of dirty water due to the temporary concrete batching plant and no/minimal soil and |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | | | | | groundwater contamination |
| – Bagged cement must be stored in an appropriate facility and at least 10 m away from any water courses, gullies and drains; | Contractor | Demarcate and provide a storage area for bagged cement in-line with the listed requirements | During the Construction Phase | cEO | Weekly | Photographic proof of bagged cement stored within the demarcated area |
| – A washout facility must be provided for washing of concrete associated equipment. Water used for washing must be restricted; | Contractor | Provide a washout facility for the washing of associated equipment. Enforce limitations on water use for washing of equipment | During the Construction Phase | cEO | Weekly | No cement laden water is released into the environment. Only minimal water is used for washing |
| – Hardened concrete from the washout facility or concrete mixer can either be reused or disposed of at an appropriate licensed disposal facility; | Contractor | Make use of hardened concrete where possible or dispose of concrete in a suitable manner | During the Construction Phase | ECO | Monthly | Certificates of disposal of concrete at licensed waste disposal facility |
| – Empty cement bags must be secured with adequate binding material if these will be temporarily stored on site; | Contractor | Bind empty cement bags and temporarily store it | During the Construction Phase | ECO | Monthly | Proof of binding of empty cement bags |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | in an appropriate area on site | | | | and storage in an appropriate are on site to be provided by the Contractor |
| – Sand and aggregates containing cement must be kept damp to prevent the generation of dust (Refer to **Section 5.20: Dust emissions**) | Contractor | Ensure that sand and aggregates are kept damp or otherwise protected from dust generation | During the Construction Phase | ECO | Monthly | Proof of damping (or alternative dust suppression) of sand and aggregates must be provided by the Contractor |
| – Any excess sand, stone and cement must be removed or reused from site on completion of construction period and disposed at a registered disposal facility; | Contractor | Ensure that all excess sand, stone and cement is removed or reused | At the completion of the Construction Phase | ECO | Once, with the completion of construction | Certificates for the disposal of sand, stone and cement at licensed waste disposal facilities or proof of reuse must be provided |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – Temporary fencing must be erected around batching plants in accordance with **Section 5.5: Fencing and gate installation**. | Contractor | Erect Temporary fencing | During the construction phase | cEO | Weekly | Temporary fencing around batching plants |

### *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 |
| – Take all reasonable measures to minimise the generation of dust as a result of project development activities to the satisfaction of the ECO; | Contractor | Apply appropriate dust suppressant | During the Construction Phase | cEO | Weekly | Contractor to provide proof of use of appropriate dust suppressants |
| – 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; | Contractor | Proper planning for vegetation removal must be undertaken as well as for the associated rehabilitation | During the Construction Phase and Rehabilitation | cEO | Weekly | Plan for implementation must be provided by the Contractor |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – Excavation, handling and transport of erodible materials must be avoided under high wind conditions or when a visible dust plume is present; | Contractor | Ensure that specific limitations are placed on the transport and handling of erodible materials during high wind conditions or when a visible dust plume is present | During the Construction Phase | cEO | Bi-weekly (every second week) | No complaints submitted in this regard |
| – During high wind conditions, the ECO must evaluate the situation and make recommendations as to whether dust-damping measures are adequate, or whether working will cease altogether until the wind speed drops to an acceptable level; | ECO | ECO to provide adequate recommendations | During the Construction Phase | Not Applicable | | |
| – Where possible, soil stockpiles must be located in sheltered areas where they are not exposed to the erosive effects of the wind; | Contractor | Place soil stockpiles in areas less affected by wind | During the Construction Phase | cEO and<br><br>ECO | Bi-weekly (every second week)<br><br>Monthly | Soil stockpiles are not exposed to wind and have not been eroded |
| – Where erosion of stockpiles becomes a problem, erosion control measures must be implemented at the discretion of the ECO; | Contractor in consultation with the ECO | Contractor to implement erosion control measures as recommended and agreed with the ECO | During the Construction Phase | cEO | Weekly, until erosion is no longer a problem | Recommend ations made by the ECO have been implemented by the Contractor |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – Vehicle speeds must not exceed 40 km/h along dust roads or 20 km/h when traversing unconsolidated and non-vegetated areas; | cEO / dEO / contractor | Inform all drivers of speed limits and place appropriate signage along the relevant roads | During the Construction Phase Operation Phase | ECO Operation and Maintenance team | Monthly | No complaints from community members are submitted |
| – Straw stabilisation must be applied at a rate of one bale/10 m² and harrowed into the top 100 mm of top material, for all completed earthworks; | Contractor | Ensure that straw stabilisation is undertaken as per the listed requirements | During the Construction Phase | ECO | Monthly | Photographic record of all straw stabilisation undertaken |
| – For significant areas of excavation or exposed ground, dust suppression measures must be used to minimise the spread of dust. | Contractor | Appropriate dust suppressant measures are implemented | During the Construction Phase | cEO | Weekly | Photographic record of measures being implemented and the results thereof |

### *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 |
| – Any blasting activity must be conducted by a suitably licensed blasting contractor; and | cEO / dEO / contractor | Ensure the contractor is suitably licensed with all necessary credentials and certifications | Pre-Construction Phase | ECO/EO | Once off, before blasting activities commence. | ECO/EO to check all valid credentials and certifications on hand. |
| – Notification of surrounding landowners, emergency services site personnel of blasting activity 24 hours prior to such activity taking place on Site. | cEO / dEO / contractor | Ensure all responsible personnel and landowners have been notified of blasting activities 24 hours in advance and keep records of notifications. | Pre-Construction Phase | ECO/EO | Once off, before blasting activities commence. | ECO/EO to confirm all necessary personnel and landowners have been notified. Notification records to be provided. |

### *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 |
| – The Contractor must keep noise level within acceptable limits, Restrict the use of sound amplification equipment for communication and emergency only; | Contractor | Ensure that noise limits do not exceed acceptable limits and avoid the use of amplification communication | During the Construction Phase | ECO | Monthly, and as and when required | No complaints registered in this regard. No amplification equipment is used. |
| – All vehicles and machinery must be fitted with appropriate silencing technology and must be properly maintained; | Contractor | Provide and implement silencing technology | During the Construction Phase | ECO | Monthly, and as and when required | No complaints registered in this regard. Silencing technology is utilised. |
| – Any complaints received by the Contractor regarding noise must be recorded and communicated. Where possible or applicable, provide transport to and from the site on a daily basis for construction workers; | cEO | Update complaints register. Provide daily transport to and from site for employees | During the Construction Phase | ECO | Monthly, and as and when required | Complaints register provided by the cEO and proof of transportation services provided |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – Develop a Code of Conduct for the construction phase in terms of behaviour of construction staff. Operating hours as determined by the environmental authorisation are adhered to during the development phase. Where not defined, it must be ensured that development activities must still meet the impact management outcome related to noise management. | cEO and Contractor in consultation with the ECO | Compile a Code of Conduct for staff. Appropriate operating hours must be identified for the project. | Pre-construction and Construction | ECO | Once, prior to the commencement of construction | No complaints registered in this regard. |

### *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 |
| – Designate smoking areas where the fire hazard could be regarded as insignificant; | cEO / Contractor | Identify and demarcate through signage designated smoking areas | Pre-construction & Construction | ECO | Monthly | Photographic record of designated smoking area |
| – Firefighting equipment must be available on all vehicles located on site; | cEO / dEO in consultation with the Contractor | Provide all vehicles with firefighting equipment | Construction | ECO | Monthly | All vehicles are fitted with firefighting equipment and the details |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | | | | | thereof are provided by the cEO |
| – The local Fire Protection Agency (FPA) must be informed of construction activities; | cEO in consultation with the ECO | Undertake formal consultation to inform the local FPA of the associated construction activities | Pre-construction | ECO | Once, during the commencement of the Construction Phase | Proof of consultation with the FPA |
| – Contact numbers for the FPA and emergency services must be communicated in environmental awareness training and displayed at a central location on site; | dEO / cEO / Contractor in consultation with the ECO | Develop environmental awareness training material which covers the contact numbers for the FPA and emergency services.<br><br>Place the contact numbers for the FPA and emergency services at a visible and central location | Pre-construction & Construction | ECO | Prior to the commencement of the environmental awareness training and once during the construction phase | Environmental awareness training material requirements checklist and photographic record of contact numbers on display |
| – Two way swop of contact details between ECO and FPA. | ECO | Consultation between the ECO and FPA in order to | Pre-construction | Not Applicable | | |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | exchange contact details | | | | |

### *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 |
| – All material that is excavated during the project development phase (either during piling (if required) or earthworks) must be stored appropriately on site in order to minimise impacts to watercourses, watercourses and water bodies; | Contractor | Identify and demarcate an appropriate location for the storage of excavated materials | Pre-construction & Construction | ECO | Monthly | Excavated material is not stored within sensitive environmental areas |
| – All stockpiled material must be maintained and kept clear of weeds and alien vegetation growth by undertaking regular weeding and control methods; | Contractor | Implement appropriate and sufficient maintenance on stockpiled material regularly | During the Construction Phase | cEO<br><br>ECO | Bi-weekly (every second month)<br><br>Monthly | Stockpiled material is maintained sufficiently and is clear of weeds and |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | | | | | alien vegetation |
| – Topsoil stockpiles must not exceed 2 m in height; | Contractor | Enforce limitations for the height of topsoil stockpiles | During the Construction Phase | cEO<br><br>ECO | Bi-weekly (every second month)<br><br>Monthly | Topsoil stockpiles do not exceed 2m in height |
| – During periods of strong winds and heavy rain, the stockpiles must be covered with appropriate material (e.g. cloth, tarpaulin etc.); | Contractor | Appropriate material must be provided in order to cover stockpiles when required | During the Construction Phase | ECO | Monthly | Contractor to provide proof of availability of appropriate material to cover stockpiles when required |
| – Where possible, sandbags (or similar) must be placed at the bases of the stockpiled material in order to prevent erosion of the material. | Contractor | Sandbags must be provided in order to prevent erosion of stockpiled materials | During the Construction Phase | ECO | Monthly | Contractor to provide proof of availability of sandbags to prevent erosion of stockpiled materials |

### *5.25 Civil works*

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

| **Impact Management Actions** | **Implementation** | | | **Monitoring** | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – 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; | Contractor | Collection and safe storage of topsoil for later use in rehabilitation phase | During the Construction Phase | ECO | Monthly | Visual inspection of topsoil stockpiles for later use |
| – Areas to be rehabilitated include terrace embankments and areas outside the high voltage yards; | Contractor | Regard areas that do not house infrastructure as requiring rehabilitation and apply rehabilitation measures to these regions | During the Construction Phase, where the area is no longer going to be utilised | ECO | Monthly | Visual inspection of rehabilitation implementation to ensure these areas are being rehabilitated |
| – Where required, all sloped areas must be stabilised to ensure proper rehabilitation is effected and erosion is controlled; | Contractor | If required stabilise soil using recognised methods to ensure proper rehabilitation and erosion control | Duration of the construction phase | ECO | Monthly | Visual inspection of stabilised soil regions and descriptions of staff of stabilisation method used |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – 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; | Contractor | If required stabilise soil using recognised methods to ensure proper rehabilitation and erosion control | Duration of the construction phase | ECO | Monthly | Visual inspection of stabilised soil regions and descriptions of staff of stabilisation method used |
| – Rehabilitation of the disturbed areas must be managed in accordance with **Section 5.35: Landscaping and rehabilitation**; | Contractor | Review and ensure that all rehabilitation measures are implemented in accordance with the requirements of Section 5.35 | Duration of the construction phase | ECO | Monthly | Visual inspection of rehabilitation conducted and the degree of conformance with the requirements set out in Section 35.5 of this report |
| – All excess spoil generated during terracing activities must be disposed of in an appropriate manner and at a recognised landfill site; and | Contractor | Dispose of all excess spoil using appropriate means and at recognised landfill sites. Keep written registers of the disposal conducted | Duration of the construction phase | ECO | Monthly | Evidence of disposal slips as applicable kept in the site environmental file |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – Spoil can however be used for landscaping purposes and must be covered with a layer of 150 mm topsoil for rehabilitation purposes. | Contractor | Where spoil is utilised for landscaping purposes implement a 150mm topsoil layer on top following shaping and compaction to promote rehabilitation | Duration of the construction phase | ECO | Monthly | Spoil material used in landscaping is suitably covered with a later of topsoil at least 150mm deep |

### *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 |
| – 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; | Contractor | Use a licensed waste disposal facility for the disposal of excess spoil | During the Construction Phase | ECO | Monthly | Certificates obtained for the disposal of excess spoil at a licensed waste |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | | | | | disposal facility |
| – Spoil can however be used for landscaping purposes and must be covered with a layer of 150 mm topsoil for rehabilitation purposes; | Contractor | Spoil used for landscaping must be applied as per the listed requirements | Construction and Rehabilitation | ECO | Monthly | Photographic record of spoil used for landscaping purposes as well as feedback from the contractor |
| – Management of equipment for excavation purposes must be undertaken in accordance with **Section 5.18: Workshop, equipment maintenance and storage**; and | Contractor | Undertake the management of equipment for excavation as per the requirements of section 5.18 | During the Construction Phase | ECO | Monthly | Management of equipment is undertaken in line with the requirements of section 5.18 |
| – Hazardous substances spills from equipment must be managed in accordance with **Section 5.17: Hazardous substances**. | Contractor | Undertake the management of hazardous substances spills from equipment as per the requirements of section 5.17 | During the Construction Phase | ECO | Monthly | Management of hazardous substances spills from equipment is undertaken in line with the requirements |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | | | | | of section 5.17 |

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

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

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – Batching of cement to be undertaken in accordance with **Section 5.19: Batching plants**; and | Contractor | Ensure correct batching of cement | During the construction phase | cEO | Weekly | Measures in place to ensure the batching of cement is done in accordance with Section 5.19: Batching plants |
| – Residual solid waste must be disposed of in accordance with **Section 5.8: Solid waste and hazardous management**. | Contractor | Undertake the disposal of residual solid waste as per the requirements of section 5.8 | During the Construction Phase | ECO | Monthly | The disposal of residual solid waste is undertaken in line with section 5.8. |

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

### *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 |
| – Management of dust must be conducted in accordance with **Section 5. 20: Dust emissions**; | Contractor | Review and implement dust management actions in accordance with the requirement of Section 5.20 of this report | During the Construction Phase | ECO | Monthly | Dust management actions observed to be in accordance with the requirement of Section 5.20 of this report |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – Management of equipment used for installation must be conducted in accordance with **Section 5.18: Workshop, equipment maintenance and storage**; | Contractor | Review and implement equipment management actions in accordance with the requirement of Section 5.18 of this report | During the Construction Phase | ECO | Monthly | Equipment management actions observed to be in accordance with the requirement of Section 18 of this report |
| – Management hazardous substances and any associated spills must be conducted in accordance with **Section 5.17: Hazardous substances**; and | Contractor | Review and implement hazardous substances and any associated spills in accordance with the requirement of Section 5.17 of this report | During the Construction Phase | ECO | Monthly | Hazardous substances and any associated spills management actions observed to be in accordance with the requirement of Section 5.17 of this report |
| – Residual solid waste must be recycled or disposed of in accordance with **Section 5.8: Solid waste and hazardous management**. | Contractor | Review and dispose/recycle residual solid waste in accordance with | During the Construction Phase | ECO | Monthly | Dispose/recycle residual solid waste observed to be in |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | the requirement of Section 5.8 of this report | | | | accordance with the requirement of Section 5.8 of this report |

### *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 |
| – During assembly, care must be taken to ensure that no wasted/unused materials are left on site e.g. bolts and nuts | Contractor | Conduct an inspection of the site once assembly is complete to remove all stray bolts or unused materials that may be left on site | Duration of the construction phase | ECO | Monthly | Evidence of leftover waste/unused materials on site following closure of assembly |
| – 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.** | Contractor | Review and conduct all emergency repairs in accordance with | Duration of the construction phase | ECO | Monthly | Evidence of emergency repairs carried out |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | Sections 5.18 and 5.16 of this report | | | | having been conducted in accordance with Sections 5.18 and 5.16 of this report |

### *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 |
| – Residual solid waste (off cuts etc.) shall be recycled or disposed of in accordance with **Section 6.8: Solid waste and hazardous Management**; | Contractor | Undertake recycling or disposal of solid waste as per the requirements of section 6.8 | During the Construction Phase | ECO | Monthly | Undertake recycling or disposal of solid waste as per the requirements of section 6.8 |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – Management of equipment used for installation shall be conducted in accordance with **Section 5.18: Workshop, equipment maintenance and storage**; | Contractor | Undertake the management of equipment as per the requirements of section 5.18 | During the Construction Phase | ECO | Monthly | Management of equipment is undertaken in line with the requirements of section 5.18 |
| – Management hazardous substances and any associated spills shall be conducted in accordance with **Section 5.17: Hazardous substances**. | Contractor | Undertake the management of hazardous substances as per the requirements of section 5.17 | During the Construction Phase | ECO | Monthly | Management of hazardous substances is undertaken in line with the requirements of section 5.17 |

### *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 |
| – Residual solid waste must be recycled or disposed of in accordance with **Section 5.8: Solid waste and hazardous management**. | Contractor | Undertake recycling or disposal of solid waste as per the requirements of section 5.8 | During the Construction Phase | ECO | Monthly | Undertake recycling or disposal of solid waste as per the requirements of section 5.8 |

### *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 |
| – Develop and implement communication strategies to facilitate public participation; | dEO / cEO | Identify and implement appropriate strategies for communication with the | Pre-construction & Construction | ECO | Once, prior to the commencement of construction and | Communication is undertaken as per the identified strategies |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | communities through consideration of the community needs | | | monthly during the construction | and no complaints are submitted regarding communication |
| – Develop and implement a collaborative and constructive approach to conflict resolution as part of the external stakeholder engagement process; | Contractor | Development and implement a Grievance Mechanism which considers the community needs and provides procedures for conflict resolution | Pre-construction & Construction | ECO | Once, prior to the commencement of construction and monthly during the construction phase | Conflict resolution is undertaken in line with the requirements of the Grievance Mechanism. No complaints on conflict resolution is submitted by the community |
| – Sustain continuous communication and liaison with neighboring owners and residents | Contractor | Development and implement and Grievance Mechanism provides procedures for communication / liaison with neighbouring | Pre-construction & Construction | ECO | Once, prior to the commencement of construction and monthly during the construction phase | Communication / liaison with neighbouring landowners and residents are undertaken in line with the requirements |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | landowners and residents | | | | of the Grievance Mechanism. No complaints on communication with neighbouring landowners and residents are submitted |
| – Create work and training opportunities for local stakeholders; and | Contractor | Develop and implement a "locals first" policy for the provision of employment opportunities | Pre-construction & Construction | ECO | Once, prior to the commencement of construction and monthly during the construction phase | The "locals first" policy is considered in terms of the employment and training opportunities |
| – 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. | Not applicable – the development of temporary staff accommodation is proposed as part of the Redding Wind Farm | | | | | |

### *5.33 Temporary closure of site*

**Impact management outcome:** Minimise the risk of environmental impact during periods of site closure greater than five days.

| **Impact Management Actions** | **Implementation** | | | **Monitoring** | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – 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**; | Contractor | Regular emptying of the bunds must be undertaken. This must be undertaken as per the requirements listed in sections 5.17 and 5.18 | During the Construction Phase | ECO | Prior to site closure for more than 05 days | Bunds are emptied as per the requirements listed under sections 5.17 and 5.18 |
| – Hazardous storage areas must be well ventilated; | Contractor | Install appropriate ventilation in all hazardous storage areas | During the construction phase | ECO | Prior to site closure for more than 05 days | Effective ventilation is installed in hazardous storage areas |
| – Fire extinguishers must be serviced and accessible. Service records to be filed and audited at last service; | Contractor / cEO | Ensure fire extinguishers are serviced, as required and are easily accessible with appropriate signage indicating location. Ensure service records and kept up to date and filed | During the Construction Phase | ECO | Prior to site closure for more than 05 days | Signage placed indicating location of fire extinguishers and service records |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – Emergency and contact details displayed must be displayed; | Contractor / cEO | Place emergency and contact details which are readily available and easily accessible | During the Construction Phase | ECO | Prior to site closure for more than 05 days | Photographic proof of contact details on display |
| – Security personnel must be briefed and have the facilities to contact or be contacted by relevant management and emergency personnel; | Contractor in consultation with the ECO | Hold a workshop with all security personnel to provide a brief of the project and security requirements. Provide facilities in order to contact management and emergency personnel | Pre-construction & construction | ECO | Prior to site closure for more than 05 days | Proof of the workshop held must be kept on file by the contractor. |
| – Night hazards such as reflectors, lighting, traffic signage etc. must have been checked; | Contractor | Regular checks of night hazards must be undertaken | During the Construction Phase | ECO | Prior to site closure for more than 05 days | Proof of checks of night hazards must be provided by the contractor |
| – Fire hazards identified and the local authority must have been notified of any potential threats e.g. large brush stockpiles, fuels etc.; | cEO / Contractor in consultation with the ECO | Identify any potential fire hazards and notify the relevant local authority | During the Construction Phase | ECO | Prior to site closure for more than 05 days | Proof of notification of the fire hazards to the local authority |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | | | | | must be provided by the Contractor |
| – Structures vulnerable to high winds must be secured; | Contractor | Ensure structures vulnerable to wind are secure prior to site closure | During the Construction Phase | ECO | Prior to site closure for more than 05 days | Structures vulnerable to wind are secured prior to site closure |
| – Wind and dust mitigation must be implemented; | Contractor | Implement wind and dust mitigation prior to site closure | During the Construction Phase | ECO | Prior to site closure for more than 05 days | Wind and dust mitigation is implemented prior to site closure |
| – Cement and materials stores must have been secured; | Contractor | Ensure cement and material stores are secured prior to site closure | During the Construction Phase | ECO | Prior to site closure for more than 05 days | Cement and material stores are secured prior to site closure |
| – Toilets must have been emptied and secured; | Contractor | Ensure toilets are emptied and secured prior to site closure | During the Construction Phase | ECO | Prior to site closure for more than 05 days | Toilets are emptied and secured prior to site closure |
| – Refuse bins must have been emptied and secured; | Contractor | Ensure refuse bins are emptied and secured prior to site closure | During the Construction Phase | ECO | Prior to site closure for more than 05 days | Refuse bins are emptied and secured prior to site closure |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – Drip trays must have been emptied and secured. | Contractor | Ensure drip trays are emptied and secured prior to site closure | During the Construction Phase | ECO | Prior to site closure for more than 05 days | Drip trays are emptied and secured prior to site closure |

### *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 |
| – All old equipment removed during the project must be stored in such a way as to prevent pollution of the environment | Contractor | Ensure old equipment is secured and where required, stored in contained areas where no spillage or pollution may result | During the Construction Phase | ECO | Monthly | Drip trays are emptied and secured prior to site closure |
| – Oil containing equipment must be stored to prevent leaking or be stored on drip trays; | Contractor | Ensure old equipment is secured and | During the Construction Phase | ECO | Monthly | Drip trays are emptied and |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | where required, stored in contained areas where no spillage or pollution may result | | | | secured prior to site closure |
| – All scrap steel must be stacked neatly and any disused and broken insulators must be stored in containers; | Contractor | Store defunct insulators in containers and scrap steel in one single place, neatly secured | During the Construction Phase | ECO | Monthly | Where needed, insulators observed to be stored in containers and scrap stored neatly as determined by the ECO |
| – 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; | Contractor , cEO | Ensure dismantling and packaging of scrapped material is transported in such a way as to prevent spillage and pollution of the environment; | During the Construction Phase | ECO | Monthly | Where needed, insulators observed to be stored in containers and scrap stored neatly as determined by the ECO |
| – The Contractor must also be equipped to contain and clean up any pollution causing spills; and | cEO and Contractor | Provide training on the use of spill kits | During the Construction Phase | ECO | Monthly | Proof of training to be provided by |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | to the relevant employees | | | | the contractor |
| – Disposal of unusable material must be at a licensed waste disposal site. | cEO and Contractor | Ensure a registered waste disposal site is utilised and keep disposal slips and record in the site environmental file | During the Construction Phase | ECO | Monthly | Visual inspection of disposal record documentation and registration of the waste disposal site utilised. |

### *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 |
| – 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; | Contractor | Develop and implement a rehabilitation plan for the | Pre-construction & Rehabilitation | cEO | Weekly | Rehabilitation of the disturbed areas is undertaken |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | rehabilitation of all disturbed areas.<br><br>Dispose of all spoil and waste at a licensed waste disposal facility | | | | as per the rehabilitation plan. All certificates of waste disposal at licensed facilities are available. |
| – All slopes must be assessed for contouring, and to contour only when the need is identified in accordance with the Conservation of Agricultural Resources Act, No 43 of 1983 | Contractor in consultation with the ECO | Assess all slopes and determine whether contouring is required | Rehabilitation | cEO | Weekly | All slopes are assessed and contoured as required |
| – All slopes must be assessed for terracing, and to terrace only when the need is identified in accordance with the Conservation of Agricultural Resources Act, No 43 of 1983; | Contractor in consultation with the ECO | Assess all slopes and determine whether terracing is required | Rehabilitation | cEO | Weekly | All slopes are assessed and terraced as required |
| – Berms that have been created must have a slope of 1:4 and be replanted with indigenous species and grasses that approximates the original condition; | Contractor | Ensure all berms have a slope of 1:4 and is replanted with indigenous species and grasses | Rehabilitation | cEO | Weekly | All berms have a slope of 1:4 and is replanted with indigenous species and grasses |
| – Where new access roads have crossed cultivated farmlands, that lands must be rehabilitated by ripping which must be agreed to by the holder of the EA and the landowners; | Not applicable | | | | | |
| – Rehabilitation of access roads outside of farmland; | Not applicable | | | | | |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – Indigenous species must be used for with species and/grasses to where it compliments or approximates the original condition; | Contractor | Make use of indigenous species for rehabilitation | Rehabilitation | cEO | Weekly | Indigenous species are used for rehabilitation |
| – Stockpiled topsoil must be used for rehabilitation (refer to **Section 5.24: Stockpiling and stockpiled areas**); | Contractor | Ensure stockpiled topsoil is used as per the requirements listed under section 5.24 | Rehabilitation | cEO | Weekly | Stockpiled topsoil is used as per the requirements listed under section 5.24 |
| – Stockpiled topsoil must be evenly spread so as to facilitate seeding and minimise loss of soil due to erosion; | Contractor | Ensure that topsoil is spread evenly | Rehabilitation | cEO | Weekly | Topsoil is spread evenly |
| – Before placing topsoil, all visible weeds from the placement area and from the topsoil must be removed; | Contractor | Remove all visible weeds from placement area and topsoil before spreading the topsoil | Rehabilitation | cEO | Weekly | No weeds are visible in the placement area or the topsoil |
| – Subsoil must be ripped before topsoil is placed; | Contractor | Undertake the ripping of subsoil prior to the spreading of topsoil | Rehabilitation | cEO | Weekly | Subsoil is ripped before topsoil is placed |
| – The rehabilitation must be timed so that rehabilitation can take place at the optimal time for vegetation establishment; | Contractor | Plan the timeframe for rehabilitation in order to undertake vegetation planting during the optimal time for | Rehabilitation | ECO | At the start of rehabilitation to confirm correct timeframe | Rehabilitation is undertaken during the optimal time |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | vegetation establishment | | | | |
| – Where impacted through construction related activity, all sloped areas must be stabilised to ensure proper rehabilitation is effected and erosion is controlled; | Contractor | All disturbed slope areas must be stabilised | Rehabilitation | cEO | Weekly | Disturbed slopes are stabilised sufficiently |
| – Sloped areas stabilised using design structures or vegetation as specified in the design to prevent erosion of embankments. The contract design specifications must be adhered to and implemented strictly; | Contractor | Stabilise slopes as per the design specifications | Pre-construction & Rehabilitation | cEO | Weekly | Slopes are stabilised as per the design specifications |
| – Spoil can be used for backfilling or landscaping as long as it is covered by a minimum of 150 mm of topsoil. | Contractor | Spoil used for landscaping must be applied as per the listed requirements | Rehabilitation | cEO | Weekly | Photographic record of spoil used for landscaping purposes as well as feedback from the contractor |
| – Where required, re-vegetation including hydro-seeding can be enhanced using a vegetation seed mixture as described below. A mixture of seed can be used provided the mixture is carefully selected to ensure the following:<br>a) Annual and perennial plants are chosen;<br>b) Pioneer species are included;<br>c) Species chosen must be indigenous to the area with the seeds used coming from the area;<br>d) Root systems must have a binding effect on the soil; | Contractor in consultation with a suitably qualified specialist | Make use of a suitable vegetation seed mixture should enhancement be required | Rehabilitation | ECO | As and when required | Use of a suitable vegetation seed mixture if required |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| e) The final product must not cause an ecological imbalance in the area | | | | | | |

## 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: Sun Garden (Pty) Ltd
Contact person: Hylton Newcombe
Tel No: Not disclosed in accordance with POPIA[1].
Postal Address: Postnet Suite No 145, Private Bag X13130, Humewood Port Elizabeth
Physical Address: Cyprus Mansions, 1 Beach Road, Humewood, Port Elizabeth, 6001

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

Name of EAP: Jo-Anne Thomas
Tel No: 011-656-3237
Fax No: 086-684-0547
E-mail address: joanne@savannahsa.com
Expertise of the EAP (Curriculum Vitae included): Refer to Appendix 2 of this EMPr for a CV of the EAP

**7.1.3 Project name:** Sun Garden PV Facility, Eastern Cape

#### 7.1.4 Description of the project:

Sun Garden (Pty) Ltd is proposing the development of a commercial solar PV facility and associated infrastructure on a site located approximately 36km south-east of Somerset East and 28km south-west of Cookhouse within the Blue Crane Route Local Municipality and the Sarah Baartman District Municipality in the Eastern Cape Province. The entire extent of the site falls within the Cookhouse Renewable Energy Development Zone (REDZ) and within the Eastern Corridor of the Strategic Transmission Corridors The facility is known as the Sun Garden PV Facility.

A preferred project site with an extent of ~4037ha has been identified by Sun Garden (Pty) Ltd as a technically suitable area for the development of the Sun Garden PV Facility. The project site consists of four affected properties:

- Portion 9 of the farm Britzkraal No 253, Division of Somerset East
- Portion 8 (a Portion of Portion 7) of the farm Britzkraal No 253, Division of Somerset East
- Portion 7 of the farm Britzkraal No 253, Division of Somerset East
- Portion 1 of farm Bothas Hoop 358, Division of Somerset East

[1] Contact details for the applicant will not be disclosed in any public documentation, due to the Protection of Personal Information Act, (No. 2 of 2013) as gazetted on 1 July 2021. This information is available on request from the EAP or the relevant authorities, with a motivation for the need to gain access to such information.

A development envelope for the placement of the solar facility infrastructure (i.e. development footprint) has been identified within the project site and assessed as part of the BA process. The development envelope is ~500ha in extent and the much smaller development footprint of ~350ha will be placed and sited within the development envelope. The development footprint will contain the following infrastructure to enable the solar facility to generate up to 400MW:

- Solar PV array comprising PV modules and mounting structures.
- Inverters and transformers.
- Cabling between the project components, lain underground where practical.
- A 132/33kV on-site collector substation to be connected to a proposed 400kV Main Transmission Substation (MTS) located to the south of the site via a new 132kV overhead power line (twin turn dual circuit line). The development of the proposed 400kV Main Transmission Substation will be assessed as part of the separate BA process in order to obtain Environmental Authorisation.
- Site offices and maintenance buildings, including workshop areas for maintenance and storage.
- Temporary laydown areas.
- Access roads to the site and between project components with a width of approximately 4,5m. The main access points will be 8m wide.
- Water supply pipelines from onsite boreholes.
- A temporary concrete batching plant.
- Staff accommodation (temporary).
- Operation and Maintenance buildings including a gate house, security building, control centre, offices, warehouses, a workshop and visitor's centre.

The new 132kV overhead power line to connect the wind farm to the proposed 400kV Main Transmission Substation will follow a route east of the project site to complete the connection. The power line will therefore cross properties located to the east of the project site. The majority of these properties form part of the project sites of the adjacent proposed wind farms which forms part of the cluster of renewable energy facilities proposed. The power line is proposed parallel to that proposed for the Redding Wind Energy Facility and the Solaris Fields PV Facility, and is being assessed within a 300m grid connection corridor which will provide for the avoidance of sensitive environment areas and features and allow for the micro-siting of the power line within the corridor.

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

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

**It must be noted that the maps provided below relate to the larger wind farm which the substations are associated with.**

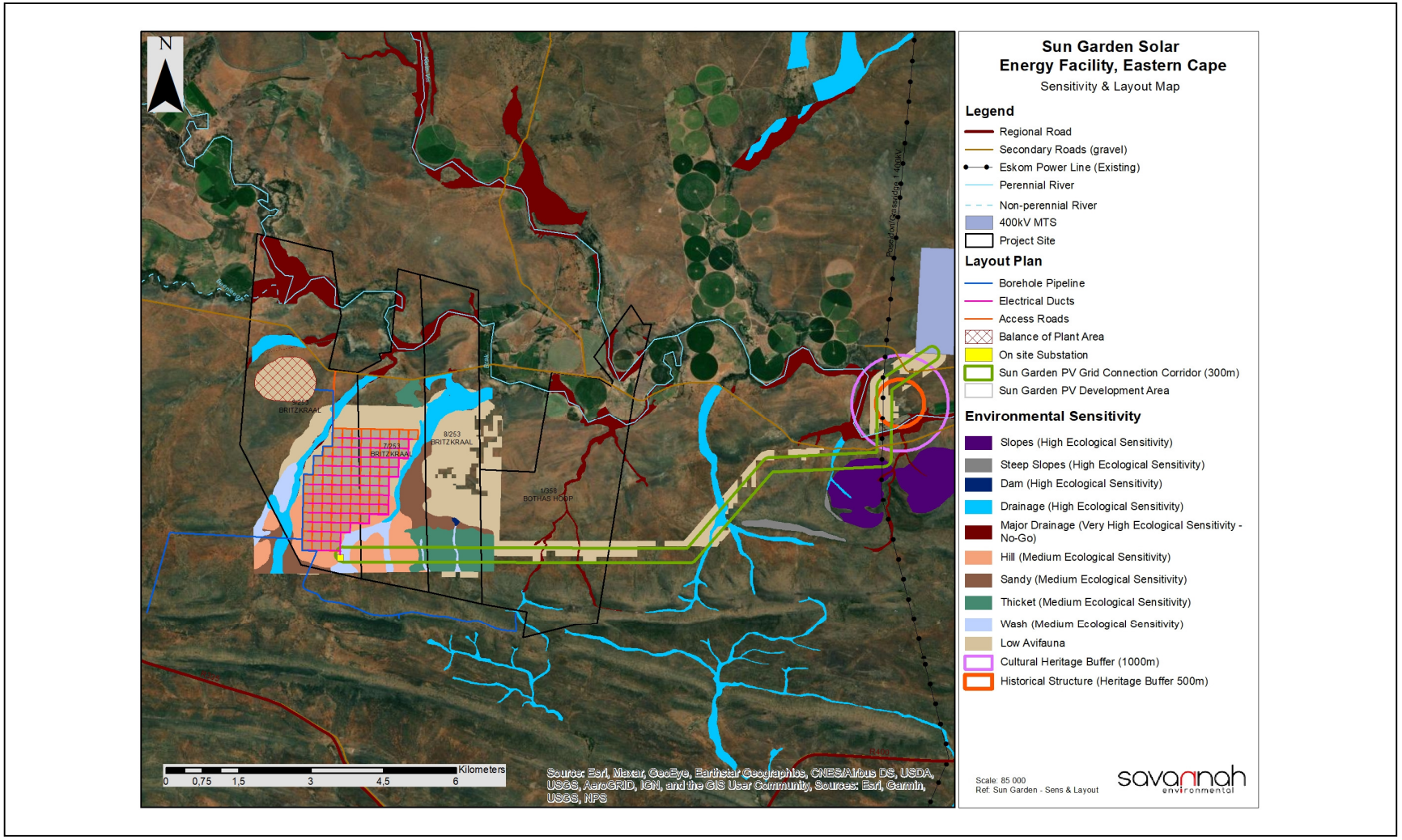


Figure 1: Environmental sensitivity map of the Sun Garden PV Facility

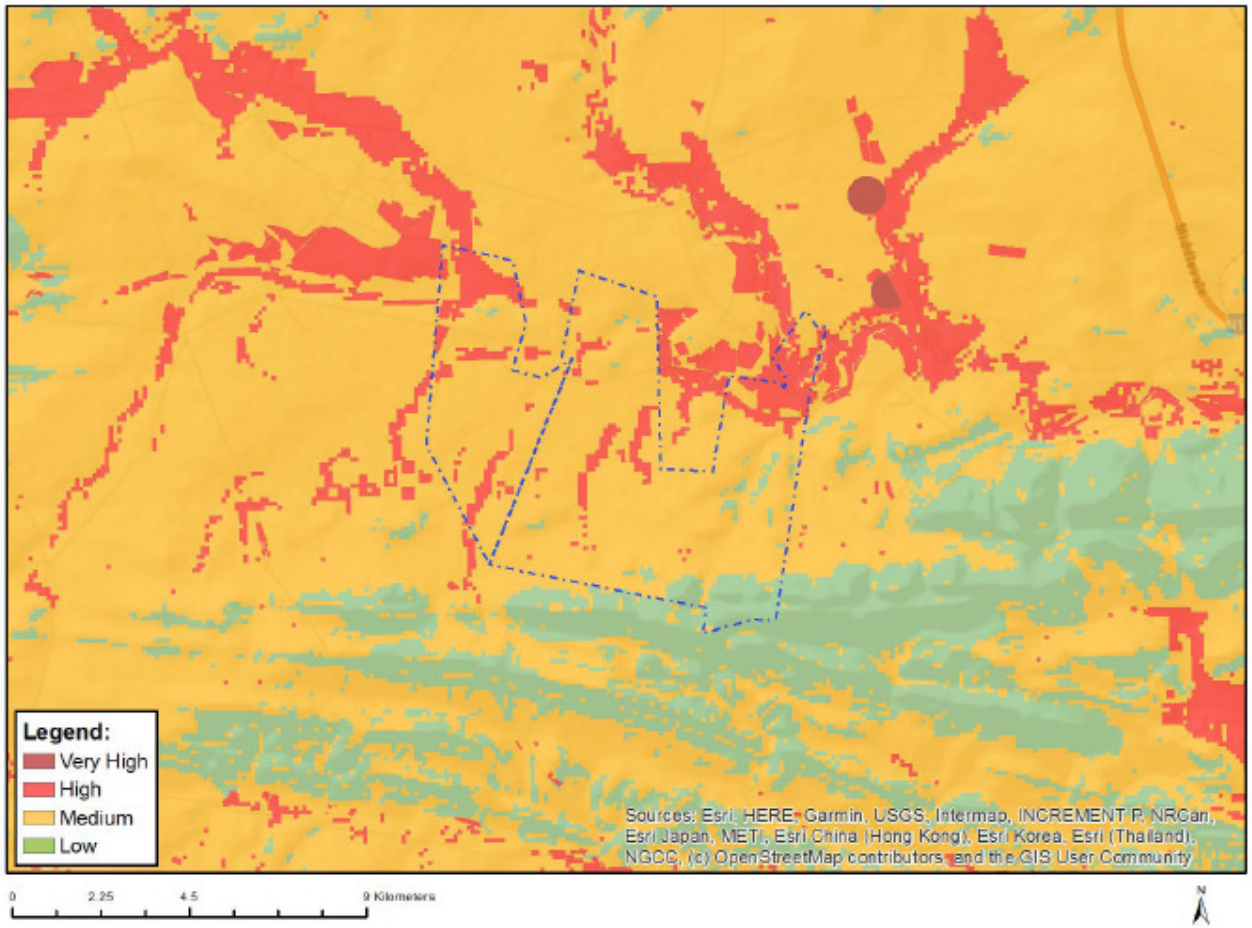


Figure 3: Map of relative agriculture theme sensitivity

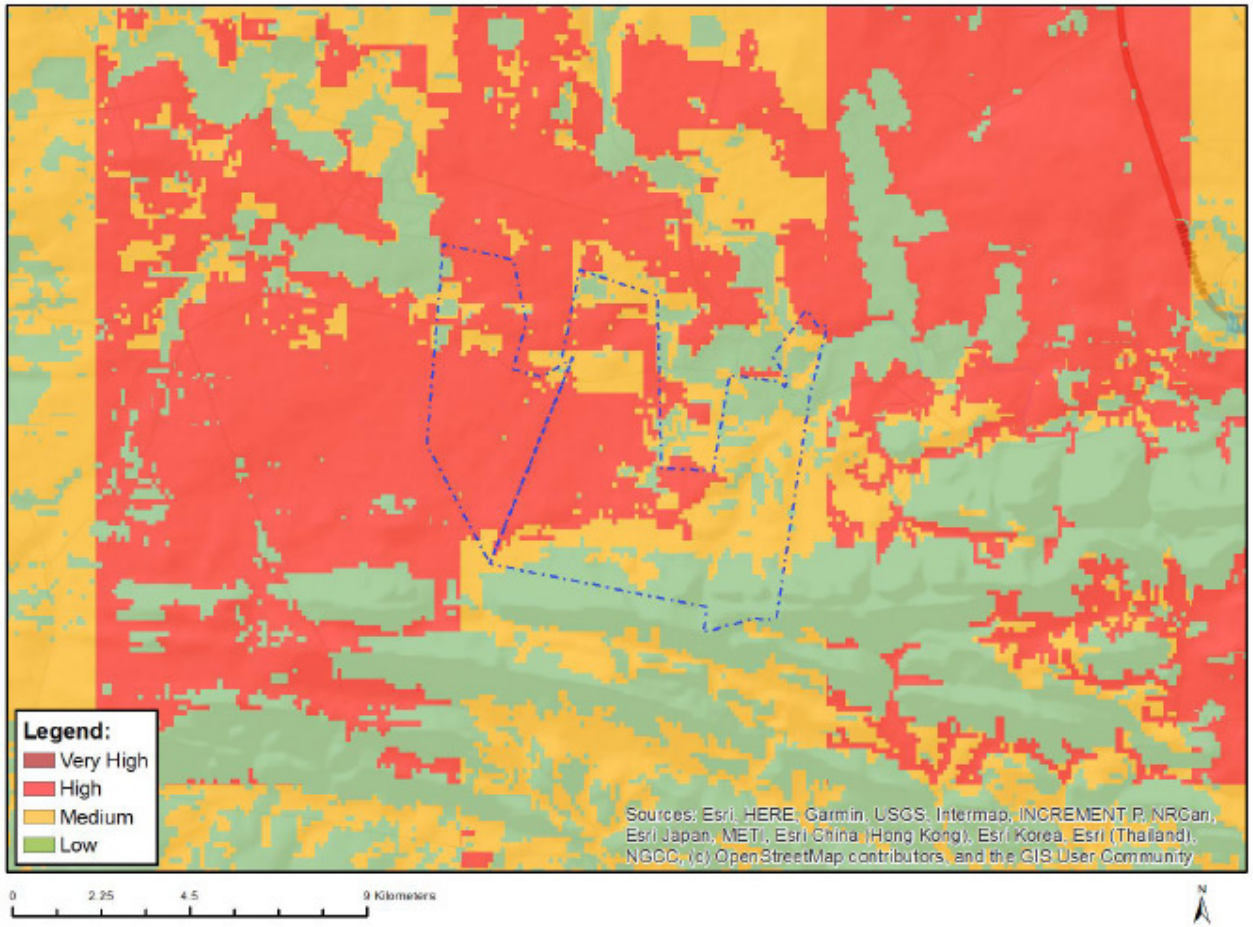


Figure 4**:** Map of relative animal species theme sensitivity

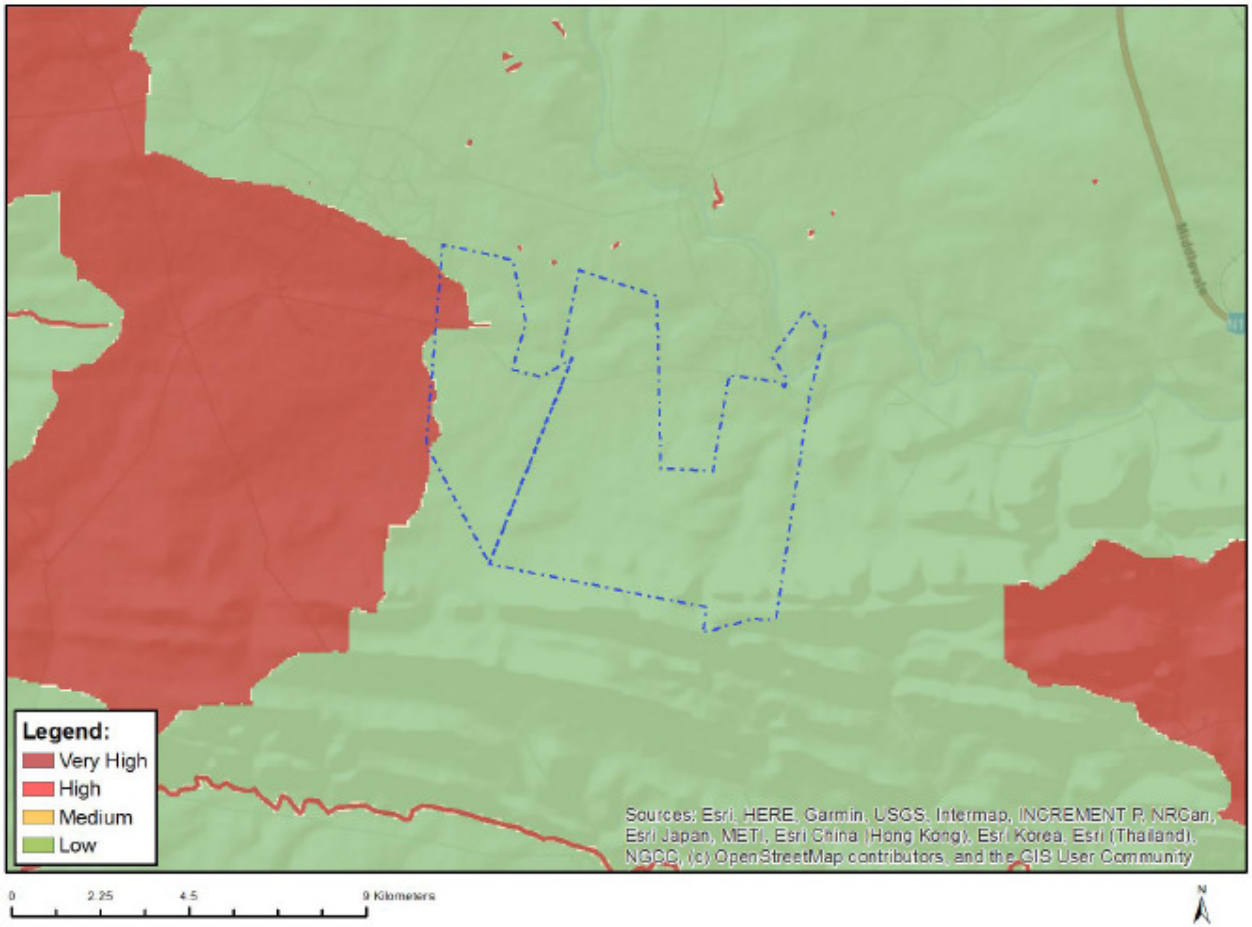


Figure 5**:** Map of relative aquatic biodiversity theme sensitivity

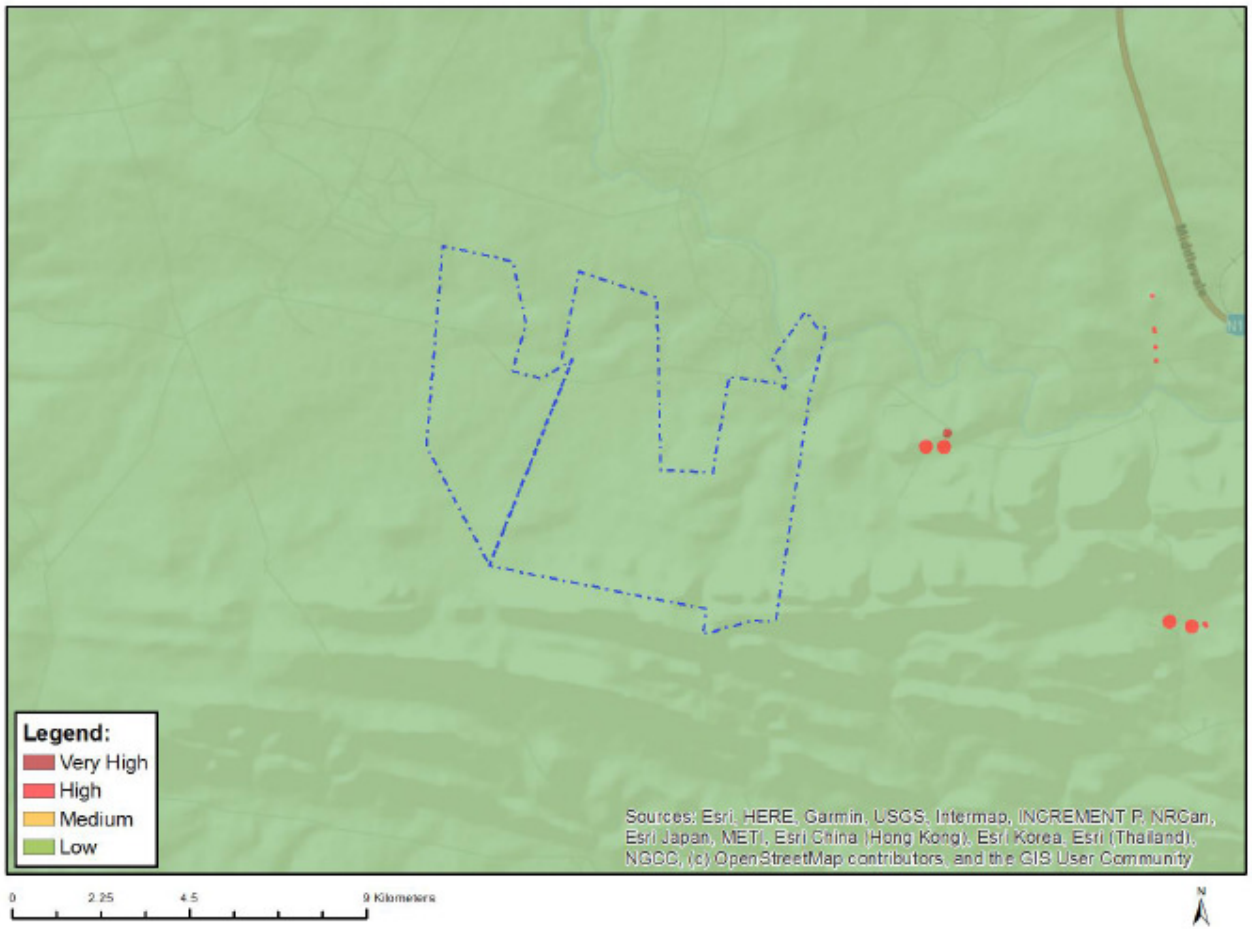


Figure 6: Map of relative archaeological and cultural heritage theme sensitivity.

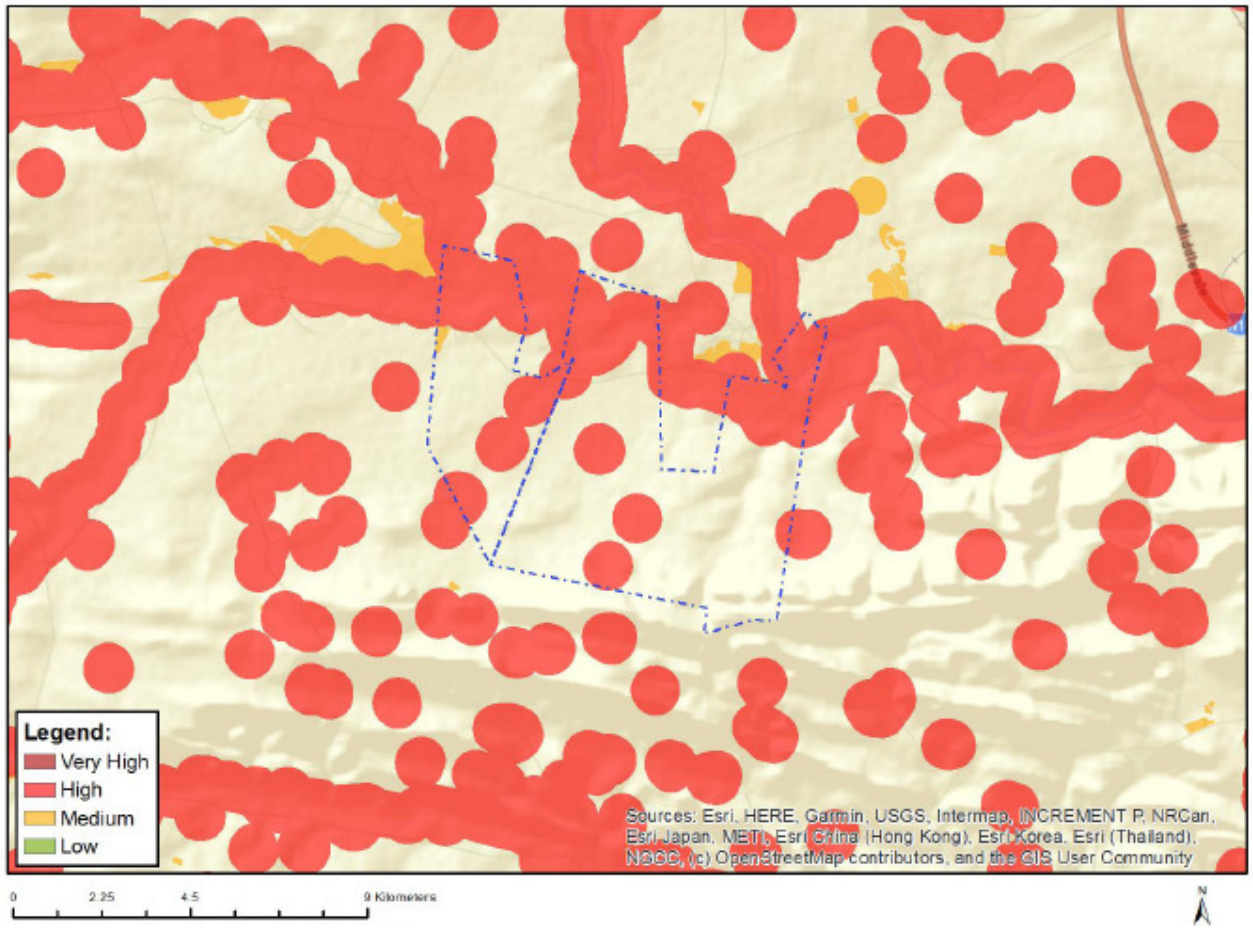


Figure 7**:** Map of relative avian theme sensitivity

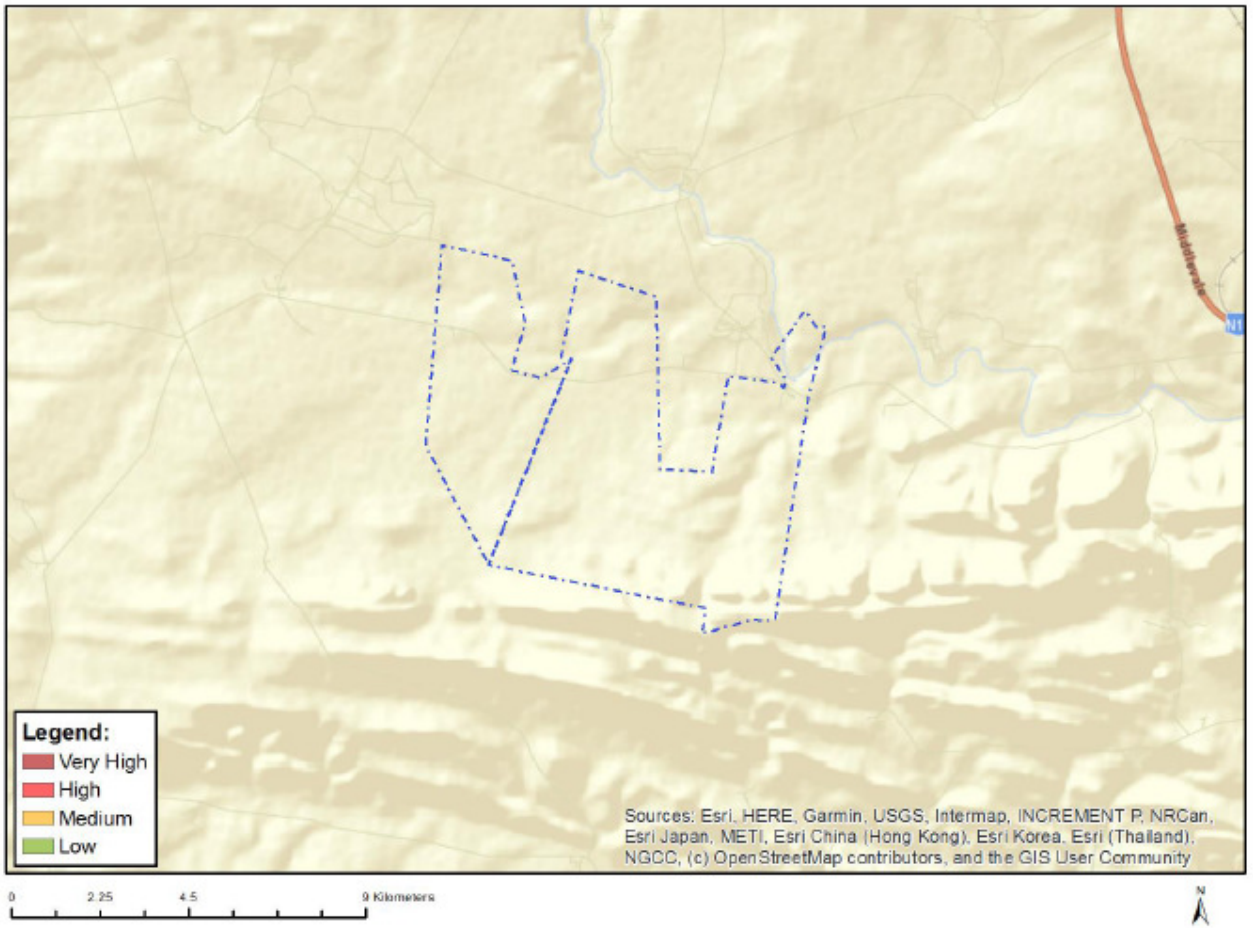


Figure 8: Map of relative bat theme sensitivity

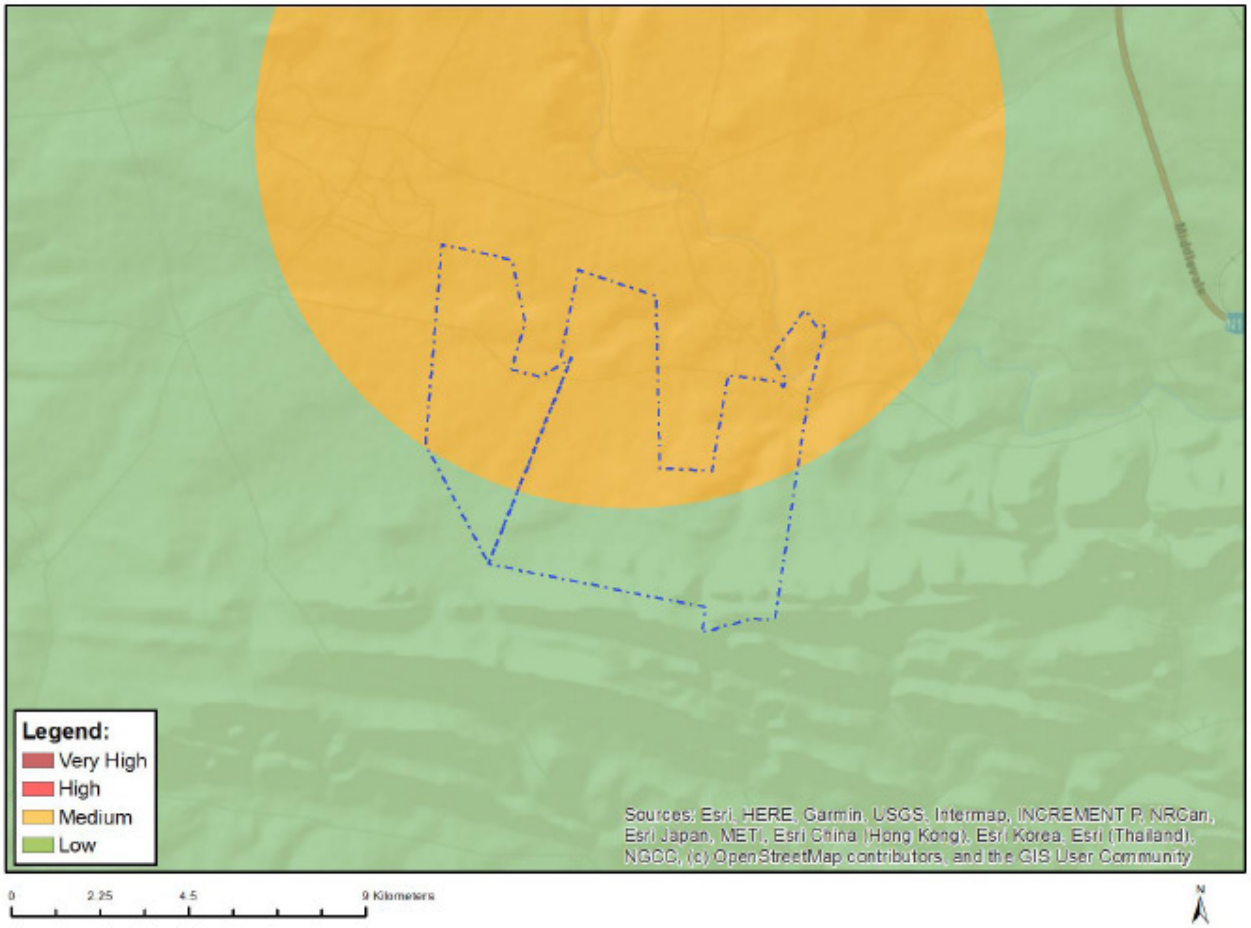


Figure 9: Map of relative civil aviation theme sensitivity

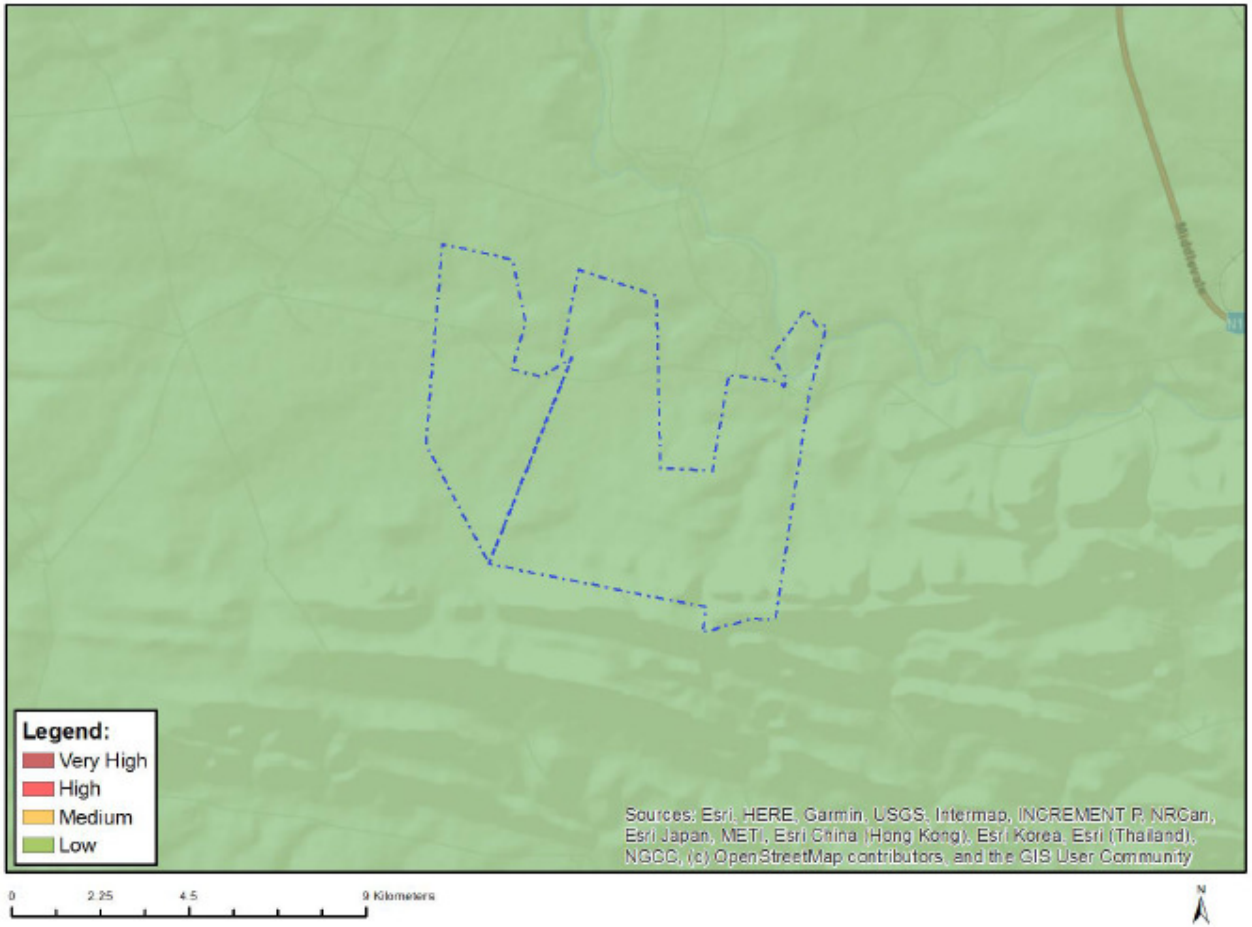


Figure 10**:** Map of relative defence theme sensitivity

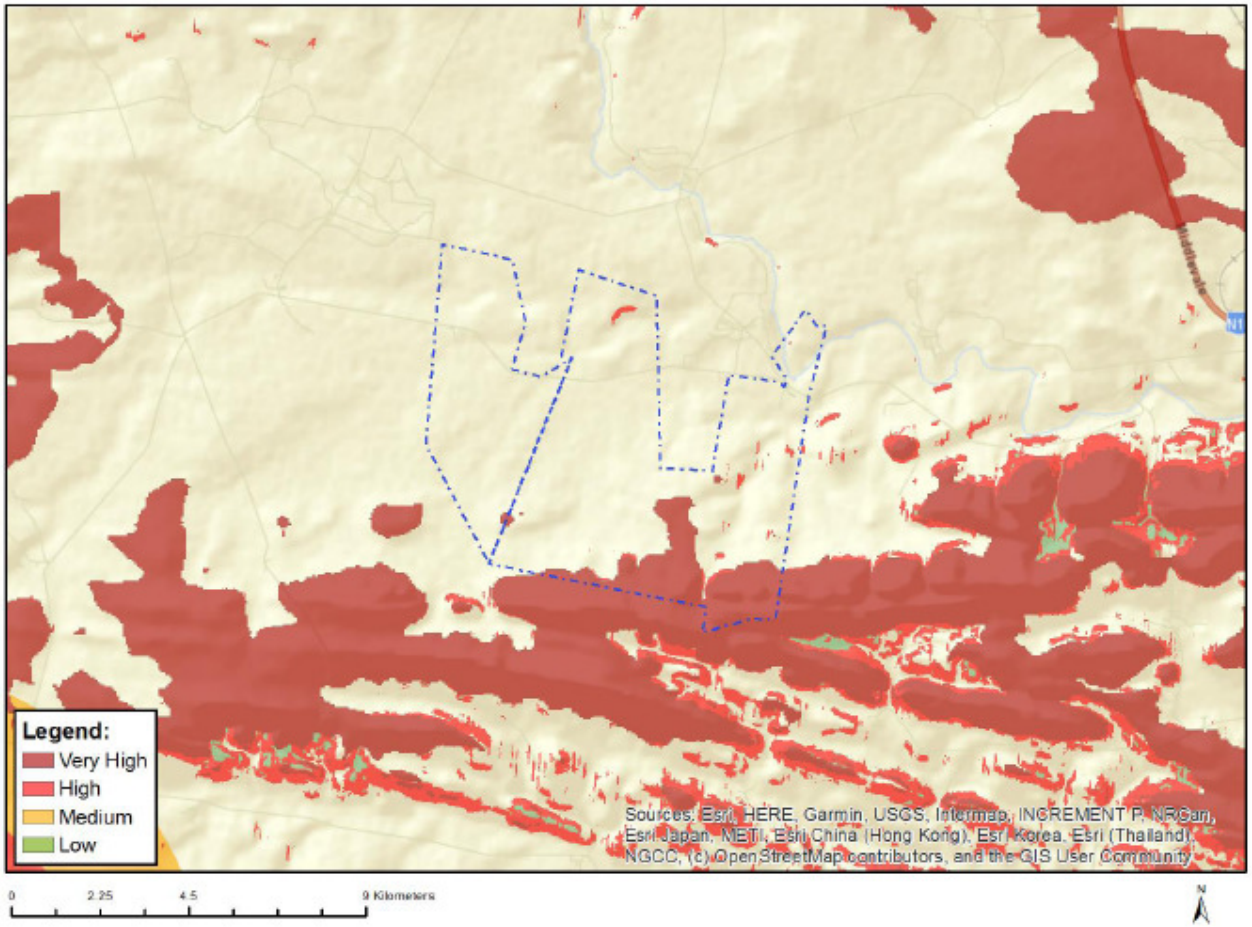


Figure 11: Map of relative landscape theme sensitivity

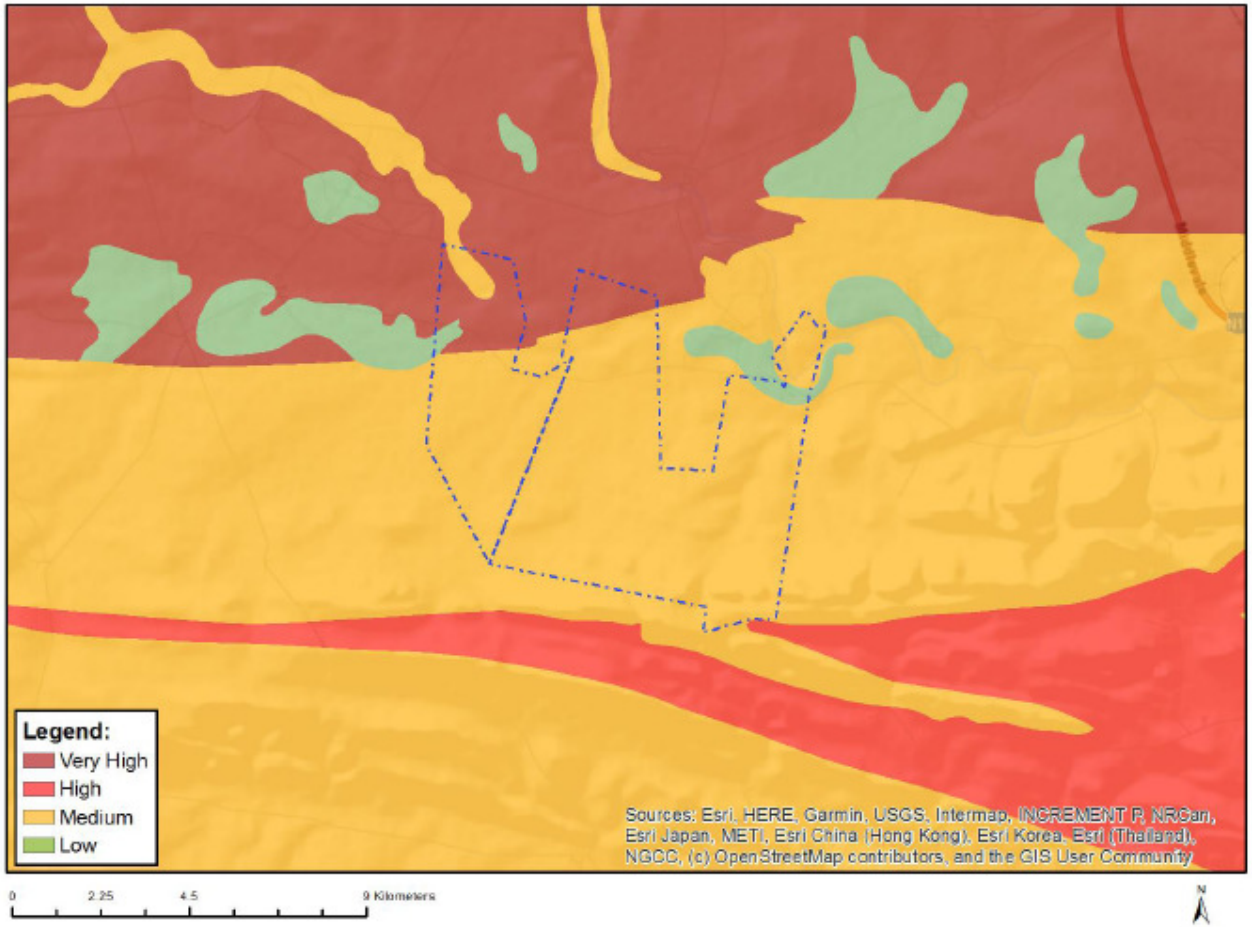


Figure 12**:** Map of relative palaeontological theme sensitivity

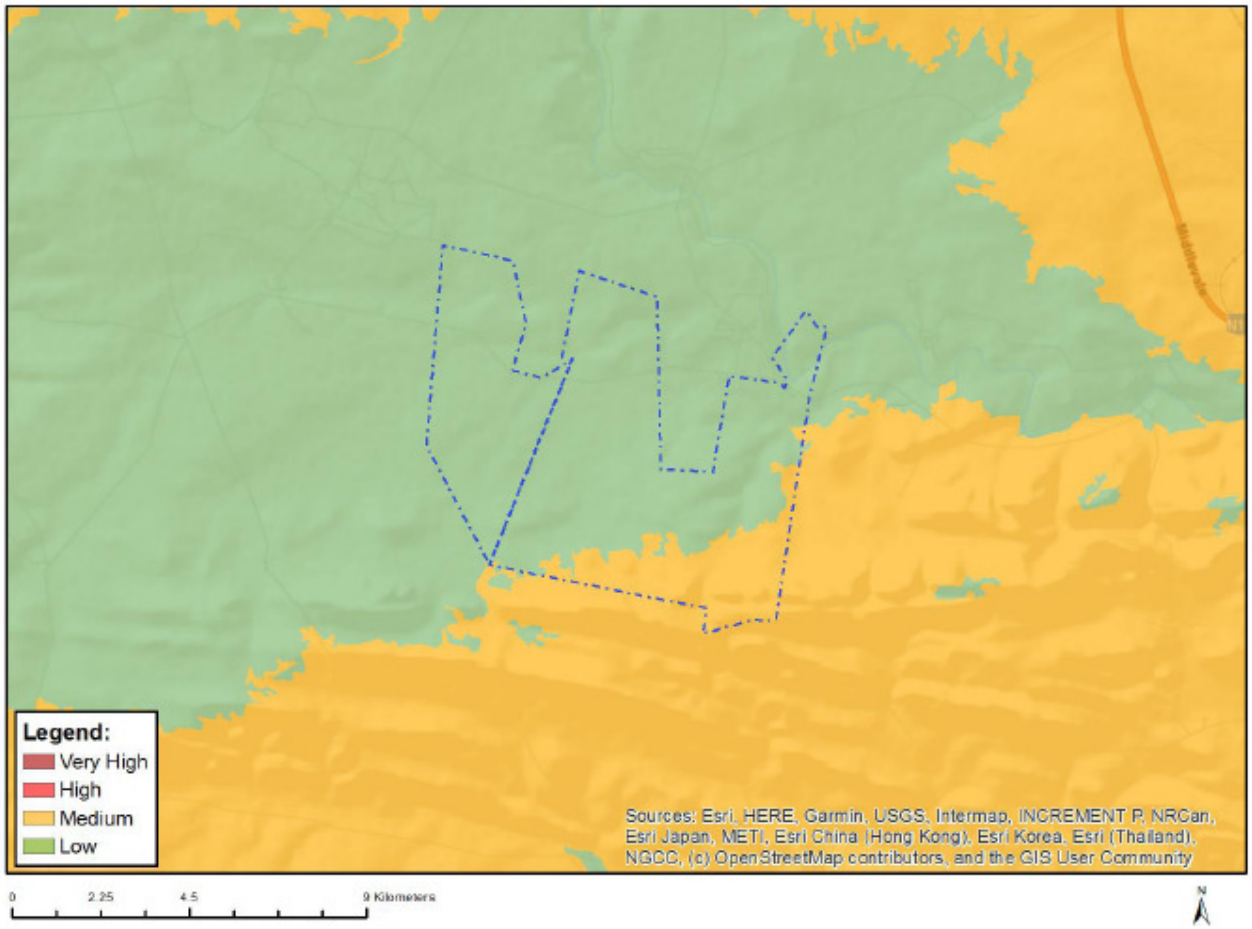


Figure 13**:** Map of relative plant species theme sensitivity

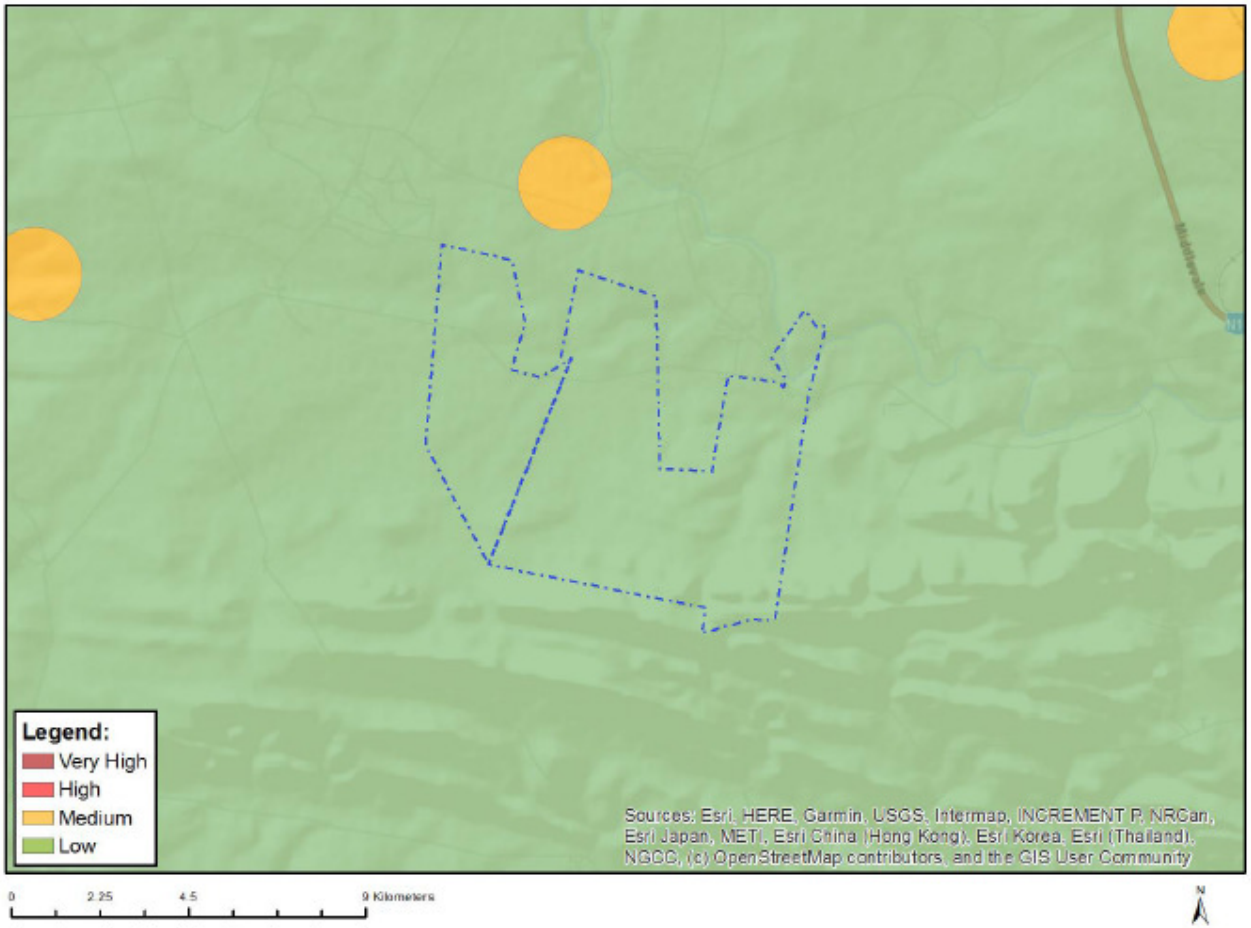


Figure 14**:** Map of relative RFI theme sensitivity

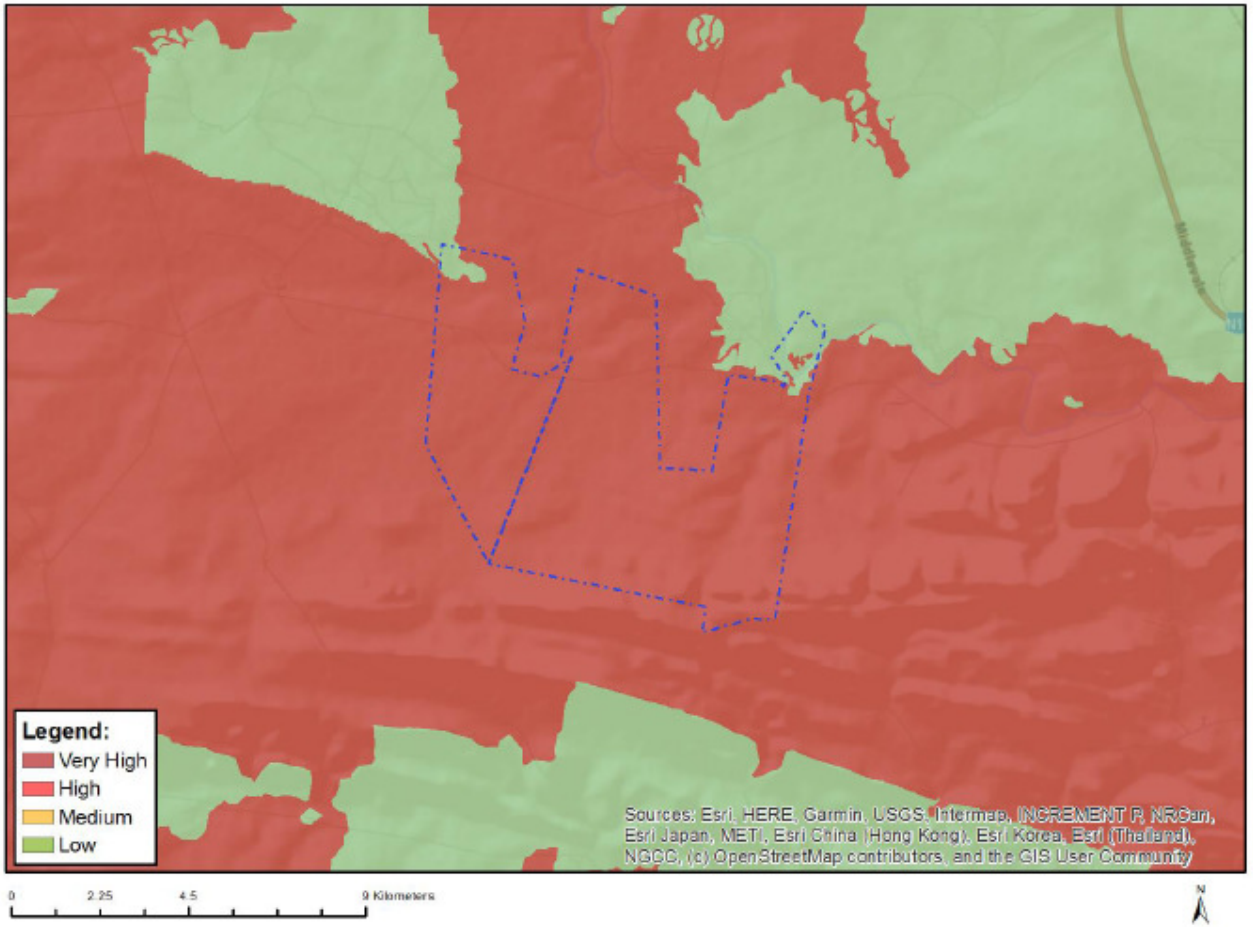


Figure 15**:** Map of relative terrestrial biodiversity theme sensitivity

### 7.3 Sub-section 3: Declaration

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

Signature Proponent/applicant/ holder of EA Date:

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**This declaration will be signed by the proponent/applicant/holder of the EA once the contractor is appointed and has provided inputs to this Generic EMPr as per the requirements of this template.**

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

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

**PART C**

## 8 SITE SPECIFIC ENVIRONMENTAL ATTRIBUTES

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

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

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

# CONSTRUCTION AND DECOMMISSIONING OUTCOMES AND ACTIONS

### *7.1 Ecology (Fauna and Flora)*

**Impact management outcome:** Management of impacts on flora, fauna and sensitive areas.

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Timeframe** | **Evidence of compliance** |
| – Pre-construction walk-through of the final layout in order to locate species of conservation concern that can be translocated as well as comply with the provincial permit conditions | dEO, Specialist | Visual inspection of the layout with walk-through report produced | Prior to construction | ECO | Once prior to commencement of construction | Walk-through report produced and kept on file during construction |
| – Search and rescue for identified species of concern before construction. | Relevant specialist in consultation with the Contractor | Develop and implement a Plant Search and Rescue Plan in accordance with relevant permits | Pre-construction & Construction | ECO | Once prior to commencement of construction | Implementation of the Plant Search and Rescue Plan and photographic evidence and notes of the implementation of the plan |
| – Vegetation clearing to commence only after walk-through has been conducted and necessary permits obtained. | cEO, Specialist, Contractor | Vegetation clearing planned to commence only after walk-through has been conducted and necessary permits obtained | Duration of construction phase | ECO | Weekly | Vegetation clearing commenced only after walk-through has been conducted and necessary |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Timeframe** | **Evidence of compliance** |
| | | | | | | permits obtained. |
| – Temporary laydown areas should be located within previously transformed areas or areas that have been identified as being of low sensitivity. These areas should be rehabilitated after use. | cEO, Specialist, Contractor | Laydown areas to be defined during planning of construction activities | Duration of construction phase | ECO | Weekly | Laydown areas located within previously transformed areas or areas of low sensitivity |
| – Contractor's Environmental Officer (EO) to provide supervision and oversight of vegetation clearing activities within sensitive areas. | Contractor, cEO | Ensure that vegetation clearing in sensitive areas is undertaken in accordance with required mitigation measures. | Duration of the construction phase | ECO | Monthly | cEO oversees vegetation clearing in sensitive areas. |
| – Minimise the development footprint as far as possible and rehabilitate disturbed areas that are not required for the operation phase of the development. | Contractor, cEO | Ensure that construction activities are restricted to the demarcated footprint and development and implement a site rehabilitation plan | Duration of the construction phase | ECO | Monthly | Construction activities restricted to development footprint<br><br>All disturbed areas rehabilitated following completion of construction.<br><br>Copy of rehabilitation |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Timeframe** | **Evidence of compliance** |
| | | | | | | plan available on site |
| – Pre-construction environmental induction for all construction staff on site to ensure that basic environmental principles are adhered to. This includes awareness of no littering, appropriate handling of pollution and chemical spills, avoiding fire hazards, remaining within demarcated construction areas etc. Induction should also include information with regards to fauna and, in particular, awareness about not harming or collecting species such as snakes, tortoises and owls, which are often persecuted out of superstition. | cEO | Requirement for induction of all staff prior to commencement activities, as well as the development and application of an induction programme | Duration of construction phase | ECO | Monthly | Induction roster of all staff completed, maintained and available on site, induction programme material observed and on file on site. |
| – Demarcate all areas to be cleared with construction tape or other appropriate and effective means. However, caution should be exercised to avoid using material that might entangle fauna. | dEO / cEO in consultation with the ECO | Erect appropriate temporary barriers around construction areas and ensure material used is fauna-friendly and must be removed following completion of construction. | At the commencement and for the duration of the construction phase | ECO | Monthly | Access to construction area is closed-off through temporary barriers and barriers are maintained to a sufficient standard<br><br>Material used to demarcate construction area is fauna-friendly and removed following |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Timeframe** | **Evidence of compliance** |
| | | | | | | completion of construction. |
| – Vegetation clearing to be kept to a minimum. No unnecessary vegetation to be cleared. | Contractor, cEO | Placement of infrastructure planned to minimise vegetation clearing | Duration of the construction phase | ECO | Monthly | Vegetation clearing minimised as far as possible. |
| – All construction vehicles should adhere to clearly defined and demarcated roads. No off-road driving to be allowed outside of the construction area. | Contractor, cEO | Construction activities planned to ensure vehicles adhere to clearly defined and demarcated roads | Duration of the construction phase | ECO | Ongoing throughout construction | No off road driving outside of construction area. |
| – Temporary laydown areas should be located within previously transformed areas or areas that have been identified as being of low sensitivity. These areas should be rehabilitated after use. | Contractor, cEO | Laydown areas planned within previously transformed or low sensitivity areas | Duration of the construction phase | ECO | Ongoing throughout construction | Laydown areas located within previously transformed or low sensitivity areas |
| – Any fauna threatened by the construction activities should be removed to safety by an appropriately qualified environmental officer. | cEO, Specialist, Contractor | Implement search and relocation plan for threatened or dangerous fauna species and obtain the relevant permits for the removal of these species | Operation | Auditor | Annually | No fauna harmed as a result of maintenance activities.<br><br>Necessary permits obtained prior to the removal of threatened fauna species, and copies of |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Timeframe | Evidence of compliance |
| | | | | | | permits observed during audit. |
| – All construction vehicles should adhere to a low speed limit (30km/h) to avoid collisions with susceptible species such as snakes and tortoises. | Contractor, cEO | Install speed signage throughout site, include speed limit into induction and ensure all staff entering site are aware of the requirement to implement speed limits. Institute verbal and written warnings for violations and appropriate fines for repeat contraventions. Written log of fines and warning issued kept on site | During the construction phase | ECO | Monthly | Minimal instances of speeding as observed on site during audits and as evidenced in the written log of warnings and fines issued for contraventions |
| – » All hazardous materials should be stored in the appropriate manner to prevent contamination of the site. Any accidental chemical, fuel and oil spills that occur at the site should be cleaned up in the appropriate manner as related to the nature of the spill. | Contractor | Suitable bunding and containment, demarcation and access control measures implemented for hazardous materials at onsite stores. Spill prevention and | Duration of the project | ECO | Monthly | Effective bunding and containment of hazardous materials as evidenced on site, along with suitable access control and |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Timeframe** | **Evidence of compliance** |
| | | response plan developed, and spill kits made available, as well as all staff inducted with spill response procedure and a log of inductions kept on file. Written record of spills and clean up actions kept on site | | | | demarcation provided at hazardous materials stores. Written log of spills and clean up actions implemented observed and kept on file at site |
| – If trenches/tower foundations need to be dug, these should not be left open for extended periods of time as fauna may fall in and become trapped in them. Trenches which are standing open should have places where there are soil ramps allowing fauna to escape the trench. | Contractor cEO | Construction planned such that trenches/tower foundations are open for the least amount of time possible.<br><br>Trenches which are standing open should have places where there are soil ramps allowing fauna to escape the trench. | Duration of construction | ECO | Weekly | Trenches/tower foundations are open for the least amount of time possible.<br><br>Trenches which are standing open should have places where there are soil ramps allowing fauna to escape the trench. |
| – The illegal collection, hunting or harvesting of any plants or animals at the site should be strictly forbidden. | Contractor cEO | Awareness created regarding prohibition on the collection, hunting | Duration of construction | ECO | Weekly | No evidence of collection, hunting or harvesting of |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Timeframe** | **Evidence of compliance** |
| Personnel should not be allowed to wander off of the construction site. | | or harvesting of any plants or animals | | | | any plants or animals |
| – No fuelwood collection should be allowed on-site | cEO | Awareness created regarding the prohibition of the collection of fuelwood | Duration of construction | ECO | Weekly | No fuelwood collected |
| – No fuelwood collection should be allowed on-site. | cEO, Developer | Place signs on site indicating the fuelwood collection is prohibited and include this point in the environmental induction training | During the construction phase | ECO | Weekly | Sign prohibiting collection of fuelwood observed on site and evidence of discussion of this point contained in environmental induction training material |
| – If any parts of the site such as construction camps must be lit at night, this should be done with low-UV type lights (such as most LEDs or HPS bulbs) as far as practically possible, which do not attract insects and which should be directed downwards. | cEO, Contractor | Installation of low-UV type lights. | Operation | Auditor | Annually | Correct lighting fixtures are used. |

**Impact management outcome:** Management of erosion risk.

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| – Erosion management at the site should take place according to the Erosion Management Plan and Rehabilitation Plan. | cEO, Specialist, Contractor | Develop and implement an Erosion Management Plan and Rehabilitation Plan | Construction | ECO | Ongoing throughout construction | Erosion Management Plan and Rehabilitation Plan developed and implemented |
| – All roads and other hardened surfaces should have runoff control features which redirect water flow and dissipate any energy in the water which may pose an erosion risk. | Contractor | Roads and other hardened surfaces designed to include runoff control features which redirect water flow and dissipate any energy in the water which may pose an erosion risk | Duration of the project | ECO | Ongoing throughout construction | Roads and other hardened surfaces implemented with include runoff control features which redirect water flow and dissipate any energy in the water which may pose an erosion risk |
| - Regular monitoring for erosion after construction to ensure that no erosion problems have developed as result of the disturbance must be undertaken, as per the Erosion Management and Rehabilitation Plans for the project. | Contractor, cEO | Ongoing monitoring for erosion and implementation of appropriate management measures where erosion is detected | During the construction phase | ECO | Ongoing throughout construction | Monitoring for erosion ongoing and appropriate management measures implemented where erosion is detected |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| - All erosion problems observed must be rectified as soon as possible, using the appropriate erosion control structures and revegetation techniques. | Contractor cEO | Implementation of appropriate management measures where erosion is detected | During the construction phase | ECO | Ongoing throughout construction | Appropriate management measures implemented where erosion is detected |
| - All cleared areas must be revegetated with indigenous perennial shrubs and succulents from the local area. These can be cut when dry and placed on the cleared areas if natural recovery is slow. | cEO | Revegetation to be undertaken with indigenous perennial shrubs and succulents from the local area.<br><br>Revegetated areas to be appropriately maintained. | During the construction phase | ECO | Ongoing throughout construction | Revegetation undertaken with indigenous perennial shrubs and succulents from the local area.<br><br>Revegetated areas appropriately maintained. |

### *7.2 Aquatic Ecology*

**Impact management outcome:** Impact on watercourses (low sensitivity) due to physical disturbance during the construction phase reduced.

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| – A development area which contains no drainage lines must be selected. | Developer/ design consultant | Visual inspection of layout to ensure that the development area and footprint does not contain drainage lines. | Prior to construction | ECO | Once-off prior to construction | Development area does not contain drainage lines as per the layout. |
| – Vegetation clearing must occur in a phased manner, in accordance with the construction programme, to minimise erosion and/or runoff. | Contractor<br><br>cEO | Develop and implement a vegetation clearance methods statement. | Construction phase | ECO | Weekly | Evidence of phased vegetation clearance. |
| – An Environmental Control Officer (ECO), with a good understanding of the local flora, must be appointed during the construction phase. The ECO must be able to make clear recommendations with regards to the re-vegetation of the newly completed / disturbed areas along aquatic features, using selected species detailed in the Aquatic Impact Assessment report. | Developer | Ensure that an ECO is appointed prior to the commencement of construction, and that the appointed ECO is knowledgeable on rehabilitation. | Prior to construction | cEO/dEO | Once off, at the beginning of the construction phase | Letter of appointment of ECO, ECO CV, and experience report available for review. |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| – All alien plant re-growth must be monitored and should these alien plants reoccur, re-eradication must be undertaken. | cEO<br><br>Contractor<br><br>Specialist | Develop and implement an alien invasive plant monitoring and eradication plan | Prior to construction and during construction | ECO | Monthly | Evidence of an alien invasive plant monitoring and eradication plan implemented during construction.<br><br>Visual observation of invasive alien plan monitoring and eradication being undertaken on site. |

**Impact management outcome:** Minimised impacts on surface water quality.

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| – Strict use and management of all hazardous materials used on site. | Contractor<br><br>cEO | Establish appropriate storage facilities for hazardous substances.<br><br>Ensure storage areas are bunded. | Construction phase | ECO | Weekly | Evidence of appropriate use and management of hazardous materials i.e., appropriate and bunded storage, visual observation of spills kits etc. |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| | | Ensure the spill kits are present where hazardous substances are stored or regularly used. | | | | |
| – Strict management of potential sources of pollution (e.g., litter, hydrocarbons from vehicles & machinery, cement during construction, etc.) within demarcated / bunded areas. | Contractor<br><br>cEO | Ensure that hazardous substance storage areas and areas where potential pollutants are utilised are appropriately lined and bunded. | Construction phase | ECO | Weekly | Strict management of potential sources of pollution observed during audit. |
| – Containment of all contaminated water by means of careful run-off management on site. | Contractor<br><br>cEO | Development and implement of plan for the management for run-off on site. | Prior to construction and during construction | ECO | Monthly | Visual observation of run-off management plan.<br><br>No evidence of contaminated water being related into the natural environment. |
| – Appropriate ablution facilities must be provided for construction workers during construction and on-site staff during the operation of the facility. These must be | Contractor | Ablution facilities must be provided and must be placed | During the Construction Phase | ECO | Weekly | Ablution facilities are installed and avoid |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| situated outside of any delineated watercourses and pans/depressions, or their associated buffers. | | appropriately and in areas which avoid environmental sensitivities | | | | environmental sensitivities |
| – Strict control of the behaviour of construction workers must be practised. | cEO and Contractor in consultation with the ECO | Compile a Code of Conduct for staff. | Pre-construction and Construction | ECO | Once, prior to the commencement of construction | No violations with the terms of the Code of Conduct observed. |
| – Appropriate waste management must be undertaken on site. | Contractor<br><br>cEO | Develop and implement a waste management plan for the site. | Pre-construction and Construction | ECO | Weekly | Waste managed in accordance with the waste management plan for the site. |
| – Working protocols incorporating pollution control measures (including approved method statements by the contractor) must be clearly set out in the Construction Environmental Management Plan (CEMP) for the project and strictly enforced. | Contractor<br><br>cEO | Develop and implement protocols and method statements detailing pollution control measures for the site. | Pre-construction and Construction | ECO | Monthly | Evidence of working protocols and method statements detailing pollution control measures during audit. |
| – All construction materials, including fuels and oil, should be stored in demarcated areas that are contained within berms / bunds to avoid the spread of any | Contractor | Ensure that storage areas are sufficiently bunded which are of sufficient | During the Construction Phase | ECO | Monthly during the Construction Phase | Photographic proof that storage areas are bunded and proof that the bund areas are of sufficient capacity to |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| contamination / leaks outside of any delineated waterbodies and their buffers. | | capacity to contain a spill / leak from the stored containers. | | | | contain a spill / leak from the stored containers. |
| – Washing and cleaning of equipment should also be done in berms or bunds to trap any cement / hazardous substances and prevent excessive soil erosion. | Contractor | Ensure that wash bays are sufficiently bunded. | During construction | ECO | Monthly | Photographic proof that wash bays are bunded. |
| – Mechanical plants and bowsers must not be refuelled or serviced within or directly adjacent to any watercourse. | Contactor | Ensure that an area for refuelling and servicing equipment and machinery is established. The area must be far from water courses and must be sufficiently bunded. Alternatively, in sure that refuelling and servicing are undertaken off site. | During construction | ECO | Monthly | Photographic proof that refuelling and servicing is not undertaken within or directly adjacent to any watercourse. |

**Impact management outcome:** Impact on watercourses (low sensitivity) due to physical disturbance during the construction phase reduced.

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| – Improve the current stormwater and energy dissipation features not currently found along the tracks and roads within the region by local landowners / public works entities where possible. | Developer<br><br>Contractor | Consult with landowners and the department of public works regarding how the stormwater features along existing roads/tracks can be improved. | During construction | ECO | Once-off, during construction | Proof of consultation with landowners and the department of public works. |
| – Install properly sized culverts with erosion protection measures at the present road / track crossings where already installed by local landowners / public works entities. | Developer<br><br>Contractor | Consult with landowners and the department of public works regarding how the stormwater features along existing roads/tracks can be improved. | During construction | ECO | Once-off, during construction | Proof of consultation with landowners and the department of public works. |

### *7.3 Avifauna*

**Impact management outcome:** Minimisation of disturbance and displacement of avifauna.

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| – All vehicles should adhere to clearly defined and demarcated roads, no off-road driving should be allowed | Contractor<br><br>Operator | Ensure vehicles make use of demarcated roads only | Construction | dEO<br>ECO | Ongoing during construction | Only demarcated roads used |
| – Speed limits (30 km/h) should be strictly enforced to reduce unnecessary noise | Contractor<br><br>Operator | Employees and contractors aware of speed limit | Construction | dEO<br>ECO | Ongoing during construction | Speed limit adhered to |
| – The movement of personnel should be restricted to the servitudes and access roads on the project site. | Contractor<br><br>Operator | Employees and contractors aware of requirement to restrict activities to servitudes and access roads | Construction | dEO<br>ECO | Ongoing during construction | Movement of personnel restricted to the servitudes and access roads on the project site |
| – No dogs or cats other than those of the landowners should be allowed on site | Contractor | No dogs or cats allowed on site | Construction | cEO<br>ECO | Ongoing during construction | No dogs or cats other than those of the landowners on site |
| – Any No-go areas identified should be adhered to. | Contractor<br><br>Operator | Employees and contractors aware of identified no go areas. | Construction | dEO<br>ECO | Ongoing during construction | No-go areas identified are adhered to |

### *7.4 Land Use, Soils and Agricultural Potential*

**Impact management outcome:** Maximise conservation of soils resources.

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| – Ensure that proper stormwater management designs are set in place. | Design Engineer | Prepare an effective stormwater management plan and designs prior to the commencement of construction. | Pre-construction | ECO | Monthly | Evidence of appropriate stormwater management features as part of project design. |
| – Only the proposed and authorised access roads are to be used, this is to reduce any unnecessary compaction of adjacent areas. | Contractor<br><br>cEO | Ensure that only authorised access roads are used during the construction phase.<br><br>Visual inspection of the site to determine whether only authorised access roads are being utilised on site. | During the construction phase | ECO | Monthly | Visual observation of authorised access roads being utilised on site. |
| – Prevent any spills from occurring. Machines must be parked within hard park areas and must be checked daily for fluid leaks. | Contractor<br><br>cEO | Vehicle and equipment storage areas must have hard surfaces and must be | During the construction phase | ECO | Monthly | Vehicle and equipment storage areas have hard surfaces and are appropriately bunded. |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| | | appropriately bunded. | | | | No spills recorded in the site incident register. |
| – Proper invasive plant control must be undertaken quarterly. | Contractor<br><br>cEO | Ensure that invasive plant control is undertaken on an ongoing basis (at least quarterly). | During the construction phase | ECO | As and where required | Photographic proof of invasive plant control being undertaken on site. |
| – All excess soil (soil that are stripped and stockpiled to make way for foundations) must be stored, continuously managed / maintained to be used for rehabilitation of eroded areas. | Contractor<br><br>cEO | Development a procedure for the removal, handling, and storage of soil and ensure implementation of this procedure during the construction phase. | During the construction phase | ECO | Monthly | Copy of procedure for the removal, handling, and storage of soil provided during the review.<br><br>Visual observation of appropriate soil storage and handling practices on site. |
| – Rip all compacted areas outside of the developed areas that have been compacted. | Contractor<br><br>cEO | Ensure that ripping is undertaken on all compacted areas outside of the development areas. | Following completion of the construction phase. | ECO | Monthly | Visual observation of ripping being undertaken on compacted areas outside the development areas. |
| – Ripping must be done by means of a commercial ripper that has at least two rows of tines. | Contractor<br><br>Developer | Utilise a commercial ripper with at least two | During the construction phase | ECO | As and when required | Ripping undertaken using a commercial ripper with at least two rows of tines. |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| | | rows of tines for ripping purposes. | | | | |
| – Ripping must take place between 1 and 3 days after seeding and following a rainfall event (seeding must therefore be carried out directly after a rainfall event). | Contractor<br><br>cEO | Ensure that ripping is undertaken between 1 and 3 days after seeding and following a rainfall event. | During the construction phase | ECO | As and when required | Visual observation of ripping being undertaken between 1 and 3 days after seeding and following a rainfall event. |
| – All areas surrounding the development footprint areas that have been degraded by traffic, laydown yards etc. must be ripped and revegetated by means of indigenous grass species. | Contractor<br><br>cEO | Ensure that areas surrounding the development footprint areas are ripped and revegetated by means of indigenous grass species. | During the construction phase | ECO | As and when required | Visual observation of ripping and revegetation of areas surrounding the development footprint areas with indigenous grass species. |
| – Plant phase plants which are characterised by fast growing and rapid spreading conditions during rehabilitation of the site. The following species are recommended for rehabilitation purposes:<br>∗ *Eragrostis teff*<br>∗ *Cynodon species (Indigenous and altered types)*<br>∗ *Chloris gayana*<br>∗ *Panicum maximum*<br>∗ *Digitaria eriantha*<br>∗ *Anthephora pubescens*<br>∗ *Cenchrus ciliaris* | Contractor<br><br>cEO | Ensure that phase plants are utilised for rehabilitation of the site. | During the construction phase | ECO | As and when required | Visual observation of phase plants being utilised for rehabilitation purposes. |

### *7.5 Heritage*

**Impact management outcome:** Impacts on historical structures of low significance reduced.

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| Implement a Chance Finds Procedure:<br>– If a chance find is made the person responsible for the find must immediately stop working and all work must cease in the immediate vicinity of the find.<br>– The person who made the find must immediately report the find to his/her direct supervisor which in turn must report the find to his/her manager and the Environmental Officer (EO) (if appointed) or site manager. The EO must report the find to the relevant Heritage Agency (South African Heritage Research Agency, SAHRA). (Contact details: SAHRA, 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Tel: 021 462 4502. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za). The information to the Heritage Agency must include photographs of the find, from various angles, as well as the GPS co-ordinates.<br>– A preliminary report must be submitted to the Heritage Agency within 24 hours of the find and must include the following: 1) date of the find; 2) a description of the discovery and a 3) description of the fossil and its context (depth and position of the fossil), GPS co-ordinates.<br>– Photographs (the more the better) of the discovery must be of high quality, in focus, accompanied by a scale. It is also important to have photographs of the vertical section (side) where the fossil was found. | Contractor<br><br>Specialist | Chance Finds Procedure implemented | Construction | cEO<br><br>ECO | Ongoing during construction | Chance Finds Procedure in place and followed when required |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| Upon receipt of the preliminary report, the Heritage Agency will inform the EO (or site manager) whether a rescue excavation or rescue collection by a palaeontologist is necessary.<br>– The site must be secured to protect it from any further damage. No attempt should be made to remove material from their environment. The exposed finds must be stabilised and covered by a plastic sheet or sand bags. The Heritage agency will also be able to advise on the most suitable method of protection of the find.<br>– In the event that the fossil cannot be stabilised the fossil may be collected with extreme care by the EO (or site manager). Fossils finds must be stored in tissue paper and in an appropriate box while due care must be taken to remove all fossil material from the rescue site.<br>– Once Heritage Agency has issued the written authorisation, the developer may continue with the development. | | | | | | |

**Impact management outcome:** Impacts on graves and burial grounds reduced.

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| – The sites (WWF3-10 to WWF3-16) must be demarcated with a 30m 'no-go' buffer zone and the graves must be avoided and left in situ. | Developer/ design consultant<br><br>Contractor<br><br>cEO | Ensure that a 30m 'no-go' buffer zone is included around the burial grounds on the final layout and that the graves are avoided and left in situ. | Prior to construction and during construction | ECO | Once-off prior to construction | Project infrastructure avoids the area within the 30m buffer zone for the burial grounds, as per the final layout.<br><br>Visual observation of burial grounds being avoided by construction workers during he construction phase. |
| – A Grave Management Plan must be developed for the graves, to be implemented during the construction phase (which needs approval by ECPHRA). | Developer, to be carried out by specialist | Appoint heritage specialist to develop a grave management plan for implementation during construction and operations. The plan must be approved by ECPHRA. | Prior to construction | ECO | Monthly | Copy of grave management plan and implementation of plan on site observed during audit.<br><br>Approval by ECPHRA. |
| – If the site is going to be impacted and the graves need to be removed, a grave relocation process for the site is recommended as a mitigation and management | Developer, to be carried out by | Should it be determined that site WWF3-16 will | Prior to construction | ECO | Once-off, at the start of construction | Copy of grave relocation permit |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| measure. This will involve the necessary social consultation and public participation process before grave relocation permits can be applied for with the ECPHRA under the NHRA and National Health Act regulations. | appropriate consultants | be impacted upon by construction activities, ensure that a grave relocation process is undertaken with assistance from qualified and experienced consultants. | | | | provided during audit, if relevant. |
| – When graves are discovered/uncovered, the site should be demarcated with a 30m 'no-go' buffer zone and the grave should be avoided. | Developer<br><br>dEO/cEO | Provide environmental awareness training to the appointed contractor regarding how to handle the discovery of graves on site. Also include the measure in the contractor's pack. | During the construction phase | ECO | Monthly | Photographic proof of demarcation around graves discovered following commencement of construction activities. |
| – Undertake archaeological monitoring at earth clearance stage. | Developer, to be carried out by specialist | Appoint a qualified and experience archaeologist to undertaken archaeological monitoring during the clearance stage of the construction phase. | Prior to construction and during construction | ECO | Monthly | Copy of archaeological monitoring report provided during audit. |

**Impact management outcome:** Impacts on palaeontological resources reduced.

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| – If a chance find is made, the person responsible for the find must immediately stop working and all work must cease in the immediate vicinity of the find. | Contractor | Ensure that chance finds are handled in accordance with the chance find procedure for the site. | During the construction phase | ECO | As and when relevant | Chance finds handled in accordance with the chance find procedure. |
| – The person who made the find must immediately report the find to his/her direct supervisor which in turn must report the find to his/her manager and the Environmental Officer (EO) (if appointed) or site manager. The EO must report the find to the relevant Heritage Agency (South African Heritage Research Agency, SAHRA). (Contact details: SAHRA, 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Tel: 021 462 4502. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za). The information to the Heritage Agency must include photographs of the find, from various angles, as well as the GPS co-ordinates. | Contractor<br><br>cEO | Ensure that chance finds are handled in accordance with the chance find procedure for the site. | During the construction phase | ECO | As and when relevant | Chance finds handled in accordance with the chance find procedure. |
| – A preliminary report must be submitted to the Heritage Agency within 24 hours of the find and must include the following: 1) date of the find; 2) a description of the discovery and a 3) description of the fossil and its context (depth and position of the fossil), GPS co-ordinates. | Relevant specialist<br><br>cEO | Ensure that chance finds are handled in accordance with the chance find procedure for the site. | During the construction phase | ECO | As and when relevant | Chance finds handled in accordance with the chance find procedure. |
| – The site must be secured to protect it from any further damage. No attempt should be made to remove material from their environment. The exposed finds must | Contractor<br><br>cEO | Ensure that chance finds are handled in accordance with | During the construction phase | ECO | As and when relevant | Chance finds handled in accordance with |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| be stabilized and covered by a plastic sheet or sandbags. The Heritage agency will also be able to advise on the most suitable method of protection of the find. | | the chance find procedure for the site. | | | | the chance find procedure. |
| – In the event that the fossil cannot be stabilized the fossil may be collected with extreme care by the EO (or site manager). Fossils finds must be stored in tissue paper and in an appropriate box while due care must be taken to remove all fossil material from the rescue site. | cEO | Ensure that chance finds are handled in accordance with the chance find procedure for the site. | During the construction phase | ECO | As and when relevant | Chance finds handled in accordance with the chance find procedure. |
| – Once Heritage Agency has issued the written authorization, the developer may continue with the development. | cEO | Ensure that chance finds are handled in accordance with the chance find procedure for the site. | During the construction phase | ECO | As and when relevant | Chance finds handled in accordance with the chance find procedure. |

**Impact management outcome:** Impacts on the cultural landscape reduced.

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| – The natural vegetation in all areas outside of the development footprint must be maintained/re-established during the planning phase. | Contractor | Ensure that maintenance or re-establishment of the natural vegetation in all areas outside of the development footprint is | Prior to construction | ECO | Monthly | Photographic proof of vegetation maintenance activities being undertaken. |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| | | undertaken during the planning phase. | | | | |
| – Remove the infrastructure not required for the post-decommissioning use and rehabilitate all areas. | Contractor | Ensure that infrastructure not required for the post-decommissioning phase is removed and the areas rehabilitated in accordance with the rehabilitation plan for the site. | Post-decommissioning | | | |

### *7.6 Visual*

**Impact management outcome:** Visual impact of construction activities on sensitive visual receptors, and the potential impact on the sense of place is reduced.

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| – Retain and maintain natural vegetation immediately adjacent to the development footprint. | Project proponent/ design consultant<br><br>Contractor<br><br>cEO | Visual inspection of the layout to ensure that vegetation immediately adjacent to the development | Prior to construction and during construction | ECO | Ongoing throughout construction | Onsite evidence that natural vegetation immediately adjacent to the development footprint/servitu |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| | | footprint will not be disturbed<br><br>Ensure that natural vegetation immediately adjacent to the development footprint/servitude is retained and maintained. | | | | de is retained and maintained. |
| – Consult adjacent landowners (if present) in order to inform them of the development and to identify any (valid) visual impact concerns. | Developer | Consultation between the developer and adjacent landowners. | During construction | ECO | As and when required | Proof of consultation with adjacent landowners |
| – Ensure that vegetation is not unnecessarily removed during the construction phase. | Contractor<br><br>cEO | Visual inspection of the project site to ensure that no unnecessary vegetation clearance is being undertaken.<br><br>Include this mitigation in the contractor's environmental awareness training. | During construction | ECO | Daily, during the vegetation clearance phase and monthly thereafter | Onsite evidence that not unnecessary vegetation clearance is being undertaken. |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| – Plan the placement of laydown areas and temporary construction equipment camps in order to minimise vegetation clearing (i.e., in already disturbed areas) wherever possible. | Project proponent/ design consultant<br><br>Contractor<br><br>cEO | Ensure that temporary construction infrastructure in the final layout is placed within already disturbed areas, where possible.<br><br>Ensure that temporary construction infrastructure is established within already disturbed areas, where possible, during the construction phase. | Prior to construction and during construction | ECO | Once-off review of the final layout prior to construction and as and when required during the construction phase | Photographic proof that temporary construction infrastructure is placed in already disturbed areas, where possible.<br><br>Final layout shows placemen of temporary construction infrastructure within already disturbed areas. |
| – Restrict the activities and movement of construction workers and vehicles to the immediate construction site and existing access roads. | Contractor | Demarcate construction site to restrict movement within the construction site and immediate area. Inform the contractors, through inclusion of this condition in the environmental | Duration of the construction phase | ECO | Monthly | Reduced duration of the construction phase. Copy of construction programme provided during audit |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| | | awareness training and contractor's packs, that movement should be restricted to existing access roads. | | | | |
| – Ensure that rubble, litter, and disused construction materials are appropriately stored (if not removed daily) and then disposed regularly at licensed waste facilities. | Contractor | Waste to be appropriately stored in designated areas.<br><br>Disposal of waste at licensed waste disposal facilities must be undertaken as per the waste management plan | Duration of the construction phase | ECO | Monthly | Appropriate storage of waste in designated areas.<br><br>Disposal certificates of disposal at licensed facilities to be provided |
| – Reduce and control construction dust using approved dust suppression techniques as and when required (i.e. whenever dust becomes apparent). | Contractor | Apply appropriate dust suppression techniques. | Duration of the construction phase | ECO | Weekly | Contractor to provide proof of use of appropriate dust suppression technique. Photographic evidence that dust suppression is being undertaken on site |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| – Restrict construction activities to daylight hours whenever possible in order to reduce lighting impacts. | Developer<br><br>Contractor<br><br>cEO | Ensure that working hours are clearly communicated to construction workers and that the working hours are restricted to daylight hours and are adhered to. | Duration of the construction phase | ECO | Daily | Limited construction activities taking place at night. |
| – Remove infrastructure not required for the post-decommissioning use. | Contractor | Removal of all infrastructure not required for the post-decommissioning use. | At the end of the Construction Phase | ECO<br><br>dEO | Once, following the completion of the construction phase | No infrastructure that is not required for the post-decommissioning use is present following the completion of the construction phase. |
| – Rehabilitate all disturbed areas immediately after the completion of construction works. | Contractor<br><br>cEO | Ensure that disturbed areas are rehabilitated immediately after completion of construction works and that this is communicated to the contractor.<br><br>Develop and implement a | Following completion of construction | ECO | As and when required | Visual observation that disturbed areas are rehabilitated immediately after the completion of construction works. |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| | | rehabilitation plan for the site. | | | | |
| – Rehabilitate all affected areas. Consult an ecologist regarding rehabilitation specifications. | Contractor | Ensure that disturbed areas are rehabilitated. Rehabilitation to be undertaken in consultation with an ecologist. | At the end of the Construction Phase | ECO<br><br>dEO | Weekly, after the completion of the construction phase | All disturbed areas are sufficiently rehabilitated, and rehabilitation is undertaken in consultation with a qualified ecologist. |

**Impact management outcome:** Visual impact of lighting at night on sensitive visual receptors is reduced.

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| – Shield the sources of light by physical barriers (walls, vegetation, or the structure itself). | Contractor<br><br>cEO<br><br>Design engineer/consultant | Ensure that contractors are made aware of this management action and that light sources are shielded by physical barriers. | Prior to construction and during construction and operations | ECO<br><br>dEO | As and when required | Light sources are shielded by physical barriers such as walls, vegetation etc. |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| – Limit mounting heights of lighting fixtures, or alternatively use footlights or bollard level lights. | Contractor<br><br>cEO<br><br>Design engineer/consultant | Ensure that contractors are made aware of this management action and that mounting heights for light fixtures are kept to a minimum. | Prior to construction and during construction and operations | ECO<br><br>dEO | As and when required | Mounting heights of lighting fixtures are kept to a minimum. |
| – Make use of minimum lumen or wattage in fixtures. | Contractor<br><br>cEO<br><br>Design engineer/consultant | Ensure that contractors are made aware of this management action and that the contractor makes use of minimum lumen or wattage in lighting fixtures. | Prior to construction and during construction and operations | ECO<br><br>dEO | As and when required | Minimum use of lumen or wattage in lighting fixtures is observed |
| – Make use of down-lighters or shielded fixtures. | Contractor<br><br>cEO<br><br>Design engineer/consultant | Ensure that contractors are made aware of this management action and that the contractor makes use of down-lighters or shielded fixtures. | Prior to construction and during construction and operations | ECO<br><br>dEO | As and when required | Visual observation of down-lighters or shielded fixtures being utilised. |
| – Make use of Low-Pressure Sodium lighting or other types of low impact lighting. | Contractor<br><br>cEO | Ensure that contractors are made aware of this management action and that | Prior to construction and during construction and operations | ECO<br><br>dEO | As and when required | Visual observation of low-pressure sodium lighting or other types of |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| | Design engineer/consultant | low-pressure sodium lighting or other types of low impact lighting is used. | | | | low impact lighting being utilised |
| – Make use of motion detectors on security lighting. This will allow the site to remain in relative darkness, until lighting is required for security or maintenance purposes. | Contractor<br><br>cEO<br><br>Design engineer/consultant | Ensure that contractors are made aware of this management action and that motion detectors are used on security lighting. | Prior to construction and during construction and operations | ECO<br><br>dEO | As and when required | Visual observation of motion detectors being utilised on security lighting. |

### *7.7 Socio-Economic*

**Impact management outcome:** Enhanced socio-economic development and reduction in potential negative social impacts.

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| – The developer should encourage the EPC contractor to increase the local procurement practices and promote the employment of people from local communities, as far as feasible, to maximise the benefits to the local economies. | Developer | Develop and implement a "locals first" policy for the provision of employment opportunities and procurement practices | Prior to construction, to be implemented during construction | ECO | Once, prior to the commencement of construction and monthly during the construction phase | The "locals first" policy is considered in terms of the employment opportunities and procurement practices. |
| – The developer should engage with local authorities and business organisations to investigate the possibility of procuring construction materials, goods and products from local suppliers were feasible. | Developer | Consultation with local authorities and business organisations to investigate the possibility to procuring construction materials, goods, and products from local suppliers. | Prior to construction and during construction | ECO | Ongoing | Documentary proof of consultation with local authorities and business organisations. |
| – Co-ordinate with the local municipality and relevant labour unions to inform the local labour force about the project that is planned to be established and the jobs that can potentially be applied for. | Developer | Ensure that co-ordination with local the local municipality and relevant labour unions in regard to informing the local labour force about | Prior to the construction phase | ECO | Once, at the start of the construction phase. | Documentary proof of co-ordination with the local municipality and relevant labour unions. |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| | | planned project and potential job opportunities is undertaken. | | | | |
| – Establish a local skills desk (in Somerset East and Cookhouse) to determine the potential skills that could be sourced in the area. | Developer | Ensure that a local skills desk is established prior to the commencement of construction activities. | Prior to construction | ECO | Once-off | Local skills desk observed at Somerset East and Cookhouse. |
| – Recruit local labour as far as feasible. | Developer | Develop and implement a "locals first" policy for the provision of employment opportunities. | Prior to construction, to be implemented during construction | ECO | Ongoing throughout construction | The "locals first" policy is considered in terms of the employment opportunities. |
| – Employ labour-intensive methods in construction where feasible. | Developer | Utilise labour-intensive methods during the construction phase, where feasible. | During the construction phase | ECO | Ongoing throughout construction | Labour-intensive methods are utilised |
| – Sub-contract to local construction companies particularly SMMEs and BBBEE compliant enterprises where possible. | Developer | Develop and implement a "locals first" policy for the provision of employment opportunities that states that first preference will be | Prior to construction | ECO | Ongoing throughout construction | The "locals first" policy is considered in terms of the employment and gives first preference to contractors that |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| | | given to contractors that are compliant with BBBEE criteria. | | | | are compliant with BBBEE criteria. |
| – Use local suppliers where feasible and arrange with the local SMMEs to provide transport, catering and other services to the construction crews. | Developer | Develop and implement a "locals first" policy for the provision of services required by the construction crew. | Prior to construction | ECO | Ongoing throughout construction | The "locals first" policy is considered in the selection of service providers. |
| – Facilitate knowledge and skills transfer during the pre-establishment and construction phases. | EPC Contractor | Ensure that the facilitation of knowledge and skills transfer is undertaken. | During the construction phase | ECO | Ongoing throughout construction | Documentary proof (in the form of training material) that knowledge and skills transfer is being undertaken during the construction phase. |
| – Set up apprenticeship programmes to build onto existing skill levels or develop new skills amongst construction workers, especially those from local communities. | Developer | Set up an apprenticeship programme for implementation during the construction phase. | Prior to construction and during construction | ECO | Monthly | Documentary proof indicating that apprenticeship programmes have been set up for this project. |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| – Facilitate broader skills development programme as part of socio-economic development commitments. | Developer | Development a skills development programme for implementation during the construction phase. | Prior to construction and during construction | ECO | Ongoing throughout construction | Copy of skills development programme evident during audit. |
| – Natural areas that are not affected by the footprint should remain as such. Efforts should also be made to avoid disturbing such sites during construction. | Contractor<br><br>cEO | Ensure that natural areas not affected by the footprint remain undisturbed. | During construction | ECO | Ongoing throughout construction | Onsite evidence that natural areas not affected by the footprint are not disturbed. |
| – Public relations (PR) campaign prior to commencement of construction to communicate to community members the construction programme, inclusive of regular updates to generate excitement in the community. | Developer | Prepare and undertake a public relations campaign to communicate the construction programme to community members. | Prior to construction | ECO | Once-off, at the start of the construction phase | Documentary proof indicating that a public relations campaign was undertaken prior to the commencement of construction activities. |
| – Set up a recruitment office in the nearby towns (i.e., Cookhouse and Somerset East) and adhere to strict labour recruitment practices that would reduce the desire of potential job seekers to loiter around the properties in the hope of finding temporary employment. | Developer | Ensure that a recruitment office is established in the nearby town.<br><br>Develop and implement a policy that no employment will be | Prior to construction and during construction | ECO | Ongoing throughout construction | Recruitment office established in nearby town/s.<br><br>Policy considered in terms of employment. |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| | | available at the gate. | | | | |
| – Establish a management forum comprising key stakeholders to monitor and identify potential problems that may arise due to the influx of job seekers to the area. | Developer | Identify key stakeholders to monitor and identify potential problems that may arise due to the influx of job seekers and establish a management forum comprising these key stakeholders. | Prior to construction | ECO | Once, at the start of the construction phase | Documentary proof of establishment of management forum. |
| – Ensure that any damages or losses to nearby affected farms that can be linked to the conduct of construction workers are adequately reimbursed. | DPM Contractor | Develop agreements for compensation for the damage of farm property etc. with the affected landowners. Ensure that agreements are approved and signed | Pre-construction | dEO<br><br>ECO | Ongoing throughout construction | Evidence of compensation for damages caused by construction workers or activities |
| – Assign a dedicated person to deal with complaints and concerns of affected parties. | Developer | Appoint a community liaison officer prior to the commencement of | Pre-construction | ECO | Once, at the start of the construction phase | Letter of appointment of relevant person |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| | | construction activities. | | | | |
| – Provide adequate signage along the N10 and surrounding regional routes to warn motorists of the construction activities taking place on the site. | Contractor<br><br>cEO | Ensure that adequate signage along the N10 and surrounding regional routes is provided. | During the construction phase | ECO | Monthly | Photographic proof of signs placed along the N10 and surrounding regional routes. |
| – Engage with local authorities and inform them of the development as well as discuss with them their ability to meet the additional demands on social and basic services created by the in migration of workers. | Developer | Engage with local authorities. | Prior to construction and during the construction phase | ECO | Monthly | Proof of engagement with local authorities. |
| – Where feasible, assist the municipality in ensuring that the quality of the local social and economic infrastructure does not deteriorate through the use of social responsibility allocations. | Developer | Draw-up a plan on how to assist the municipality in ensuring that the deterioration of local social and economic infrastructure does not occur. | During the construction phase | ECO | Monthly | Record of actions undertaken towards ensuring that deterioration of local social and economic infrastructure does not occur. |

# OPERATIONAL PHASE OUTCOMES AND ACTIONS

### *7.8 Ecology (Fauna and Flora)*

**Impact management outcome:** Direct loss of vegetation, including listed and protected species is reduced.

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| - Any potentially dangerous fauna such as snakes or fauna threatened by the maintenance and operational activities should be removed to a safe location. | cEO, Specialist, Contractor | Develop a search and relocation plan for threatened or dangerous fauna species and obtain the relevant permits for the removal of these species | Operation and maintenance | dEO | As and when required | Necessary permits obtained prior to the removal of threatened fauna species, and copies of permits observed during audit. |
| - All hazardous materials should be stored in the appropriate manner to prevent contamination of the site. Any accidental chemical, fuel and oil spills that occur at the site should be cleaned up in the appropriate manner as related to the nature of the spill. | Contractor | Suitable bunding and containment, demarcation and access control measures implemented for hazardous materials at onsite stores. Spill prevention and response plan developed, and | Duration of the project | dEO | Monthly | Effective bunding and containment of hazardous materials as evidenced on site, along with suitable access control and demarcation provided at hazardous materials stores. Written log of |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| | | spill kits made available, as well as all staff inducted with spill response procedure and a log of inductions kept on file. Written record of spills and clean up actions kept on site | | | | spills and clean up actions implemented observed and kept on file at site |
| – If any parts of the site such as construction camps must be lit at night, this should be done with low-UV type lights (such as most LEDs or HPS bulbs) as far as practically possible, which do not attract insects and which should be directed downwards. | cEO, Contractor | Installation of low-UV type lights. | Operation | Auditor | Annually | Correct lighting fixtures are used. |
| - All vehicles accessing the site should adhere to a low speed limit (30km/h max for heavy vehicles and 40km/h for light vehicles) to avoid collisions with susceptible species such as snakes and tortoises. | Contractor, cEO | Install speed signature throughout site, include speed limit into induction and ensure all staff entering site is aware of the requirement to implement speed limits. Institute verbal and written warnings for | During the construction phase | dEO | Monthly | Minimal instances of speeding as observed on site during audits and as evidenced in the written log of warnings and fines issued for contraventions |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| | | violations and appropriate fines for repeat contraventions. Written log of fines and warning issued kept on site | | | | |
| - Regular monitoring for alien plants within the development footprint as well as adjacent areas which receive runoff from the facility must be undertaken as these are also likely to be prone to invasion problems. Regular alien clearing should be conducted using the best-practice methods for the species concerned. The use of herbicides should be avoided as far as possible. | Operator | Invasive Alien Plant species eradication and management programme and implemented. | Operation | External Auditor, dEO | Annually – external audit and quarterly dEO | Invasive alien plant species appropriately managed |

**Impact management outcome:** Management of erosion risk.

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| – Erosion management at the site should take place according to the Erosion Management Plan and Rehabilitation Plan. | Operator | Develop and implement an Erosion Management Plan and Rehabilitation Plan | Operation | dEO | Prior to operation<br><br>Duration of operation | Erosion Management Plan and Rehabilitation Plan developed and implemented |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| – All roads and other hardened surfaces should have runoff control features which redirect water flow and dissipate any energy in the water which may pose an erosion risk. | Operator | Roads and other hardened surfaces maintained to include runoff control features which redirect water flow and dissipate any energy in the water which may pose an erosion risk | Operation | dEO, external auditor | Annually | Roads and other hardened surfaces maintained with include runoff control features which redirect water flow and dissipate any energy in the water which may pose an erosion risk |
| - Regular monitoring for erosion after construction to ensure that no erosion problems have developed as result of the disturbance must be undertaken, as per the Erosion Management and Rehabilitation Plans for the project. | Operator, dEO | Ongoing monitoring for erosion and implementation of appropriate management measures where erosion is detected | Operation | dEO, external auditor | Annually | Monitoring for erosion ongoing and appropriate management measures implemented where erosion is detected |
| - All erosion problems observed must be rectified as soon as possible, using the appropriate erosion control structures and revegetation techniques. | Operator | Implementation of appropriate management measures where erosion is detected | Operation | dEO, external auditor | Annually | Appropriate management measures implemented where erosion is detected |
| - All cleared areas must be revegetated with indigenous perennial shrubs and succulents from the local area. These can be cut when dry and placed on the cleared areas if natural recovery is slow. | Operator | Revegetation undertaken with indigenous perennial shrubs | Rehabilitation | dEO, external auditor | Annually | Revegetation undertaken with indigenous perennial shrubs and succulents |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| | | and succulents from the local area.<br><br>Revegetated areas to be appropriately maintained. | | | | from the local area.<br><br>Revegetated areas appropriately maintained. |

### *7.9 Aquatic Ecology*

**Impact management outcome:** Impact on watercourses due to possible increase in surface water runoff reduced.

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – A stormwater management plan must be developed in the pre-construction 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. | Operator/Maintenance personnel | Ensure that a stormwater management plan is developed prior to the commencement of the construction phase. | Operation phase | dEO | Annually | Copy of stormwater management plan available during audit and appropriate measures implemented. |
| – Stormwater control systems must be inspected on an annual basis to ensure these are functional. | Operator/Maintenance personnel | Ensure that a programme for inspecting stormwater | Operational Phase | dEO, External Auditor | Annually | Inspection sheets for stormwater control systems. |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| | EO | control systems is developed and implemented. | | | | |
| – Effective stormwater management must include effective stabilisation (gabions and Reno mattresses) of exposed soil and the re-vegetation of any disturbed riverbanks. | Operator/Maintenance personnel<br><br>EO | Ensure that a stormwater management plan is developed prior to the commencement of the construction phase. | Operational Phase | dEO | Monthly | Evidence of stormwater measures implemented on site (e.g., gabions) and evidence of re-vegetation. |
| – No runoff may be discharged or directed into the Pans. | Operator/Maintenance personnel<br><br>EO | Ensure that contractors are notified that no runoff may be discharged into the pan. Include this in environmental awareness training, toolbox talks and contractor's packs. | Operational Phase | dEO | Monthly | No evidence of runoff discharged into pans.<br><br>Inclusion of this mitigation action in the contractor's packs. |

### *7.10 Avifauna*

**Impact management outcome:** Minimisation of disturbance and displacement of avifauna.

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| – All vehicles should adhere to clearly defined and demarcated roads, no off-road driving should be allowed | Contractor<br><br>Operator | Ensure vehicles make use of demarcated roads only | Operation & maintenance | dEO<br>ECO | During maintenance activities | Only demarcated roads used |
| – Speed limits (30 km/h) should be strictly enforced to reduce unnecessary noise | Contractor<br><br>Operator | Employees and contractors aware of speed limit | Operation & maintenance | dEO<br>ECO | During maintenance activities | Speed limit adhered to |
| – The movement of personnel should be restricted to the servitudes and access roads on the project site. | Contractor<br><br>Operator | Employees and contractors aware of requirement to restrict activities to servitudes and access roads | Operation & maintenance | dEO<br>ECO | During maintenance activities | Movement of personnel restricted to the servitudes and access roads on the project site |
| – Any No-go areas identified should be adhered to. | Contractor<br><br>Operator | Employees and contractors aware of identified no go areas. | Operation & maintenance | dEO<br>ECO | During maintenance activities | No-go areas identified are adhered to |

### *7.11 Socio-Economic*

**Impact management outcome:** Enhanced socio-economic development and reduction in potential negative social impacts.

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| – The operator of the powerlines should be encouraged to, as far as possible, procure materials, goods and products required for the operation and maintenance of the facility from local suppliers to increase the positive impact in the local economy. | Developer | Develop and implement a "locals first" policy for the provision of services required during the operational phase. | During the operational phase | dEO | Monthly | The "locals first" policy is considered in the selection of service providers. |
| – Where possible, local labour should be considered for employment so as to increase the positive impact on the local economy. | Developer | Develop and implement a "locals first" policy for the provision of employment opportunities. | During the operational phase | dEO | Throughout operational phase | The "locals first" policy is considered in terms of the employment opportunities. |
| – As far as possible, local small and medium enterprises should be approached to investigate the opportunities for supply inputs required for the maintenance and operation of the facility. | Developer | Develop and implement a "locals first" policy for the provision of services required during the operational phase. | During the operational phase | dEO | Throughout operational phase | The "locals first" policy is considered in the selection of service providers. |
| – The developer should consider establishing vocational training programmes for the local labour force to promote the development of skills required by the facility and thus provide for the opportunities for these people to be employed in other similar facilities elsewhere in the future. | Developer | Develop and implement a vocational training programme for the operational phase. | Prior to the commencement of the operational phase | dEO | Annually | Documentary proof of establishment of a vocational training programme |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| – A social development and economic development programme should be devised by the developer and implemented throughout the project's lifespan. | Developer | Development a social development and economic development programme for implementation throughout the project's lifespan. | Prior to construction | dEO | Throughout operational phase | Copy of social development and economic development programme evident during audit. |
| – The social development and economic development programme should be developed in consultation with local authorities and local communities to identify community projects that would result in the greatest social benefits. | Developer | Consult with local authorities and communities with regard to developing the social development and economic development plan. | Prior to construction | ECO, dEO | Once-off, prior to the start of construction and the start of the operational phase | Proof of consultation with local authorities and local communities. |
| – The social development and economic development programme should be reviewed on an annual basis and, where necessary, updated. | Developer | Develop and implement a document control procedure to ensure annual review of the social development and economic development plan takes place. | Prior to construction | ECO, dEO | Throughout operational phase | Documentary proof of annual review of programme |
| – When identifying enterprise development initiatives, the focus should be on creating sustainable and self-sufficient enterprises. | Developer | Ensure that the creation of sustainable and | Prior to construction | ECO, dEO | Once-off, prior to the start of construction and | Documentary evidence that the creation of |

| Impact Management Actions | Implementation | | | Monitoring | | |
|---|---|---|---|---|---|---|
| | **Responsible person** | **Method of implementation** | **Timeframe for implementation** | **Responsible person** | **Frequency** | **Evidence of compliance** |
| | | self-sufficient enterprises is considered in identifying enterprise development initiatives. | | | the start of the operational phase | sustainable and self-sufficient enterprises was considered in identifying enterprise development initiatives. |
| – In devising the programmes to be implemented, the developer should take into account the local Integrated Development Plans (Blue Crane Route, 2020). | Developer | Ensure that the local Integrated Development Plans i.e., for Blue Crane Route Local Municipality, are considered when compiling the social development and economic development programme. | Prior to construction | ECO, dEO | Once-off, prior to the start of construction and the start of the operational phase | Review of the social development and economic development programme indicates that the local Integrated Development Plans were considered during preparation of the programme. |

**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.

## APPENDIX 2: CV OF THE EAP

savannah environmental

1st Floor, Block 2, 5 Woodlands Drive Office Park
Woodlands Drive, Woodmead
Johannesburg, South Africa

Email: joanne@savannahsa.com
Tel: +27 (11) 656 3237

# CURRICULUM VITAE OF JO-ANNE THOMAS

| | |
|---|---|
| **Profession:** | Environmental Management and Compliance Consultant; Environmental Assessment Practitioner |
| **Specialisation:** | Environmental Management; Strategic environmental advice; Environmental compliance advice & monitoring; Environmental Impact Assessments; Policy, strategy & guideline formulation; Project Management; General Ecology |
| **Work experience:** | Twenty one (21) years in the environmental field |

## VOCATIONAL EXPERIENCE

Provide technical input for projects in the environmental management field, specialising in Strategic Environmental Advice, Environmental Impact Assessment studies, environmental auditing and monitoring, environmental permitting, public participation, Environmental Management Plans and Programmes, environmental policy, strategy and guideline formulation, and integrated environmental management. Key focus on integration of the specialist environmental studies and findings into larger engineering-based projects, strategic assessment, and providing practical and achievable environmental management solutions and mitigation measures. Responsibilities for environmental studies include project management (including client and authority liaison and management of specialist teams); review and manipulation of data; identification and assessment of potential negative environmental impacts and benefits; review of specialist studies; and the identification of mitigation measures. Compilation of the reports for environmental studies is in accordance with all relevant environmental legislation.

Undertaking of numerous environmental management studies has resulted in a good working knowledge of environmental legislation and policy requirements. Recent projects have been undertaken for both the public- and private-sector, including compliance advice and monitoring, electricity generation and transmission projects, various types of linear developments (such as National Road, local roads and power lines), waste management projects (landfills), mining rights and permits, policy, strategy and guideline development, as well as general environmental planning, development and management.

## SKILLS BASE AND CORE COMPETENCIES

- Project management for a range of projects
- Identification and assessment of potential negative environmental impacts and benefits through the review and manipulation of data and specialist studies
- Identification of practical and achievable mitigation and management measures and the development of appropriate management plans
- Compilation of environmental reports in accordance with relevant environmental legislative requirements
- External and peer review of environmental reports & compliance advice and monitoring
- Formulation of environmental policies, strategies and guidelines
- Strategic and regional assessments; pre-feasibility & site selection
- Public participation processes for a variety of projects
- Strategic environmental advice to a wide variety of clients both in the public and private sectors
- Working knowledge of environmental planning processes, policies, regulatory frameworks and legislation

## EDUCATION AND PROFESSIONAL STATUS

**Degrees:**

- B.Sc Earth Sciences, University of the Witwatersrand, Johannesburg (1993)
- B.Sc Honours in Botany, University of the Witwatersrand, Johannesburg (1994)
- M.Sc in Botany, University of the Witwatersrand, Johannesburg (1996)

**Short Courses:**

- Environmental Impact Assessment, Potchefstroom University (1998)
- Environmental Law, Morgan University (2001)
- Environmental Legislation, IMBEWU (2017)
- Mining Legislation, Cameron Cross & Associates (2013)
- Environmental and Social Risk Management (ESRM), International Finance Corporation (2018)

**Professional Society Affiliations:**

- Registered with the South African Council for Natural Scientific Professions as a Professional Natural Scientist: Environmental Scientist (400024/00)
- Registered with the International Associated for Impact Assessment South Africa (IAIAsa): 5601
- Member of the South African Wind Energy Association (SAWEA)

## EMPLOYMENT

| Date | Company | Roles and Responsibilities |
|---|---|---|
| **January 2006 - Current:** | Savannah Environmental (Pty) Ltd | Director<br>Project manager<br>Independent specialist environmental consultant, Environmental Assessment Practitioner (EAP) and advisor. |
| **1997 – 2005:** | Bohlweki Environmental (Pty) Ltd | Senior Environmental Scientist at. Environmental Management and Project Management |
| **January – July 1997:** | Sutherland High School, Pretoria | Junior Science Teacher |

## PROJECT EXPERIENCE

Project experience includes large infrastructure projects, including electricity generation and transmission, wastewater treatment facilities, mining and prospecting activities, property development, and national roads, as well as strategy and guidelines development.

**RENEWABLE POWER GENERATION PROJECTS: PHOTOVOLTAIC SOLAR ENERGY FACILITIES**

**Environmental Impact Assessments and Environmental Management Programmes**

| Project Name & Location | Client Name | Role |
|---|---|---|
| Christiana PV 2 SEF, North West | Solar Reserve South Africa | Project Manager & EAP |
| De Aar PV facility, Northern Cape | iNca Energy | Project Manager & EAP |
| Everest SEF near Hennenman, Free State | FRV Energy South Africa | Project Manager & EAP |
| Graafwater PV SEF, Western Cape | iNca Energy | Project Manager & EAP |
| Grootkop SEF near Allanridge, Free State | FRV Energy South Africa | Project Manager & EAP |
| Hertzogville PV 2 SEF with 2 phases, Free State | SunCorp / Solar Reserve | Project Manager & EAP |
| Karoshoek CPV facility on site 2 as part of the larger Karoshoek Solar Valley Development East of Upington, Northern Cape | FG Emvelo | Project Manager & EAP |

| Project Name & Location | Client Name | Role |
|---|---|---|
| Kgabalatsane SEF North-East for Brits, North West | Built Environment African Energy Services | Project Manager & EAP |
| Kleinbegin PV SEF West of Groblershoop, Northern Cape | MedEnergy Global | Project Manager & EAP |
| Lethabo Power Station PV Installation, Free State | Eskom Holdings SoC Limited | Project Manager & EAP |
| Majuba Power Station PV Installation, Mpumalanga | Eskom Holdings SoC Limited | Project Manager & EAP |
| Merapi PV SEF Phase 1 – 4 South-East of Excelsior, Free State | SolaireDirect Southern Africa | Project Manager & EAP |
| Sannaspos Solar Park, Free State | SolaireDirect Southern Africa | Project Manager & EAP |
| Ofir-Zx PV Plant near Keimoes, Northern Cape | S28 Degrees Energy | Project Manager & EAP |
| Oryx SEF near Virginia, Free State | FRV Energy South Africa | Project Manager & EAP |
| Project Blue SEF North of Kleinsee, Northern Cape | WWK Development | Project Manager & EAP |
| S-Kol PV Plant near Keimoes, Northern Cape | S28 Degrees Energy | Project Manager & EAP |
| Sonnenberg PV Plant near Keimoes, Northern Cape | S28 Degrees Energy | Project Manager & EAP |
| Tutuka Power Station PV Installation, Mpumalanga | Eskom Transmission | Project Manager & EAP |
| Two PV sites within the Northern Cape | MedEnergy Global | Project Manager & EAP |
| Two PV sites within the Western & Northern Cape | iNca Energy | Project Manager & EAP |
| Upington PV SEF, Northern Cape | MedEnergy Global | Project Manager & EAP |
| Vredendal PV facility, Western Cape | iNca Energy | Project Manager & EAP |
| Waterberg PV plant, Limpopo | Thupela Energy | Project Manager & EAP |
| Watershed Phase I & II SEF near Litchtenburg, North West | FRV Energy South Africa | Project Manager & EAP |
| Alldays PV & CPV SEF Phase 1, Limpopo | BioTherm Energy | Project Manager & EAP |
| Hyperion PV Solar Development 1, 2, 3, 4, 5 & 6 | Building Energy | Project Manager & EAP |

**Basic Assessments**

| Project Name & Location | Client Name | Role |
|---|---|---|
| Aberdeen PV SEF, Eastern Cape | BioTherm Energy | Project Manager & EAP |
| Christiana PV 1 SEF on Hartebeestpan Farm, North-West | Solar Reserve South Africa | Project Manager & EAP |
| Heuningspruit PV1 & PV 2 facilities near Koppies, Free State | Sun Mechanics | Project Manager & EAP |
| Kakamas PV Facility, Northern Cape | iNca Energy | Project Manager & EAP |
| Kakamas II PV Facility, Northern Cape | iNca Energy | Project Manager & EAP |
| Machadodorp 1 PV SEF, Mpumalanga | Solar To Benefit Africa | Project Manager & EAP |
| PV site within the Northern Cape | iNca Energy | Project Manager & EAP |
| PV sites within 4 ACSA airports within South Africa, National | Airports Company South Africa (ACSA) | Project Manager & EAP |
| RustMo1 PV Plant near Buffelspoort, North West | Momentous Energy | Project Manager & EAP |
| RustMo2 PV Plant near Buffelspoort, North West | Momentous Energy | Project Manager & EAP |
| RustMo3 PV Plant near Buffelspoort, North West | Momentous Energy | Project Manager & EAP |
| RustMo4 PV Plant near Buffelspoort, North West | Momentous Energy | Project Manager & EAP |
| Sannaspos PV SEF Phase 2 near Bloemfontein, Free State | SolaireDirect Southern Africa | Project Manager & EAP |
| Solar Park Expansion within the Rooiwal Power Station, Gauteng | AFRKO Energy | Project Manager & EAP |
| Steynsrus SEF, Free State | SunCorp | Project Manager & EAP |

| Project Name & Location | Client Name | Role |
|---|---|---|
| Sirius Solar PV Project Three and Sirius Solar PV Project Four (BA in terms of REDZ regulations), Northern Cape | SOLA Future Energy | Project Manager & EAP |

**Screening Studies**

| Project Name & Location | Client Name | Role |
|---|---|---|
| Allemans Fontein SEF near Noupoort, Northern Cape | Fusion Energy | Project Manager & EAP |
| Amandel SEF near Thabazimbi, Limpopo | iNca Energy | Project Manager & EAP |
| Arola/Doornplaat SEF near Ventersdorp, North West | FRV & iNca Energy | Project Manager & EAP |
| Bloemfontein Airport PV Installation, Free State | The Power Company | Project Manager & EAP |
| Brakspruit SEF near Klerksorp, North West | FRV & iNca Energy | Project Manager & EAP |
| Carolus Poort SEF near Noupoort, Northern Cape | Fusion Energy | Project Manager & EAP |
| Damfontein SEF near Noupoort, Northern Cape | Fusion Energy | Project Manager & EAP |
| Everest SEF near Welkom, Free State | FRV & iNca Energy | Project Manager & EAP |
| Gillmer SEF near Noupoort, Northern Cape | Fusion Energy | Project Manager & EAP |
| Grootkop SEF near Allansridge, Free State | FRV & iNca Energy | Project Manager & EAP |
| Heuningspruit PV1 & PV 2 near Koppies, Free State | Cronimat | Project Manager & EAP |
| Kimberley Airport PV Installation, Northern Cape | The Power Company | Project Manager & EAP |
| Kolonnade Mall Rooftop PV Installation in Tshwane, Gauteng | Momentous Energy | Project Manager & EAP |
| Loskop SEF near Groblersdal, Limpopo | S&P Power Unit | Project Manager & EAP |
| Marble SEF near Marble Hall, Limpopo | S&P Power Unit | Project Manager & EAP |
| Morgenson PV1 SEF South-West of Windsorton, Northern Cape | Solar Reserve South Africa | Project Manager & EAP |
| OR Tambo Airport PV Installation, Gauteng | The Power Company | Project Manager & EAP |
| Oryx SEF near Virginia, Free State | FRV & iNca Energy | Project Manager & EAP |
| Rhino SEF near Vaalwater, Limpopo | S&P Power Unit | Project Manager & EAP |
| Rustmo2 PV Plant near Buffelspoort, North West | Momentous Energy | Project Manager & EAP |
| Spitskop SEF near Northam, Limpopo | FRV & iNca Energy | Project Manager & EAP |
| Steynsrus PV, Free State | Suncorp | Project Manager & EAP |
| Tabor SEF near Polokwane, Limpopo | FRV & iNca Energy | Project Manager & EAP |
| UpingtonAirport PV Installation, Northern Cape | The Power Company | Project Manager & EAP |
| Valeria SEF near Hartebeestpoort Dam, North West | Solar to Benefit Africa | Project Manager & EAP |
| Watershed SEF near Lichtenburg, North West | FRV & iNca Energy | Project Manager & EAP |
| Witkop SEF near Polokwane, Limpopo | FRV & iNca Energy | Project Manager & EAP |
| Woodmead Retail Park Rooftop PV Installation, Gauteng | Momentous Energy | Project Manager & EAP |

**Environmental Compliance, Auditing and ECO**

| Project Name & Location | Client Name | Role |
|---|---|---|
| ECO and bi-monthly auditing for the construction of the Adams Solar PV Project Two South of Hotazel, Northern Cape | Enel Green Power | Project Manager |
| ECO for the construction of the Kathu PV Facility, Northern Cape | REISA | Project Manager |
| ECO and bi-monthly auditing for the construction of the Pulida PV Facility, Free State | Enel Green Power | Project Manager |
| ECO for the construction of the RustMo1 SEF, North West | Momentous Energy | Project Manager |
| ECO for the construction of the Sishen SEF, Northern | Windfall 59 Properties | Project Manager |

| Project Name & Location | Client Name | Role |
|---|---|---|
| Cape | | |
| ECO for the construction of the Upington Airport PV Facility, Northern Cape | Sublanary Trading | Project Manager |
| Quarterly compliance monitoring of compliance with all environmental licenses for the operation activities at the Kathu PV facility, Northern Cape | REISA | Project Manager |
| ECO for the construction of the Konkoonsies II PV SEF and associated infrastructure, Northern Cape | BioTherm Energy | Project Manager |
| ECO for the construction of the Aggeneys PV SEF and associated infrastructure, Northern Cape | BioTherm Energy | Project Manager |

**Compliance Advice and ESAP Reporting**

| Project Name & Location | Client Name | Role |
|---|---|---|
| Aggeneys Solar Farm, Northern Cape | BioTherm Energy | Environmental Advisor |
| Airies II PV Facility SW of Kenhardt, Northern Cape | BioTherm Energy | Environmental Advisor |
| Kalahari SEF Phase II in Kathu, Northern Cape | Engie | Environmental Advisor |
| Kathu PV Facility, Northern Cape | Building Energy | Environmental Advisor |
| Kenhardt PV Facility, Northern Cape | BioTherm Energy | Environmental Advisor |
| Kleinbegin PV SEF West of Groblershoop, Northern Cape | MedEnergy | Environmental Advisor |
| Konkoonises II SEF near Pofadder, Northern Cape | BioTherm Energy | Environmental Advisor |
| Konkoonsies Solar Farm, Northern Cape | BioTherm Energy | Environmental Advisor |
| Lephalale SEF, Limpopo | Exxaro | Environmental Advisor |
| Pixley ka Seme PV Park, South-East of De Aar, Northern Cape | African Clean Energy Developments (ACED) | Environmental Advisor |
| RustMo1 PV Plant near Buffelspoort, North West | Momentous Energy | Environmental Advisor |
| Scuitdrift 1 SEF & Scuitdrift 2 SEF, Limpopo | Building Energy | Environmental Advisor |
| Sirius PV Plants, Northern Cape | Aurora Power Solutions | Environmental Advisor |
| Upington Airport PV Power Project, Northern Cape | Sublunary Trading | Environmental Advisor |
| Upington SEF, Northern Cape | Abengoa Solar | Environmental Advisor |
| Ofir-ZX PV SEF near Keimoes, Northern Cape | Networx S28 Energy | Environmental Advisor |
| Environmental Permitting for the Steynsrus PV1 & PV2 SEF's, Northern Cape | Cronimet Power Solutions | Environmental Advisor |
| Environmental Permitting for the Heuningspruit PV SEF, Northern Cape | Cronimet Power Solutions | Environmental Advisor |

**Due Diligence Reporting**

| Project Name & Location | Client Name | Role |
|---|---|---|
| 5 PV SEF projects in Lephalale, Limpopo | iNca Energy | Environmental Advisor |
| Prieska PV Plant, Northern Cape | SunEdison Energy India | Environmental Advisor |
| Sirius Phase One PV Facility near Upington, Northern Cape | Aurora Power Solutions | Environmental Advisor |

**Environmental Permitting, S53, Water Use Licence (WUL), Waste Management Licence (WML) & Other Applications**

| Project Name & Location | Client Name | Role |
|---|---|---|
| Biodiversity Permit & WULA for the Aggeneys SEF near Aggeneys, Northern Cape | BioTherm Energy | Project Manager & EAP |
| Biodiversity Permit for the Konkoonises II SEF near Pofadder, Northern Cape | BioTherm Energy | Project Manager & EAP |

| Project Name & Location | Client Name | Role |
|---|---|---|
| Biodiversity Permitting for the Lephalale SEF, Limpopo | Exxaro Resources | Project Manager & EAP |
| Environmental Permitting for the Kleinbegin PV SEF West of Groblershoop, Northern Cape | MedEnergy | Project Manager & EAP |
| Environmental Permitting for the Upington SEF, Northern Cape | Abengoa Solar | Project Manager & EAP |
| Environmental Permitting for the Kathu PV Facility, Northern Cape | Building Energy | Project Manager & EAP |
| Environmental Permitting for the Konkoonsies Solar Farm, Northern Cape | BioTherm Energy | Project Manager & EAP |
| Environmental Permitting for the Lephalale SEF, Limpopo | Exxaro Resources | Project Manager & EAP |
| Environmental Permitting for the Scuitdrift 1 SEF & Scuitdrift 2 SEF, Limpopo | Building Energy | Project Manager & EAP |
| Environmental Permitting for the Sirius PV Plant, Northern Cape | Aurora Power Solutions | Project Manager & EAP |
| Environmental Permitting for the Steynsrus PV1 & PV2 SEF's, Northern Cape | Cronimet Power Solutions | Project Manager & EAP |
| Environmental Permitting for the Heuningspruit PV SEF, Northern Cape | Cronimet Power Solutions | Project Manager & EAP |
| Permits for the Kleinbegin and UAP PV Plants, Northern Cape | MedEnergy Global | Project Manager & EAP |
| S53 Application for Arriesfontein Solar Park Phase 1 – 3 near Danielskuil, Northern Cape | Solar Reserve / SunCorp | Project Manager & EAP |
| S53 Application for Hertzogville PV1 & PV 2 SEFs, Free State | Solar Reserve / SunCorp | Project Manager & EAP |
| S53 Application for the Bloemfontein Airport PV Facility, Free State | Sublunary Trading | Project Manager & EAP |
| S53 Application for the Kimberley Airport PV Facility, Northern Cape | Sublunary Trading | Project Manager & EAP |
| S53 Application for the Project Blue SEF, Northern Cape | WWK Developments | Project Manager & EAP |
| S53 Application for the Upington Airport PV Facility, Free State | Sublunary Trading | Project Manager & EAP |
| WULA for the Kalahari SEF Phase II in Kathu, Northern Cape | Engie | Project Manager & EAP |

**RENEWABLE POWER GENERATION PROJECTS: CONCENTRATED SOLAR FACILITIES (CSP)**

**Environmental Impact Assessments and Environmental Management Programmes**

| Project Name & Location | Client Name | Role |
|---|---|---|
| Ilanga CSP 2, 3, 4, 5, 7 & 9 Facilities near Upington, Northern Cape | Emvelo Holdings | Project Manager & EAP |
| Ilanga CSP near Upington, Northern Cape | Ilangethu Energy | Project Manager & EAP |
| Ilanga Tower 1 Facility near Upington, Northern Cape | Emvelo Holdings | Project Manager & EAP |
| Karoshoek CPVPD 1-4 facilities on site 2 as part of the larger Karoshoek Solar Valley Development East of Upington, Northern Cape | FG Emvelo | Project Manager & EAP |

| Project Name & Location | Client Name | Role |
|---|---|---|
| Karoshoek CSP facilities on sites 1.4; 4 & 5 as part of the larger Karoshoek Solar Valley Development East of Upington, Northern Cape | FG Emvelo | Project Manager & EAP |
| Karoshoek Linear Fresnel 1 Facility on site 1.1 as part of the larger Karoshoek Solar Valley Development East of Upington, Northern Cape | FG Emvelo | Project Manager & EAP |

**Environmental Compliance, Auditing and ECO**

| Project Name & Location | Client Name | Role |
|---|---|---|
| ECO for the construction of the !Khi CSP Facility, Northern Cape | Abengoa Solar | Project Manager |
| ECO for the construction of the Ilanga CSP 1 Facility near Upington, Northern Cape | Karoshoek Solar One | Project Manager |
| ECO for the construction of the folar Park, Northern Cape | Kathu Solar | Project Manager |
| ECO for the construction of the KaXu! CSP Facility, Northern Cape | Abengoa Solar | Project Manager |
| Internal audit of compliance with the conditions of the IWUL issued to the Karoshoek Solar One CSP Facility, Northern Cape | Karoshoek Solar One | Project Manager |

**Screening Studies**

| Project Name & Location | Client Name | Role |
|---|---|---|
| Upington CSP (Tower) Plant near Kanoneiland, Northern Cape | iNca Energy and FRV | Project Manager & EAP |

**Compliance Advice and ESAP reporting**

| Project Name & Location | Client Name | Role |
|---|---|---|
| Ilanga CSP Facility near Upington, Northern Cape | Ilangethu Energy | Environmental Advisor |
| Ilangalethu CSP 2, Northern Cape | FG Emvelo | Environmental Advisor |
| Kathu CSP Facility, Northern Cape | GDF Suez | Environmental Advisor |
| Lephalale SEF, Limpopo | Cennergi | Environmental Advisor |
| Solis I CSP Facility, Northern Cape | Brightsource | Environmental Advisor |

**Environmental Permitting, S53, Water Use Licence (WUL), Waste Management Licence (WML) & Other Applications**

| Project Name & Location | Client Name | Role |
|---|---|---|
| Environmental Permitting for the Ilanga CSP Facility near Upington, Northern Cape | Ilangethu Energy | Project Manager & EAP |
| Environmental Permitting for the Kathu CSP, Northern Cape | GDF Suez | Project Manager & EAP |
| WULA for the Solis I CSP Facility, Northern Cape | Brightsource | Project Manager & EAP |

**RENEWABLE POWER GENERATION PROJECTS: WIND ENERGY FACILITIES**

**Environmental Impact Assessments and Environmental Management Programmes**

| Project Name & Location | Client Name | Role |
|---|---|---|
| Sere WEF, Western Cape | Eskom Holdings SoC Limited | EAP |
| Aberdeen WEF, Eastern Cape | Eskom Holdings SoC Limited | Project Manager & EAP |
| Amakhala Emoyeni WEF, Eastern Cape | Windlab Developments | Project Manager & EAP |
| EXXARO West Coast WEF, Western Cape | EXXARO Resources | Project Manager & EAP |

| Project Name & Location | Client Name | Role |
|---|---|---|
| Goereesoe Wind Farm near Swellendam, Western Cape | iNca Energy | Project Manager & EAP |
| Hartneest WEF, Western Cape | Juwi Renewable Energies | Project Manager & EAP |
| Hopefield WEF, Western Cape | Umoya Energy | EAP |
| Kleinsee WEF, Northern Cape | Eskom Holdings SoC Limited | Project Manager & EAP |
| Klipheuwel/Dassiesfontein WEF within the Overberg area, Western Cape | BioTherm Energy | Project Manager & EAP |
| Moorreesburg WEF, Western Cape | iNca Energy | Project Manager & EAP |
| Oyster Bay WEF, Eastern Cape | Renewable Energy Resources Southern Africa | Project Manager & EAP |
| Project Blue WEF, Northern Cape | Windy World | Project Manager & EAP |
| Rheboksfontein WEF, Western Cape | Moyeng Energy | Project Manager & EAP |
| Spitskop East WEF near Riebeeck East, Eastern Cape | Renewable Energy Resources Southern Africa | Project Manager & EAP |
| Suurplaat WEF, Western Cape | Moyeng Energy | Project Manager & EAP |
| Swellendam WEF, Western Cape | IE Swellendam | Project Manager & EAP |
| Tsitsikamma WEF, Eastern Cape | Exxarro | Project Manager & EAP |
| West Coast One WEF, Western Cape | Moyeng Energy | Project Manager & EAP |

**Basic Assessments**

| Project Name & Location | Client Name | Role |
|---|---|---|
| Amakhala Emoyeni Wind Monitoring Masts, Eastern Cape | Windlab Developments | Project Manager & EAP |
| Beaufort West Wind Monitoring Masts, Western Cape | Umoya Energy | Project Manager & EAP |
| Hopefield Community Wind Farm near Hopefield, Western Cape | Umoya Energy | Project Manager & EAP |
| Koekenaap Wind Monitoring Masts, Western Cape | EXXARO Resources | Project Manager & EAP |
| Koingnaas WEF, Northern Cape | Just Palm Tree Power | Project Manager & EAP |
| Laingsburg Area Wind Monitoring Masts, Western Cape | Umoya Energy | Project Manager & EAP |
| Overberg Area Wind Monitoring Masts, Western Cape | BioTherm Energy | Project Manager & EAP |
| Oyster Bay Wind Monitoring Masts, Eastern Cape | Renewable Energy Systems Southern Africa (RES) | Project Manager & EAP |

**Screening Studies**

| Project Name & Location | Client Name | Role |
|---|---|---|
| Albertinia WEF, Western Cape | BioTherm Energy | Project Manager & EAP |
| Koingnaas WEF, Northern Cape | Just Pal Tree Power | Project Manager & EAP |
| Napier Region WEF Developments, Western Cape | BioTherm Energy | Project Manager & EAP |
| Tsitsikamma WEF, Eastern Cape | Exxarro Resources | Project Manager & EAP |
| Various WEFs within an identified area in the Overberg area, Western Cape | BioTherm Energy | Project Manager & EAP |
| Various WEFs within an identified area on the West Coast, Western Cape | Investec Bank Limited | Project Manager & EAP |
| Various WEFs within an identified area on the West Coast, Western Cape | Eskom Holdings Limited | Project Manager & EAP |
| Various WEFs within the Western Cape | Western Cape Department of Environmental Affairs and Development Planning | Project Manager & EAP |

| Project Name & Location | Client Name | Role |
|---|---|---|
| Velddrift WEF, Western Cape | VentuSA Energy | Project Manager & EAP |
| Wind 1000 Project | Thabo Consulting on behalf of Eskom Holdings | Project Manager & EAP |
| Wittekleibosch, Snylip & Doriskraal WEFs, Eastern Cape | Exxarro Resources | Project Manager & EAP |

**Environmental Compliance, Auditing and ECO**

| Project Name & Location | Client Name | Role |
|---|---|---|
| ECO for the construction of the West Coast One WEF, Western Cape | Aurora Wind Power | Project Manager |
| ECO for the construction of the Gouda WEF, Western Cape | Blue Falcon | Project Manager |
| EO for the Dassiesklip Wind Energy Facility, Western Cape | Group 5 | Project Manager |
| Quarterly compliance monitoring of compliance with all environmental licenses for the operation activities at the Gouda Wind Energy facility near Gouda, Western Cape | Blue Falcon | Project Manager |
| Annual auditing of compliance with all environmental licenses for the operation activities at the West Coast One Wind Energy facility near Vredenburg, Western Cape | Aurora Wind Power | Project Manager |
| External environmental and social audit for the Amakhala Wind Farm, Eastern Cape | Cennergi | Project Manager |
| External environmental and social audit for the Tsitsikamma Wind Farm, Eastern Cape | Cennergi | Project Manager |
| ECO for the construction of the Excelsior Wind Farm and associated infrastructure, Northern Cape | BioTherm Energy | Project Manager |
| External compliance audit of the Dassiesklip Wind Energy Facility, Western Cape | BioTherm Energy | Project Manager |

**Compliance Advice**

| Project Name & Location | Client Name | Role |
|---|---|---|
| Amakhala Phase 1 WEF, Eastern Cape | Cennergi | Environmental Advisor |
| Dassiesfontein WEF within the Overberg area, Western Cape | BioTherm Energy | Environmental Advisor |
| Excelsior Wind Farm, Western Cape | BioTherm Energy | Environmental Advisor |
| Great Karoo Wind Farm, Northern Cape | African Clean Energy Developments (ACED) | Environmental Advisor |
| Hopefield Community WEF, Western Cape | African Clean Energy Developments (ACED) | Environmental Advisor |
| Rheboksfontein WEF, Western Cape | Moyeng Energy | Environmental Advisor |
| Tiqua WEF, Western Cape | Cennergi | Environmental Advisor |
| Tsitsikamma WEF, Eastern Cape | Cennergi | Environmental Advisor |
| West Coast One WEF, Western Cape | Moyeng Energy | Environmental Advisor |

**Due Diligence Reporting**

| Project Name & Location | Client Name | Role |
|---|---|---|
| Witteberg WEF, Western Cape | EDPR Renewables | Environmental Advisor |

| Project Name & Location | Client Name | Role |
|---|---|---|
| IPD Vredenburg WEF within the Saldanha Bay area, Western Cape | IL&FS Energy Development Company | Environmental Advisor |

**Environmental Permitting, S53, Water Use Licence (WUL), Waste Management Licence (WML) & Other Applications**

| Project Name & Location | Client Name | Role |
|---|---|---|
| Biodiversity Permitting for the Power Line between the Tsitikamma Community WEF & the Diep River Substation, Eastern Cape | Cennergi | Project Manager & EAP |
| Biodiversity Permitting for the West Coast One WEF, Western Cape | Aurora Wind Power | Project Manager & EAP |
| Environmental Permitting for the Excelsior WEF, Western Cape | BioTherm Energy | Project Manager & EAP |
| Plant Permits & WULA for the Tsitsikamma Community WEF, Eastern Cape | Cennergi | Project Manager & EAP |
| S24G and WULA for the Rectification for the commencement of unlawful activities on Ruimsig AH in Honeydew, Gauteng | Hossam Soror | Project Manager & EAP |
| S24G Application for the Rheboksfontein WEF, Western Cape | Ormonde - Theo Basson | Project Manager & EAP |
| S53 Application & WULA for Suurplaat and Gemini WEFs, Northern Cape | Engie | Project Manager & EAP |
| S53 Application for the Hopefield Community Wind Farm near Hopefield, Western Cape | Umoya Energy | Project Manager & EAP |
| S53 Application for the Project Blue WEF, Northern Cape | WWK Developments | Project Manager & EAP |
| S53 for the Oyster Bay WEF, Eastern Cape | RES | Project Manager & EAP |
| WULA for the Great Karoo Wind Farm, Northern Cape | African Clean Energy Developments (ACED) | Project Manager & EAP |

**CONVENTIONAL POWER GENERATION PROJECTS (COAL)**

**Environmental Impact Assessments and Environmental Management Programmes**

| Project Name & Location | Client Name | Role |
|---|---|---|
| Mutsho Power Station near Makhado, Limpopo | Mutsho Consortium | Project Manager & EAP |
| Coal-fired Power Station near Ogies, Mpumalanga | Ruukki SA | Project Manager & EAP |
| Thabametsi IPP Coal-fired Power Station, near Lephalale, Limpopo | Axia | Project Manager & EAP |
| Transalloys Coal-fired Power Station, Mpumalanga | Transalloys | Project Manager & EAP |
| Tshivasho IPP Coal-fired Power Station (with WML), near Lephalale, Limpopo | Cennergi | Project Manager & EAP |
| Umbani Coal-fired Power Station, near Kriel, Mpumalanga | ISS Global Mining | Project Manager & EAP |
| Waterberg IPP Coal-Fired Power Station near Lephalale, Limpopo | Exxaro Resources | Project Manager & EAP |

**Basic Assessments**

| Project Name & Location | Client Name | Role |
|---|---|---|
| Coal Stockyard on Medupi Ash Dump Site, Limpopo | Eskom Holdings | Project Manager & EAP |

| Project Name & Location | Client Name | Role |
|---|---|---|
| Biomass Co-Firing Demonstration Facility at Arnot Power Station East of Middleburg, Mpumlanaga | Eskom Holdings | Project Manager & EAP |

**Screening Studies**

| Project Name & Location | Client Name | Role |
|---|---|---|
| Baseload Power Station near Lephalale, Limpopo | Cennergi | Project Manager & EAP |
| Coal-Fired Power Plant near Delmas, Mpumalanga | Exxaro Resources | Project Manager & EAP |
| Makhado Power Station, Limpopo | Mutsho Consortium, Limpopo | Project Manager & EAP |

**Environmental Compliance, Auditing and ECO**

| Project Name & Location | Client Name | Role |
|---|---|---|
| ECO for the Camden Power Station, Mpumalanga | Eskom Holdings | Project Manager |

**Compliance Advice**

| Project Name & Location | Client Name | Role |
|---|---|---|
| Thabametsi IPP Coal-fired Power Station, near Lephalale, Limpopo | Axia | Environmental Advisor |

**Environmental Permitting, S53, Water Use Licence (WUL), Waste Management Licence (WML) & Other Applications**

| Project Name & Location | Client Name | Role |
|---|---|---|
| Permit application for the Thabametsi Bulk Water Pipeline, near Lephalale, Limpopo | Axia | Project Manager & EAP |
| S53 & WULA for the Waterberg IPP Coal-Fired Power Station near Lephalale, Limpopo | Exxaro Resources | Project Manager & EAP |
| S53 Application for the Tshivasho Coal-fired Power Station near Lephalale, Limpopo | Cennergi | Project Manager & EAP |

**CONVENTIONAL POWER GENERATION PROJECTS (GAS)**

**Environmental Impact Assessments and Environmental Management Programmes**

| Project Name & Location | Client Name | Role |
|---|---|---|
| Ankerlig OCGT to CCGT Conversion project &400 kV transmission power line between Ankerlig and the Omega Substation, Western Cape | Eskom Holdings SoC Limited | Project Manager & EAP |
| Gourikwa OCGT to CCGT Conversion project & 400 kV transmission power line between Gourikwa & Proteus Substation, Western Cape | Eskom Holdings SoC Limited | Project Manager & EAP |
| Richards Bay Gas to Power Combined Cycle Power Station, KwaZulu-Natal | Eskom Holdings SoC Limited | Project Manager & EAP |
| Richards Bay Gas to Power Plant, KwaZulu-Natal | Richards Bay Gas | Project Manager & EAP |
| Decommissioning & Recommissioning of 3 Gas Turbine Units at Acacia Power Station & 1 Gas Turbine Unit at Port Rex Power Station to the existing Ankerlig Power Station in Atlantis Industria, Western Cape | Eskom Holdings | Project Manager & EAP |
| Two 132kV Chickadee Lines to the new Zonnebloem Switching Station, Mpumalanga | Eskom Holdings | Project Manager & EAP |

**Screening Studies**

| Project Name & Location | Client Name | Role |
|---|---|---|
| Fatal Flaw Analysis for 3 area identified for the establishment of a 500MW CCGT Power Station | Globeleq Advisors Limited | Project Manager & EAP |
| Richards Bay Gas to Power Combined Cycle Power Station, KwaZulu-Natal | Eskom Holdings SoC Limited | Project Manager & EAP |

**GRID INFRASTRUCTURE PROJECTS**

**Environmental Impact Assessments and Environmental Management Programmes**

| Project Name & Location | Client Name | Role |
|---|---|---|
| Aggeneis-Oranjemond Transmission Line & Substation Upgrade, Northern Cape | Eskom Transmission | Project Manager & EAP |
| Ankerlig-Omega Transmission Power Lines, Western Cape | Eskom Transmission | Project Manager & EAP |
| Karoshoek Grid Integration project as part of the Karoshoek Solar Valley Development East of Upington, Northern Cape | FG Emvelo | Project Manager & EAP |
| Koeberg-Omega Transmission Power Lines,, Western Cape | Eskom Transmission | Project Manager & EAP |
| Koeberg-Stikland Transmission Power Lines, Western Cape | Eskom Transmission | Project Manager & EAP |
| Kyalami Strengthening Project, Gauteng | Eskom Transmission | Project Manager & EAP |
| Mokopane Integration Project, Limpopo | Eskom Transmission | Project Manager & EAP |
| Saldanha Bay Strengthening Project, Western Cape | Eskom Transmission | Project Manager & EAP |
| Steelpoort Integration Project, Limpopo | Eskom Transmission | Project Manager & EAP |
| Transmission Lines from the Koeberg-2 Nuclear Power Station site, Western Cape | Eskom Transmission | Project Manager & EAP |
| Tshwane Strengthening Project, Phase 1, Gauteng | Eskom Transmission | Project Manager & EAP |

**Basic Assessments**

| Project Name & Location | Client Name | Role |
|---|---|---|
| Dassenberg-Koeberg Power Line Deviation from the Koeberg to the Ankerlig Power Station, Western Cape | Eskom Holdings | Project Manager & EAP |
| Golden Valley II WEF Power Line & Substation near Cookhouse, Eastern Cape | BioTherm Energy | Project Manager & EAP |
| Golden Valley WEF Power Line near Cookhouse, Eastern Cape | BioTherm Energy | Project Manager & EAP |
| Karoshoek Grid Integration project as part of the Karoshoek Solar Valley Development East of Upington, Northern Cape | FG Emvelo | Project Manager & EAP |
| Konkoonsies II PV SEF Power Line to the Paulputs Substation near Pofadder, Northern Cape | BioTherm Energy | Project Manager & EAP |
| Perdekraal West WEF Powerline to the Eskom Kappa Substation, Westnern Cape | BioTherm Energy | Project Manager & EAP |
| Rheboksfontein WEF Powerline to the Aurora Substation, Western Cape | Moyeng Energy | Project Manager & EAP |
| Soetwater Switching Station near Sutherland, Northern Cape | African Clean Energy Developments (ACED) | Project Manager & EAP |

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|---|---|---|
| Solis Power I Power Line & Switchyard Station near Upington, Northern Cape | Brightsource | Project Manager & EAP |
| Stormwater Canal System for the Ilanga CSP near Upington, Northern Cape | Karoshoek Solar One | Project Manager & EAP |
| Tsitsikamma Community WEF Powerline to the Diep River Substation, Eastern Cape | Eskom Holdings | Project Manager & EAP |

**Environmental Compliance, Auditing and ECO**

| Project Name & Location | Client Name | Role |
|---|---|---|
| ECO for the construction of the Ferrum-Mookodi Transmission Line, Northern Cape and North West | Trans-Africa Projects on behalf of Eskom | Project Manager |
| EO for the construction of the Gamma-Kappa Section A Transmission Line, Western Cape | Trans-Africa Projects on behalf of Eskom | Project Manager |
| EO for the construction of the Gamma-Kappa Section B Transmission Line, Western Cape | Trans-Africa Projects on behalf of Eskom | Project Manager |
| EO for the construction of the Hydra IPP Integration project, Northern Cape | Trans-Africa Projects on behalf of Eskom | Project Manager |
| EO for the construction of the Kappa-Sterrekus Section C Transmission Line, Western Cape | Trans-Africa Projects on behalf of Eskom | Project Manager |
| EO for the construction of the Namaqualand Strengthening project in Port Nolloth, Western Cape | Trans-Africa Projects on behalf of Eskom | Project Manager |
| ECO for the construction of the Neptune Substation Soil Erosion Mitigation Project, Eastern Cape | Eskom | Project Manager |
| ECO for the construction of the Ilanga-Gordonia 132kV power line, Northern Cape | Karoshoek Solar One | Project Manager |

**Environmental Permitting, S53, Water Use Licence (WUL), Waste Management Licence (WML) & Other Applications**

| Project Name & Location | Client Name | Role |
|---|---|---|
| Environmental Permitting and WULA for the Rockdale B Substation & Loop in Power Lines, | Eskom Holdings | Project Manager & EAP |
| Environmental Permitting and WULA for the Steelpoort Integration project, Limpopo | Eskom Holdings | Project Manager & EAP |
| Environmental Permitting for Solis CSP near Upington, Northern Cape | Brightsource | Project Manager & EAP |

**MINING SECTOR PROJECTS**

**Environmental Impact Assessments and Environmental Management Programmes**

| Project Name & Location | Client Name | Role |
|---|---|---|
| Elitheni Coal Mine near Indwe, Eastern Cape | Elitheni Coal | Project Manager & EAP |
| Groot Letaba River Development Project Borrow Pits | liso | Project Manager & EAP |
| Grootegeluk Coal Mine for coal transportation infrastructure between the mine and Medupi Power Station (EMPr amendment) , Limpopo | Eskom Holdings | Project Manager & EAP |
| Waterberg Coal Mine (EMPr amendment), Limpopo | Seskoko Resources | Project Manager & EAP |
| Aluminium Plant WML & AEL, Gauteng | GfE-MIR Alloys & Minerals | Project Manager & EAP |

**Basic Assessments**

| Project Name & Location | Client Name | Role |
|---|---|---|
| Rare Earth Separation Plant in Vredendal, Western Cape | Rareco | Project Manager & EAP |

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|---|---|---|
| Decommissioning and Demolition of Kilns 5 & 6 at the Slurry Plant, Kwa-Zulu Natal | PPC | Project Manager & EAP |

**Environmental Compliance, Auditing and ECO**

| Project Name & Location | Client Name | Role |
|---|---|---|
| ECO for the construction of the Duhva Mine Water Recovery Project, Mpumalanga | Eskom Holdings SoC Limited | Project Manager |
| External compliance audit of Palesa Coal Mine's Integrated Water Use License (IWUL), near KwaMhlanga, Mpumalanga | HCI Coal | Project Manager |
| External compliance audit of Palesa Coal Mine's Waste Management License (WML) and EMP, near KwaMhlanga, Mpumalanga | HCI Coal | Project Manager |
| External compliance audit of Mbali Coal Mine's Integrated Water Use License (IWUL), near Ogies, Mpumalanga | HCI Coal | Project Manager |
| Independent External Compliance Audit of Water Use License (WUL) for the Tronox Namakwa Sands (TNS) Mining Operations (Brand se Baai), Western Cape | Tronox Namakwa Sands | Project Manager |
| Independent External Compliance Audit of Water Use License (WUL) for the Tronox Namakwa Sands (TNS) Mineral Separation Plant (MSP), Western Cape | Tronox Namakwa Sands | Project Manager |
| Independent External Compliance Audit of Water Use License (WUL) for the Tronox Namakwa Sands (TNS) Smelter Operations (Saldanha), Western Cape | Tronox Namakwa Sands | Project Manager |
| Compliance Auditing of the Waste Management Licence for the PetroSA Landfill Site at the GTL Refinery, Western Cape | PetroSA | Project Manager |

**Environmental Permitting, S53, Water Use Licence (WUL), Waste Management Licence (WML) & Other Applications**

| Project Name & Location | Client Name | Role |
|---|---|---|
| Waste Licence Application for the Rare Earth Separation Plant in Vredendal, Western Cape | Rareco | Project Manager & EAP |
| WULA for the Expansion of the Landfill site at Exxaro's Namakwa Sands Mineral Separation Plant, Western Cape | Exxaro Resources | Project Manager & EAP |
| S24G & WML for an Aluminium Plant, Gauteng | GfE-MIR Alloys & Minerals | Project Manager & EAP |

**INFRASTRUCTURE DEVELOPMENT PROJECTS (BRIDGES, PIPELINES, ROADS, WATER RESOURCES, STORAGE, ETC)**

**Environmental Impact Assessments and Environmental Management Programmes**

| Project Name & Location | Client Name | Role |
|---|---|---|
| Bridge across the Ngotwane River, on the border of South Africa and Botswana | Eskom Holdings | Project Manager & EAP |
| Chemical Storage Tanks, Metallurgical Plant Upgrade & Backfill Plant upgrade at South Deep Gold Mine, near Westornaria, Gauteng | Goldfields | Project Manager & EAP |
| Expansion of the existing Welgedacht Water Care Works, Gauteng | ERWAT | Project Manager & EAP |

| Project Name & Location | Client Name | Role |
|---|---|---|
| Golden Valley WEF Access Road near Cookhouse, Eastern Cape | BioTherm Energy | Project Manager & EAP |
| Great Fish River Wind Farm Access Roads and Watercourse Crossings near Cookhouse, Eastern Cape | African Clean Energy Developments (ACED) | Project Manager & EAP |
| Ilanga CSP Facility Watercourse Crossings near Upington, Northern Cape | Karoshoek Solar one | Project Manager & EAP |
| Modification of the existing Hartebeestfontein Water Care Works, Gautng | ERWAT | Project Manager & EAP |
| N10 Road Realignment for the Ilanga CSP Facility, East of Upington, Northern Cape | SANRAL | Project Manager & EAP |
| Nxuba (Bedford) Wind Farm Watercourse Crossings near Cookhouse, Eastern Cape | African Clean Energy Developments (ACED) | Project Manager & EAP |
| Pollution Control Dams at the Medupi Power Station Ash Dump & Coal Stockyard, Limpopo | Eskom | Project Manager & EAP |
| Qoboshane borrow pits (EMPr only), Eastern Cape | Emalahleni Local Municipality | Project Manager & EAP |
| Tsitsikamma Community WEF Watercourse Crossings, Eastern Cape | Cennergi | Project Manager & EAP |
| Clayville Central Steam Plant, Gauteng | Bellmall Energy | Project Manager & EAP |
| Msenge Emoyeni Wind Farm Watercourse Crossings and Roads, Eastern Cape | Windlab | Project Manager & EAP |

**Basic Assessments**

| Project Name & Location | Client Name | Role |
|---|---|---|
| Harmony Gold WWTW at Doornkop Mine, Gauteng | Harmony Doornkop Plant | Project Manager & EAP |
| Ofir-ZX Watercourse Crossing for the Solar PV Facility, near Keimoes, Northern Cape | Networx S28 Energy | Project Manager & EAP |
| Qoboshane bridge & access roads, Eastern Cape | Emalahleni Local Municipality | Project Manager & EAP |
| Relocation of the Assay Laboratory near Carletonville, Gauteng | Sibanye Gold | Project Manager & EAP |
| Richards Bay Harbour Staging Area, KwaZulu-Natal | Eskom Holdings | Project Manager & EAP |
| S-Kol Watercourse Crossing for the Solar PV Facility, East of Keimoes, Northern Cape | Networx S28 Energy | Project Manager & EAP |
| Sonnenberg Watercourse Crossing for the Solar PV Facility, West Keimoes, Northern Cape | Networx S28 Energy | Project Manager & EAP |
| Kruisvallei Hydroelectric Power Generation Scheme, Free State | Building Energy | Project Manager & EAP |
| Masetjaba Water Reservoir, Pump Station and Bulk Supply Pipeline near Nigel, Gauteng | Naidu Consulting Engineers | Project Manager & EAP |
| Access Road for the Dwarsug Wind Farm, Northern Cape Province | South Africa Mainsteam Renewable Power | Project Manager & EAP |

**Screening Studies**

| Project Name & Location | Client Name | Role |
|---|---|---|
| Roodepoort Open Space Optimisation Programme (OSOP) Precinct, Gauteng | TIMAC Engineering Projects | Project Manager & EAP |
| Vegetable Oil Plant and Associated Pipeline, Kwa-Zulu Natal | Wilmar Oils and Fats Africa | Project Manager & EAP |

**Environmental Compliance, Auditing and ECO**

| Project Name & Location | Client Name | Role |
|---|---|---|
| ECO and bi-monthly auditing for the construction of the Olifants River Water Resources Development Project (ORWRDP) Phase 2A: De Hoop Dam, R555 realignment and housing infrastructure | Department of Water and Sanitation | Project Manager<br>Auditor |
| ECO for the Rehabilitation of the Blaaupan & Storm Water Channel, Gauteng | Airports Company of South Africa (ACSA) | Project Manager |
| Due Diligence reporting for the Better Fuel Pyrolysis Facility, Gauteng | Better Fuels | Project Manager |
| ECO for the Construction of the Water Pipeline from Kendal Power Station to Kendal Pump Station, Mpumalanga | Transnet | Project Manager |
| ECO for the Replacement of Low-Level Bridge, Demolition and Removal of Artificial Pong, and Reinforcement the Banks of the Crocodile River at the Construction at Walter Sisulu National Botanical Gardens, Gauteng Province | South African National Biodiversity Institute (SANBI) | Project Manager |
| External Compliance Audit of the Air Emission Licence (AEL) for a depot in Bloemfontein, Free State Province and in Tzaneen, Mpumalanga Province | PetroSA | Project Manager |

**Environmental Permitting, S53, Water Use Licence (WUL), Waste Management Licence (WML) & Other Applications**

| Project Name & Location | Client Name | Role |
|---|---|---|
| WULA for the Izubulo Private Nature Reserve, Limpopo | Kjell Bismeyer, Jann Bader, Laurence Saad | Project Manager & EAP |
| WULA for the Masodini Private Game Lode, Limpopo | Masodini Private Game Lodge | Environmental Advisor |
| WULA for the Ezulwini Private Nature Reserve, Limpopo | Ezulwini Investments | Project Manager & EAP |
| WULA for the Masodini Private Game Lode, Limpopo | Masodini Private Game Lodge | Project Manager & EAP |
| WULA for the N10 Realignment at the Ilanga SEF, Northern Cape | Karoshoek Solar One | Project Manager & EAP |
| WULA for the Kruisvallei Hydroelectric Power Generation Scheme, Free State | Building Energy | Project Manager & EAP |
| S24G and WULA for the Ilegal construction of structures within a watercourse on EFF 24 Ruimsig Agricultural Holdings, Gauteng | Sorror Language Services | Project Manager & EAP |

**HOUSING AND URBAN PROJECTS**

**Basic Assessments**

| Project Name & Location | Client Name | Role |
|---|---|---|
| Postmasburg Housing Development, Northern Cape | Transnet | Project Manager & EAP |

**Compliance Advice and reporting**

| Project Name & Location | Client Name | Role |
|---|---|---|
| Kampi ya Thude at the Olifants West Game Reserve, Limpopo | Nick Elliot | Environmental Advisor |
| External Compliance Audit of WUL for the Johannesburg Country Club, Gauteng | Johannesburg Country Club | Project Manager |

**Environmental Compliance, Auditing and ECO**

| Project Name & Location | Client Name | Role |
|---|---|---|
| Due Diligence Audit for the Due Diligence Audit Report, Gauteng | Delta BEC (on behalf of Johannesburg Development Agency (JDA)) | Project Manager |

**ENVIRONMENTAL MANAGEMENT TOOLS**

| Project Name & Location | Client Name | Role |
|---|---|---|
| Development of the 3rd Edition Environmental Implementation Plan (EIP) | Gauteng Department of Agriculture and Rural Development (GDARD) | Project Manager & EAP |
| Development of Provincial Guidelines on 4x4 routes, Western Cape | Western Cape Department of Environmental Affairs and Development Planning | EAP |
| Compilation of Construction and Operation EMP for the Braamhoek Transmission Integration Project, Kwazulu-Natal | Eskom Holdings | Project Manager & EAP |
| Compilation of EMP for the Wholesale Trade of Petroleum Products, Gauteng | Munaca Technologies | Project Manager & EAP |
| Operational Environmental Management Programme (OEMP) for Medupi Power Station, Limpopo | Eskom Holdings | Project Manager & EAP |
| Operational Environmental Management Programme (OEMP) for the Dube TradePort Site Wide Precinct | Dube TradePort Corporation | Project Manager & EAP |
| Operational Environmental Management Programme (OEMP) for the Kusile Power Station, Mpumalanga | Eskom Holdings | Project Manager & EAP |
| Review of Basic Assessment Process for the Wittekleibosch Wind Monitoring Mast, Eastern Cape | Exxaro Resources | Project Manager & EAP |
| Revision of the EMPr for the Sirius Solar PV | Aurora Power Solutions | Project Manager & EAP |
| State of the Environment (SoE) for Emalahleni Local Municipality, Mpumalanga | Simo Consulting on behalf of Emalahleni Local Municipality | Project Manager & EAP |
| Aspects and Impacts Register for Salberg Concrete Products operations | Salberg Concrete Products | EAP |
| First State of Waste Report for South Africa | Golder on behalf of the Department of Environmental Affairs | Project Manager & EAP |
| Responsibilities Matrix and Gap Analysis for the Kruisvallei Hydroelectric Power Generation Scheme, Free State Province | Building Energy | Project Manager |
| Responsibilities Matrix and Gap Analysis for the Roggeveld Wind Farm, Northern & Western Cape Provinces | Building Energy | Project Manager |

**PROJECTS OUTSIDE OF SOUTH AFRICA**

| Project Name & Location | Client Name | Role |
|---|---|---|
| Advisory Services for the Zizabona Transmission Project, Zambia, Zimbabwe, Botswana & Namibia | PHD Capital | Advisor |
| EIA for the Semonkong WEF, Lesotho | MOSCET | Project Manager & EAP |
| EMP for the Kuvaninga Energia Gas Fired Power Project, Mozambique | ADC (Pty) Ltd | Project Manager & EAP |
| Environmental Screening Report for the SEF near Thabana Morena, Lesotho | Building Energy | EAP |
| EPBs for the Kawambwa, Mansa, Mwense and Nchelenge SEFs in Luapula Province, Zambia | Building Energy | Project Manager & EAP |
| ESG Due Diligence for the Hilton Garden Inn Development in Windhoek, Namibia | Vatange Capital | Project Manager |
| Mandahill Mall Rooftop PV SEF EPB, Lusaka, Zambia | Building Energy | Project Manager & EAP |
| Monthly ECO for the PV Power Plant for the Mocuba Power Station | Scatec | Project Manager |

**Certification:**

I, the undersigned, certify that to the best of my knowledge and belief, these data correctly describe me, my qualifications, and my experience.

**Date:** 16 October 2020

**Signature of staff member or authorised official from the firm**

Full name of staff member: Jo-Anne Thomas

Signed: