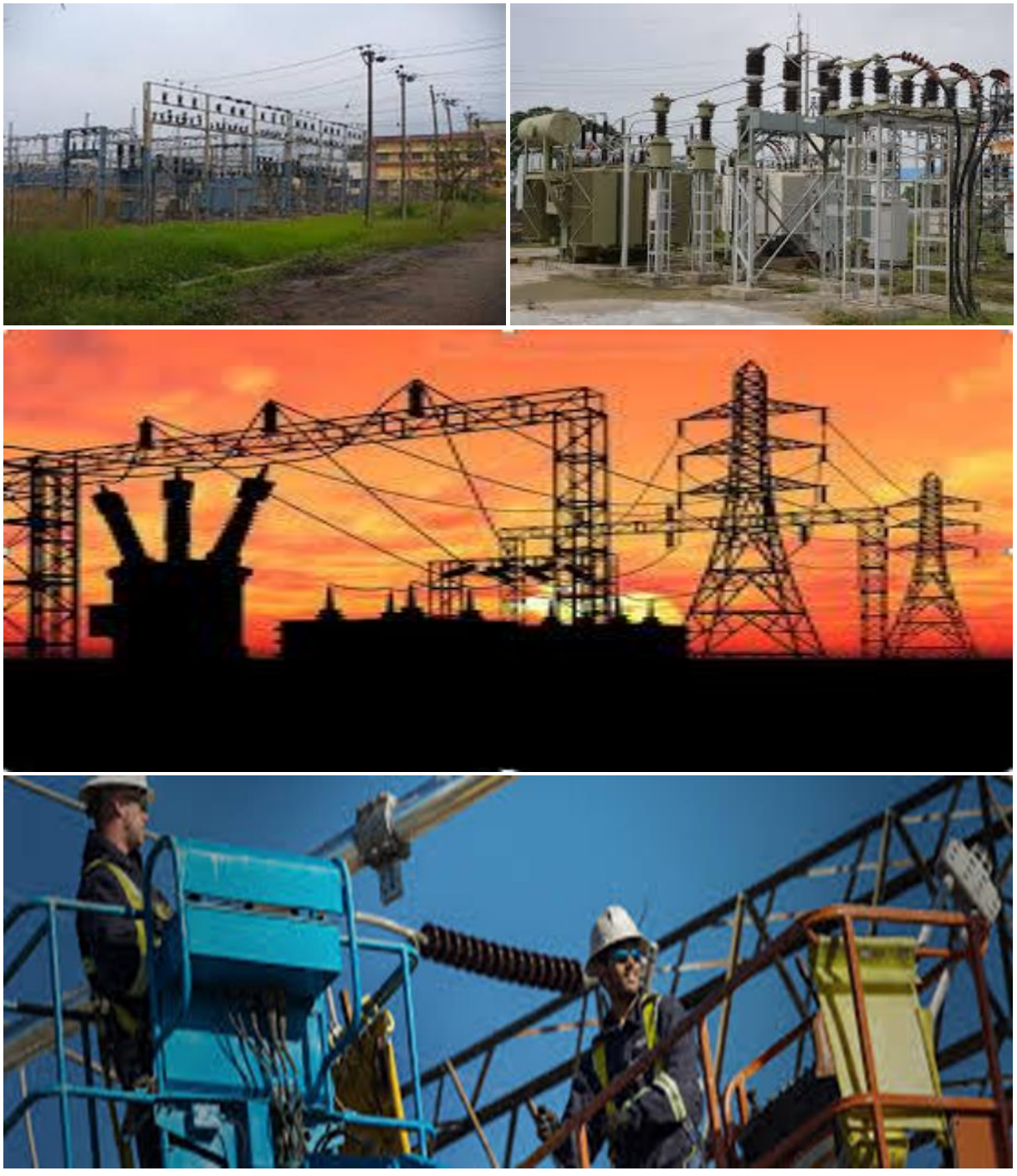
# VREDE SOLAR ENERGY FACILITY, KROONSTAD, FREE STATE PROVINCE

## Environmental Management Programme for the on-site substation associated with the Vrede Solar Energy Facility

April 2021

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



environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

**TABLE OF CONTENTS**

**List of tables**

## 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** | Environment 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&APs** | 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) | <u>Role</u><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><u>Responsibilities</u><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&APs), as required. Issues of non-compliance raised by the ECO must be taken up by the Project Manager, and resolved with the Contractor as per the conditions of his contract. Decisions regarding environmental procedures, specifications and requirements which have a cost implication (i.e. those that are deemed to be a variation, not allowed for in the |

| 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;<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;<br>- Measure and communicate environmental performance to the Contractor; |

| Responsible Person(s) | Role and Responsibilities |
|---|---|
| | - 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;<br>- Acting as Developer's Environmental Representative on site and work together with the ECO and contractor; |
| Contractor | Role<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>Responsibilities<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;<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. |
| 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 |

| Responsible Person(s) | Role and Responsibilities |
|---|---|
| | 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><u>Responsibilities</u><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;
- Complaints register.

### 4.3 Weekly Environmental Checklist

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

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

4.4 Environmental site meetings

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

4.5 Required Method Statements

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

The method statement must cover applicable details with regard to:

- development procedures;
- materials and equipment to be used;
- getting the equipment to and from site;
- how the equipment/ material will be moved while on site;
- how and where material will be stored;
- the containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur;
- timing and location of activities;
- compliance/ non-compliance with the EMPr; and
- any other information deemed necessary by the ECOs.

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

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

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

4.6 Environmental Incident Log (Diary)

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

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

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

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

The Environmental Incident Log will be captured in the EAR.

4.7 Non-compliance

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

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

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

4.8 Corrective action records

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

4.9 Photographic record

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

The Contractor shall:

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

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

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

4.10 Complaints register

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

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

4.11 Claims for damages

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

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

4.12 Interactions with affected parties

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

The ECOs shall:

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

4.13 Environmental audits

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

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

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

4.14 Final environmental audits

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

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

## 5. IMPACT MANAGEMENT OUTCOMES AND IMPACT MANAGEMENT ACTIONS

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

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

The completed template must be signed and dated on each page by both the contractor and the holder of the EA prior to commencement of the activity. The method statements prepared and agreed to by the holder of the EA must be appended to the template as Appendix 1. Each method statement must also be duly signed and dated on each page by the 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 understand the individual responsibilities in terms of this EMPr. | | | | | | |
|---|---|---|---|---|---|---|
| **Impact Management Actions** | **Implementation** | | | **Monitoring** | | |
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – All staff must receive environmental awareness training prior to commencement of the activities. | ECO / cEO / dEO | Hold environmental awareness training workshops | Pre-construction Construction | 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 Construction | ECO dEO 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 material which covers the dangers of open and/or unattended fire | Pre-construction<br>Construction | ECO<br>dEO | Prior to the commencement of the environmental awareness training | 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<br>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<br>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 minimized 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 | 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 |

| | | | | | | |
|---|---|---|---|---|---|---|
| and the placement of staff accommodation, cooking and ablution facilities, waste and wastewater management. | | | | | | |
| – Location of construction camps must be within approved area to ensure that the site does not impact on sensitive areas identified in the environmental assessment or site walk through. | DPM | Place construction camps outside of sensitive areas identified in the Basic Assessment Report | Pre-construction Construction | ECO 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 identified in the BA Report | Pre-construction | ECO dEO | Once, prior to construction | Availability of a layout and sensitivity map indicating avoidance of sensitive areas and placement within disturbed areas |
| – The camp must be fenced in accordance with *Section 5.5: Fencing and gate installation*. | DPM | Design and implementation of fencing as per the requirements of Section 5.5 of this EMPr | Pre-construction & Construction | ECO 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 new accommodation is not proposed. Employees will be accommodated in the nearby towns such as Kroonstad and transported to and from site daily. | | | | | |

### *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 EIA 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. | 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/or notes of compliance that no unauthorised access or 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 formalized and signed by the DPM, Contractor and landowner before commencing with the activities. | DPM<br>Contractor | Develop access agreements with the affected landowners. Ensure that agreements are approved and signed | Pre-construction | dEO<br>ECO | Once, prior to construction | Availability of approved and signed agreement/s |
| – 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 degradation takes place | During the construction phase | cEO / ECO | Weekly | Photographic record of the pre-construction condition 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 | 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 minimise further disturbance through the development of new roads. | Contractor (and Eskom maintenance staff where relevant to operation) | Existing access routes to be used must be specified and the development of new roads must be avoided as far as possible | Construction and operation | cEO Operation and maintenance team | Weekly | Implementation of the 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 | During the construction phase | ECO | Prior to the use of private roads | Photographic record and proof of the road conditions agreed upon |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | requirements of section 4.9 and agree on the required condition of the roads with the landowner, DPM and contractor | | | | 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 construction | Implementation 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<br>dEO | Once during the design and weekly during the construction of access roads | Implementation of the approved layout |

### *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 construction of all new gates has been completed | Photographic record of the existing and new gates as per the requirements of section4.9 |
| – 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 Operation and maintenance team | 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 an existing 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 required |
| – 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 | During the construction phase | cEO | Once, during the erection of the gates during | New gates installed as per the requirement |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | installed for jackal proofing | | | the construction phase | |
| – 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 construction phase | Gates installed in electrified fencing is electrified |
| – All demarcation fencing and barriers must be maintained in good working order for the duration of 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 | 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 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | restrict life-stock 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 construction phase | Use of high-quality materials for fencing approved by SABS |
| – The use of razor wire as fencing must be avoided as far as possible. | Contractor | Razor wire must not be sourced or used for the erection of fencing | During the construction phase | ECO | To be monitored as fencing is erected during the construction phase | Fences erected do not make use of razor wire |
| – Fenced areas with gate access must remain locked after hours, during weekends and on holidays if staff is away from site. Site security will be required at all times. | 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<br>dEO | Once, following the completion of the construction phase | No temporary fences associated with the project is present following the completion of the construction phase |

| | | | | | | |
|---|---|---|---|---|---|---|
| – The contractor must ensure that all fence uprights are appropriately removed, ensuring that no uprights are cut at ground level but rather removed completely. | Contractor | Appropriate removal of all fence uprights | At the end of the Construction Phase | ECO<br>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 | Not applicable – No abstraction from a river proposed. | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| c. All reasonable measures to limit pollution or sedimentation of the downstream watercourse are implemented. | | | | | | |
| – 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 wastewater 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 | ECO | Weekly | No mismanagement of runoff or contaminated water due to the temporary concrete batching plant |
| – 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 | During the Construction Phase | ECO | Monthly | Availability of approved absorbent material at the construction site and proof of |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | disposal facilities for disposal of oil | | | | disposal of oil at licenses disposal facilities |
| – Natural stormwater runoff not contaminated during the development and clean water can be discharged directly to watercourses and water bodies, subject to the Project Manager's approval and support by the ECO. | DPM in consultation with the ECO | Consultation between the DPM and the ECO to determine if water can be discharged directly into water bodies (where present). The necessary water quality testing must be undertaken prior to discharge | 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 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 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. |

### *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 which are strategically placed throughout the site | During the construction phase | ECO | Weekly | Appropriate waste collection bins are available throughout the site |
| – A suitably positioned and clearly demarcated waste collection site must be identified and provided. | DPM and Contractor | Identify an appropriate location for the waste collection site which must be clearly demarcated through signage | Design and Construction Phase | ECO | Once, prior to the commencement of construction | A waste collection site is appropriately placed and demarcated |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | and temporary fencing | | | | |
| – 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 | ECO | 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 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 management plan | During the construction phase | ECO | Monthly | Disposal certificates of disposal at licensed facilities to be provided |
| – Certificates of safe disposal for general, hazardous and recycled waste must be maintained. | Contractor | Obtain certificates for safe disposal of waste | 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 | ECO | Weekly | No incidents reported of spillage of pollutants into watercourses |
| – In the event of a spill, prompt action must be taken to clear the polluted or affected areas. | Contractor and cEO | Develop a management plan or process for implementation should a spill take place | During the construction phase | ECO | 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 environmental impact | 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 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | assessment and specialist studies | | | | reviewing the as-built designs (once-off confirmation) |
| – No return flow into the estuaries must be allowed and no disturbance of the Estuarine functional Zone should occur. | Not applicable – no estuaries are located within the study area. | | | | | |
| – Development of permanent watercourse or estuary crossing must only be undertaken where no alternative access to tower position is available. | cEO, Contractor | Ensure that permeant crossings (access roads) are provided for access to the grid connection corridor if no alternative crossing is available. | During the construction phase | cEO | Weekly | Ensure that permeant 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 continually 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 favoured over the creation of new crossings (including temporary access). | DPM, cEO | Develop a management plan or process for implementation | 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 created and no |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | should a spill take place within a watercourse and ensure continually monitoring | | | | 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 Operation and maintenance team | 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 | 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 | ECO | Weekly, and as and when required | Implementation of the Plant Search and Rescue Plan and photographic evidence and notes of the implementation of the plan |

| | | | | | | |
|---|---|---|---|---|---|---|
| – 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 | 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 | Monthly | Rescue and replanted species reported in Audit Report |
| – 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 Construction Phase | ECO | Monthly | Felled Trees reported in Audit Report |
| – 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 | During the Construction Phase | ECO | Monthly | No felled trees, vegetation cuttings and debris are dumped in |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | licensed waste disposal facility | | | | 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 |
| – A daily register must be kept of all relevant details of herbicide usage. | Contractor | Develop a daily register for the documentation of the details of herbicide usage | During the construction phase | ECO | Monthly | Daily register provided by the pest control operator |
| – No herbicides must be used in estuaries | Not applicable - no estuaries are present within the study area | | | | | |
| – 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 | Remove all alien invasive vegetation and dispose of the removed vegetation at a licensed waste management facility | During the construction phase | ECO | Monthly, and as and when required | Disposal certificates of disposal at licensed facilities to be provided and filed as part of the filing system |

### *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 construction phase | Written consent provided by the landowner and proof of representation of the landowner during interference |
| – The breeding sites of raptors and other wild bird species must be taken into consideration during the planning of the development programme. | dEO / 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 which 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 fledgelings | During the Construction Phase Operation Phase | ECO Operation and maintenance team | Weekly, and as and 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 | Weekly during construction and monthly during operation | Photographic record of compliance and successful implementation of the recommended measures |
| – No poaching must be tolerated under any circumstances. All animal dens in close proximity to the works areas must be marked as Access restricted areas. | dEO / cEO in consultation with the Contractor | All site staff must be informed of this requirement during the Environmental Awareness Training and the consequences of not adhering to the requirement. These areas must be demarcated as | During the Construction Phase | ECO | Monthly, and as and when required | No instances of poaching is reported |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | Access Restricted Areas | | | | |
| – 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 |
| – In areas where snakes are abundant, snake deterrents are to be deployed on the pylons to prevent snakes climbing up, being electrocuted and causing power outages. | dEO / cEO in consultation with the Contractor | Implement and maintain snake deterrents in areas where snakes are abundant | During the Construction Phase Operation Phase | ECO Operation and maintenance team | Once, during the construction and as and when required. 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 | Undertake a Heritage Walk-through Survey<br><br>Spatially identify and demarcate areas of heritage significance as per 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. | Suitably qualified specialist in consultation with the ECO | Appoint a suitably qualified specialist to carry out the monitoring of excavations for fossils, artefacts and important heritage material | During the Construction Phase | ECO | During the undertaking of excavations of fossils, artefacts and heritage material | Proof of appointment of a suitably qualified specialist and photographic record of required monitoring by the specialist |

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

### *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 | ECO | Once, prior to the commencement of construction and weekly during the construction phase | Compliance with the Emergency Preparedness, Response and Fire Management Plan |
| – All unattended open excavations must be adequately fenced or demarcated. | Contractor | Ensure that all excavations undertaken is fenced and demarcated within a reasonable timeframe and in instances | During the Construction Phase | ECO | Weekly | Excavations are fenced where required and photographic proof can be provided |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | where excavations will be open for long-periods of time | | | | |
| – Adequate protective measures must be implemented to prevent unauthorised access to and climbing of partly constructed infrastructure and protective scaffolding. | Contractor | All staff must be easily identifiable and the climbing of infrastructure and scaffolding must 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 secure structures vulnerable to high winds | During the construction phase | ECO | Weekly, and as and when required | No incidents of unstable structures due to high winds is reported |
| – Maintain an incidents and complaints register in which all incidents or complaints involving the public are logged. | cEO | Compile and regularly update as incidents and complaints are submitted from the public and indicate the actions taken to resolve the complaint | 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 which avoid environmental sensitivities | During the Construction Phase | ECO | Weekly | Mobile toilets are installed and avoid environmental sensitivities |
| – The use of ablution facilities and or mobile toilets must be used at all times and no indiscriminate use of the veld for the purposes of ablutions must be permitted under any circumstances. | Contractor in consultation with the cEO | All site staff must be informed of this requirement during the Environmental Awareness Training and the consequences of not adhering to the requirement. | Pre-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; | 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 | ECO | Weekly | No evidence of non-compliance identified |

| | | | | | | |
|---|---|---|---|---|---|---|
| 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; and<br>f) Toilets are serviced regularly and the ECO must inspect toilets to ensure compliance to health standards. | | | | | | |
| – A copy of the waste disposal certificates must be maintained. | Contractor | Certificates obtained from the licensed waste disposal facility with the emptying of the toilets must be kept on file | During the Construction Phase | ECO | Monthly, and as and when required | Certificates for waste disposal from the licensed waste disposal facility |

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

| | | | | | | |
|---|---|---|---|---|---|---|
| | | are available on site and that first aid kits to provide medical support is readily available | | | | 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 | Pre-construction | ECO | Once, prior to the commencement of construction | Emergency Preparedness, Response and Fire Management Plan includes |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | Plan specific to the project which covers accidents, potential spillages and fires | | | | 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 emergency procedures | Pre-construction | ECO | Prior to the commencement of the environmental awareness training | Environmental awareness training material requirements checklist |
| – 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 | Construction and Operations | ECO | As and when a spill or leak occurs | The mitigation measures included under Section 5.17 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | or leak as per the requirements of 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 |
| – Containers must be clearly marked to indicate contents, quantities and safety requirements. | Contractor | Where hazardous waste is stored, | During the Construction Phase | ECO | Monthly | Photographic proof that containers are |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | these must be clearly marked indicating the required details of the contents | | | | 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 Construction 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 Construction 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 Substance (HCS) control sheet specific to the project | During the Construction Phase | ECO | Monthly, and as and when required | Complete and up to date control sheet provided by the Contractor |
| – All hazardous chemicals that will be used on site must have Material Safety Data Sheets (MSDS). | cEO / Contractor | Keep a record of all hazardous chemicals and | During the Construction Phase | ECO | Monthly, and as and when required | Record of hazardous chemicals and |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | the respective MSDS | | | | 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 protective equipment for the relevant personnel handling hazardous substances and materials | Pre-construction & Construction | ECO | Prior to the commencement of the environmental awareness training and monthly during the construction phase for personal protective equipment | Environmental awareness training material requirements checklist and all relevant personnel have undergone appropriate training and have access to personal protective equipment |
| – The Contractor must ensure that diesel and other liquid fuel, oil and hydraulic fluid is stored in appropriate storage tanks or in bowsers. | Contractor | Appropriate storage facilities must be constructed or obtained for the | During the Construction Phase | ECO | Monthly, and as and when required | Storage tanks for the project are appropriate and no incidents are |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | storing of diesel, other liquid fuel, oil and hydraulic fluid | | | | 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 the requirements listed | During the Construction Phase | ECO | Once, during construction | Bunded storage areas are constructed according to the requirements |
| – Provision must be made for refuelling 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 | During the Construction Phase | ECO<br>cEO | Monthly<br>Weekly | Drip trays or bunded areas are used for the storage of dirty drums |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | per the requirements | | | | |
| – No unauthorised access into the hazardous substances' storage areas must be permitted. | Contractor | Ensure through the implementation of procedures that no unauthorised access is undertaken into the storage areas | 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 signage in the relevant areas | During the Construction Phase | ECO<br>cEO | Monthly<br>Weekly | Photographic record of the signage placed must be provided |
| – Adequate fire-fighting equipment must be made available at all hazardous storage areas. | Contractor | Hazardous storage areas must be fitted with adequate fire-fighting equipment | During the Construction Phase | ECO | Monthly | Adequate fire-fighting equipment is available and has been serviced |
| – Where refuelling away from the dedicated refuelling station is required, a mobile refuelling unit must be used. Appropriate ground protection such as drip trays must be used. | Contractor | Provide a mobile refuelling unit as well as suitable ground protection, where required | 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 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 are 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 an 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 | During the Construction Phase | ECO | Monthly | Register of inspection |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | the workshop areas for oil and fuel spills 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 with 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 and surface water. | | | | | | |
|---|---|---|---|---|---|---|
| **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 | ECO | 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 | Provide containment facility for the collection of cement laden water | During the Construction Phase | ECO | Weekly | No cement laden water is released into the environment |
| – Dirty water from the batching plant must be contained to prevent soil and groundwater contamination. | Contractor | Provide containment facility for the collection of cement laden water (dirty water) | During the Construction Phase | ECO | Weekly | No cement laden water is released into the environment |
| – 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 | ECO | 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 | During the Construction Phase | ECO | Weekly | No cement laden water is released into |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | of associated equipment. Enforce limitations on water use for washing of equipment | | | | 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 in an appropriate area on site | During the Construction Phase | ECO | Monthly | Proof of binding of empty cement bags and storage in an appropriate area 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 the construction period and disposed at a registered disposal facility. | Contractor | Ensure that all excess sand, stone and cement is | At the completion of the Construction Phase | ECO | Once, with the completion of construction | Certificates for the disposal of sand, stone and cement at |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | removed or reused | | | | licensed waste disposal facilities or proof of reuse must be provided |
| – Temporary fencing must be erected around batching plants in accordance with section 5.5: Fencing and gate installation. | Contractor | Erect temporary fencing around batching plants as per the requirements listed in section 5.5 | During the Construction Phase | ECO | Weekly | Temporary fencing is undertaken in accordance with section 5.5 |

### *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 | ECO | 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 | ECO | Weekly | Plan for implementation must be provided by the Contractor |

| | | | | | | |
|---|---|---|---|---|---|---|
| – Excavation, handling and transport of erodible materials must be avoided under high wind conditions or when a visible dust plume is present. | Contractor | Ensure that specific limitations are placed on the transport and handling of erodible materials during high wind conditions or when a visible dust plume is present | During the Construction Phase | ECO | 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 | ECO | Bi-weekly (every second week) | Soil stockpiles are protected from wind erosion |
| – 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 | ECO | Weekly, until erosion is no longer a problem | Recommendations made by the ECO have been implemented by the Contractor |
| – Vehicle speeds must not exceed 40 km/h along dust roads or 20 km/h when traversing unconsolidated and non-vegetated areas. | cEO / dEO / contractor | Inform all drivers of speed limits and place appropriate signage along | During the Construction Phase Operation Phase | ECO Operation and Maintenance team | Monthly | No complaints from community members are submitted |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | the relevant roads | | | | |
| – 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 | ECO | Weekly | Photographic record of measures being implemented and the results thereof |

### *5.21 Blasting*

| **Impact management outcome:** Impact to the environment is minimized 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. | Not Applicable – no blasting proposed. | | | | | |
| – Notification of surrounding landowners, emergency services site personnel of blasting activity 24 hours prior to such activity taking place on Site. | Not Applicable – no blasting proposed. | | | | | |

### *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 levels 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 |
| – 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 | cEO and Contractor in consultation with the ECO | Compile a Code of Conduct for staff. Appropriate operating hours must be | Pre-construction and Construction | ECO | Once, prior to the commencement of construction | No complaints registered in this regard. |

| | | | | | | |
|---|---|---|---|---|---|---|
| management outcome related to noise management. | | identified for the project. | | | | |

### *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 for 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 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 exchange contact details | Pre-construction | Not Applicable | | |

### *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 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 | ECO | Bi-monhtly (every second month) | Stockpiled material is maintained sufficiently and is clear of weeds and alien vegetation |
| – Topsoil stockpiles must not exceed 2 m in height. | Contractor | Enforce limitations for the height of topsoil stockpiles | During the Construction Phase | ECO | Bi-monthly (every second month) | Topsoil stockpiles do not exceed 2m in height |
| – During periods of strong winds and heavy rain, the stockpiles must be covered with appropriate material (e.g. cloth, tarpaulin etc.). | Contractor | Appropriate material must be provided in order to cover stockpiles when required | 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 | Collect and retain topsoil for terracing | During the Construction Phase Rehabilitation | ECO | Weekly | Proof of collection and retaining of topsoil |
| – Areas to be rehabilitated include terrace embankments and areas outside the high voltage yards. | Contractor | Undertake rehabilitation of terrace embankments and areas outside of the high voltage yard where applicable | During the Construction Phase Rehabilitation | ECO | Weekly | Photographic record of rehabilitation of terrace embankments and areas outside the high voltage yards |
| – Where required, all sloped areas must be stabilised to ensure proper rehabilitation is effected and erosion is controlled. | Contractor | All disturbed slope areas must be stabilised | Rehabilitation | ECO | Weekly | Disturbed slopes are stabilised sufficiently |
| – 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 | Stabilise slopes as per the design specifications | Pre-construction & Rehabilitation | ECO | Weekly | Slopes are stabilised as per the design specifications |
| – Rehabilitation of the disturbed areas must be managed in accordance with section 5.35: Landscaping and rehabilitation. | Contractor | Undertaken rehabilitation of disturbed areas as per the requirements | Rehabilitation | ECO | Weekly | Rehabilitation of disturbed areas is undertaken in-line with the requirements of section 5.35 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | listed under section 5.35 | | | | |
| – All excess spoil generated during terracing activities must be disposed of in an appropriate manner and at a recognised landfill site. | 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 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 |

### *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 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 | Construction and Rehabilitation | ECO | Monthly | Photographic record of spoil used for landscaping |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | as per the listed requirements | | | | 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. | 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 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. | Contractor | Undertake the batching of cement as per the requirements of section 5.19 | During the Construction Phase | ECO | Monthly | Management of batching cement is undertaken in line with the requirements of section 5.19 |

| | | | | | | |
|---|---|---|---|---|---|---|
| – Residual solid waste must be disposed of in accordance with section 5.8: Solid waste and hazardous management. | Contractor | Undertake the disposal of solid waste as per the requirements of section 5.8 | During the Construction Phase | ECO | Monthly | The disposal of solid waste is undertaken in line with section 5.8. |

### *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 | Manage dust as per the requirements of section5.20 | During the Construction Phase | ECO | Weekly | The management of dust is undertaken as per the requirements of section 5.20 |
| – Management of equipment used for installation must be conducted in accordance with section 5.18: Workshop, equipment maintenance and storage. | Contractor | Undertake the management of equipment for installation 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 of hazardous substances and any associated spills must be conducted in accordance with section 5.17: Hazardous substances. | Contractor | Undertake the management of hazardous substances and associated spills as per the | During the Construction Phase | ECO | Monthly | Management of hazardous substances and associated spills is undertaken in line with the |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | requirements of section 5.17 | | | | requirements of section 5.17 |
| – Residual solid waste must be recycled or disposed of in accordance with section 5.8: Solid waste and hazardous management. | Contractor | Undertake the recycling or disposal of residual solid waste as per the requirements of section 5.8 | During the Construction Phase | ECO | Monthly | The recycling or disposal of residual solid waste is undertaken in line with section 5.8. |

### *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 | Inspect areas where construction is being undertaken and remove and appropriately dispose of wasted/unused materials | During the Construction Phase | ECO | Weekly | Contractor to provide proof of inspection and removal of waste/unused materials and the appropriate disposal thereof (i.e. disposal certificates) |
| – Emergency repairs due to breakages of equipment must be managed in accordance with section 5.18: Workshop, equipment maintenance and storage and section 5.16: Emergency procedures. | Contractor | Undertake emergency repairs of equipment as per the | During the Construction Phase | ECO | Weekly | Emergency repairs of equipment is undertaken as per the |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | requirements of section 5.18 and 5.16 | | | | requirements of section 5.18 and 5.16 |

### *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 5.8: Solid waste and hazardous Management. | Contractor | Undertake the recycling or disposal of residual solid waste as per the requirements of section 5.8 | During the Construction Phase | ECO | Monthly | The recycling or disposal of residual solid waste is undertaken in line with section 5.8. |
| – 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 for installation as per the requirements of section 5.18 | During the Construction Phase | ECO | Monthly | Management of equipment for installation is undertaken in line with the requirements of section 5.18 |
| – Management of hazardous substances and any associated spills shall be conducted in accordance with section 5.17: Hazardous substances. | Contractor | Undertake the management of hazardous substances and associated spills as per the requirements of section 5.17 | During the Construction Phase | ECO | Monthly | Management of hazardous substances and associated spills 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 the recycling or disposal of residual solid waste as per the requirements of section 5.8 | During the Construction Phase | ECO | Monthly | The recycling or disposal of residual solid waste is undertaken in line with 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 communities through consideration of the community needs | Pre-construction & Construction | ECO | Once, prior to the commencement of construction and monthly during the construction | Communication is undertaken as per the identified strategies and no complaints are submitted regarding communication |

| | | | | | | |
|---|---|---|---|---|---|---|
| – Develop and implement a collaborative and constructive approach to conflict resolution as part of the external stakeholder engagement process. | Contractor | Development and implement a Grievance Mechanism which considers the community needs and provides procedures for conflict resolution | Pre-construction & Construction | ECO | Once, prior to the commencement of construction and monthly during the construction phase | Conflict resolution is undertaken in line with the requirements of the Grievance Mechanism. No complaints on conflict resolution is submitted by the community |
| – Sustain continuous communication and liaison with neighbouring owners and residents. | Contractor | Development and implement a Grievance Mechanism which provides procedures for communication / liaison with neighbouring landowners and residents | Pre-construction & Construction | ECO | Once, prior to the commencement of construction and monthly during the construction phase | Communication / liaison with neighbouring landowners and residents are undertaken in line with the requirements of the Grievance Mechanism. No complaints on communication with neighbouring landowners and residents is submitted |
| – Create work and training opportunities for local stakeholders. | Contractor | Develop and implement a "locals first" policy for the provision of employment | Pre-construction & Construction | ECO | Once, prior to the commencement of construction and monthly during the | The "locals first" policy is considered in terms of the employment |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | opportunities as far as reasonably possible | | | construction phase | 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 - no on-site housing is envisaged with daily commute to and from site expected of construction staff. | | | | | |

### *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 are 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 |
| – Emergency and contact details 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 must be provided by the Contractor |
| – Structures vulnerable to high winds must be secured. | Contractor | Ensure structures vulnerable to wind is secure prior to site closure | During the Construction Phase | ECO | Prior to site closure for more than 05 days | Structures vulnerable to wind is 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 | During the Construction Phase | ECO | Prior to site closure for more than 05 days | Refuse bins are emptied and secured prior to site closure |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | secured prior to site closure | | | | |
| – Drip trays must have been emptied and secured. | Contractor | Ensure drip trays are emptied and secured prior to site closure | During the Construction Phase | ECO | Prior to site closure for more than 05 days | Drip trays are emptied and secured prior to site closure |

### *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 | Appropriately store old equipment in a manner which prevents pollution to the environment. This could include the construction of bunded areas | Decommissioning | ECO | Monthly | Photographic record of appropriate storage of old equipment |
| – Oil containing equipment must be stored to prevent leaking or be stored on drip trays. | Contractor | Appropriately store equipment containing oil through the use of drip trays or other suitable methods | Decommissioning | ECO | Monthly | Photographic record of appropriate storage of equipment containing oil |

| | | | | | | |
|---|---|---|---|---|---|---|
| – All scrap steel must be stacked neatly and any disused and broken insulators must be stored in containers. | Contractor | Ensure all scrap steel is stacked neatly and store disused and broken insulators in appropriate containers | Decommissioning | ECO | Monthly | Photographic record of stacked scrap steel and containers containing broken and disused insulators |
| – 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 | Develop and implement a procedure for the dismantling and transportation of equipment containing pollution causing substances which prevents spillage and pollution of the environment | Decommissioning | ECO | Monthly | Proof from contractor that dismantling and transportation of equipment containing pollution causing substances has been undertaken in an appropriate manner |
| – The Contractor must also be equipped to contain and clean up any pollution causing spills. | Contractor | Ensure sufficient spill kits are available for the clean up of pollution causing spills | Decommissioning | ECO | Monthly | Sufficient spill kits are available on site |
| – Disposal of unusable material must be at a licensed waste disposal site. | Contractor | Make use of a licensed waste disposal site | Decommissioning | ECO | Monthly | Certificates obtained for the disposal at a licensed waste disposal site |

### *5.35 Landscaping and rehabilitation*

| **Impact management outcome:** Areas disturbed during the development phase are returned to a state that approximates the original condition. | | | | | | |
|---|---|---|---|---|---|---|
| **Impact Management Actions** | **Implementation** | | | **Monitoring** | | |
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – 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 rehabilitation of all disturbed areas.<br><br>Dispose of all spoil and waste at a licensed waste disposal facility | Pre-construction & Rehabilitation | ECO | Weekly | Rehabilitation of the disturbed areas is undertaken 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 | ECO | 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 | ECO | 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 | Rehabilitation | ECO | Weekly | All berms have a slope of 1:4 and is replanted with indigenous |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | indigenous species and grasses | | | | 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 inside of farmland. | Not applicable | | | | | |
| – 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 | ECO | 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 | ECO | 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 | ECO | 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 | ECO | 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 | Rehabilitation | ECO | Weekly | Subsoil is ripped before topsoil is placed |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | spreading of topsoil | | | | |
| – The rehabilitation must be timed so that rehabilitation can take place at the optimal time for vegetation establishment. | Contractor | Plan the timeframe for rehabilitation in order to undertake vegetation planting during the optimal time for vegetation establishment | Rehabilitation | ECO | At the start of rehabilitation to confirm the correct timeframe | Rehabilitation is undertaken during the optimal time |
| – Where impacted through construction related activity, all sloped areas must be stabilised to ensure proper rehabilitation is effected and erosion is controlled. | Contractor | All disturbed slope areas must be stabilised | Rehabilitation | ECO | 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 | ECO | 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 | ECO | 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; | 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 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 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; and<br>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:

| | |
|---|---|
| **Applicant Name** | **South Africa Mainstream Renewable Power Developments (Pty) Ltd** |
| **Contact Person** | Eugene Marais |
| **Physical Address** | 4th Floor Mariendahl House<br>Newlands on Main, Cnr Main and Campground Road<br>Claremont<br>Cape Town<br>7708 |
| **Postal Address** | PO Box 45063<br>Claremont<br>7735 |
| **Telephone** | 021 657 4052 |
| **Fax** | 021 671 5665 |
| **Cell** | 073 871 5781 |
| **Email Address** | eugene.marais@mainstreamrp.com |

7.1.2. Details and Expertise of Environmental Assessment Practitioner (EAP)

| | |
|---|---|
| **EAP Name** | **Gideon Raath** |
| **EAP Qualifications** | M.Sc. Geography and Environmental Studies |
| **Professional Affiliation/Registration** | South African Council for Scientific Natural Professions (SACNASP): Certified Natural Scientist – Pr.Sci.Nat. (Membership No.: 117178) |
| **Physical Address** | First Floor, Block 2<br>5 Woodlands Drive Office Park<br>Cnr Woodlands Drive & Western Service Road<br>Woodmead<br>2191 |
| **Telephone** | 011 656 3237 |
| **Fax** | 086 684 0547 |
| **Cell** | 072 194 3644 |
| **Email Address** | gideon@savannahsa.com |

### 7.1.3. Project Details

**Project Name**: Vrede Solar Energy Facility, near Kroonstad, Free State Province

### 7.1.4. Project Description

The proposed project entails the development of the 100MW Vrede Solar Energy Facility. The development footprint includes the following:

- Solar Arrays:
  - Solar Panel Technology - Mono and Bifacial Photovoltaic (PV) Modules;
  - Mounting System Technology – single axis tracking, dual axis tracking or fixed axis tracking PV;
  - Underground cabling (up to 33kV)
  - Centralised inverter stations or string inverters; Power Transformers;
- Building Infrastructure
  - Offices;
  - Operational control centre;
  - Operation and Maintenance Area / Warehouse / workshop;
  - Ablution facilities;
  - Battery Energy Storage System;
  - Substation building.
- Electrical Infrastructure
  - 33/132kV Independent Power Producer (IPP) onsite substation including associated equipment and infrastructure
  - Underground cabling and overhead power lines (up to 33kV)
- Associated Infrastructure:
  - Access roads and Internal gravel roads;
  - Fencing and lighting;
  - Lightning protection
  - Permanente laydown area;
  - Temporary construction camp and laydown area;
  - Telecommunication infrastructure;
  - Stormwater channels; and water pipelines

### 7.1.5. Project Location

Location details of the development of the substation:

| **Province/s** | **Northern Cape Province** |
|---|---|
| District Municipality/ies | Namakwa District Municipality (DC6) |
| Local Municipality/ies | Moqhaka Local Municipality |
| Ward number/s | 7 |
| Nearest town/s | Kroonstad (~ 6 -14km) north-east |
| Farm and Portion number/s | » Remaining extent of the Farm Vrede No. 1152; and<br>» Portion 1 of the Farm Uitval No. 1104. |

It should be noted that Eskom's requirements for work in or near Eskom servitudes should be adhered to.

### *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.

**The national web-based environmental screening tool was utilised for this project and the grid connection corridor sensitivity maps can be seen in Figures 2 to 14. The site-specific environmental sensitivity map included in the EIA Report is included as Figure 1.**

**Site sensitivity**

A combined sensitivity map for the grid connection corridor is provided below. This has been compiled based on the specialist sensitivities determined from their respective studies, and therefore aims to represent the entirety of the site and the combined sensitivities. The following environmental sensitivities were noted on site:

- **Avifauna sensitivities:** From an avifaunal perspective, the areas within 200m of the three identified wetland depressions are considered to be of very high sensitivity, and no solar panels should be constructed within these areas. This is because surface water is important for raptors to hunt birds which congregate around water troughs. It is important to leave open space for birds to access and leave the surface water area unhindered. The drainage line woodland is also considered to be of very high sensitivity from an avifaunal perspective as these areas provide nesting and foraging opportunities for woodlands species which are dependent on this habitat for their survival. The highest density of woodland and trees at the development area is concentrated around the drainage line. A 100m buffer zone should be implemented on both sides of the drainage channel.
- **Ecological sensitivities:** From an ecological perspective, seven areas, with sensitivity areas ranging from low to very high sensitivity were identified within the study area, namely, all wetland features, naturally primary grassland, 30m buffer areas around wetland features, primary grassland, primary grassland resembling natural Central Free State Grassland, and Bottom Thornveld, re-established grassland on historical cultivated areas, and all transformed and disturbed areas. The high to very high sensitivity areas, i.e. the three identified depression wetlands and the 30m buffer areas around the wetland features are regarded as 'no-go' zones and no activities should be undertaken within these areas.
- **Aquatic sensitives:** Three depression wetland features, and a chanelled valley-bottom wetland running across the north-eastern corner of the site, which terminates into the Vals River to the north were identified on the project site. A seepage wetland feeds into the valley-bottom wetland (within the project area. A 30m buffer zone should be implemented around all wetland features, and these wetland features and their associated 30m buffer are considered to be 'no-go' areas for development. No activities should be undertaken within these areas.

- **Agricultural sensitivities and land use capability:** The results of the screening tool report indicate the Vrede Solar PV Facility development area is considered to be of high and medium agricultural sensitivity. The sensitivity rating of the site was also based on land capability classification of the site. Approximately 155.3ha has High agricultural sensitivity, 47.8ha has Medium sensitivity and 9.1ha has Low sensitivity. The development footprint includes areas of all three sensitivity categories. Although the development footprint incudes areas with high agricultural sensitivity that exceeds the allowable development limits, the specialist concluded that the project is considered favourable as the area has not been used for crop production since 2005 (according to the landowner), and aerial imagery has confirmed that the area has not been used for annual crop for the past ten years.
- **Heritage:** Based on the assessment completed, the area proposed for the Vrede Solar PV Facility has low archaeological sensitivity. The majority of the property has been exploited by various farming practices over several generations that have fundamentally modified the landscape and removed or destroyed any previous archaeological remains. From a palaeontological perspective, the development area is considered to be of high palaeontological sensitivity as it is underlain by highly fossiliferous sediments (the Adelaide Subgroup and Volksrust Formation). From a heritage perspective, no areas regarded as 'no-go' were identified on site.

With the exception of the three identified wetland depressions, and their associated 30m buffer zones, as well as the 100m buffer zone on both sides of the drainage line woodland, no other exclusion zones, buffer zones or 'no-go' zones were determined for the proposed development.

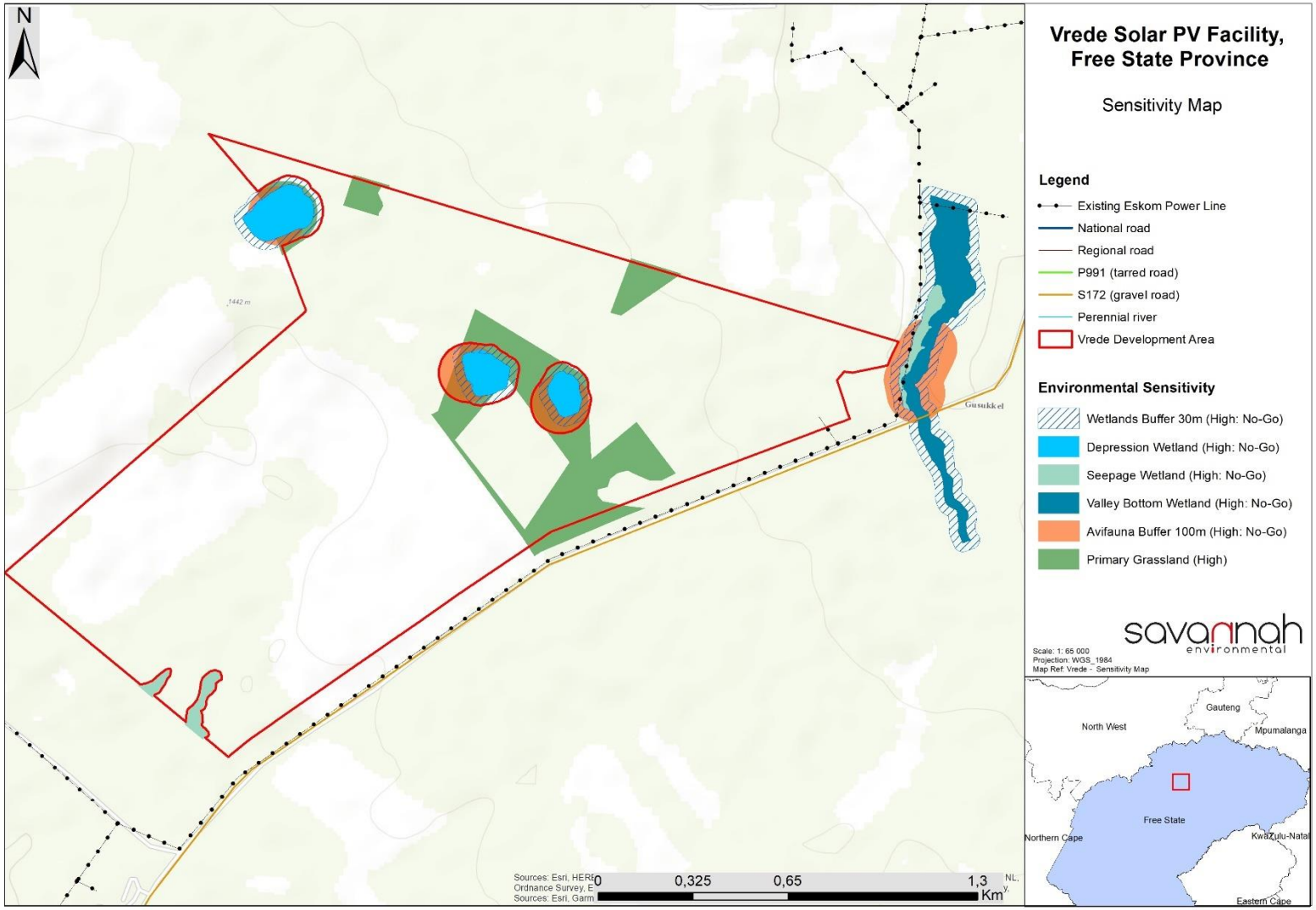



**Figure 1:** Environmental sensitivity map with the proposed Vrede PV Facility site within which the on-site substation is proposed to be developed

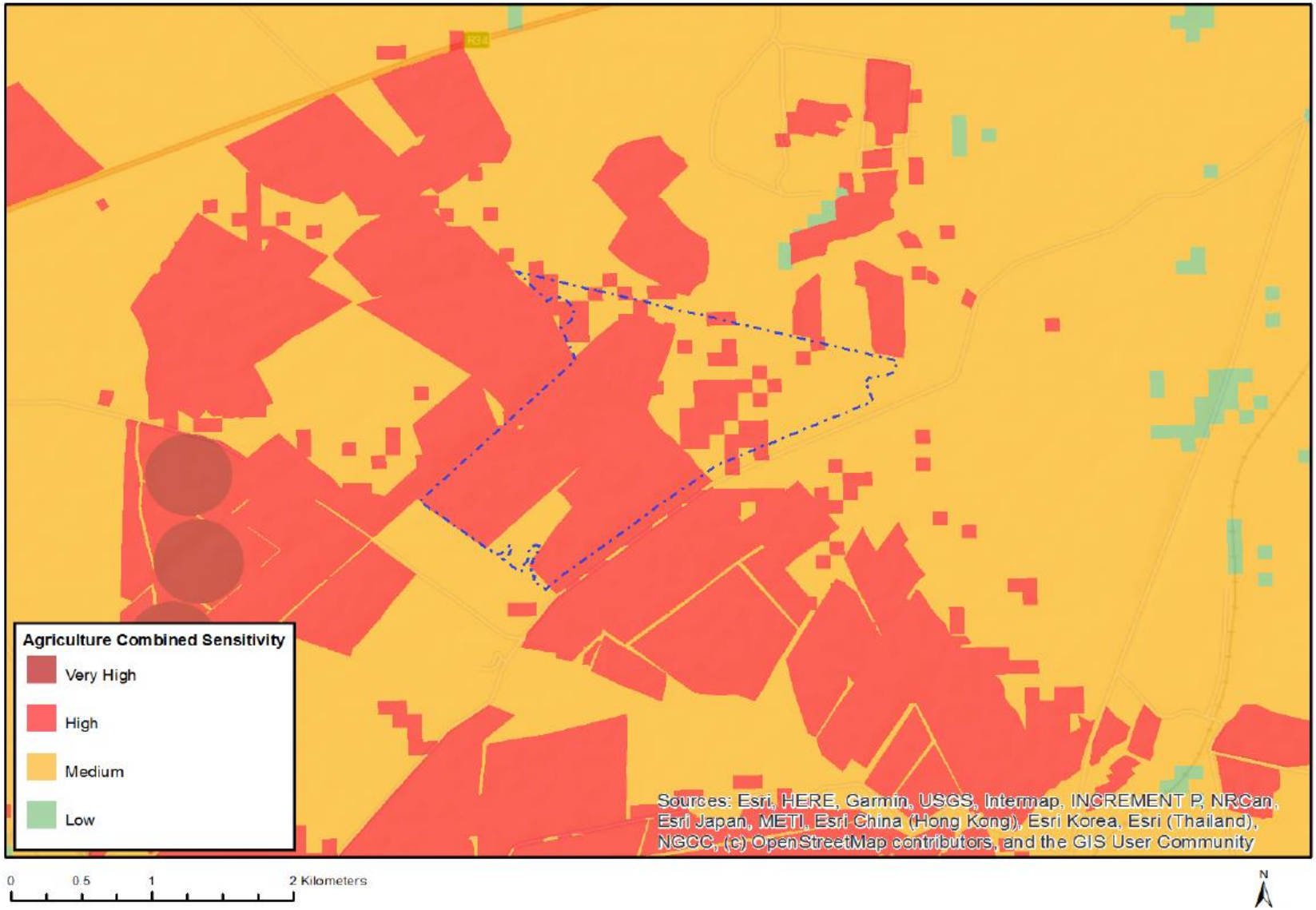



**Figure 2:** Map of Relative Agriculture Theme Sensitivity

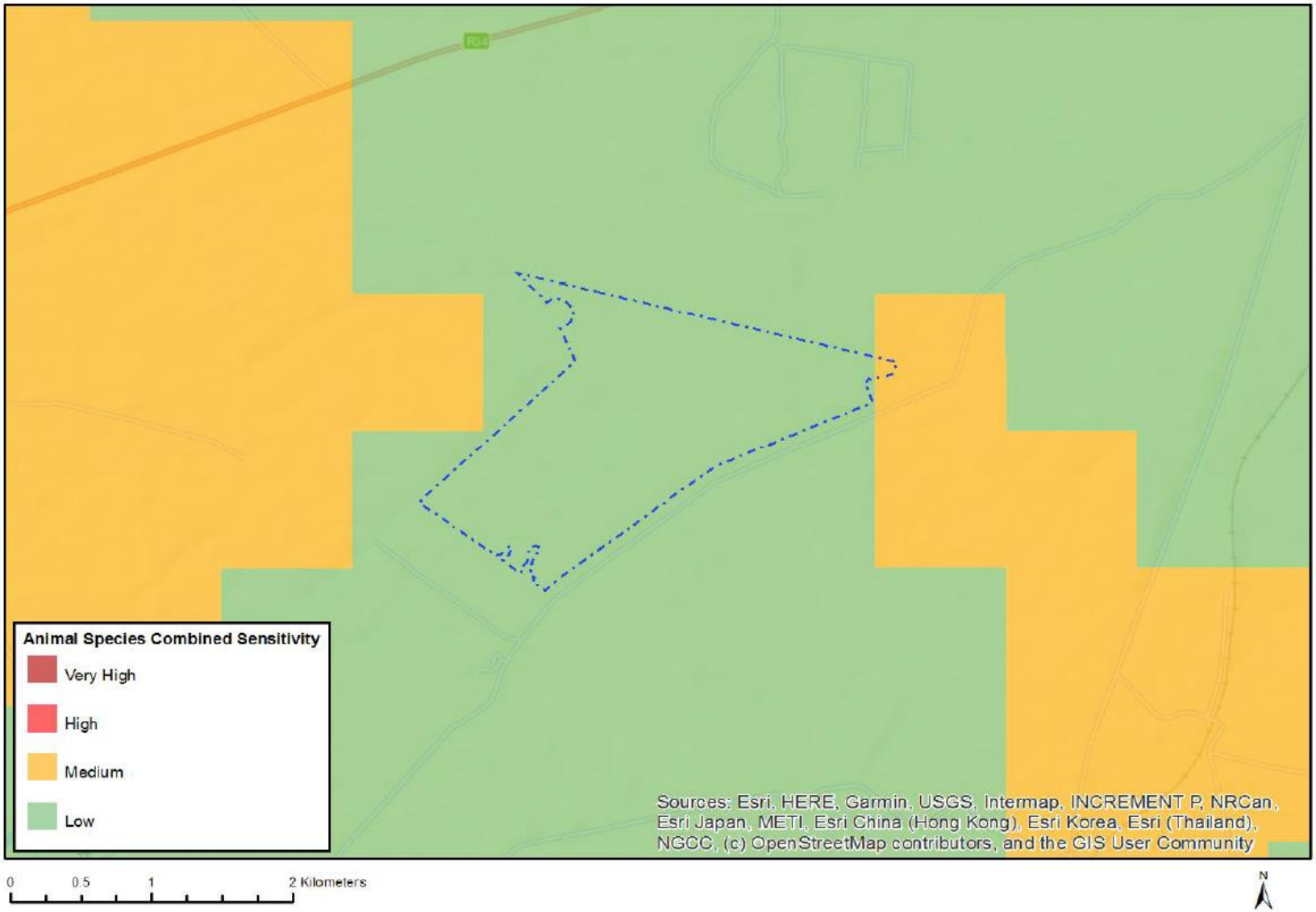



**Figure 3:** Map of Relative Animal Species Theme Sensitivity

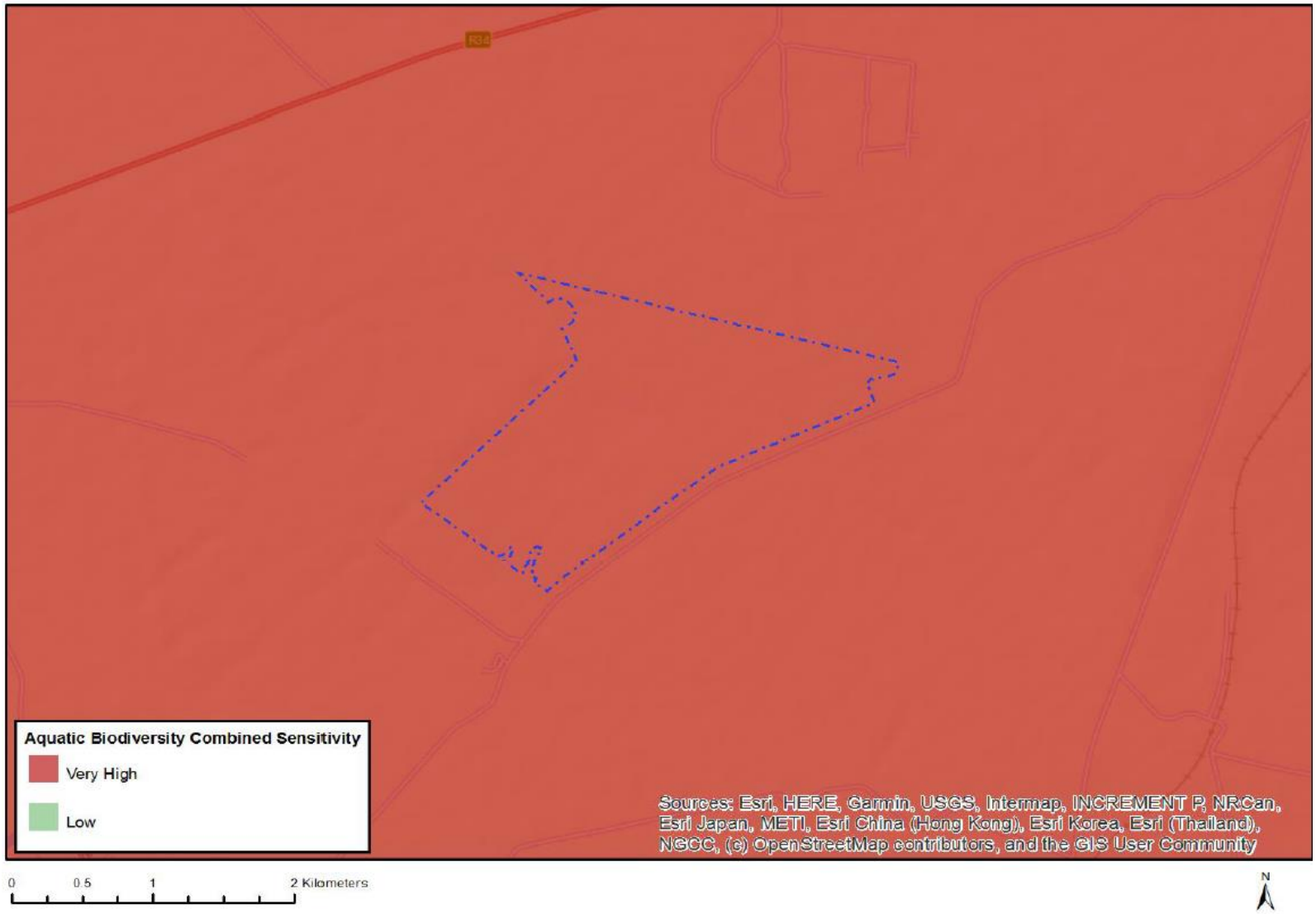



**Figure 4:** Map of Relative Aquatic Biodiversity Sensitivity

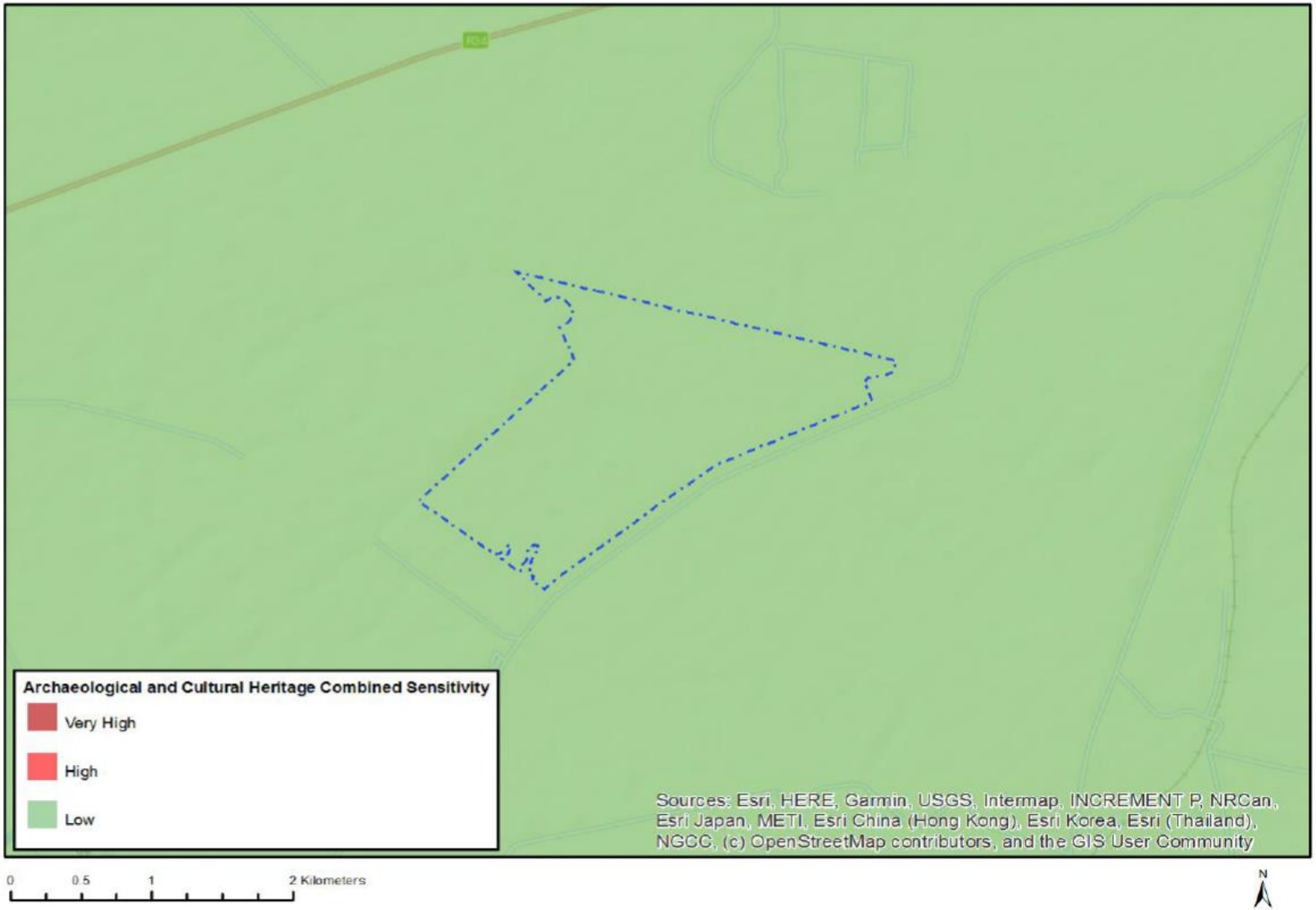



**Figure 5:** Map of Relative Archaeological and Cultural Heritage Theme Sensitivity

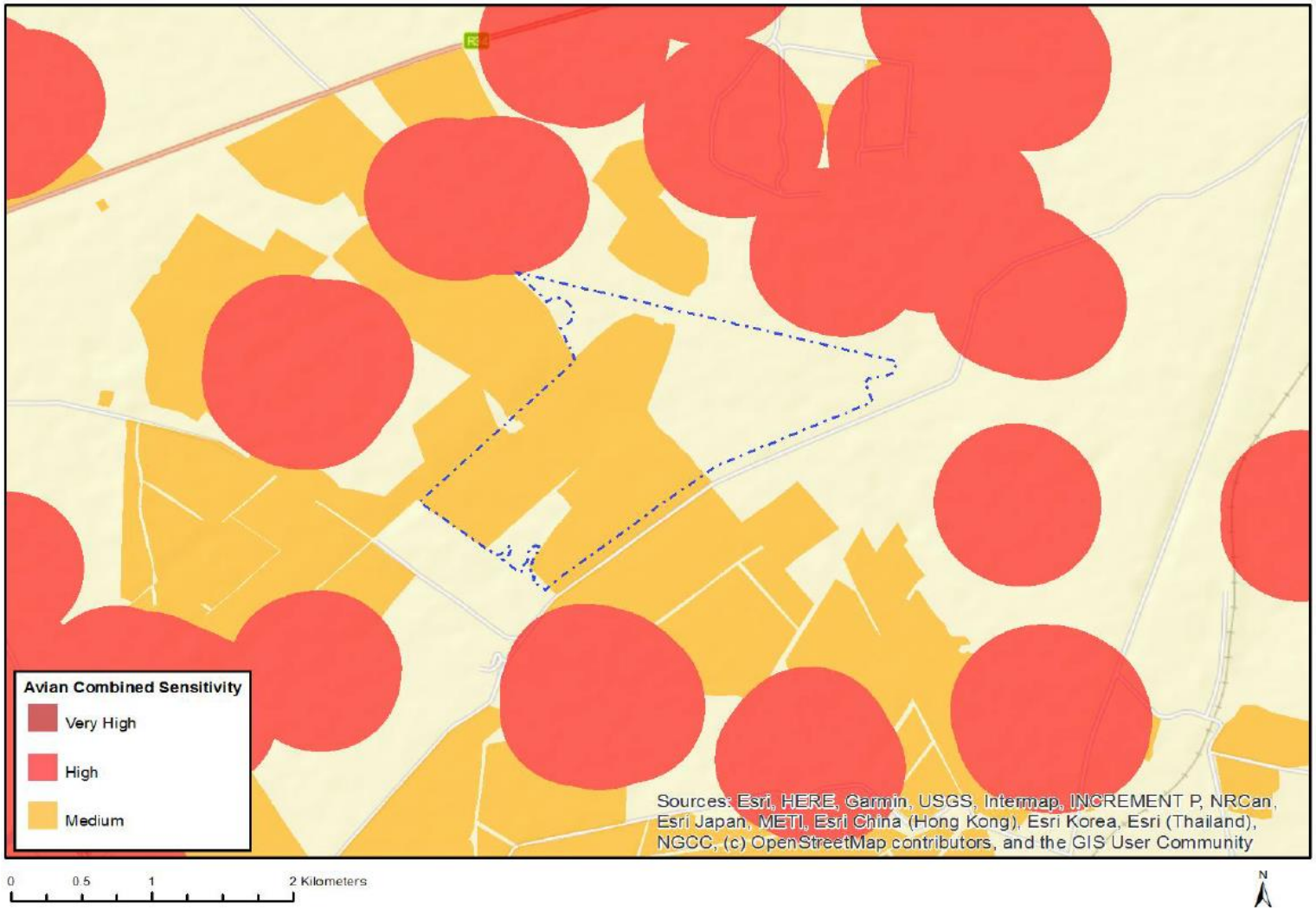



**Figure 6:** Map of Relative Avian Theme Sensitivity

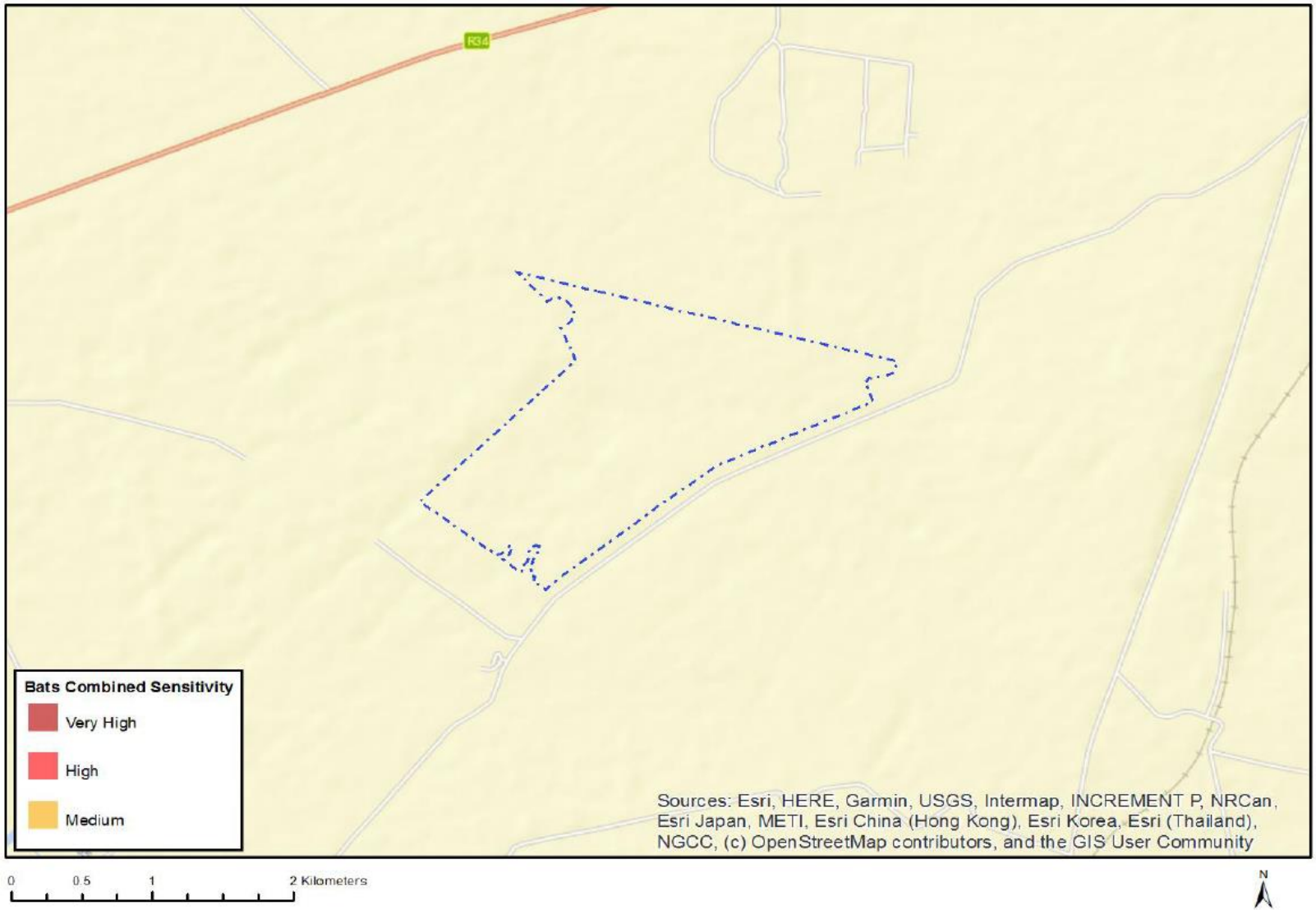



**Figure 7:** Map of Relative Bats Theme Sensitivity

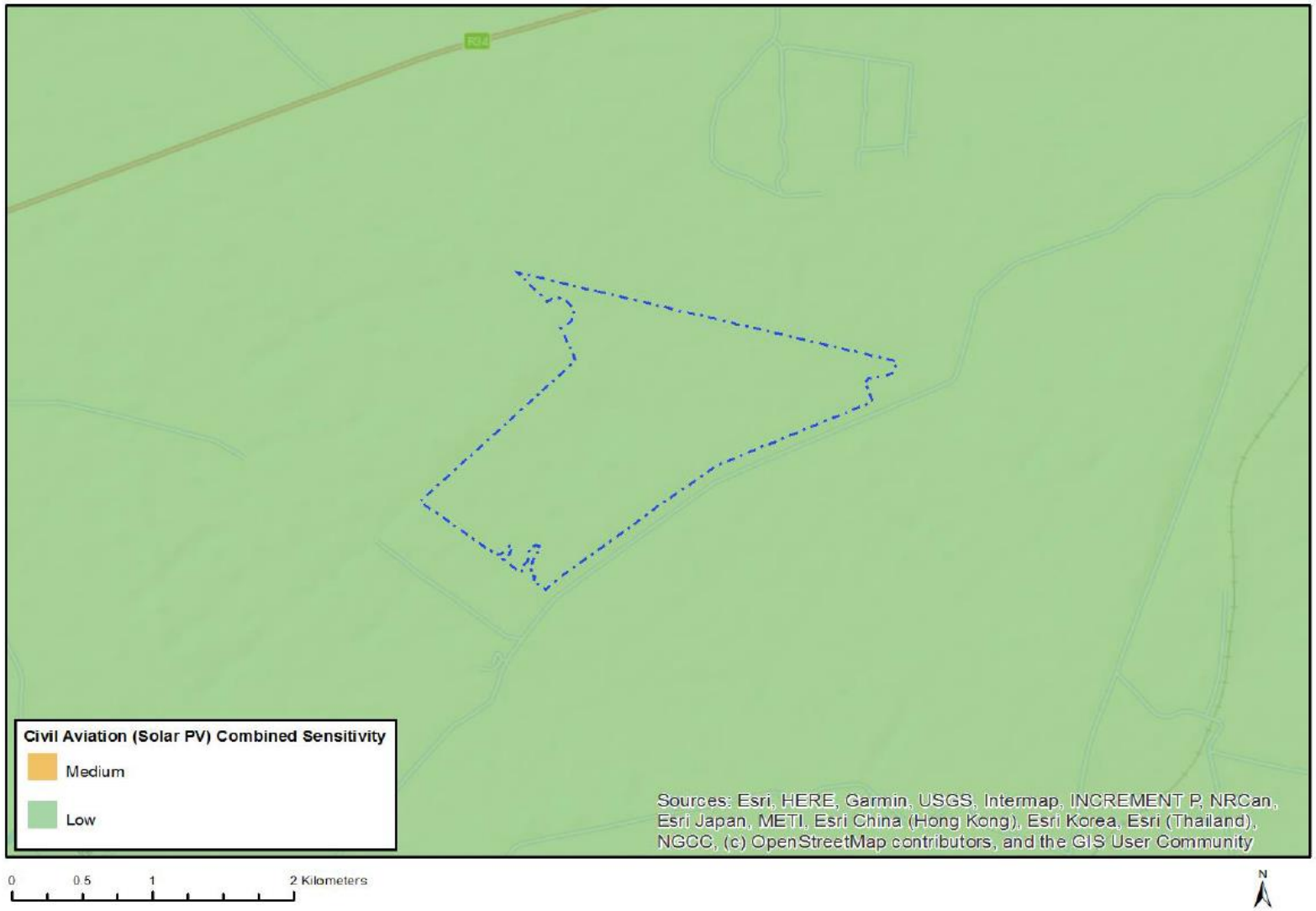



**Figure 8:** Map of Relative Civil Aviation (Solar PV) Theme Sensitivity

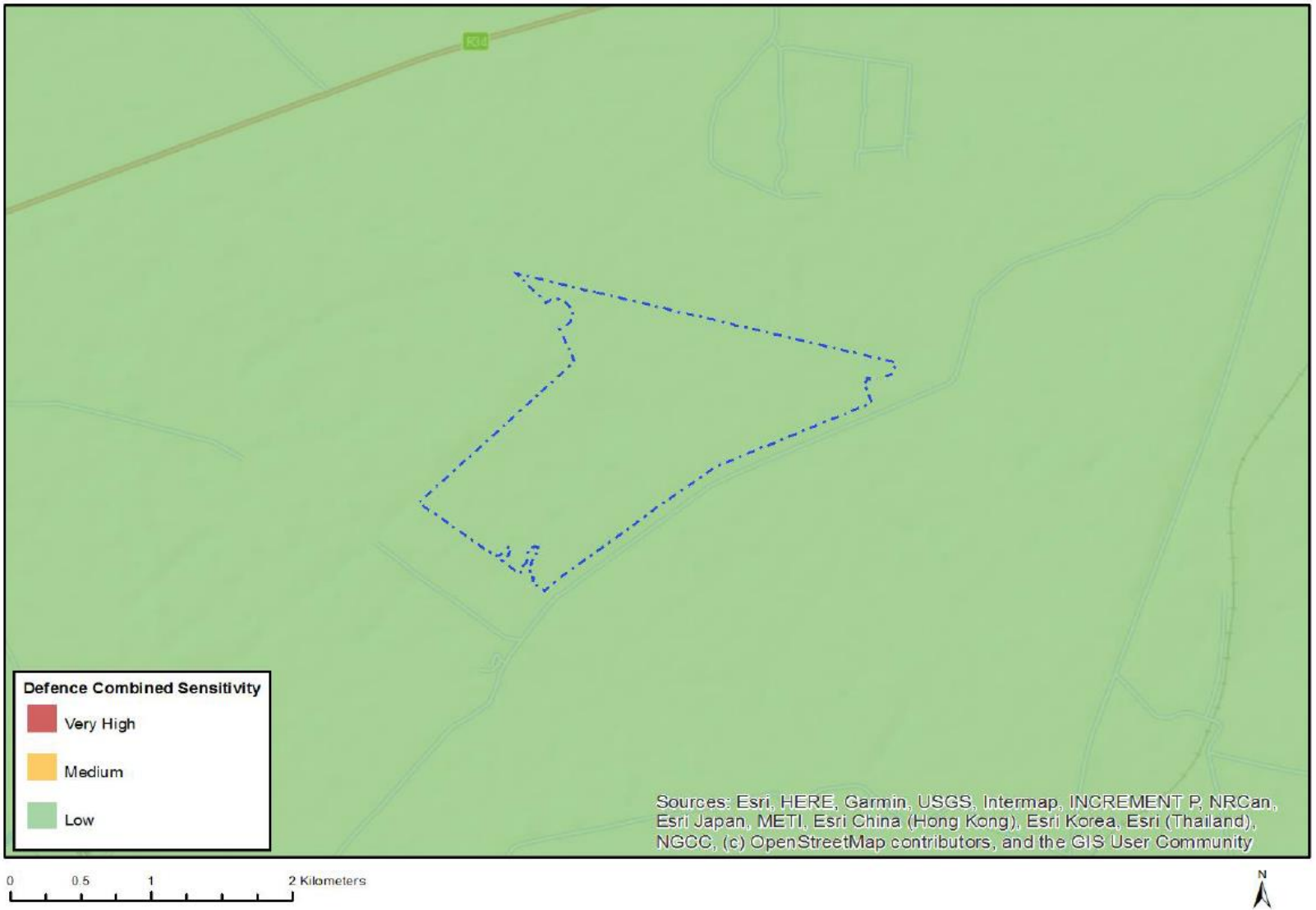



**Figure 9:** Map of Relative Defence Theme Sensitivity

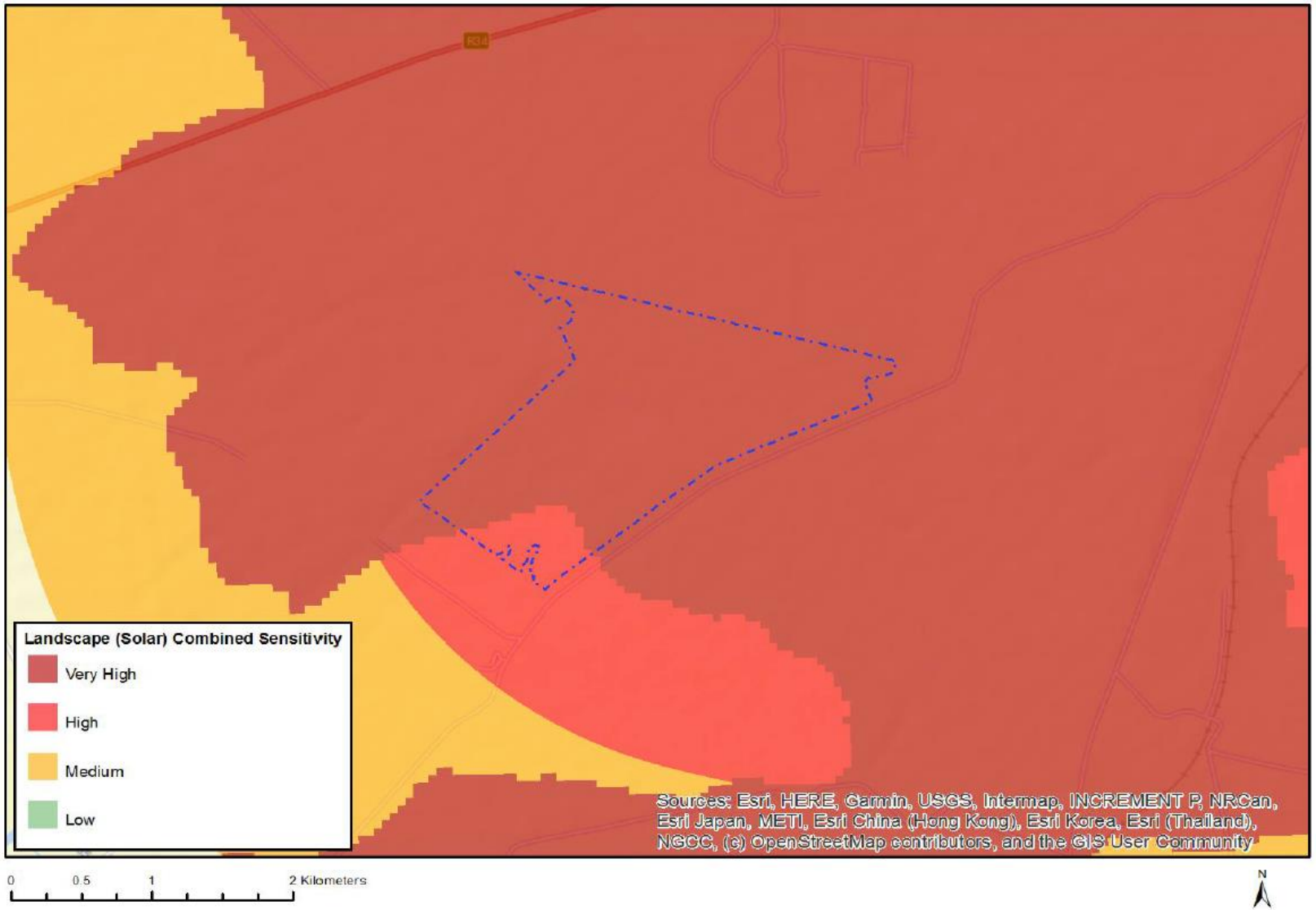



**Figure 10:** Map of Relative Landscape (Solar) Theme Sensitivity

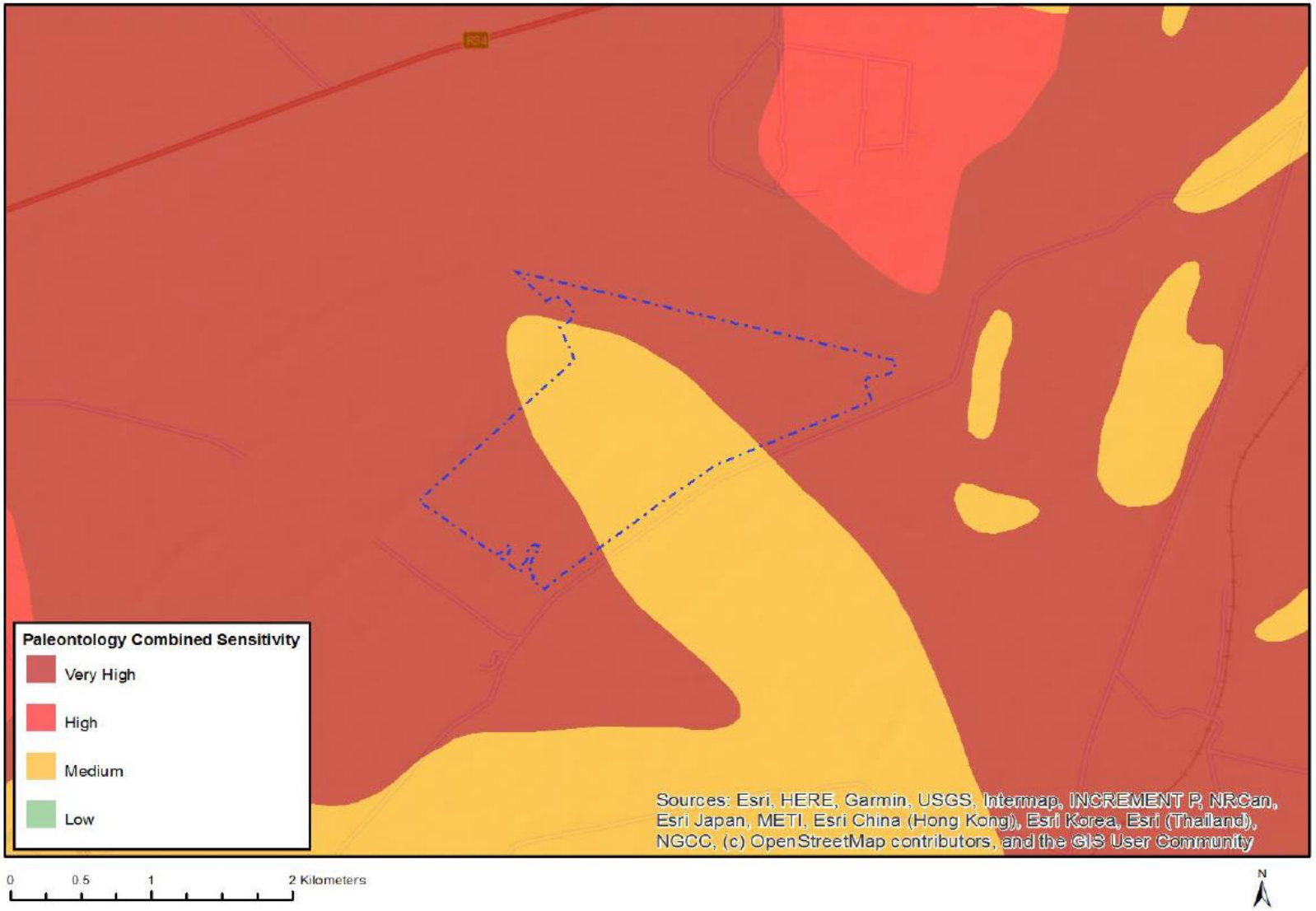



**Figure 11:** Map of Relative Palaeontology Theme Sensitivity

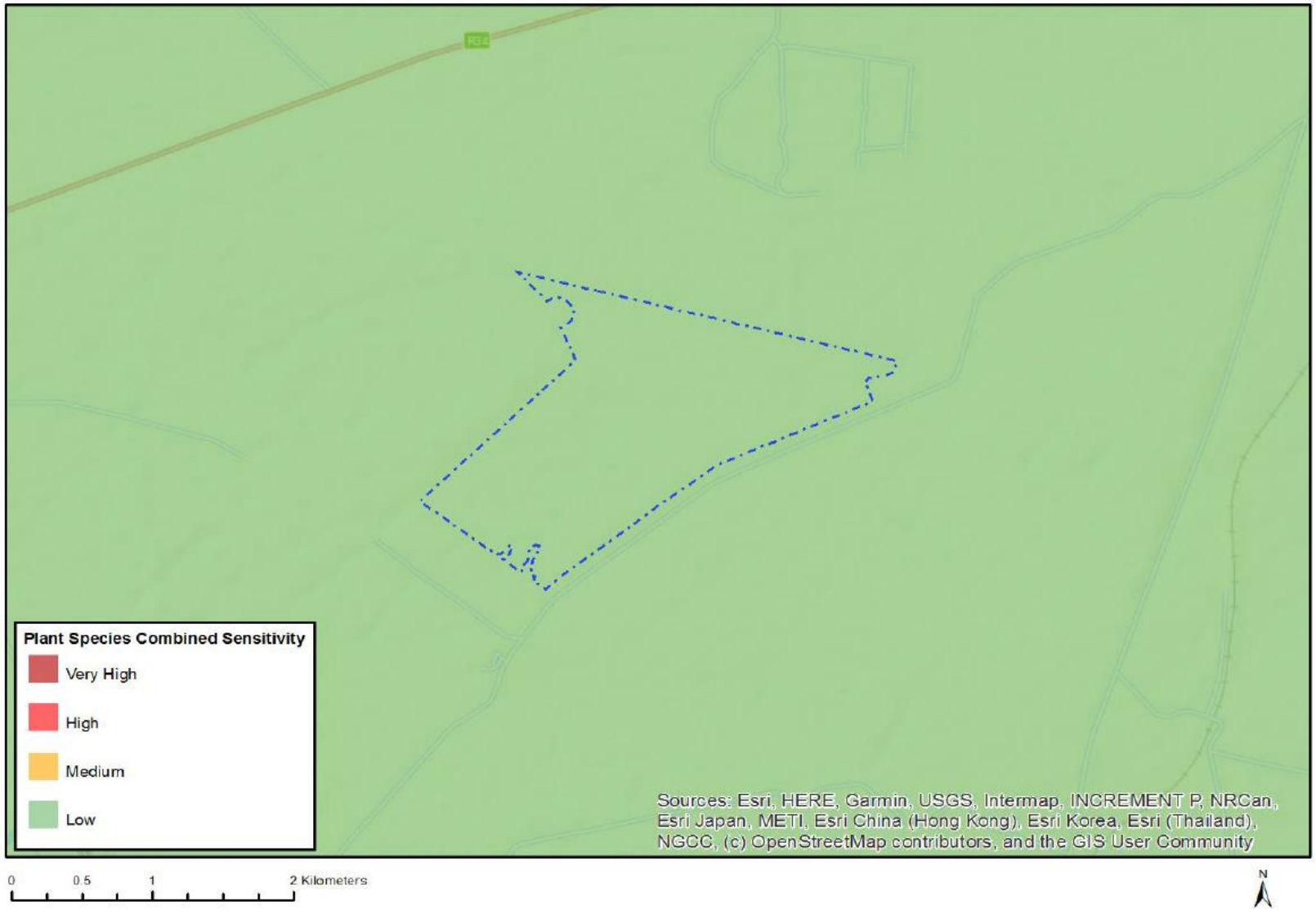



**Figure 12:** Map of Relative Plant Species Theme Sensitivity

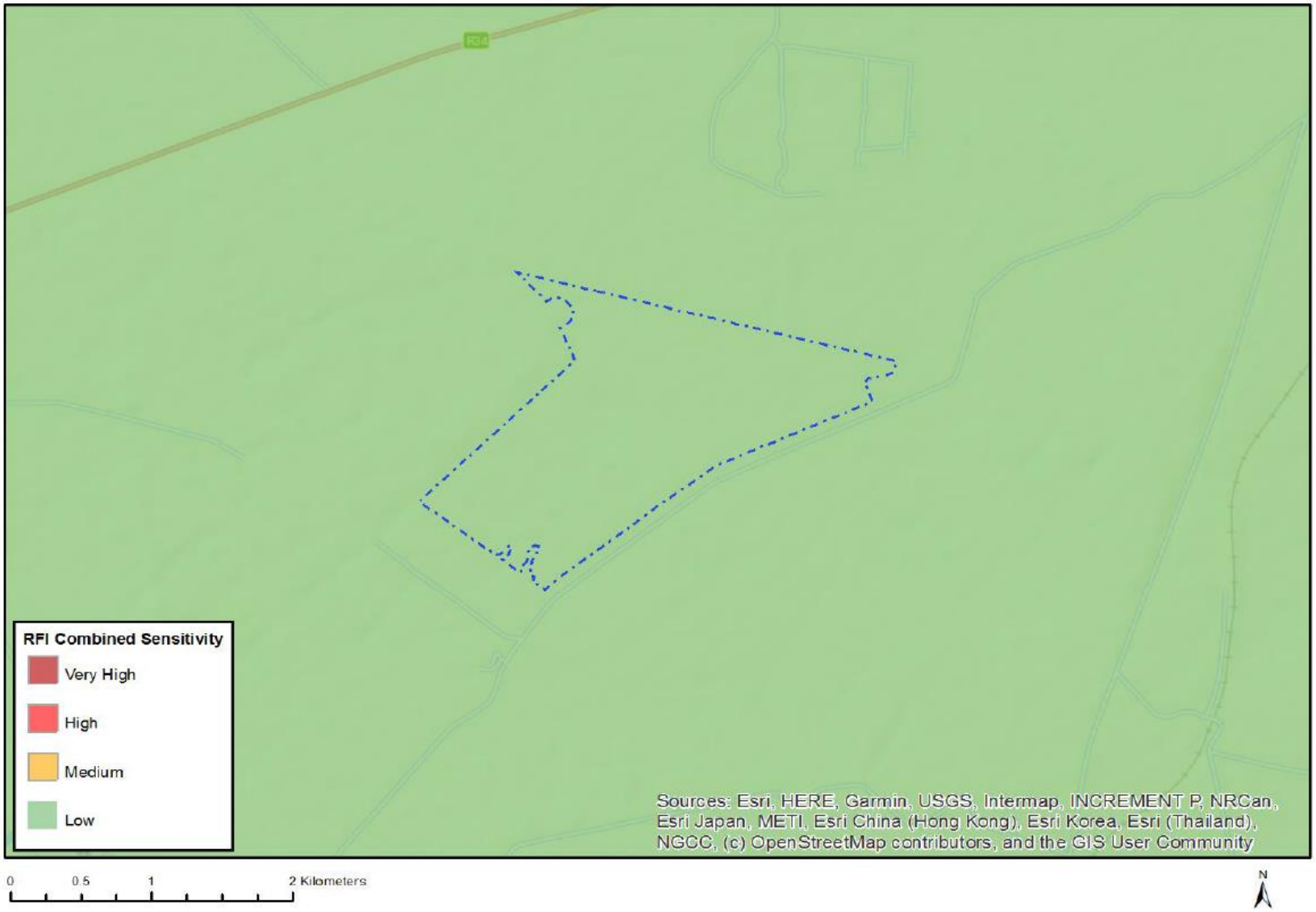



**Figure 13:** Map of Relative RFI Theme Sensitivity

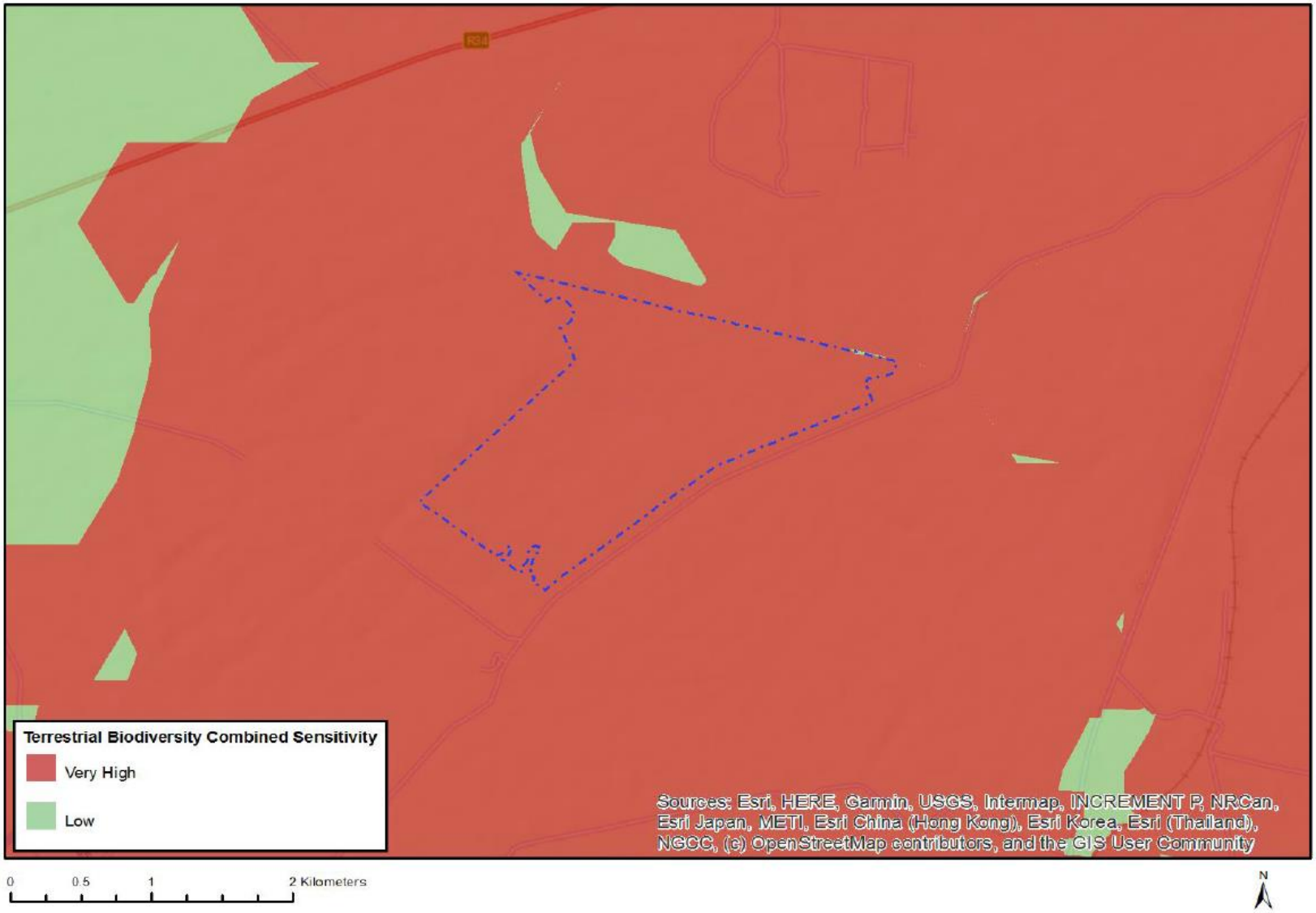



**Figure 14:** Map of Relative Terrestrial Biodiversity Theme Sensitivity

### 7.1 Sub-section 3: Declaration

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

Signature Proponent/applicant/ holder of EA Date:

---

**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.**

**The contractor would be required to develop the following site-specific plans in accordance with the specialist recommendation contained in Section C of this EMPr:**

- **Alien Invasive Plant Eradication and Management Plan**
- **Open Space Management Plan**
- **Storm Water Management Plan**
- **Erosion Control Management Plan**

### 7.2 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 PHASE OUTCOMES AND ACTIONS

### *8.1. Avifauna*

| **Impact management outcome:** The displacement of priority species due to disturbance associated with construction of the PV plant and associated infrastructure is reduced. | | | | | | |
|---|---|---|---|---|---|---|
| **Impact Management Actions** | **Implementation** | | | **Monitoring** | | |
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – Construction activity should be restricted to the immediate footprint of the infrastructure. | cEO, Contractor | Visual inspection of the construction activities to observe whether they remain within the defined footprint area | Duration of construction phase | ECO | Monthly | No evidence of construction activity outside the immediate footprint of the infrastructure |
| – Access to the remainder of the site should be strictly controlled to prevent unnecessary disturbance of priority species and degradation of habitat. | cEO, Contractor | Demarcate sensitive areas to restrict access to these areas | Duration of construction phase | ECO | Monthly | Sensitive areas appropriately demarcated and fenced off for the duration of the construction phase |
| – Measures to control noise and dust should be applied according to current best practice in the industry. | Contractor | Ensure that noise limits do not exceed acceptable limits and identify and implement | Duration of construction phase | ECO | Monthly | Dust and noise control measures evident during audit. No noise or dust related |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | suitable dust control measures | | | | complaints received |
| – Maximum use should be made of existing access roads and the construction of new roads should be kept to a minimum. | Contractor, cEO | Visual inspection of the construction activities and if the use of existing access roads over the construction of new roads is favoured | Duration of construction phase | ECO | Monthly | No evidence of several new access roads on site |
| – The mitigation measures proposed by the vegetation specialist must be strictly enforced. | cEO | Regular audits to oversee implementation of the mitigation measures proposed by the vegetation specialist | Duration of construction phase | ECO | Monthly | Implementation of the mitigation measures proposed by the vegetation specialist evident during audit. |
| – A 200m solar panel free buffer zone must be implemented around the pans (-27.736377° 27.134694°, -27.740910° 27.141575°, -27.741723° 27.144815°) to provide avifauna with unhindered access to the water. | cEO | Demarcate the pans and restrict access to these areas to minimise disturbance to avifauna | Once prior to construction commencing, and for the duration of the construction phase | ECO | Monthly | Pans appropriately demarcated |
| – A 100m solar panel free buffer zone must be implemented on both sides of the drainage line on the development area, to maintain a corridor of woodland. | cEO | Demarcate the drainage line woodland corridor and restrict access to these areas to minimise | Once prior to construction commencing, and for the duration of the construction phase | ECO | Monthly | Drainage line woodland corridor appropriately demarcated |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | disturbance to avifauna | | | | |

### *8.2. Ecology*

| **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 |
| – Preconstruction walk-through of the final development footprint for protected species that would be affected and that can be translocated. | dEO, Specialist | Visual inspection of the layout and corridor, 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 |
| – Since a large proportion of the identified conservation-worthy species at the site are geophytic and succulent species (e.g. *Aloe davyana, Schizocarphus nervosus and Boophone disticha*), the potential for successful translocation is high. Before construction commences individuals of listed species within the development, footprint that would be affected, should be counted and marked and translocated where deemed necessary by the ecologist conducting the pre-construction walk-through survey, and according to the recommended ratios. Permits from the relevant provincial authorities, i.e. the Free State Department: Economic, Small Business Development, Tourism and Environmental Affairs, will be required to relocate and/or disturb listed plant species. | Contractor, Specialist | Develop a search, rescue and relocation plan, as well as submit and obtain the necessary permits from the relevant authorities | Prior to construction | ECO | Once prior to commencement of construction | Necessary permits obtained prior to the removal of protected plant species, and search, rescue and relocation undertaken in accordance with the appropriate plan |

| | | | | | | |
|---|---|---|---|---|---|---|
| – Any individuals of protected species affected by and observed within the development footprint during construction should be translocated under the supervision of the Contractor's Environmental Officer (EO). | cEO | Ensure that translocation of individuals of protected species affected by and observed within the development footprint is undertaken under supervision of the cEO. | Duration of construction | ECO | As and when required | Records of translocated protected species provided for review during audit |
| – Pre-construction environmental induction for all construction staff on site to ensure that basic environmental principles are adhered to. This includes awareness to no littering, appropriate handling of pollution and chemical spills, avoiding fire hazards, minimising wildlife interactions, remaining within demarcated construction areas etc. | cEO | Requirement for induction of all staff prior to entry, 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 during audits |
| – Demarcate all areas to be cleared with construction tape or similar material where practical. However, caution should be exercised to avoid using material that might entangle fauna. | Contractor | Visual inspection of the development area and whether all areas to be cleared have be demarcated with fauna-friendly material | Prior to construction | ECO | Duration of the construction phase | Areas to be cleared appropriately demarcated |

| | | | | | | |
|---|---|---|---|---|---|---|
| – Contractor's EO to provide supervision and oversight of vegetation clearing activities and other activities which may cause damage to the environment, especially at the initiation of the project, when the majority of vegetation clearing is taking place. | cEO | Visual inspection of vegetation clearing within the development footprint | Duration of construction phase | ECO | Weekly | No evidence of unnecessary vegetation clearing or damage to the environment |
| – All vehicles to remain within demarcated construction areas and no unnecessary driving in the veld outside these areas should be allowed. | cEO | Visual inspection of vehicle movement within the development area, and whether all vehicles vehicle movement is restricted to demarcated construction area | Duration of construction phase | ECO | Monthly | No evidence of vehicles driving in the veld outside the demarcated construction area |
| – Regular dust suppression during construction, if deemed necessary, especially along access roads. | Contractor | Identification of suitable dust control measures, and implementation of these measures | Duration of construction phase | ECO | Monthly | Dust suppression evident or observed during audit |
| – No plants may be translocated or otherwise uprooted or disturbed for rehabilitation or other purpose without express permission from the Contractor's EO. | cEO | Prohibit the translocation of plants by contractors without permission for the cEO | Duration of construction phase | ECO | Monthly | No plants translocated without permission from the cEO |
| – No fires should be allowed on-site. | cEO | Placement of signs around the | Duration of construction | ECO | Monthly | Signage prohibiting fire |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | site indicating that fires are prohibited on site | and operational phases | | | on site observed during audit |

| **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 |
| – Site access should be controlled and no unauthorised persons should be allowed onto the site. | DSS, dEO | Demarcate the project site and place a security guard and register at the main gate | Duration of the project | Not Applicable | | |
| – Any fauna directly threatened by the associated activities should be removed to a safe location by a suitably qualified person. | cEO, Specialist | Develop a search and relocation plan for threatened fauna species and obtain the relevant permits for the removal of these species | Prior to construction | ECO | Monthly | Necessary permits obtained prior to the removal of threatened fauna species, and copies of permits observed during audit |
| – The collection, hunting or harvesting of any plants or animals at the site should be strictly forbidden. Personnel should not be allowed to wander off the demarcated site. | cEO | Requirement for induction of all staff prior to entry, in particular about the collection, hunting or | Duration of the project | ECO | Monthly | No evidence of fauna and plant mortality, and inducting roster of all stuff completed, |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | harvesting of plant and animals | | | | maintained and available on site |
| – 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 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 | Duration of the project | ECO | 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 spills and clean up actions implemented observed and kept on file at site |
| – 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 signature throughout site, include speed | During the construction phase | ECO | Monthly | Minimal instances of speeding as observed on site |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | limit into induction and ensure all staff entering site is 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 audits and as evidenced in the written log of warnings and fines issued for contraventions |
| – Construction vehicles limited to a minimal footprint on site (no movement outside of the earmarked footprint). | Contractor, cEO | Install signage throughout the site instructing all construction vehicles to remain within the designated footprint | During the construction phase | ECO | Monthly | Minimal to no instances of construction vehicle movement outside the earmarked footprint |

| **Impact management outcome:** No increase in erosion risk as a result of site activities. | | | | | | |
|---|---|---|---|---|---|---|
| **Impact Management Actions** | **Implementation** | | | **Monitoring** | | |
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |

| | | | | | | |
|---|---|---|---|---|---|---|
| – Topsoil must be removed and stored separately from subsoil. Topsoil must be reapplied where appropriate as soon as possible in order to encourage and facilitate rapid regeneration of the natural vegetation on cleared areas. | Contractor | Enforce proper storage of topsoil and subsoil, and visual inspection to determine that topsoil is reapplied to disturbed areas during rehabilitation | During the construction and decommissioning phases | ECO | Monthly | Topsoil stored separately from subsoil and evidence of rehabilitation with topsoil where appropriate |
| – Practical phased development and vegetation clearing must be practiced so that cleared areas are not left un-vegetated and vulnerable to erosion for extended periods of time. | Contractor | Develop and implementation a vegetation clearance method statement | Prior to construction and during the construction phase | ECO | Weekly | Evidence of phased development and vegetation clearing observed during audit |

| **Impact management outcome:** Minimal alien plant invasion during the construction phase. | | | | | | |
|---|---|---|---|---|---|---|
| **Impact Management Actions** | **Implementation** | | | **Monitoring** | | |
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – A site-specific eradication and management programme for alien invasive plants must be implemented during construction. | Specialist | Invasive Alien Plant species eradication and management programme developed for the construction phase of the project, detailing monitoring required, control | Prior to the commencement of construction | ECO | Monthly | Evidence of Invasive Alien Plant species eradication and management programme during audit |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | methods and frequency. | | | | |
| – Clearing methods must aim to keep disturbance to a minimum. | Contractor | Visual inspection of vegetation clearing activities on site | Duration of the construction phase | ECO | Weekly | No evidence of unnecessary vegetation clearing |

### *8.3. Wetlands*

| **Impact management outcome:** Indirect loss of wetland habitats (applicable to all wetlands features) reduced. | | | | | | |
|---|---|---|---|---|---|---|
| **Impact Management Actions** | **Implementation** | | | **Monitoring** | | |
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – All wetland features and their associated buffer areas should be regarded as 'no-go' areas for all construction activities. | cEO and contractor | Ensure layout has been informed by the environmental sensitivities as determined by the environmental impact assessment and specialist studies<br><br>Visual inspection of the construction activities to observe whether they | Prior to construction and during construction | ECO | Once off review that the layout used is the approved one, and monthly thereafter | Confirm no development equipment traverses any seasonal or permanent wetland as per the authorised layout by reviewing the as-built designs<br><br>Wetland features clearly demarcated<br><br>No evidence of construction |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | avoid the wetland features and that the wetland features have been demarcated | | | | activities taking place within the 'no-go' areas during audit |
| – The recommended buffer areas between the delineated freshwater resource features and proposed project activities should be maintained. | cEO | Demarcate the delineated freshwater resource features | Once prior to construction commencing, and for the duration of the construction phase | ECO | Monthly | Delineated freshwater resource features appropriately demarcated |
| – Vegetation clearing within the development footprint to be kept to a minimum. No unnecessary vegetation to be cleared. | cEO | Visual inspection of vegetation clearing within the development footprint | Duration of construction phase | ECO | Weekly | No evidence of unnecessary vegetation clearing during audit |
| – Vegetation clearing should occur in in a phased manner to minimise erosion and/or run-off. | Contractor | Develop and implementation a vegetation clearance method statement | Prior to construction and during the construction phase | ECO | Weekly | Evidence of phased development and vegetation clearing observed during audit |
| – An effective storm water management plan should be compiled by a suitable specialist and the effectivity of the plan should be regularly assessed and revised if necessary. | Contractor, cEO | Develop and implement a stormwater management plan for the facility | Prior to construction commencing, and for the duration of construction | ECO | Monthly | Stormwater management plan evident within the onsite environmental file prior to construction |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | and operation phase | | | commencing, and evidence of stormwater measures implanted as observed on site during audit |

| **Impact management outcome:** Sedimentation and erosion reduced. | | | | | | |
|---|---|---|---|---|---|---|
| **Impact Management Actions** | **Implementation** | | | **Monitoring** | | |
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – Store hydrocarbons off site where possible, or otherwise implement hydrocarbon storage using impermeable floors with appropriate bunding, sumps and roofing. | Contractor | Ensure that storage areas are impermeable and are sufficiently bunded, and have sumps and roofing | During the Construction Phase | ECO | Monthly | Photographic proof that storage areas are impermeable, and have bunds, sumps and roofing |
| – An erosion control management plan should be utilised to prevent erosion. | Contractor, cEO | Develop and implement erosion control management plan to prevent erosion | Prior to construction and during the construction phase | ECO | Monthly | Erosion management plan developed and implemented for the duration of the construction phase<br><br>Evidence of minimal to no erosion |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | observed during audit |
| – Handle hydrocarbons carefully to limit spillage. | Contractor | Development and implement procedure for handling hydrocarbons | Prior to construction | ECO | Once off review of the procedure for handling hydrocarbons | Procedure for handling hydrocarbons developed and implemented |
| – Ensure vehicles are regularly serviced so that hydrocarbon leaks are limited. | Contractor, cEO | Ensure that vehicles are serviced as required | During the construction phase | ECO | Monthly | Vehicle service documentation provided during audit |
| – Designate a single location for refuelling and maintenance, outside of any freshwater resource features. | Contractor, cEO | Place refuelling and maintenance workshop at least 32m away from freshwater resource features | During the construction phase | ECO | Monthly | Workshop area for refuelling and maintenance of vehicles and machinery located at least 32m away from freshwater resource features |
| – Keep a spill kit on site to deal with any hydrocarbon leaks. | Contractor, cEO | Provide spill kits on site and provide training on the use of spill kits to the relevant employees | During the construction phase | ECO | Monthly | Spills kits observed on site during audit |
| – Remove soil from the site which has been contaminated by hydrocarbon spillage. | Contractor | Ensure that soil contaminated by hydrocarbon spillage is immediately removed and disposed of at an | During the construction phase | ECO | Monthly | Incident and corrective action logged in incident register<br><br>Hazardous waste manifest |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | appropriate hazardous waste disposal facility | | | | provided for review |

### *8.4. Heritage*

| **Impact management outcome:** Minimal to no impacts on buried archaeological and palaeontological resources. | | | | | | |
|---|---|---|---|---|---|---|
| **Impact Management Actions** | **Implementation** | | | **Monitoring** | | |
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – All excavations into bedrock are monitored by a suitably qualified palaeontologist and a report on the outcomes of the monitoring activities must be submitted to SAHRA on completion of the development of the facility. | Contractor, Specialist, cEO | Visual inspection of the excavation process and taking pictures for inclusion in the monitoring report | Duration of construction phase | ECO | Daily – Weekly | Copies of monitoring reports and pictures made available during the audit |
| – Should any previously unrecorded archaeological resources or possible burials be identified during the course of construction activities, work must cease in the immediate vicinity of the find, and SAHRA must be contacted regarding an appropriate way forward. | Contractor, cEO, Specialist (if required) | If any evidence of unrecorded archaeological resources or possible burials is observed during the course of construction activities, all work must cease immediately within the vicinity of the find and the find be reported to the SAHRA. | Duration of Construction Phase | ECO, cEO | Ongoing (cEO), Monthly (ECO) | Evidence of communication with SAHRA where any evidence of unrecorded archaeological resources or possible burials is found |

### *8.5. 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 |
| – Where reasonable and practical, the proponent should appoint local contractors and implement a 'locals first' policy, especially for semi and low-skilled job categories. However, due to the low skills levels in the area, the majority of skilled posts are likely to be filled by people from outside the area. | Developer | Develop and implement a "locals first" policy for the provision of employment opportunities | Prior to 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, efforts should be made to employ local contactors that are compliant with Broad Based Black Economic Empowerment (BBBEE) criteria. | Developer | Develop and implement a "locals first" policy for the provision of employment opportunities that states that first preference will be given to contractors that are compliant with BBBEE criteria | Prior to construction | ECO | Once, prior to the commencement of construction and monthly during the | The "locals first" policy is considered in terms of the employment and gives first preference to contractors that are compliant with BBBEE criteria |
| – Before the construction phase commences the proponent should meet with representatives from the MLM to establish the existence of a skills database for the area. If such as database exists it should be made | Developer | Identify and implement appropriate strategies for communication | Prior to construction | ECO | Once, prior to the commencement of construction and monthly | Communication is undertaken as per the identified strategies and evidence of the |

| | | | | | | |
|---|---|---|---|---|---|---|
| available to the contractors appointed for the construction phase. | | with representatives from the MLM | | | during the construction | meeting with the MLM (meeting minutes) is provided during the audit |
| – The local authorities, community representatives, and organisations on the interested and affected party database should be informed of the final decision regarding the project and the potential job opportunities for locals and the employment procedures that the proponent intends following for the construction phase of the project. | Developer | Identify and implement appropriate strategies to communicate the availability of job opportunities to interested and affected parties and ensure that all interested and affected parties are aware of the job opportunities associated with the project | Prior to construction | ECO | Once, prior to the commencement of construction and monthly during the construction | Evidence indicating that interested and affected parties were informed of the job opportunities is provided during the audit |
| – Where feasible, training and skills development programmes for locals should be initiated prior to the initiation of the construction phase. | Developer | 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 |
| – The recruitment selection process should seek to promote gender equality and the employment of women wherever possible. | Developer | Develop and implement a "locals first" policy for the provision of employment opportunities and ensure that the | Pre-construction & Construction | ECO | Once, prior to the commencement of construction and monthly during the construction phase | The "locals first" policy, which promotes gender equality and women empowerment is considered in |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | policy promotes gender equality and women empowerment | | | | terms of the employment |
| – The proponent should liaise with the MLM with regards the establishment of a database of local companies, specifically BBBEE companies, which qualify as potential service providers (e.g., construction companies, catering companies, waste collection companies, security companies etc.) prior to the commencement of the tender process for construction contractors. These companies should be notified of the tender process and invited to bid for project-related work. | Developer | Establish communication channels with the MLM | Pre-construction & Construction | ECO | Once, prior to the commencement of construction and monthly during the construction phase | Documentary evidence indicating liaison between the developer and the MLM |
| – Where possible, the proponent should assist local BBBEE companies to complete and submit the required tender forms and associated information. | Developer | Develop and implement a programme for the provision of assistance in completing and submitting tender forms | Prior to construction | Not Applicable | | |
| – The proponent and the contractor(s) should, in consultation with representatives from the MF, develop a code of conduct for the construction phase. The code should identify which types of behaviour and activities are not acceptable. Construction workers in breach of the code should be dismissed. All dismissals must comply with the South African labour legislation. | Developer, in consultation with the Monitoring Forum | Develop and implement code of conduction for the construction phase | Prior to construction and during the construction phase | ECO | Monthly | Code of conduct evident during audit |
| – The construction area should be fenced off before construction commences and no workers should be permitted to leave the fenced off area. | Contractor | Ensure that the construction area is fenced off | Prior to construction and during the construction phase | ECO | Weekly | Construction area is fenced off and photographic proof can be provided |

| | | | | | | |
|---|---|---|---|---|---|---|
| – The contractor should provide transport for workers to and from the site on a daily basis. This will enable the contactor to effectively manage and monitor the movement of construction workers on and off the site. | cEO | Provide daily transport to and from site for employees | During the Construction Phase | ECO | Monthly, and as and when required | Proof of transportation services provided |
| – The contractor must ensure that all construction workers from outside the area are transported back to their place of residence within 2 days for their contract coming to an end. | cEO | Provide transport from site to employees within 2 days of their contract coming to an end | Towards the end of the construction phase | ECO | As and when required, towards the end of the construction phase | Proof of transportation services provided |
| – It is recommended that no construction workers, with the exception of security personnel, should be permitted to stay over-night on the site. | Not Applicable - no on-site housing is envisaged with daily commute to and from site expected of construction staff. | | | | | |
| – The proponent should implement a policy that no employment will be available at the gate. | Developer | Develop and implement a policy that no employment will be available at the gate | Pre-construction & Construction | ECO | Once, prior to the commencement of construction and monthly during the construction | Policy considered in terms of employment |
| – The construction area should be fenced off prior to the commencement of the construction phase. The movement of construction workers on the site should be confined to the fenced off area. | Contractor | Ensure that the construction area is fenced off prior to the commencement of construction<br><br>Observe construction workers to determine whether their movement is confined to the fenced off area | Prior to construction and for the duration of the construction phase | ECO | Weekly | Construction area fenced off<br><br>No movement of construction workers outside the fenced off area observed during audit |

| | | | | | | |
|---|---|---|---|---|---|---|
| – The proponent should enter into an agreement with the local farmers in the area whereby damages to farm property etc. during the construction phase will be compensated for. The agreement should be signed before the construction phase commences. | 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 ECO | Once, prior to construction | Availability of approved and signed agreements |
| – Traffic and activities should be strictly contained within designated areas. | Contractor, cEO | Ensure that traffic and activities are contained within designated areas | During the construction phase | ECO | Weekly | Traffic and activities are contained within designated areas |
| – Strict traffic speed limits must be enforced on the farm. | cEO / dEO / Contractor | Inform all drivers of speed limits and place appropriate signage along the relevant roads | During the construction and operation phase | ECO Operation and Maintenance team | Monthly | No complaints regarding speeding on site are received |
| – All farm gates must be closed after passing through. | DSS and Contractor | Ensure farm gates are closed after passing through as required through the implementation of a formalised process | During the construction phase | cEO | Weekly and as and when required | Farm gates are closed after passing through and no complaints from landowners are received. |
| – Contractors appointed by the proponent should provide daily transport for low and semi-skilled workers to and from the site. This would reduce the potential risk of trespassing on the remainder of the farm and adjacent properties. | cEO | Provide daily transport to and from site for employees | During the construction phase | ECO | Monthly, and as and when required | Proof of transportation services provided during audit |
| – The proponent should hold contractors liable for compensating farmers and communities in full for any | DPM Contractor | Develop agreements with | Pre-construction | dEO | Once, prior to construction | Availability of approved and |

| | | | | | | |
|---|---|---|---|---|---|---|
| stock losses and/or damage to farm infrastructure that can be linked to construction workers. This should be contained in the Code of Conduct to be signed between the proponent, the contractors' and neighbouring landowners. The agreement should also cover loses and costs associated with fires caused by construction workers or construction related activities (see below). | | the contractors regarding their liability for compensating farmers and communities in full for any stock losses and/or damage to farm infrastructure that can be linked to construction workers. Ensure that agreements are approved and signed | | ECO | | signed agreement |
| – The Environmental Management Plan (EMP) must outline procedures for managing and storing waste on site, specifically plastic waste that poses a threat to livestock if ingested. | cEO | Ensure that the EMP contains measures for managing and storing waste on site | Pre-construction and during the construction and operation phase | dEO, ECO, cEO | Once, at the onset of the construction phase, and again on the onset of the operation phase | Measures for managing and storing waste included in the EMP and the implementation thereof observed during audit |
| – Contractors appointed by the proponent must ensure that all workers are informed at the outset of the construction phase of the conditions contained on the Code of Conduct, specifically consequences of stock theft and trespassing on adjacent farms. | cEO and Contractor in consultation with the ECO | Compile a Code of Conduct for staff. Ensure that the conditions of the Code of Conduct are communicated staff at the outset of construction | Pre-construction | ECO | Once, prior to the commencement of construction | No complaints registered in this regard |
| – Contractors appointed by the proponent must ensure that construction workers who are found guilty of stealing livestock and/or damaging farm infrastructure | Developer | Compile a Code of Conduct for staff. Ensure that any | During the construction phase | ECO | As and when necessary | No complaints from dismissed staff |

| | | | | | | |
|---|---|---|---|---|---|---|
| are dismissed and charged. This should be contained in the Code of Conduct. All dismissals must be in accordance with South African labour legislation. | | dismissals are done in accordance with South African labour legislation | | | | Code of Conduct observed during audit |
| – The option of establishing a fire-break around the perimeter of the site prior to the commencement of the construction phase should be investigated. | Contractor | Ensure that the option of establishing a fire-break around the perimeter of the site is properly investigated and that the decision is informed by the site sensitivities | Prior to construction | ECO | Once | Documentation indicating that discussions around establishing firebreaks have been undertaken |
| – Contractor should ensure that open fires on the site for cooking or heating are not allowed except in designated areas. | ECO / cEO / dEO | Hold environmental awareness training workshops. Training material should include the fact that open fires for cooking or heating are prohibited, in designated areas | Pre-construction construction and operations | ECO<br>dEO | Monthly and as and when required | Attendance register and training minutes / notes for the record |
| – Smoking on site should be confined to designated areas. | | Erect signage indicating designated smoking areas, and ensure that smoking is only confined to these areas | Construction and operations | ECO<br>dEO<br>cEO | Monthly, and as and when required | Photographic evidence of signage indicating designated smoking areas |
| – Contractor to ensure that construction related activities that pose a potential fire risk, such as welding, are effectively managed and are confined to areas | dEO / cEO / Contractor | Ensure that construction related activities | Pre-construction, construction and operations | ECO | Prior to the commencement of the | No fire outbreaks occurred |

| | | | | | | |
|---|---|---|---|---|---|---|
| where the risk of fires has been reduced. Measures to reduce the risk of fires include avoiding working in high wind conditions when the risk of fires is greater. In this regard special care should be taken during the high risk dry, windy winter months. | | that pose a potential fire risk, such as welding, are effectively managed and are confined to areas where the risk of fires has been reduced<br><br>Develop environmental awareness training material which covers conditions under which work should not be undertaken to reduce the risk of fires | | | environmental awareness training, once during the construction phase and once during the operation phase | Environmental awareness training material observed |
| – Contractor should provide adequate fire-fighting equipment on-site, including a fire fighting vehicle. | Contractor | The site must be fitted with adequate fire-fighting equipment | During the Construction Phase | ECO | Monthly | Adequate fire-fighting equipment is available and has been serviced |
| – Contractor to provide fire-fighting training to selected construction staff. | cEO and Contractor | Provide training on the use of fire-fighting equipment to the relevant employees | Pre-construction | ECO | Once, prior to the commencement of construction | Proof of training to be provided by the contractor |
| – As per the conditions of the Code of Conduct, in the event of a fire being caused by construction workers and or construction activities, the appointed contractors must compensate farmers for any damage | DPM Contractor | Develop agreements with the contractors regarding their | Pre-construction | dEO ECO | Once, prior to construction | Availability of approved and signed agreement |

| | | | | | | |
|---|---|---|---|---|---|---|
| caused to their farms. The contractor should also compensate the fire-fighting costs borne by farmers and local authorities. | | liability for damage as a result of fires caused by construction workers and or construction activities. Ensure that agreements are approved and signed | | | | |
| – The movement of heavy vehicles associated with the construction phase should be timed to avoid times of the week, such as weekends, when the volume of traffic travelling along the R34 may be higher. | Contractor | Ensure that movement of heavy vehicles is managed accordingly | During construction | ECO, dEO | Monthly | No complaints regarding traffic caused by the construction activities received |
| – Construction operations should be planned to minimise the total area cleared at any given time. | Contractor | Develop and implementation a vegetation clearance method statement | Prior to construction and during the construction phase | ECO | Monthly | Evidence of phased development and vegetation clearing observed during audit |
| – Dust suppression measures must be implemented on un-surfaced roads, such as wetting on a regular basis and ensuring that vehicles used to transport sand and building materials are fitted with tarpaulins or covers. | Contractor | Appropriate dust suppression measures are implemented | During the construction phase | cEO, ECO | Weekly | Photographic record of measures being implemented and the results thereof |
| – All vehicles must be road-worthy, and drivers must be qualified and made aware of the potential road safety issues and need for strict speed limits. | cEO / dEO / Contractor | Regular inspection of vehicles<br><br>Inform all drivers of speed limits and place appropriate | During construction and operations | ECO<br><br>Operation and Main | Monthly | No complaints from community members are submitted |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | signage along the relevant roads | | tena nce team | | Vehicle inspection checklists available |
| – The footprint associated with the construction related activities (access roads, construction platforms, workshop etc.) should be minimised. | cEO, Contractor | Visual inspection of clearing activities to determine if any unnecessary land clearing is being undertaken | Duration of construction phase | ECO | Monthly | No evidence of unnecessary land clearing observed during audit |
| – An Environmental Control Officer (ECO) should be appointed to monitor the establishment phase of the construction phase. | Developer | Ensure that an ECO is appointed prior to the commencement of construction activities | Pre-construction | cEO | Once, prior to construction | Appointment letter provided for review |

### *8.6. Soils*

| **Impact management outcome:** Minimal impacts resulting from the change in land use from livestock to energy generation | | | | | | |
|---|---|---|---|---|---|---|
| **Impact Management Actions** | **Implementation** | | | **Monitoring** | | |
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – The development footprint must be fenced-off from the remaining section of the development area, prior to construction of any infrastructure. | Contractor | Ensure that the footprint is fenced off | Prior to construction and during the construction phase | ECO | Monthly | Development footprint fenced off from the remaining section of the development area |
| – Vegetation clearance must be restricted to areas where infrastructure is constructed. | cEO, Contractor | Visual inspection of the vegetation clearing within the | Duration of construction phase | ECO | Weekly | No evidence of vegetation clearance encroaching into |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | development footprint | | | | areas outside the development footprint |
| – No materials removed from development area must be allowed to be dumped in nearby livestock farming areas. | cEO, Contractor | Requirement for induction of all staff prior to entry. Induction to include awareness of littering and pollution | 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 during audits |
| – Prior arrangements must be made with the landowners to ensure that livestock and game animals are moved to areas where they cannot be injured by vehicles traversing the area. | Developer | Draft agreement to be signed by the landowners and developer | Prior to construction | ECO | Once prior to construction | Copy of signed agreement presented during audit |
| – No boundary fence must be opened without the landowners' permission. | cEO, DPM, Contractor | Develop access agreements with the affected landowners. Ensure that agreements are approved and signed | Pre-construction | dEO<br>ECO | Once, prior to construction | Availability of approved and signed negotiations |
| – No open fires made by the construction teams are allowable during the construction phase. | cEO, Contractor | Requirement for induction of all staff prior to entry. Induction to include awareness of littering and pollution | 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 during audits |

| **Impact management outcome:** Minimal to no soil erosion observed on site. | | | | | | |
|---|---|---|---|---|---|---|
| **Impact Management Actions** | **Implementation** | | | **Monitoring** | | |
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – Land clearance must only be undertaken immediately prior to construction activities and only within the development footprint. | Contractor | Visual inspection of vegetation clearing activities to determine if land clearance is only being undertaken within the development footprint | Prior to construction | ECO | Daily | Clearing undertaken only prior to construction and within the development footprint |
| – Unnecessary land clearance must be avoided. | Contractor | Visual inspection of vegetation clearing activities on site | Duration of the construction phase | ECO | Monthly | No evidence of unnecessary vegetation clearing |
| – Where possible, conduct the construction activities outside of the rainy season. | DPM, DSS, Contractor | Ensure construction activities are conducted outside of the rainy season | Duration of the construction phase | ECO | Once off at the beginning of construction | Construction activities undertaken outside of the rainy season |
| – Stormwater channels must be designed to minimise soil erosion risk resulting from surface water runoff. | Design Engineer | Ensure stormwater channels are designed such that they minimise soil erosion risk | Prior to construction | ECO | Once off at the beginning of construction | Stormwater channel designs provided for review and designed such that they minimise erosion risk |

| **Impact management outcome:** Minimal to no soil compaction observed on site. | | | | | | |
|---|---|---|---|---|---|---|
| **Impact Management Actions** | **Implementation** | | | **Monitoring** | | |
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – Vehicles and equipment must travel within demarcated areas and not outside of the construction footprint. | cEO, Contractor | Visual inspection of vehicle movement within the development area, and whether all vehicles utilise demarcated roads only | Duration of construction phase | ECO | Monthly | No evidence of vehicles driving in the veld outside the demarcated roads |
| – Unnecessary land clearance must be avoided. | cEO, Contractor | Visual inspection of clearing activities to determine if any unnecessary land clearing is being undertaken | Duration of construction phase | ECO | Monthly | No evidence of unnecessary land clearing observed during audit |
| – Where possible, conduct the construction activities outside of the rainy season. | Contractor | Contractor to undertake construction activities outside of the rainy season | Duration of construction phase | ECO | Monthly | No construction activities conducted during the rainy season |
| – Vehicles and equipment must park in designated parking areas. | Contractor, cEO | Visual inspection of parked vehicles and equipment to determine if they have been parked in designated parking areas | Duration of construction phase | ECO | Monthly | Vehicles and equipment are parked in designated areas and no complaints of vehicles not parked within designated parking areas are received |

| **Impact management outcome:** Minimal to no soil pollution observed on site. | | | | | | |
|---|---|---|---|---|---|---|
| **Impact Management Actions** | **Implementation** | | | **Monitoring** | | |
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – Maintenance must be undertaken regularly on all vehicles and construction/maintenance machinery to prevent hydrocarbon spills. | Contractor | Undertaken regular maintenance of vehicles and construction/maintenance machinery to prevent hydrocarbon spills. Written logs of maintenance to be kept on file and Construction vehicles and equipment must be inspected daily for signs of leakages | During the construction phase | ECO | Monthly | Written logs of maintenance to be kept on file and Construction vehicles and equipment must be inspected daily for signs of leakages, as observed during audits |
| – Any waste generated during construction, must be stored into designated containers and removed from the site by the construction teams. | Contractor, cEO | Develop a Method Statement for the storage of waste in suitable containers. Regular removal of waste from the site to be undertaken. | During the construction phase | ECO | Monthly | Photographic proof that waste is stored in suitable containers as per the requirements of the relevant Method Statements. Waste manifests detailing the quantity, nature, and fate of |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | any regulated waste |
| – Any left-over construction materials must be removed from site. | Contractor, cEO | Ensure that left-over construction materials are removed from site | During the construction phase | ECO | Once, following the completion of construction | Certificates for the disposal of left-over construction material at a licensed waste disposal facility |

### *8.7. Visual*

| **Impact management outcome:** Minimal visual impacts resulting from the proposed on-site substation. | | | | | | |
|---|---|---|---|---|---|---|
| **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/servitude. | Project proponent/ design consultant | Visual inspection of the layout to ensure that vegetation immediately adjacent to the development footprint will not be disturbed<br><br>Ensure that natural vegetation immediately adjacent to the development | Prior to construction and during construction | ECO | Monthly | Onsite evidence that natural vegetation immediately adjacent to the development footprint/servitude is retained and maintained |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | footprint/servitude is retained and maintained | | | | |
| – Make use of existing roads wherever possible and plan the layout and construction of roads and infrastructure with due cognisance of the topography to limit cut and fill requirements. | Project proponent/ design consultant | Visual inspection of the layout to ensure it will promote the use of existing roads and that infrastructure is placed with due cognisance of the topography<br>Ensure that existing roads are utilised as practically possible | Prior to construction | ECO | Monthly | Use of existing roads by contractors observed during audit<br><br>Construction undertaken in accordance with approved layout |
| – Consolidate infrastructure and make use of already disturbed sites rather than undisturbed areas. | Project proponent/ design consultant | Visual inspection of the layout to determine if infrastructure is placed within already disturbed areas | Prior to construction | ECO | Monthly | Construction undertaken in accordance with approved layout |
| – Ensure that vegetation is not unnecessarily cleared or removed during the construction phase. | Contractor | Visual inspection of development footprint to determine if unnecessary clearing of vegetation is being undertaken | Duration of the construction phase | ECO | Daily – Weekly | No evidence of unnecessary vegetation clearance |
| – Reduce the construction phase through careful logistical planning and productive implementation of resources. | Contractor | Develop and implement a construction programme | Duration of the construction phase | ECO | Monthly | Reduced duration of the construction phase. Copy of construction |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | programme provided during audit |
| – 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 activities to the immediate construction site | Duration of the construction phase | ECO | Weekly | Barrier established around the construction site |
| – Ensure that rubble, litter, and disused construction materials are appropriately stored (if not removed daily) and then disposed regularly at licensed waste facilities. | Contractor | Disposal of waste at licensed waste disposal facilities must be undertaken as per the waste management plan | Duration of the construction phase | ECO | Monthly | Disposal certificates of disposal at licensed facilities to be provided |
| – Reduce and control construction dust through the use of approved dust suppression techniques as and when required (i.e. whenever dust becomes apparent). | Contractor | Apply appropriate dust suppression technique | 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 |

# DECOMISSIONING PHASE OUTCOMES AND ACTIONS

### *8.8. Avifauna*

| **Impact management outcome:** The displacement of priority species due to disturbance associated with construction of the PV plant and associated infrastructure is reduced. | | | | | | |
|---|---|---|---|---|---|---|
| **Impact Management Actions** | **Implementation** | | | **Monitoring** | | |
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – Construction activity should be restricted to the immediate footprint of the infrastructure. | cEO, Contractor | Visual inspection of the construction activities to observe whether they remain within the defined footprint area | Duration of construction phase | ECO | Monthly | No evidence of construction activity outside the immediate footprint of the infrastructure |
| – Access to the remainder of the site should be strictly controlled to prevent unnecessary disturbance of priority species and degradation of habitat. | cEO, Contractor | Demarcate sensitive areas to restrict access to these areas | Duration of construction phase | ECO | Monthly | Sensitive areas appropriately demarcated and fenced off for the duration of the construction phase |
| – Measures to control noise and dust should be applied according to current best practice in the industry. | Contractor | Ensure that noise limits do not exceed acceptable limits and identify and implement | Duration of construction phase | ECO | Monthly | Dust and noise control measures evident during audit. No noise or dust related |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | suitable dust control measures | | | | complaints received |
| – Maximum use should be made of existing access roads and the construction of new roads should be kept to a minimum. | Contractor, cEO | Visual inspection of the construction activities and if the use of existing access roads over the construction of new roads is favoured | Duration of construction phase | ECO | Monthly | No evidence of several new access roads on site |
| – The mitigation measures proposed by the vegetation specialist must be strictly enforced. | cEO | Regular audits to oversee implementation of the mitigation measures proposed by the vegetation specialist | Duration of construction phase | ECO | Monthly | Implementation of the mitigation measures proposed by the vegetation specialist evident during audit. |

### *8.9. Ecology*

| **Impact management outcome:** No increase in erosion risk as a result of site activities. | | | | | | |
|---|---|---|---|---|---|---|
| **Impact Management Actions** | **Implementation** | | | **Monitoring** | | |
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – Any erosion problems observed along access roads or any hardened/engineered surface should be rectified immediately and monitored thereafter to ensure that they do not re-occur. | Contractor, cEO | Visual inspection of remaining infrastructure and decommissioned | Duration of decommissioning phase | ECO | Monthly | Negligible erosion observed on site, or where observed clear evidence of |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | areas to determine if erosion has occurred or is likely to occur. | | | | control measures put in place |
| – All bare areas should be re-vegetated with locally occurring species, to bind the soil and limit erosion potential where applicable. | Contractor, cEO | Visual inspection of infrastructure and decommissioned areas to determine if all bare areas have been re-vegetated | Duration of decommissioning phase | ECO | Monthly | No evidence of bare areas affected by development and negligible erosion observed |
| – Re-instate as much of the eroded area to its pre-disturbed, "natural" geometry (no change in elevation and any banks not to be steepened) where possible. | Contractor | Visual inspection of the site to determine the success of re-instatement | Duration of decommissioning phase | ECO | Monthly | Eroded areas re-instated successfully |
| – Roads and other disturbed areas should be regularly monitored for erosion problems and problem areas should receive follow-up monitoring by the EO to assess the success of the remediation. | Contractor | Development and implement rehabilitation monitoring plan. Monitoring reports to be kept on file | Duration of decommissioning and for three years thereafter | ECO | Annually | Monitoring reports produced in accordance with the frequency determined in the rehabilitation monitoring plan, for a period of three years after the decommissioning phase, and as observed in monitoring reporting provided on request |
| – No planting or importing any listed invasive alien plant species (all Category 1a, 1b and 2 invasive species) to the site for landscaping, rehabilitation or any other purpose must be undertaken. | Contractor | Visual inspection of the site to determine that no listed invasive alien | Duration of decommissioning phase | ECO | Monthly | No evidence of increased encroachment by invasive alien plants |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | plant species are used for rehabilitation purposes | | | | |

### *8.10. Wetlands*

| **Impact management outcome:** Indirect loss of wetland habitats (applicable to all wetlands features) reduced. | | | | | | |
|---|---|---|---|---|---|---|
| **Impact Management Actions** | **Implementation** | | | **Monitoring** | | |
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – Any areas disturbed during the construction phase should be encouraged to rehabilitate as fast and effective as possible and were deemed necessary by the ECO or Contractor's EO, artificial rehabilitation (e.g. re-seeding with collected or commercial indigenous seed mixes) should be applied in order to speed up the rehabilitation process in critical areas (e.g. steep slopes and unstable soils). | Contractor | Develop and implement a rehabilitation plan for the rehabilitation of all disturbed areas | Pre-construction & Rehabilitation | cEO, ECO | Weekly | Rehabilitation of the disturbed areas is undertaken as per the rehabilitation plan. |
| – During the construction and operational /decommissioning phase, monitor the development footprint and wetland areas to see if erosion issues arise and if any erosion control is required.<br>* Any areas disturbed during the construction phase should be encouraged to rehabilitate as fast and effective as possible and were deemed necessary by the Contractor's EO, artificial rehabilitation (e.g. re-seeding with collected or commercial indigenous seed mixes) should be applied in order to speed up the rehabilitation process in critical areas (e.g. steep slopes and unstable soils). | Contractor, cEO | Visual inspection for signs of invasive species encroachment and to inform control efforts required<br><br>Ensure disturbance to freshwater ecosystems is | During the decommissioning and operational phase | cEO, ECO | Monthly<br><br>Annually for monitoring of alien vegetation and erosion | Negligible evidence of invasive alien species observed on site<br><br>No disturbance to freshwater ecosystems observed during audit |

| | | | | | | |
|---|---|---|---|---|---|---|
| * All alien plant re-growth must be monitored and should it occur, these plants should be eradicated.<br>* During decommissioning, disturbance to the freshwater ecosystems should be avoided as far as possible.<br>* Disturbed areas may need to be rehabilitated and revegetated.<br>* Mitigation and follow up monitoring of residual impacts (alien vegetation growth and erosion) may be required. | | avoided during decommissioning<br><br>Visual inspection of disturbed areas to determine if they have been revegetated<br><br>Monitoring reports for alien vegetation produced | | | | Disturbed areas revegetated |

| **Impact management outcome:** Sedimentation and erosion reduced. | | | | | | |
|---|---|---|---|---|---|---|
| **Impact Management Actions** | **Implementation** | | | **Monitoring** | | |
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – All bare areas, as a result of the development, should be revegetated with locally occurring species, to bind the soil and limit erosion potential. | Contractor, cEO | Visual inspection of infrastructure and decommissioned areas to determine if all bare areas have been re-vegetated | Duration of decommissioning phase | ECO | Monthly | No evidence of bare areas affected by development and negligible erosion observed |
| – Site rehabilitation should aim to restore surface drainage patterns, natural soil and vegetation as far as is feasible. | Contractor | Ensure that rehabilitation activities are undertaken in accordance with the rehabilitation plan | Duration of decommissioning phase | ECO | Monthly | Drainage patterns, natural soil and vegetation restored following rehabilitation |

### *8.11. Socio-Economic*

| **Impact management outcome:** Reduced effects of social impacts associated with retrenchment, including loss of jobs, and source of income. | | | | | | |
|---|---|---|---|---|---|---|
| **Impact Management Actions** | **Implementation** | | | **Monitoring** | | |
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – The proponent should ensure that retrenchment packages are provided for all staff retrenched when the plant is decommissioned. | Developer | Identify and implement appropriate strategies for communication with the communities regarding retrenchment packages and ensure that retrenchment is undertaken in accordance with the labour laws | Decommissioning phase | dEO | Once, at the start of the decommissioning phase | Evidence of retrenchment packages provided during audit. No complaints from retrenched staff |
| – All structures and infrastructure associated with the proposed facility should be dismantled and transported off-site on decommissioning. | Contractor, cEO | Ensure that dismantled infrastructure is removed from the site | Decommissioning phase | dEO | Monthly | No evidence of dismantled material on site |
| – Revenue generated from the sale of scrap metal during decommissioning should be allocated to funding closure and rehabilitation of disturbed areas. | Developer | Ensure that revenue generated from the sale of scrap metal is utilised for rehabilitation purposes | Decommissioning phase | dEO | Monthly | Documentary evidence indicating that revenue generated from the sale of scrap metal is being |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | used to fund closure and rehabilitation activities |

| **Impact management outcome:** Minimise potential noise, dust and safety impacts associated with movement of construction related traffic to and from the site and damage to farmlands. | | | | | | |
|---|---|---|---|---|---|---|
| **Impact Management Actions** | **Implementation** | | | **Monitoring** | | |
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – Cleared areas should be rehabilitated once the construction phase has been completed. | Contractor, cEO | Visual inspection of the cleared areas to determine if rehabilitation of these areas has been undertaken | Duration of decommissioning phase | ECO | Monthly | Evidence of rehabilitation following the completion of construction activities |
| – All areas disturbed by construction related activities, such as access roads on the site, construction platforms, workshop area etc., should be rehabilitated at the end of the construction phase. | Contractor, cEO | Visual inspection of the cleared areas to determine if rehabilitation of these areas has been undertaken | Duration of decommissioning phase | ECO | Monthly | Evidence of rehabilitation following the completion of construction activities |
| – The implementation of a rehabilitation programme should be included in the terms of reference for the contractor/s appointed. The specifications for the rehabilitation programme should be drawn up by the Environmental Consultants appointed to manage the EIA. | Developer, Specialist | Develop and implement a rehabilitation programme | Pre-construction and during decommissioning | cEO | Weekly | Rehabilitation undertaken in accordance with the rehabilitation programme |
| – The implementation of the Rehabilitation Programme should be monitored by the ECO. | cEO | Ensure that implementation of the rehabilitation | Duration of decommissioning phase | ECO | Weekly | ECO monitoring reports for the decommissioning phase |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | plan is monitored by the ECO. | | | | |

### *8.12. Soils*

| **Impact management outcome:** Minimal to no soil erosion observed on site. | | | | | | |
|---|---|---|---|---|---|---|
| **Impact Management Actions** | **Implementation** | | | **Monitoring** | | |
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – All left-over construction material must be removed from site once construction on a land portion is completed. | Contractor, cEO | Ensure that left-over construction materials are removed from site | During the construction phase | ECO | Once, following the completion of construction | Certificates for the disposal of left-over construction material at a licensed waste disposal facility |

### *8.13. Visual*

| **Impact management outcome:** Minimal visual impacts resulting from the proposed on-site substation. | | | | | | |
|---|---|---|---|---|---|---|
| **Impact Management Actions** | **Implementation** | | | **Monitoring** | | |
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – Rehabilitate all disturbed areas immediately after the completion of construction works. If necessary, an ecologist should be consulted to assist or give input into rehabilitation specifications. | Contractor, Specialist (if required) | Develop and implement a rehabilitation plan for the rehabilitation of all disturbed areas | Pre-construction & Rehabilitation | cEO | Weekly | Rehabilitation of the disturbed areas is undertaken as per the rehabilitation plan |

| | | | | | | |
|---|---|---|---|---|---|---|
| – Remove infrastructure not required for the post-decommissioning use of the site. | Contractor | Removal of infrastructure not required for the post-decommissioning use of the site | At the end of construction and during the decommissioning phase | ECO, dEO | Once, following the completion of the construction phase | No temporary infrastructure not required for the post-decommissioning use of the site present on site after the completion of the construction phase |
| – Monitor rehabilitated areas quarterly for at least a year following decommissioning, and implement remedial action as and when required. | cEO, Contractor | Monitoring reports produced every quarter, and kept on file for inspection upon request | During the decommissioning phase | ECO | Quarterly | Monitoring reports produced on a quarterly basis |

# OPERATIONAL PHASE OUTCOMES AND ACTIONS

### *8.14. Avifauna*

| **Impact management outcome:** Reduced mortality and displacement of priority avifauna. | | | | | | |
|---|---|---|---|---|---|---|
| **Impact Management Actions** | **Implementation** | | | **Monitoring** | | |
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – It is recommended that a single perimeter fence is used. | Contractor | Visual inspection to determine if a single perimeter fence has been used on site | Duration of construction and operation phase | ECO, dEO | Once, prior to construction and operation | Single perimeter fence utilised |

### *8.15. Ecology*

| **Impact management outcome:** Minimal alien plant invasion during the construction phase. | | | | | | |
|---|---|---|---|---|---|---|
| **Impact Management Actions** | **Implementation** | | | **Monitoring** | | |
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – Regular monitoring by the operation and maintenance team for alien plants within the power line servitude must occur and could be conducted simultaneously with erosion monitoring as per Eskom Standards. | Contractor, cEO | Visual inspection of infrastructure for signs of invasive species encroachment and to inform control efforts required. Implementation of control actions against established populations identified during monitoring. | Every 3 months during the first two years of the operation phase, and annually thereafter for the life of the project thereafter | cEO | Monthly | Negligible evidence of invasive alien species observed on site or clear evidence of control actions implemented, in addition to evidence of the written invasive alien management plan in the site file. |
| – When alien plants are detected, these must be controlled and cleared using the recommended control measures for each species to ensure that the problem is not exacerbated or does not re-occur and increase to problematic levels. | Contractor, cEO | Control methods employed to be guided by the invasive alien plant management programme and the methods provided for | Duration of the operation phase | cEO | Monthly | Control measures implemented in accordance with the IAP management programme development plan, as determined by the ECO |

### *8.16. Wetlands*

| **Impact management outcome:** Minimal impact on wetland systems due to increase in surface runoff on wetland form and function. | | | | | | |
|---|---|---|---|---|---|---|
| **Impact Management Actions** | **Implementation** | | | **Monitoring** | | |
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – Any storm-water within the site must be handled in a suitable manner, i.e. trap sediments, and reduce flow velocities. | Contractor, cEO | Develop and implement a stormwater management plan for the facility, | Prior to construction commencing, and for the duration of construction and operation phase | ECO, dEO/cEO | Monthly | Stormwater plan evident within the onsite environmental file prior to construction commencing, and evidence of stormwater measures implanted as observed on site during audit |
| – Stormwater from the substation must be managed using appropriate channels and swales when located within steeper areas. | Contractor | Ensure that appropriate channels and swales are established for the purpose of stormwater management | Established during construction and utilised during the operation phase | cEO | Monthly | Evidence of stormwater channels and swales observed on site during audit |
| – The runoff should be dissipated over a broad area covered by natural vegetation or managed using appropriate channels and swales. | Contractor | Ensure that appropriate channels and swales are established for the purpose of | Established during construction and utilised during the operation phase | cEO | As and when required | Evidence of stormwater channels and swales observed on site during audit |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | stormwater management and that runoff is dissipated over a broad area covered by natural vegetation | | | | Runoff is dissipated over a broad area covered by natural vegetation |
| – The existing road infrastructure should be utilised as far as possible to minimise the overall disturbance | cEO | Inform contractors to utilise existing road infrastructure | Pre-construction, construction and operations | ECO/cEO, dEO | Daily | Existing roads utilised as far as is practically possible |
| – No stormwater runoff must be allowed to discharge directly into freshwater resource features along roads, and flows should thus be allowed to dissipate over a broad area covered by natural vegetation. | Contractor | Ensure that stormwater is managed in accordance with the stormwater management plan for the site | Construction and operations | ECO/cEO, dEO | As and when required | Evidence of stormwater measures implanted as observed on site during audit |

| **Impact management outcome:** Sedimentation and erosion reduced. | | | | | | |
|---|---|---|---|---|---|---|
| **Impact Management Actions** | **Implementation** | | | **Monitoring** | | |
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – Any erosion problems observed to be associated with the project infrastructure should be rectified as soon as possible and monitored thereafter to ensure that they do not re-occur. | Contractor | Develop and implement an erosion management plan | Prior to construction and for the project lifecycle | ECO, cEO | Monthly | Erosion problems successfully rectified |
| – Silt traps should be used where there is a danger of topsoil eroding and entering lower lying wetland resources. | Contractor | Ensure that silt trips are established in steep areas close | During construction and operations | ECO | Monthly | Photographic proof of silt trips |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | to lower lying wetland features | | | | |

### *8.17. 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 |
| – Implement a skills development and training programme aimed at maximising the number of employment opportunities for local community members. | Developer | Develop and implement a "locals first" policy for the provision of employment and training opportunities | During the operation phase | dEO | Once prior to the commencement of operation and monthly during the operation phase | The "locals first" policy is considered in terms of the employment and training opportunities |
| – Maximise opportunities for local content, procurement, and community shareholding. | Developer | Develop and implement a "locals first" policy in the procurement process | During the operation phase | dEO | Once prior to the commencement of operation and monthly during the operation phase | The "locals first" policy is considered in terms of procuring goods and services |
| – Implement agreements with affected landowner. | DPM, Contractor | Develop agreements with the affected landowners. Ensure that agreements are approved and signed | During the operation phase | dEO | Once, prior to the commencement of the operation phase | Availability of approved and signed agreement/s |

### *8.18. Soils*

| **Impact management outcome:** Minimal to no soil erosion observed on site. | | | | | | |
|---|---|---|---|---|---|---|
| **Impact Management Actions** | **Implementation** | | | **Monitoring** | | |
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – The area around the development footprint must regularly be monitored to detect early signs of soil erosion on-set. | cEO, Contractor | Monitoring reports produced and kept on file for inspection upon request | During the decommissioning phase | dEO | Monthly | Monitoring reports produced on a monthly basis |
| – If soil erosion is detected, the area must be stabilised by the use of geo-textiles and facilitated re-vegetation. | Contractor | If required stabilise soil using recognised methods to ensure proper erosion control | Duration of the operation phase | dEO | Monthly | Visual inspection of stabilised soil regions and descriptions of stabilisation method used |

| **Impact management outcome:** Minimal to no soil pollution observed on site. | | | | | | |
|---|---|---|---|---|---|---|
| **Impact Management Actions** | **Implementation** | | | **Monitoring** | | |
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – Maintenance must be undertaken regularly on all vehicles and maintenance machinery to prevent hydrocarbon spills. | Contractor | Ensure that vehicles and maintenance machinery are inspected regularly to identify possible damage/issues and reduce the | During the construction and operation phase | ECO, dEO | Weekly | Vehicles and maintenance machinery inspection sheets provided during audit |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | likelihood of hydrocarbon spills<br><br>Ensure that a drip tray is available for an emergency repairs required | | | | Contractor to provide evidence of drip tray use for emergency repairs |
| – No domestic and other waste must be left at the site and must be transported with the maintenance vehicles to an authorised waste dumping area. | Contractor, cEO | Visual inspection of the site to observe whether any domestic and other waste has been left at the site<br><br>Disposal of domestica and other wastes at licensed waste disposal facilities must be undertaken as per the waste management plan | During the construction, decommissioning and operation phase | ECO, dEO | Weekly | Disposal certificates of disposal at licensed facilities to be provided<br><br>No evidence of littering observed during audit |

### *8.19. Visual*

| **Impact management outcome:** Minimal visual impacts resulting from the proposed on-site substation. | | | | | | |
|---|---|---|---|---|---|---|
| **Impact Management Actions** | **Implementation** | | | **Monitoring** | | |
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |

| | | | | | | |
|---|---|---|---|---|---|---|
| – Investigate and implement (should it be required) the potential to screen visual impacts at affected receptor sites. | Contractor | Develop and implement and procedure for screening visual impacts at affected receptor sites. | Prior to construction and during the construction and operation phase | ECO, dEO | Monthly | No complaints related to visual impacts received |

# CUMULATIVE OUTCOMES AND ACTIONS

### *8.20. Avifauna*

| **Impact management outcome:** Reduced mortality and displacement of priority avifauna. | | | | | | |
|---|---|---|---|---|---|---|
| **Impact Management Actions** | **Implementation** | | | **Monitoring** | | |
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – Construction activity should be restricted to the immediate footprint of the infrastructure. | cEO, Contractor | Visual inspection of the construction activities to observe whether they remain within the defined footprint area | Duration of construction phase | ECO | Monthly | No evidence of construction activity outside the immediate footprint of the infrastructure |
| – It is recommended that a single perimeter fence is used. | Contractor | Visual inspection to determine if a single perimeter fence has been used on site | Duration of construction and operation phase | ECO, dEO | Once, prior to construction and operation | Single perimeter fence utilised |

| | | | | | | |
|---|---|---|---|---|---|---|
| – Access to the remainder of the site should be strictly controlled to prevent unnecessary degradation of habitat. | cEO, Contractor | Demarcate sensitive areas to restrict access to these areas | Duration of construction phase | ECO | Monthly | Sensitive areas appropriately demarcated and fenced off for the duration of the construction phase |
| – Maximum use should be made of existing access roads and the construction of new roads should be kept to a minimum. | Contractor, cEO | Visual inspection of the construction activities and if the use of existing access roads over the construction of new roads is favoured | Duration of construction phase | ECO | Monthly | No evidence of several new access roads on site |
| – The mitigation measures proposed by the vegetation specialist must be strictly enforced. | cEO | Regular audits to oversee implementation of the mitigation measures proposed by the vegetation specialist | Duration of construction phase | ECO | Monthly | Implementation of the mitigation measures proposed by the vegetation specialist evident during audit. |
| – A 200m solar panel free buffer zone must be implemented around the pans (-27.736377° 27.134694°, -27.740910° 27.141575°, -27.741723° 27.144815°) to provide avifauna with unhindered access to the water. | cEO | Demarcate the pans and restrict access to these areas to minimise disturbance to avifauna | Once prior to construction commencing, and for the duration of the construction phase | ECO | Monthly | Pans appropriately demarcated |
| – A 100m solar panel free buffer zone must be implemented on both sides of the drainage line on the development area, to maintain a corridor of woodland. | cEO | Demarcate the drainage line woodland corridor and restrict access to these areas to minimise | Once prior to construction commencing, and for the duration of the | ECO | Monthly | Drainage line woodland corridor appropriately demarcated |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | disturbance to avifauna | construction phase | | | |

### *8.21. Ecology*

| **Impact management outcome:** Limit cumulative loss of unprotected vegetation types and habitats (including sensitive habitats). | | | | | | |
|---|---|---|---|---|---|---|
| **Impact Management Actions** | **Implementation** | | | **Monitoring** | | |
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – The development footprint should be kept to a minimum and natural vegetation should be encouraged to return to disturbed areas. | Design consultant | Ensure layout results in minimal loss of vegetation and habitat | Prior to construction | ECO | Weekly | Development footprint kept to a minimum |
| – An open space management plan should be developed for the site, which should include management of biodiversity within the fenced area, as well as that in the adjacent rangeland. | Contractor, Specialist | Develop and implement an open space management plan | Prior to construction and during construction | ECO | Monthly | Open space management plan developed and implemented for the duration of the construction phase |
| – Reduce the footprint of the facility within sensitive habitat types as much as possible. | Design consultant | Ensure layout has been informed by the environmental sensitivities as determined by the environmental impact assessment and specialist studies | Prior to construction | ECO | Once prior to construction, and monthly during construction | Construction undertaken in accordance with approved layout<br><br>Construction activities avoid sensitive habitat |

| **Impact management outcome:** Limit cumulative impacts on Critical Biodiversity Areas and Broad-Scale Ecological Processes. | | | | | | |
|---|---|---|---|---|---|---|
| **Impact Management Actions** | **Implementation** | | | **Monitoring** | | |
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – Small to medium sized mammals can be allowed to move between the development area and surrounding areas by creating artificial passageways underneath boundary fences (this is optional and may be implemented by developer if deemed necessary). | Contractor | Ensure that artificial passageways underneath boundary fences are implemented to promote movement of fauna | Duration of construction and operation phase | ECO, dEO | Once, during the commencement of construction and once, during the commencement of operation | Photographic proof of artificial passageways underneath boundary fences |

### *8.22. Wetlands*

| **Impact management outcome:** Limit cumulative impact on ecological processes as well as ecological functioning of important freshwater resource habitats. | | | | | | |
|---|---|---|---|---|---|---|
| **Impact Management Actions** | **Implementation** | | | **Monitoring** | | |
| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
| – All wetland features and their associated buffer areas should be regarded as No-Go areas for all construction activities. | cEO and contractor | Ensure layout has been informed by the environmental sensitivities as determined by the environmental imapct assessment and specialist studies | Prior to construction and during construction | ECO | Once off review that the layout used is the approved one, and monthly thereafter | Confirm no development equipment traverses any seasonal or permanent wetland as per the authorised layout by reviewing the as-built designs |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | Visual inspection of the construction activities to observe whether they avoid the wetland features and that the wetland features have been demarcated | | | | Wetland features clearly demarcated<br><br>No evidence of construction activities taking place within the 'no-go' areas during audit |
| – The recommended buffer areas between the delineated freshwater resource features and proposed project activities should be maintained. | cEO | Demarcate the delineated freshwater resource features | Once prior to construction commencing, and for the duration of the construction phase | ECO | Monthly | Delineated freshwater resource features appropriately demarcated |
| – Vegetation clearing to be kept to a minimum. No unnecessary vegetation to be cleared. | cEO | Visual inspection of vegetation clearing within the development footprint | Duration of construction phase | ECO | Weekly | No evidence of unnecessary vegetation clearing during audit |
| – The potential stormwater impacts of the proposed development area should be mitigated on-site to address any erosion or water quality impacts. | Contractor, cEO | Develop and implement a stormwater management plan for the facility, | Prior to construction commencing, and for the duration of construction and operation phase | ECO, dEO/cEO | Monthly | Stormwater plan evident within the onsite environmental file prior to construction commencing, and evidence of stormwater measures implanted as |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | observed on site during audit |
| – Good housekeeping measures as stipulated in the EMPr for the project should be in place where construction activities take place to prevent contamination of any freshwater features. | Contractor | Ensure good housekeeping is practiced | Duration of the construction and operation phase | ECO, cEO | Monthly | Good housekeeping practices observed during audit |
| – Where possible, infrastructure should coincide with existing infrastructure or areas of disturbance (such as existing roads). | cEO, Contractor | Ensure layout has been informed by the environmental sensitivities as determined by the environmental impact assessment and specialist studies | Prior to construction | ECO | Once off review that the layout used is the approved one, and monthly thereafter | Confirm no development equipment traverses any seasonal or permanent wetland as per the authorised layout by reviewing the as-built designs |
| – Disturbed areas should be rehabilitated through reshaping of the surface to resemble that prior to the disturbance and vegetated with suitable local indigenous vegetation. | Contractor | Develop and implement a rehabilitation plan for the rehabilitation of all disturbed areas | Pre-construction & Rehabilitation | cEO, ECO | Weekly | Rehabilitation of the disturbed areas is undertaken as per the rehabilitation plan. |

### *8.23. Visual*

| **Impact management outcome:** Limit cumulative impact on the visual quality of the landscape. | | |
|---|---|---|
| **Impact Management Actions** | **Implementation** | **Monitoring** |

| | Responsible person | Method of implementation | Timeframe for implementation | Responsible person | Frequency | Evidence of compliance |
|---|---|---|---|---|---|---|
| – Retain/re-establish and maintain natural vegetation immediately adjacent to the development footprint/servitude. | Project proponent/ design consultant | Visual inspection of the layout to ensure that vegetation immediately adjacent to the development footprint will not be disturbed | Prior to construction | ECO | Monthly | Onsite evidence that natural vegetation immediately adjacent to the development footprint/servitude is retained and maintained |
| – Remove infrastructure not required for the post-decommissioning use. | Contractor | Removal of infrastructure not required for the post-decommissioning use of the site | At the end of construction and during the decommissioning phase | ECO, dEO | Once, following the completion of the construction phase | No temporary infrastructure not required for the post-decommissioning use of the site present on site after the completion of the construction phase |
| – Rehabilitate all affected areas. Consult an ecologist regarding rehabilitation specifications. | Contractor, Specialist (if required) | Develop and implement a rehabilitation plan for the rehabilitation of all disturbed areas | Pre-construction & Rehabilitation | cEO | Weekly | Rehabilitation of the disturbed areas is undertaken as per the rehabilitation plan |

**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 three (23) 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 |
| Steynsrus PV1 & PV2 SEF's, Northern Cape | Cronimet Power Solutions | Environmental Advisor |
| 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 |
| Biodiversity Permitting for the Lephalale SEF, Limpopo | Exxaro Resources | Project Manager & EAP |

| Project Name & Location | Client Name | Role |
|---|---|---|
| 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 |
| 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 |

**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 |

| Project Name & Location | Client Name | Role |
|---|---|---|
| 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 |
| 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 |

| Project Name & Location | Client Name | Role |
|---|---|---|
| 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 |
| 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 |

| Project Name & Location | Client Name | Role |
|---|---|---|
| Various WEFs within the Western Cape | Western Cape Department of Environmental Affairs and Development Planning | Project Manager & EAP |
| 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 |
| 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 |
| 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 |
|---|---|---|
| 450MW gas to power project and associated 132kV power line, Richards bay, KwaZulu-Natal | Phinda Power Producers | Project Manager & EAP |
| 4000MW gas to power project and associated 400kV power lines, Richards bay, KwaZulu-Natal | Phinda Power Producers | Project Manager & EAP |
| 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 & 400kV 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 2 Power | 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 | Eskom Holdings | Project Manager & EAP |

| Project Name & Location | Client Name | Role |
|---|---|---|
| Ankerlig Power Station in Atlantis Industria, Western Cape | | |
| 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 |
|---|---|---|
| Olifantshoek Power line, Northern Cape | Eskom Holdings | Project Manager & EAP |
| 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 |

| Project Name & Location | Client Name | Role |
|---|---|---|
| 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 |
| 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 |

| Project Name & Location | Client Name | Role |
|---|---|---|
| Waterberg Coal Mine (EMPr amendment), Limpopo | Seskoko Resources | Project Manager & EAP |
| Aluminium Plant WML & AEL, Gauteng | GfE-MIR Alloys & Minerals | Project Manager & EAP |
| Zero Waste Recovery Plant at Highveld Steel, Mpumalanga | Anglo African Metal | Project Manager & EAP |

**Basic Assessments**

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

| Project Name & Location | Client Name | Role |
|---|---|---|
| Access Road for the Dwarsug Wind Farm, Northern Cape Province | South Africa Mainsteam Renewable Power | Project Manager & EAP |
| Upgrade of the Cooling Water Treatment Facility at the Kriel Power Station, Mpumalanga | Eskom | Project Manager & EAP |
| Decommissioning of the Asbestos Landfill at Kriel Power Station, Mpumalanga | Eskom | Project Manager & EAP |
| Decommissioning and demolition of Kilns 3 & 4 at PPC Slurry Plant, North West | PPC | 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 |

| Project Name & Location | Client Name | Role |
|---|---|---|
| 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 |

| Project Name & Location | Client Name | Role |
|---|---|---|
| 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 |

# CURRICULUM VITAE OF GIDEON RAATH

| | | | | |
|---|---|---|---|---|
| **Profession:** | Environmental and Permitting Consultant | | | |
| **Age:** | 33 years | | | |
| **Nationality:** | South African | | | |
| | | **Read** | **Write** | **Speak** |
| **Language:** | Afrikaans – | Excellent | Excellent | Excellent |
| | English – | Excellent | Excellent | Excellent |
| **Position:** | Senior Environmental Assessment Practitioner (Permitting) | | | |
| **Parent Firm:** | Savannah Environmental | | | |
| **Specialisation:** | Environmental Impact Assessments, Water Use Licencing, Waste Licencing, Environmental Compliance Officer, Ecological Specialist, Wetland Specialist, GIS, MPRDA permitting | | | |
| **Work Experience:** | 6.5 years' experience in environmental management, National Water Act, Mineral and Petroleum Resources Development Act, ECO and compliance auditing, wetland and ecological specialist reporting | | | |

## VOCATIONAL EXPERIENCE

Gideon holds an MSc (Geography and Environmental Management; SU), a BSc Honours (Ecology and Environmental Studies - Cum laude; Wits) and a BSc (Geography and Environmental Management; UJ). His MSc thesis focused on the hydrological impact on the spatial distribution of invasive Eucalyptus trees along the Breede River; while his honours thesis evaluated ethnobotanical relationships around the Rio Tinto copper mine in Phalaborwa. Most recently he has worked as a Senior Environmental Consultant at Coastal and Environmental Services (CES), conducting environmental authorisations applications (NWA, NEMA, MPRDA), Public Participation Processes, GIS specialisation — as well as Ecological and Wetland specialist studies. Previously, Gideon previously worked as the Monitoring & Evaluation Project Manager for the City of Cape Town's invasive species unit (Environmental Resources Management Department).

Gideon's experience includes EIA permitting for ~94 different projects, ranging from infrastructure, mining, energy, housing, renewable energy and the conservation industries. These include Environmental Authorisations (BAR, S&EIR), Water Use Licencing, Waste Licencing, Environmental Compliance Officer auditing, GIS studies and MPRDA permitting. He therefore has wide ranging experience with various legislation including NEMA, NHRA, NEM:WA, NEM:BA, MPRDA and NWA regulations, having applied them for numerous private and public sector clients across various industries for small, medium and large projects. Gideon is also an experienced Ecological & Wetland Specialist having conducted ~23 specialist studies, and has been accredited with SACNASP as a professional natural scientist (*Pr.Sci.Nat*) since 2017. Gideon also has experience beyond the permitting sphere through numerous screening assessments for potential developers, including fatal flaw screenings, regulatory and permitting approval screening as well as ecological and hydrological sensitivity screening. Gideon has also served in an advisory role for various infrastructure and mining projects, assisting with environmental due diligence, bankable feasibility study input and assistance towards financial close, most recently in the Renewable Energy sphere under the Risk Mitigation Independent Power Producer Procurement Programme (RMIPPPP) and towards the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) round 5 bid compliance.

## SKILLS BASE AND CORE COMPETENCIES

- Environmental Management
- GIS data manipulation, storage, management and mapping
- EIA Impact Assessments and Basic Assessment

- Environmental Management Programmes
- Environmental Compliance Monitoring
- Mining Rights, Mining Permits, Prospecting Rights (and renewal) applications (MPRDA & NEMA)
- Public and Stakeholder Engagement (NEMA)
- Ecological/Botanical Specialist Studies
- Wetland Delineation, Functional and Impact Assessment studies
- Water Use Licence Applications (NWA)
- General Authorisations (NWA)
- Due diligence and financial close advisory services

**EDUCATION AND PROFESSIONAL STATUS**

**Degrees:**

- M.Sc. Geography and Environmental Science (2014), Stellenbosch University (2014)
- B.Sc. (Hons) Ecology, Environment and Conservation (Cum Laude), University of the Witwatersrand (2011)
- B.Sc. Life and Environmental Sciences, University of Johannesburg (2010)

**Short Courses:**

- GroundTruth SASS5 competency course, GroundTruth Aquatic Consulting (2017)
- DWS 21C&I GA training workshop, Department of Water and Sanitation (2016)
- IAIAsa Public Participation Process Workshop, IAIA South Africa (2016)
- EIA Theory and application, EOH Coastal and Environmental Services (2015)
- Water Safety Training, City of Cape Town Environmental Resources Department (2014)
- Herbicide safety and application for weed control, City of Cape Town Environmental Resources Department (2014)
- Snake awareness training, City of Cape Town Environmental Resources Department (2014)
- Habitable Planet Workshop, Applied Centre for Climate & Earth Systems Science, Cape Town (2011)

**Professional Society Affiliations:**

- Golden Key International Honour Society – University of the Witwatersrand Chapter
- South African Council for Scientific Natural Professionals (SACNASP): Certified Natural Scientist – Pr.Sci.Nat. (Membership No.: 117178)
- IAIAsa (Membership No.: 3619)

**Other Relevant Skills:**

- GPS use, spatial data capturing and ground truthing

| **EMPLOYMENT** | | |
|---|---|---|
| **Date** | **Company** | **Roles and Responsibilities** |
| **October 2018 - Current:** | Savannah Environmental (Pty) Ltd | Senior Environmental and Permitting Consultant<br><br>Tasks include: Undertaking environmental impact assessments, basic assessments, environmental management programmes (EMPrs), environmental amendments, water use license applications, general authorisations, wetland assessments, botanical/ecological assessments, mining rights and permit applications, prospecting rights applications, environmental compliance officer audits and reporting, Ensuring environmental compliance on permitting |

| | | |
|---|---|---|
| | | processes, client liaison and relationship management. |
| **February 2015 – September 2018** | EOH Coastal and Environmental Services (Pty) Ltd | Senior Environmental Consultant<br><br>Tasks included: Undertaking environmental impact assessments, basic assessments, environmental management programmes (EMPrs), environmental amendments, water use license applications, general authorisations, wetland assessments, botanical/ecological assessments, mining rights and permit applications, prospecting rights applications, environmental compliance officer audits and reporting, Ensuring environmental compliance on permitting processes, client liaison and relationship management, public participation processes for environmental authorisations. |
| **March 2014 – February 2015** | Invasive Species Unit (ISU), Environmental Resources Management Department (ERMD), City of Cape Town | Professional Officer<br><br>Tasks included: Managed the Monitoring & Evaluation project portfolio, entailing the establishment of an invasive species monitoring & evaluation system for the ISU, as well as GIS database management, quality assurance and reporting thereof. Position required managing a small staff compliment (dealing directly with GIS database management), managing time and budgets for the monitoring division, conducting monitoring trials and research, writing species management plans as well as handling the GIS database, quality control, verification and integrity for the ISU. |
| **January 2012 – March 2014** | University of Stellenbosch | Departmental Assistant<br><br>Tasks included: Technical editing of academic reports.<br>Formatting of PhD and MSc reports on a weekly basis, with short turnaround time and good quality feedback. |
| **January 2011 – January 2012** | University of the Witwatersrand | Departmental Assistant<br><br>Tasks included: Responsible for practical tutorials and marking of 1st year medical students. Included zoology and botany. |
| **January 2006 – November 2010 (part time)** | Codeon Networking CC | Co-founder and web developer<br><br>Tasks included: Small business owner, responsible for all facets of the business. Self-taught HTML, CSS, PHP and MySQL. Won and produced two medium enterprise websites serving the gaming community. Websites required user profiles & permissions, CMS system and automated |

| | | |
|---|---|---|
| | | payment options as functionality. Development and maintenance of a user database and account management system. |

**PROJECT EXPERIENCE IN GENERAL ENVIRONMENTAL ASSESSMENT PRACTITIONER WORK**

**Please note:** the following duties and responsibilities are in each instance relevant to the roles assigned below.

A. Environmental Consultant:
- Review of the project scope and advisory input into project approach;
- Report writing;
- Report reviewing;
- Site assessments;
- Competent authority liaison, client liaison;
- Specialist reports review;
- Quality control of specific and overall project deliverables; and
- Compliance auditing, report writing and audit report reviews;

B. Specialist (ecological and wetland):
- Project scope determination and development of terms of reference;
- Specialist field assessment;
- Sampling collection and interpretation of results (soil and water samples) where necessary;
- Specialist report writing; and
- Specialist input regarding public input or appeals;

C. Project manager:
- Project team liaison (engineers, subconsultants, financiers where applicable);
- Contracting and appointment of specialists or subcontractors;
- Client liaison, public liaison, project team and specialist liaison;
- Financial management (contracts, invoicing, cashflow). This includes but is not limited to:
    - Bid document preparation (where applicable) and development of terms of reference;
    - Determining applicable rates and budget for the environmental team;
    - Management of appointments, development of contracts;
    - Development of invoicing schedule and invoicing agreement;
    - Responsible for assigning invoice values and dates to coincide with relevant partial or whole deliverables;
    - Management or variations (internal and external);
    - Evaluation of claims from subcontractors;
    - Quality control of subcontractor deliverables;
    - Ensuring timeous payment on invoices and appropriate payments are made to qualifying subcontractors;
- Schedule management (approach, deliverables, timeframes and resourcing). This includes but is not limited to:
    - Determining project approach and parties required;
    - Assessment of regulatory timeframes applicable for all aspects of the environmental work;
    - Development of an overall programme for all environmental work, including subcontractors;
    - Progress meetings with the project team, including regular schedule updates;
    - Variation management and crisis meetings, where applicable;
    - Deliverable management and close-out reporting;
- Due diligence inputs towards financial close; and
- Project assessment of environmental risk;

D. Public Participation:
- Identification of key stakeholders, landowners & neighbours, organs of state and other applicable interested and affected parties;
- Compilation and review of all public material (information documents, notices, advertisements) according to regulatory requirements;
- Public liaison, and client consultation;
- Compilation of public comments and response reports and reporting on public participation;
- Management of appeals;

E. Environmental Control Officer:
- Compliance audits;
- Development of checklists and document control sheets;
- Compliance audit reporting and report reviews;
- Authority liaison (DEA EMI's); and
- Liaison with project steering committee and Environmental Officer;

| No. | Project Name & Location | Client Name | Role | Dates & Duration | Sector |
|---|---|---|---|---|---|
| 94 | Highveld Steel ZeroWaste Solution EIA, eMalahleni, Mpumalanga | Anglo African Metals (Pty) Limited | Project Manager, Environmental Consultant | August 2020 – current | Waste |
| 93 | Heuningspruit Financial Close, Arbeid, Free State | Cronimet Mining Power Solutions SA (Pty) Ltd | Project Manager, Environmental Consultant | February 2020 – current | Renewable Energy |
| 92 | Steynsrus Solar PV Financial Close, Arbeid, Free State | Cronimet Mining Power Solutions SA (Pty) Ltd | Project Manager, Environmental Consultant | February 2020 – current | Renewable Energy |
| 91 | Gunstfontein Wind Farm OHL BAR Sutherland, Northern Cape | African Clean Energy Developments (Pty) Ltd | Project Manager, Environmental Consultant | April 2020 – current | Renewable Energy |
| 90 | Tronox Namakwa Prospecting Right closure certificate, Garies, Northern Cape | African Clean Energy Developments (Pty) Ltd | Project Manager, Environmental Consultant | May 2020 – current | Mining |
| 89 | 100 MW Vrede Solar Energy Facility EIA, Kroonstad, Free State | Mainstream Renewable Power SA, (Pty) Ltd | Project Manager, Environmental Consultant | June 2020 – current | Renewable Energy |
| 88 | 100 MW Rondavel Solar Energy Facility EIA, Kroonstad, Free State | Mainstream Renewable Power SA, (Pty) Ltd | Project Manager, Environmental Consultant | June 2020 – current | Renewable Energy |
| 87 | Grid infrastructure BAR for Vrede SEF, Kroonstad, Free State | Mainstream Renewable Power SA, (Pty) Ltd | Project Manager, Environmental Consultant | June 2020 – current | Renewable Energy |

| No. | Project Name & Location | Client Name | Role | Dates & Duration | Sector |
|---|---|---|---|---|---|
| 86 | Grid infrastructure BAR for Rondavel SEF, Kroonstad, Free State | Mainstream Renewable Power SA, (Pty) Ltd | Project Manager, Environmental Consultant | June 2020 – current | Renewable Energy |
| 85 | Energy Group Wadeville ECO, Wadeville, Gauteng | Energy Group (Pty) Ltd | Project Manager, Environmental Consultant | August 2020 – current | Infrastructure |
| 84 | Energy Group Nigel ECO, Nigel, Gauteng | Energy Group (Pty) Ltd | Project Manager, Environmental Consultant | September 2020 – current | Infrastructure |
| 83 | Great Karoo Battery Energy Storage System BAR, Sutherland, Northern Cape | African Clean Energy Developments (Pty) Ltd | Project Manager, Environmental Consultant | June 2020 – current | Renewable Energy |
| 82 | Gunstfontein Battery Energy Storage System BAR, Sutherland, Northern Cape | African Clean Energy Developments (Pty) Ltd | Project Manager, Environmental Consultant | June 2020 – current | Renewable Energy |
| 81 | Richards Bay 1250MW Combined Cycle Gas to Power Station EIA, Richards Bay, kwaZulu-Natal | Richards Bay Gas Power 2 (Pty) Ltd / Phakwe Group (Pty) Ltd | Project Manager, Environmental Consultant | August 2020 – current | Energy |
| 80 | Richards Bay 400MW Simple Cycle Gas to Power Station Part II amendment, Richards Bay, kwaZulu-Natal | Richards Bay Gas Power 2 (Pty) Ltd / Phakwe Group (Pty) Ltd | Project Manager, Environmental Consultant | April 2020 – current | Energy |
| 79 | Great Karoo Wind Farm OHL BAR, Sutherland, Northern Cape | African Clean Energy Developments (Pty) Ltd | Environmental Consultant | September 2020 – current | Renewable Energy |
| 78 | Dorper Wind Energy Facility Section 54 compliance audit, Molteno, Eastern Cape | Dorper Wind Farm RF (Pty) Ltd | Project Manager, Environmental Consultant, ECO | 2019: 2 months | Renewable Energy |
| 77 | Rainmaker Malabar, Spreeukloof, Spinning Head and Loperberg Section 54 compliance audits (x4), Molteno, Eastern Cape | Rainmaker Energy (Pty) Ltd | Project Manager, Environmental Consultant, ECO | 2019: 2 months | Renewable Energy |
| 76 | Togo Blita 40MW Solar Energy Facility ESMP Peer Review | OCA Global (Testing, Inspection and Certification) South Africa (Pty) Ltd | Environmental Consultant | 2020: 3 months | Renewable Energy |
| 75 | Marubeni AMDA Straussheim 3 x Solar Energy Facility Peer | Marubeni Middle-East & | Environmental Consultant | 2020: 4 months | Renewable Energy |

| No. | Project Name & Location | Client Name | Role | Dates & Duration | Sector |
|---|---|---|---|---|---|
| | Review, Kenhardt, Northern Cape | Africa Power (Pty) Ltd | | | |
| 74 | Perdekraal PI Amendment | Perdekraal West Wind Farm (Pty) Ltd | Project Manager, Environmental Consultant | 2020: 2 months | Renewable Energy |
| 73 | TAP desktop Palaeontological study, Vuwani, Limpopo | Trans African Projects (Pty) Ltd | Project Manager | 2020: 3 months | Infrastructure |
| 72 | Kenhardt Solar PV Part I amendments, Kenhardt, Northern Cape | Biotherm Energy (Pty) Ltd | Project Manager, Environmental Consultant | 2020: 2 months | Renewable Energy |
| 71 | Harmony Rietpan LILO & Switching substation BAR, Welkom, Free State | BBEntropie (Pty) Ltd | Ecological specialist | February 2020 – June 2020 | Renewable Energy |
| 70 | Harmony Nyala Solar PV grid connection BAR, Welkom, Free State | BBEntropie (Pty) Ltd | Ecological specialist | February 2020 – June 2020 | Renewable Energy |
| 69 | Harmony Eland Solar PV grid connection BAR, Welkom, Free State | BBEntropie (Pty) Ltd | Ecological specialist | February 2020 – June 2020 | Renewable Energy |
| 68 | Engie Rheboksfontein Part II amendment, Darling, Western Cape | Engie South Africa (Moyeng Energy) | Project Manager | July 2019 – January 2020: 8 months | Renewable Energy |
| 67 | APSA Liquid Natural Gas Vanderbijlpark, Vanderbijlpark, Gauteng | Air Products South Africa (Pty) Ltd | Project Manager | 2019 – current: 8 months | Infrastructure |
| 66 | APSA Coega hazardous storage BAR, Coega IDZ, Eastern Cape | Air Products South Africa (Pty) Ltd | Project Manager | 2019 – current: 8 months | Infrastructure |
| 65 | Korana WEF Part II amendment, Pofadder, Northern Cape | South African Mainstream Renewable Power Developments (Pty) Ltd | Project Manager | 2019: 8 months | Renewable Energy |
| 64 | Khai-Ma WEF Part II amendment, Pofadder, Northern Cape | South African Mainstream Renewable Power Developments (Pty) Ltd | Environmental Consultant | 2019: 8 months | Renewable Energy |
| 63 | Eskom Matla power station Reverse Osmosis Unit BAR, Emalahleni, Mpumalanga | Eskom SOC ltd | Project Manager, Environmental Consultant | 2019 – current: 8 months | Infrastructure |
| 62 | Prana Sekaname (Kalahari Energy) 100MW coalbed-methane wellfield and | Prana energy (Pty) Ltd | Project Manager, Environmental Consultant | 2019 – current: 36 months | Mining & Energy |

| No. | Project Name & Location | Client Name | Role | Dates & Duration | Sector |
|---|---|---|---|---|---|
| | gas power station ESIA, Mmashoro, Bostwana | | | | |
| 61 | Solink Heineken Sedibeng PV plant GPEMF registration and ecological screening assessment, Sedibeng, Gauteng | Solink Power Procurement (Pty) Ltd | Project Manager, Environmental Consultant | 2019 – current: 6 months | Renewable Energy |
| 60 | ENGP Neopak environmental screening, Rosslyn, Gauteng | Energy Group (Pty) Ltd | Project Manager, Environmental Consultant | 2019: 3 months | Infrastructure |
| 59 | ENGP Nigel compressed gas pipeline General Authorisation, BAR, Ecological Specialist Study, Due Diligence advisory, Nigel, Gauteng | Energy Group (Pty) Ltd | Project Manager, Environmental Consultant, Ecological Specialist | 2019: 10 months | Infrastructure |
| 58 | Rainmaker Malabar, Spreeukloof and Spinning Head Wind Farm Part II amendments, Molteno, Eastern Cape | Rainmaker Energy (Pty) Ltd | Project Manager, Environmental Consultant | 2019 – current: 12 months | Renewable Energy |
| 57 | Eskom Kriel asbestos decommissioning BAR, Emalahleni, Mpumalanga | Eskom SOC ltd | Project Manager, Environmental Consultant | 2019: 6 months | Infrastructure |
| 56 | Wilmar Richards Bay vegetable oil pipeline BAR, General Authorisation and freshwater specialist study, Richards Bay, KwaZulu Natal | Wilmar SA (Pty) Limited | Project Manager, Environmental Consultant, Freshwater Specialist | 2019: 10 months | Infrastructure |
| 55 | Great Karoo WEF Part II amendment | African Clean Energy Developments (Pty) Ltd | Project Manager, | 2019: 8 months | Renewable Energy |
| 54 | Gunstfontein WEF Part II amendment | African Clean Energy Developments (Pty) Ltd | Environmental Consultant | 2019: 8 months | Renewable Energy |
| 53 | Aggeneys Solar PV & gridline freshwater specialist reports (x2), Aggeneys, Northern Cape | Biotherm Energy (Pty) Ltd | Freshwater specialist | 2019: 4 months | Renewable Energy |
| 52 | SANRAL Polokwane N1 Ring Road Upgrade Basic Assessment, | SANRAL SOC Ltd & KBK Engineers | Environmental consultant | 2018: 8 months | Infrastructure |

| No. | Project Name & Location | Client Name | Role | Dates & Duration | Sector |
|---|---|---|---|---|---|
| | Polokwane, Limpopo Province | | | | |
| 51 | Boshoek Loop Rail Upgrade BAR and water use licence application, Rustenburg, North-West Province | Transnet SOC Ltd | Project Manager, Environmental consultant, Wetland specialist, Public Participation, Wetland specialist | 2018: 8 months | Infrastructure |
| 50 | Heysterkrand Loop Rail Upgrade BAR, Rustenburg, North-West Province | Transnet SOC Ltd | Project Manager, Environmental consultant, Public Participation | 2018: 8 months | Infrastructure |
| 49 | VMC Mining permit renewal application, Rust De Winter, Gauteng | Vergenoeg Mining Company (Pty) Ltd | Environmental consultant | 2018: 4 months | Mining |
| 48 | Wijnberg Trust Dam 2 expansion Aquatic Impact Assessment, Greyton, Western Cape | Wijnberg Trust | Aquatic specialist | 2018: 4 months | Infrastructure |
| 47 | Zesfontein PV pre-feasibility screening and fatal flaw screening, Ekurhuleni, Gauteng | Genesis Eco-Energy Developments (Pty) Ltd | Environmental consultant | 2018: 3 months | Renewable Energy |
| 46 | Ancuabe baseline vegetation monitoring assessment and programme, Ancuabe, Cabo Del Gado Province, Mozambique | Grafex Limitada Mozambique | Botanical specialist | 2018: 3 months | Mining |
| 45 | Prospecting pit rehabilitation programme, Ancuabe, Cabo Del Gado Province, Mozambique | Grafex Limitada Mozambique | Botanical specialist, Environmental consultant | 2018: 3 months | Mining |
| 44 | ENGP Wadeville environmental Screening report and heritage exemption application, Due Diligence Advisory, Wadeville, Gauteng | Energy Group (Pty) Ltd | Project Manager, Environmental Consultant | 2018: 2 months | Energy |
| 43 | Eskom Kriel lime treatment plant BAR, Emalahleni, Mpumalanga | Eskom SOC ltd | Project Manager, Environmental Consultant | 2018: 6 months | Infrastructure |
| 42 | Atmospheric Emissions Licence, Section 24G for the ER Galvanizing plant and operations, Johannesburg, Gauteng | ER Galvanizers Pty Ltd | Project Manager, Environmental consultant, Public Participation | 2018/2019: 8 months | Manufacturing |

| No. | Project Name & Location | Client Name | Role | Dates & Duration | Sector |
|---|---|---|---|---|---|
| 41 | Corner Berg and Drooge Street township development BAR, Zeerust, North-West Province | Ramotshere Moiloa Local Municipality | Project Manager, Environmental consultant, Public Participation | 2018/2019: 8 months | Housing |
| 40 | Corner Kort and Bree Street township development BAR, Zeerust, North-West Province | Ramotshere Moiloa Local Municipality | Project Manager, Environmental consultant, Public Participation | 2018/2019: 8 months | Housing |
| 39 | Basic Assessment and environmental compliance monitoring for the office complex development within the Pretoria National Botanical Gardens, Pretoria, Gauteng | South African National Biodiversity Institute (SANBI) | Project Manager, Environmental consultant, Public Participation, ECO | 2018/2019: 8 months | Housing |
| 38 | Thabazimbi Local Municipality Integrated Waste Management Plan, Thabazimbi, Limpopo Province | Thabazimbi Local Municipality & Anglo American Plc | Environmental consultant | 2018/2019: 8 months | Waste |
| 37 | Aggeneys ADSS General Authorisation, Aggeneys, Northern Cape | Biotherm Energy Pty Ltd | Environmental consultant | 2018/2019: 8 months | Infrastructure |
| 36 | Kruisvallei Hydro Environmental and Social Management System (ESMS), Bethlehem, Free State | Building Energy South Africa (Pty) Ltd | Environmental Consultant | 2018/2019: 6 months | Renewable Energy |
| 35 | Transnet Depot and Siding compliance auditing programme, Johannesburg, Gauteng & Rustenburg, North-West Province | Transnet SOC Ltd | ECO | 2018/2019: 4 months | Infrastructure |
| 34 | ENGP Clayville environmental Screening and due diligence advisory, Clayville, Gauteng | Energy Group (Pty) Ltd | Project Manager Environmental Consultant | 2018/2019: 4 months | Energy |
| 33 | Transalloys coal-fired power station PII amendment, Water Use Licence and Atmospheric Emissions Licence, Emalahleni, Mpumalanga | Transalloys (Pty) Ltd | Project Manager, Environmental Consultant | 2018/2019: 16 months | Energy |

| No. | Project Name & Location | Client Name | Role | Dates & Duration | Sector |
|---|---|---|---|---|---|
| 32 | SANRAL Masekwaspoort N1 Road Upgrade BAR, water use licence application, Louis Trichardt, Limpopo Province | SANRAL SOC Ltd & Knight Piésold Consulting | Project Manager, Environmental consultant, Public Participation | 2018/2019: 12 months | Infrastructure |
| 31 | S&EIR authorisation and Water use licence for the SANRAL Zandkraal-Windburg N1 road upgrade, Windburg, Free State Province | SANRAL SOC Ltd & SMEC Consulting Engineers | Project Manager, Environmental consultant, Public Participation | 2018/2019: 12 months | Infrastructure |
| 30 | Masetjaba water reservoir Ecological Impact Assessment and General Authorisation, Nigel, Gauteng | Naidu Consulting Engineers (Pty) Ltd & City of Ekurhuleni | Environmental Consultant, Ecological Specialist, Wetland Specialist | 2018/2019: 12 months | Infrastructure |
| 29 | Dwarsrug access road BAR, Loeriesfontein, Northern Cape | South African Mainstream Renewable Power Developments (Pty) Ltd | Project Manager, Environmental Consultant | 2018/2019: 8 months | Renewable Energy |
| 28 | Hope Village township development BAR, Johannesburg, Gauteng | Door of Hope Charity Organisation | Project Manager, Environmental consultant, Public Participation | 2018/2019 | Housing |
| 27 | Kibler Park Church Development ecological assessment, Johannesburg, Gauteng | Riverside Community Church | Project Manager, Ecological specialist | 2017: 2 months | Housing |
| 26 | SANRAL Bierspruit R510 Borrow Pit authorisation, road upgrade Basic Assessment and water use licence, Thabazimbi, Limpopo Province | SANRAL SOC Ltd & Royal HaskoningDHV South Africa | Project Manager, Environmental consultant, Ecological specialist, Public Participation | 2017: 12 months | Infrastructure |
| 25 | Diamond Park Township Development Section 24G, Kimberley, Northern Cape | Sol Plaatje Local Municipality | Project Manager, Environmental consultant, Public Participation | 2017/2018: 6 months | Housing |
| 24 | Construction monitoring and DMR environmental authorisation, Hendrina, Mpumalanga Province | SANRAL SOC Ltd & Leo consulting engineers | Project Manager, ECO, | 2017/2018: 24 months | Infrastructure |
| 23 | Triton Minerals Limited Ancuabe and Nicanda Hills EPDA, Ancuabe, Cabo Del Gado Province, Mozambique | Triton Minerals Ltd | Environmental consultant | 2017/2018: 12 months | Mining |

| No. | Project Name & Location | Client Name | Role | Dates & Duration | Sector |
|---|---|---|---|---|---|
| 22 | City of Johannesburg nature reserve proclamation (Phase II), Johannesburg, Gauteng | City of Johannesburg SOC Ltd | Project Manager, Environmental consultant, Public Participation, Botanical specialist | 2017/2018: 12 months | Conservation |
| 21 | Scoping and EIR authorisation, Water Use Licence, for the Ganspan tourism facility development, Jan Kempdorp, Northern Cape | Frances Baard Local Municipality | Project Manager, Environmental consultant, Public Participation | 2017/2018: 12 months | Conservation |
| 20 | G7 Renewable Energy 132kV BAR & EMPr, Matjiesfontein, Northern Cape | G7 Renewable Energy (Pty) Ltd | Project Manager, Environmental consultant, Public Participation | 2016: 8 months | Renewable Energy |
| 19 | DEA Quoin Point dune specialist assessments, Gansbaai, Western Cape | Department of Environmental Affairs (national) | Project Manager, Environmental consultant | 2016: 6 months | Conservation |
| 18 | ACSA Jones Road Filling Station Basic Assessment, Johannesburg, Gauteng | Airports Company South Africa SOC Ltd | Project Manager, Environmental consultant, Public Participation | 2016/2017: 8 months | Infrastructure |
| 17 | SANRAL Caledon N2 Section 3 road upgrade project Basic Assessment, General Authorisation and ecological specialist report, Caledon, Western Cape Province | JG Afrika Engineering | Project Manager, Environmental consultant, Ecological specialist, ECO | 2016/2017: 8 months | Infrastructure |
| 16 | Barberton IAPS Waste Water Treatment Works development BAR and SASS 5 assessment, Barberton, Mpumalanga Province | Umjindi Local Municipality and Rhodes University | Project Manager, Environmental consultant, Public Participation, Aquatic specialist | 2016/2017: 10 months | Infrastructure |
| 15 | City of Johannesburg nature reserve proclamation boundary verification (Phase I), Johannesburg, Gauteng | City of Johannesburg SOC Ltd | Environmental consultant, GIS specialist | 2016/2017: 12 months | Conservation |
| 14 | Almenar tin prospecting BAR, Carnarvon, Northern Cape | Almenar Property Investments (Pty) Ltd | Environmental consultant | 2015: 8 months | Mining |
| 13 | iGas integrated biodiversity screening, Saldanha, Western Cape | Central Energy Fund - iGas (subsidiary) | Environmental consultant, Faunal specialist (assistant) | 2015: 6 months | Energy |

| No. | Project Name & Location | Client Name | Role | Dates & Duration | Sector |
|---|---|---|---|---|---|
| 12 | Biotherm Energy Golden Valley Wind Energy Facility ESAP, Bedford, Eastern Cape | Biotherm Energy Pty Ltd | Environmental consultant | 2015: 2 months | Renewable Energy |
| 11 | Ancuabe graphite mine Environmental and Social Impact Assessment (ESIA), Cabo Del Gado Province, Mozambique | Grafex Limitada Mozambique | Environmental consultant | 2015: 12 months | Mining |
| 10 | Mayfield Quarry rehabilitation plan, Grahamstown, Eastern Cape | Mayfield Quarry | Environmental consultant | 2015: 1 month | Mining |
| 9 | Enel Paleisheuwel Solar compliance auditing, Paleisheuwel, Northern Cape | Enel Green Power RSA (EGP RSA) | Environmental consultant | 2015: 6 months | Renewable Energy |
| 8 | Boschendal Wine Estate hydro-electric power station Water Use Licence and S24G application, Stellenbosch, Western Cape | Boschendal Wine Estate | Environmental consultant | 2015/2016: 8 months | Renewable Energy |
| 7 | G7 Brandvalley S&EIR, Matjiesfontein, Northern Cape | G7 Renewable Energy (Pty) Ltd | Environmental consultant | 2015/2016: 12 months | Renewable Energy |
| 6 | G7 Rietkloof S&EIR, Matjiesfontein, Northern Cape | G7 Renewable Energy (Pty) Ltd | Environmental consultant | 2015/2016: 12 months | Renewable Energy |
| 5 | Zirco Resources Kamiesberg heavy mineral sand mine water use licence, Kamiesberg, Northern Cape | Zirco Roode Heuwel (Pty) Ltd | Environmental consultant | 2015/2016: 12 months | Mining |
| 4 | PRDW Cape Town harbour breakwater rehabilitation EMPr, Cape Town, Western Cape | PRDW Consulting port and Coastal Engineers | Project Manager, Environmental consultant | 2014: 8 months | Infrastructure |
| 3 | Mosselbay Energy EA Amendment (Part II), Mosselbay, Western Cape | Mosselbay Energy IPP (Pty) Ltd | Environmental consultant | 2014: 6 months | Renewable Energy |
| 2 | PRDW Bushman's Estuary dune encroachment project management, Kenton-on-sea, Eastern Cape | PRDW Consulting port and Coastal Engineers | Environmental consultant | 2014: 6 months | Infrastructure |

| No. | Project Name & Location | Client Name | Role | Dates & Duration | Sector |
|---|---|---|---|---|---|
| 1 | Bloekombos (Kraaifontein) hospital water use licence application and botanical baseline and impact assessment, Cape Town, Western Cape | Western Cape Provincial Government (PGWC) | Project Manager, Environmental consultant, Botanical specialist, Wetland specialist | 2014/2015: 10 months | Housing |

| | SPECIALIST STUDIES | | | |
|---|---|---|---|---|
| **No.** | **Project Name & Location** | **Client Name** | **Role** | **Sector** |
| 23 | Aggeneys PV1 &2 PII specialist impact statement, Aggeneys, Northern Cape | ABO Wind Aggeneys 1 & 2 PV (Pty) Ltd | Freshwater Specialist | Renewable Energy |
| 22 | Rietvallei Ecological Status Quo Report, Randfontein, Gauteng | Africa Vision Holdings (Pty) Ltd | Ecological specialist | Infrastructure |
| 21 | Harmony Rietpan LILO & Switching substation BAR, Welkom, Free State | BBEntropie (Pty) Ltd | Ecological specialist | Renewable Energy |
| 20 | Harmony Nyala Solar PV grid connection BAR, Welkom, Free State | BBEntropie (Pty) Ltd | Ecological specialist | Renewable Energy |
| 19 | Harmony Eland Solar PV grid connection BAR, Welkom, Free State | BBEntropie (Pty) Ltd | Ecological specialist | Renewable Energy |
| 18 | RBGP2 AEL, MHI & Botanical Walkthrough, Richards Bay, KwaZulu Natal | Richards Bay Gas Power 2 (Pty) Ltd | Ecological specialist | Renewable Energy |
| 17 | Solink Heineken Sedibeng PV plant GPEMF registration and ecological screening assessment, Sedibeng, Gauteng | Solink Power Procurement (Pty) Ltd | Ecological specialist | Renewable Energy |
| 16 | ENGP Nigel compressed gas pipeline General Authorisation, BAR, Ecological Specialist Study, Due Diligence advisory, Nigel, Gauteng | Energy Group (Pty) Ltd | Ecological specialist | Infrastructure |
| 15 | Wilmar Richards Bay vegetable oil pipeline BAR, General Authorisation and freshwater specialist study, Richards Bay, KwaZulu Natal | Wilmar SA (Pty) Limited | Freshwater Specialist | Infrastructure |
| 14 | Aggeneys Solar PV & gridline freshwater specialist reports (x2), Aggeneys, Northern Cape | Biotherm Energy Pty Ltd | Freshwater specialist | Renewable Energy |
| 13 | Ancuabe baseline vegetation monitoring assessment and programme, Ancuabe, Cabo Del Gado Province, Mozambique | Grafex Limitada Mozambique | Botanical specialist | Mining |
| 12 | Prospecting pit rehabilitation programme, Ancuabe, Cabo Del Gado Province, Mozambique | Grafex Limitada Mozambique | Botanical specialist | Mining |
| 11 | Masetjaba water reservoir Ecological Impact Assessment and General Authorisation, Nigel, Gauteng | Naidu Consulting Engineers (Pty) Ltd & City of Ekurhuleni | Ecological Specialist, Freshwater Specialist | Infrastructure |

| | | | | |
|---|---|---|---|---|
| 10 | Boshoek Loop Rail Upgrade BAR and Water Use Licence, Rustenburg, North-West Province | Transnet SOC Ltd | Freshwater Specialist | Infrastructure |
| 9 | City of Johannesburg nature reserve proclamation (Phase II), Johannesburg, Gauteng | City of Johannesburg SOC Ltd | Botanical specialist | Conservation |
| 8 | SANRAL Bierspruit R510 road upgrade Water Use Licence, Basic Assessment, Thabazimbi, Limpopo Province | SANRAL SOC Ltd & Royal HaskoningDHV South Africa | Ecological specialist | Infrastructure |
| 7 | Kibler Park Church Development Ecological Assessment, Johannesburg, Gauteng | Riverside Community Church | Ecological specialist | Infrastructure |
| 6 | Barberton IAPS Wastewater Treatment Works development BAR, water use licence and SASS 5 assessment, Barberton, Mpumalanga Province | Umjindi Local Municipality and Rhodes University | Aquatic specialist | Infrastructure |
| 5 | Wijnberg Trust Dam 2 expansion Aquatic Impact Assessment, Greyton, Western Cape | Wijnberg Trust | Aquatic specialist | Infrastructure |
| 4 | SANRAL Caledon N2 Section 3 road upgrade project Basic Assessment, Water Use Licence and Specialist reports, Caledon, Western Cape Province | JG Afrika Engineering | Ecological specialist | Infrastructure |
| 3 | City of Johannesburg nature reserve proclamation boundary verification (Phase I), Johannesburg, Gauteng | City of Johannesburg SOC Ltd | GIS specialist | Conservation |
| 2 | iGas integrated biodiversity screening, Saldanha, Western Cape | Central Energy Fund - iGas (subsidiary) | Faunal specialist (assistant) | Infrastructure |
| 1 | Bloekombos (Kraaifontein) botanical baseline and impact assessment, Cape Town, Western Cape | Western Cape Provincial Government (PGWC) | Wetland specialist | Infrastructure |

savannah environmental

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

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

# CURRICULUM VITAE OF NICOLENE VENTER

**Profession :** Public Participation and Social Consultant

**Specialisation:** Public participation process; stakeholder engagement; facilitation (workshops, focus group and public meetings; public open days; steering committees); monitoring and evaluation of public participation and stakeholder engagement processes

**Work Experience:** 21 years' experience as a Public Participation Practitioner and Stakeholder Consultant

## VOCATIONAL EXPERIENCE

Over the past 21 years Nicolene established herself as an experienced and well recognised public participation practitioner, facilitator and strategic reviewer of public participation processes. She has experience in managing public participation projects and awareness creation programmes. Her experience includes designing and managing countrywide public participation and awareness creation projects, managing multi-project schedules, budgets and achieving project goals. She has successfully undertaken several public participation processes for EIA, BA and WULA projects. The EIA and BA process include linear projects such as the NMPP, Eskom Transmission and Distribution power lines as well as site specific developments such as renewable energy projects i.e. solar, photo voltaic and wind farms. She also successfully managed stakeholder engagement projects which were required to be in line with the Equator Principles.

## SKILLS BASE AND CORE COMPETENCIES

- Project Management
- Public Participation, Stakeholder Engagement and Awareness Creation
- Public Speaking and Presentation Skills
- Facilitation (workshops, focus group meetings, public meetings, public open days, working groups and committees)
- Social Assessments (Stakeholder Analysis / Stakeholder Mapping)
- Monitoring and Evaluation of Public Participation and Stakeholder Engagement Processes
- Community Liaison
- IFC Performance Standards
- Equator Principles
- Minute taking, issues mapping, report writing and quality control

## EDUCATION AND PROFESSIONAL STATUS

**Degrees:**

- Higher Secretarial Certificate, Pretoria Technicon (1970)

**Short Courses:**

- Techniques for Effective Public Participation, International Association for Public Participation, IAP2 (2008)
- Foundations of Public Participation (Planning and Communication for Effective Public Participation, IAP2 (2009)
- Certificate in Public Relations, Public Relation Institute of South Africa, Damelin Management School (1989)

**Professional Society Affiliations:**

- Board Member of International Association for Public Participation (IAP2): Southern Africa

**EMPLOYMENT**

| Date | Company | Roles and Responsibilities |
|---|---|---|
| **November 2018 – current** | Savannah Environmental (Pty) Ltd | Public Participation and Social Consultant<br><br><u>*Tasks include:*</u><br><br>*Tasks include: Drafting of a Public Participation Plan with key deliverable dates and methodology to be followed, Background Information Document, Letters to Stakeholders and Interested and/or Affected Parties (I&APs) inclusive of key project deliverables and responses to questions / concerns raised; Stakeholder identification; facilitating stakeholder workshops, focus group and public meetings; conduct one-on-one consultation with Community Leaders, Tribal Chiefs, affected landowners, etc.*<br><br>*Managing interaction between Stakeholders and Team Members, liaising with National, Provincial and Local Authorities, managing community consultation and communications in project affected areas, attend to the level of technical information communicated to and consultation with all level of stakeholders involved.* |
| **2016 – October 2018** | Imaginative Africa (Pty) Ltd<br>*(company owned by Nicolene Venter)* | Independent Consultant<br>*Consulting to various Environmental Assessment Practitioners for Public Participation and Stakeholder Engagements:*<br><br><u>*Tasks include:*</u><br><br>*Tasks include: Drafting of a Public Participation Plan with key deliverable dates and methodology to be followed, Background Information Document, Letters to Stakeholders and Interested and/or Affected Parties (I&APs) inclusive of key project deliverables and responses to questions / concerns raised; Stakeholder identification; facilitating stakeholder workshops, focus group and public meetings; conduct one-on-one consultation with Community Leaders, Tribal Chiefs, affected landowners, etc.*<br><br>*Managing interaction between Stakeholders and Team Members, liaising with National, Provincial and Local Authorities, managing community consultation and communications in project* |

| | | |
|---|---|---|
| | | *affected areas, attend to the level of technical information communicated to and consultation with all level of stakeholders involved*<br><br>*<u>Clients</u>:*<br>*SiVEST Environmental, Savannah Environmental, Baagi Environmental; Royal Haskoning DHV (previously SSI)* |
| **2013 - 2016** | Zitholele Consulting<br><br>*Contact person: Dr Mathys Vosloo*<br>*Contact number: 011 207 2060* | Senior Public Participation Practitioner and Project Manager<br><br><u>Tasks included:</u><br>*Project managed public participation process for EIA/BA/WULA/EAL projects. Manages two Public Participation Administrators. Public Participation tasks as outlined as above and including financial management of public participation processes.* |
| **2011 - 2013** | Imaginative Africa (Pty) Ltd<br>*(company owned by Nicolene Venter)* | Independent Consultant<br>Consulting to various Environmental Assessment Practitioners for Public Participation and Stakeholder Engagements<br><br><u>Tasks included:</u><br>*Drafting of a Public Participation Plan with key deliverable dates and methodology to be followed, Background Information Document, Letters to Stakeholders and Interested and/or Affected Parties (I&APs) inclusive of key project deliverables and responses to questions / concerns raised; Stakeholder identification; facilitating stakeholder workshops, focus group and public meetings; conduct one-on-one consultation with Community Leaders, Tribal Chiefs, affected landowners, etc.*<br>*Managing interaction between Stakeholders and Team Members, liaising with National, Provincial and Local Authorities, managing community consultation and communications in project affected areas, attend to the level of technical information communicated to and consultation with all level of stakeholders involved*<br><br>*<u>Clients</u>:*<br>*Bohlweki Environmental, Bembani Sustainability (Pty) Ltd; Naledzi Environmental* |
| **2007 – 2011** | SiVEST SA (Pty) Ltd<br><br>*Contact person: Andrea Gibb*<br>*Contact number: 011 798 0600* | Unit Manager: Public Participation Practitioner<br><br>*<u>Tasks included:</u>*<br>*Project managed public participation process for EIA/BA projects. Manages two Junior Public Participation Practitioners. Public Participation* |

| | | |
|---|---|---|
| | | *tasks as outlined as above and including financial management of public participation processes.* |
| **2005 – 2006** | Imaginative Africa (Pty) Ltd<br>*(company owned by Nicolene Venter)* | Independent Consultant<br>Public Participation and Stakeholder Engagement Practitioner<br><br><u>*Tasks included:*</u><br>*Drafting of a Public Participation Plan with key deliverable dates and methodology to be followed, Background Information Document, Letters to Stakeholders and Interested and/or Affected Parties (I&APs) inclusive of key project deliverables and responses to questions / concerns raised; Stakeholder identification; facilitating stakeholder workshops, focus group and public meetings; conduct one-on-one consultation with Community Leaders, Tribal Chiefs, affected landowners, etc.*<br><br>*Managing interaction between Stakeholders and Team Members, liaising with National, Provincial and Local Authorities, managing community consultation and communications in project affected areas, attend to the level of technical information communicated to and consultation with all level of stakeholders involved.*<br><br><u>*Clients:*</u><br>*Manyaka-Greyling-Meiring (previously Greyling Liaison and currently Golder Associates)* |
| **1997 - 2004** | Imaginative Africa (Pty) Ltd<br>*(company owned by Nicolene Venter)* | Independent Consultant: Public Participation Practitioner.<br><br><u>*Tasks included:*</u><br>*Drafting of a Public Participation Plan with key deliverable dates and methodology to be followed, Background Information Document, Letters to Stakeholders and Interested and/or Affected Parties (I&APs) inclusive of key project deliverables and responses to questions / concerns raised; Stakeholder identification; facilitating stakeholder workshops, focus group and public meetings; conduct one-on-one consultation with Community Leaders, affected landowners, etc.*<br><br>*Managing interaction between Stakeholders and Team Members, liaising with National, Provincial Local Authorities, managing community consultation and communications in project affected areas, attend to the level of technical* |

| | | |
|---|---|---|
| | | *information communicated to and consultation with all level of stakeholders involved.*<br><br>*<u>Clients</u>:*<br>*Greyling Liaison (currently Golder Associates); Bembani Sustainability (Pty) Ltd; Lidwala Environmental; Naledzi Environmental* |

**PROJECT EXPERIENCE**

**<u>RENEWABLE POWER GENERATION PROJECTS: PHOTOVOLTAIC SOLAR ENERGY FACILITIES</u>**

***Environmental Impact Assessments and Environmental Management Programmes***

| ***Project Name & Location*** | ***Client Name*** | ***Role*** |
|---|---|---|
| *Lichtenburg PVs (3 PVs) & Power Lines (grid connection), Lichtenburg, North West Province* | *Atlantic Energy Partners*<br>*EAP: Savannah Environmental* | *Project Manage the Public Participation Process*<br>*Facilitate all meetings*<br>*Consultation with Government Officials, Key Stakeholders, Landowners & Community Leaders* |
| *Allepad PVs 4 PVs) & Power Lines (grid connection), Upington, Northern Cape Province* | *IL Energy*<br>*EAP: Savannah Environmental* | |
| *Hyperion Solar PV Developments (4 PVs) and Associated Infrastructures, Kathu, Northern Cape Province* | *Building Energy*<br>*EAP: Savannah Environmental* | |
| *Aggeneys Solar PV Developments (2 PVs) and Associated Infrastructures, Aggeneys, Northern Cape Province* | *Atlantic Energy Partners and ABO Wind*<br>*EAP: Savannah Environmental* | |

| ***Project Name & Location*** | ***Client Name*** | ***Role*** |
|---|---|---|
| *Tlisitseng PV, including Substations & Power Lines, Lichtenburg, North West Province* | *BioTherm Energy*<br>*EAP: SiVEST* | *Public Participation, Landowner and Community Consultation* |
| *Sendawo PVs, including Substations & Power Lines, Vryburg, North West Province* | | |
| *Helena Solar 1, 2 and 3 PVs, Copperton, Northern Cape Province* | | |
| *Farm Spes Bona 23552 Solar PV Plants, Bloemfontein, Free State Province* | *Surya Power*<br>*EAP: SiVEST* | *Public Participation, Landowner and Community Consultation* |
| *De Aar Solar Energy Facility, De Aar, Northern Cape Province* | *South Africa Mainstream Renewable Power Developments*<br>*EAP: SiVEST* | *Public Participation, Landowner and Community Consultation* |
| *Droogfontein Solar Energy Facility, Kimberley, Northern Cape Province* | | |
| *Kaalspruit Solar Energy Facility, Loeriesfontein, Northern Cape Province* | | |
| *Platsjambok East PV, Prieska, Northern Cape Province* | | |
| *Renosterburg PV, De Aar, Northern Cape Province* | *Renosterberg Wind Energy Company*<br>*EAP: SiVEST* | *Public Participation, Landowner and Community Consultation* |

| | | |
|---|---|---|
| *19MW Solar Power Plant on Farm 198 (Slypklip), Danielskuil, Northern Cape Province* | *Solar Reserve South Africa*<br>*EAP: SiVEST* | *Public Participation, Landowner and Community Consultation* |

***Basic Assessments and Environmental Management Programmes – Located within the Renewable Energy Development Zones (REDZ)***

| ***Project Name & Location*** | ***Client Name*** | ***Role*** |
|---|---|---|
| *Moeding Solar PV Solar Energy Facility, Vryburg, North West Province* | *Kabi Solar*<br>*EAP: Savannah Environmental* | *Project Manage the Public Participation Process*<br>*Facilitate all meetings*<br>*Consultation with Government Officials, Key Stakeholders, Landowners & Community Leaders* |
| *Sirius Solar PV Solar Energy Facility, Upington, Northern Cape Province* | *SOLA Future Energy*<br>*EAP: Savannah Environmental* | |

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

***Environmental Impact Assessments and Environmental Management Programmes***

| ***Project Name & Location*** | ***Client Name*** | ***Role*** |
|---|---|---|
| *Aletta Wind Farm, Copperton, Northern Cape Province* | *BioTherm Energy*<br>*EAP: SiVEST* | *Public Participation* |
| *Eureka Wind Farm, Copperton, Northern Cape Province* | | |
| *Loeriesfontein Wind Farm, Loeriesfontein, Northern Cape Province* | *South Africa Mainstream Renewable Power Developments*<br>*EAP: SiVEST* | *Public Participation* |
| *Droogfontein Wind Farm, Loeriesfontein, Northern Cape Province* | | |
| *Four Leeuwberg Wind Farms, Loeriesfontein, Northern Cape Province* | | |
| *Noupoort Wind Farm, Noupoort, Northern Cape Province* | | |
| *Mierdam PV & Wind Farm, Prieska, Northern Cape Province* | | |
| *Platsjambok West Wind Farm & PV, Prieska, Northern Cape Province* | | |

**Basic Assessments and Environmental Management Programmes – Located within the Renewable Energy Development Zones (REDZ)**

| **Project Name & Location** | **Client Name** | **Role** |
|---|---|---|
| *Nama Wind Energy Facility, Northern Cape Province* | *Genesis ECO*<br>*EAP: Savannah Environmental* | *Project Manage the Public Participation Process*<br>*Facilitate all meetings*<br>*Consultation with Government Officials, Key Stakeholders, Landowners & Community Leaders* |
| *Zonnequa Wind Energy Facility, Northern Cape Province* | | |

**Environmental Authorisation Amendments**

| ***Project Name & Location*** | ***Client Name*** | ***Role*** |
|---|---|---|

| | | |
|---|---|---|
| *Beaufort West 280MW Wind Farm into two 140MW Trakas and Beaufort West Wind Farms, Western Cape* | *South Africa Mainstream Renewable Power Developments*<br>*EAP: SiVEST* | *Public Participation* |

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

***Environmental Impact Assessments and Environmental Management Programmes***

| ***Project Name & Location*** | ***Client Name*** | ***Role*** |
|---|---|---|
| *Upington Concentrating Solar Plant and associated Infrastructures, Northern Cape Provionce* | *Eskom Holdings*<br>*EAP: Bohlweki Environmental* | *Public Participation* |

**GRID INFRASTRUCTURE PROJECTS**

***Environmental Impact Assessments and Environmental Management Programmes***

| ***Project Name & Location*** | ***Client Name*** | ***Role*** |
|---|---|---|
| *Pluto-Mahikeng Main Transmission Substation and 400kV Power Line (Carletonville to Mahikeng), Gauteng and North West Provinces* | *Eskom Holdings*<br>*EAP: Baagi Environmental* | |
| *Thyspunt Transmission Lines Integration Project, Eastern Cape Province* | *Eskom Holdings*<br>*EAP: SiVEST* | *Public Participation, Landowner and Community Consultation* |
| *Westrand Strengthening Project, Gauteng Province* | | *Public Participation,* |
| *Mookodi Integration Project, North-West Province* | | |
| *Transnet Coallink, Mpumalanga and KwaZulu-Natal Provinces* | | |
| *Delarey-Kopela-Phahameng Distribution power line and newly proposed Substations, North-West Province* | | *Public Participation, Landowner and Community Consultation* |
| *Invubu-Theta 400kV Eskom Transmission Power Line, KwaZulu-Natal Province* | *Eskom Holding*<br>*EAP: Bembani Environmental* | |

**Facilitation**

| ***Project Name & Location*** | ***Client Name*** | ***Meeting Type*** |
|---|---|---|
| *Bloemfontein Strengthening Project, Free State Province* | *Eskom Holdings*<br>*EAP: Baagi Environmental* | *Public Meetings* |
| *Mooidraai-Smitkloof 132kV Power Line and Substation, Northern Cape Province* | *Eskom Holdings*<br>*EAP: SSI* | *Focus Group Meetings* |
| *Aggeneis-Oranjemond 400kV Eskom Transmission Power Line, Northern Cape Province* | *Eskom Holdings*<br>*EAP: Savannah Environmental* | *Focus Group Meetings & Public Meetings* |
| *Ariadne-Eros 400kV/132kV Multi-Circuit Transmission Power Line (Public Meetings)* | *Eskom Holdings*<br>*EAP: ACER Africa* | *Public Meetings* |
| *Majuba-Venus 765kV Transmission Power Lines, Mpumlanaga Province* | | *Public Meetings* |

***Basic Assessments and Environmental Management Programmes***

| ***Project Name & Location*** | ***Client Name*** | ***Role*** |
|---|---|---|

| | | |
|---|---|---|
| *Melkhout-Kudu-Grassridge 132kV Power Line Project (project not submitted to DEA), Eastern Cape Province* | *Eskom Holdings*<br>*EAP: SiVEST* | *Public Participation, Landowner and Community Consultation* |
| *Tweespruit-Welroux-Driedorp-Wepener 132Kv Power Line, Free State Province* | | *Public Participation, Landowner and Community Consultation* |
| *Kuruman 132Kv Power Line Upgrade, Northern Cape Province* | *Eskom Holdings*<br>*EAP: Zitholele* | *Public Participation, Landowner and Community Consultation* |
| *Vaalbank 132Kv Power Line, Free State Province* | | *Public Participation, Landowner and Community Consultation* |
| *Pongola-Candover-Golela 132kV Power Line (Impact Phase), KwaZulu-Natal Province* | | *Public Participation, Landowner and Community Consultation* |
| *Ndumo-Geziza 132kV Power Line, KwaZulu-Natal Province* | | *Public Participation, Landowner and Community Consultation* |

***Screening Studies***

| ***Project Name & Location*** | ***Client Name*** | ***Role*** |
|---|---|---|
| *Potential Power Line Alternatives from Humansdorp to Port Elizabeth, Eastern Cape Province* | *Nelson Mandela Bay Municipality*<br>*EAP: SiVEST* | *Social Assessment* |

**CONVENTIONAL POWER GENERATION PROJECTS (COAL, GAS AND ASSOCIATED INFRASTRUCTURE)**

***Stakeholder Engagement***

| ***Project Name & Location*** | ***Client Name*** | ***Role*** |
|---|---|---|
| *Determination, Review and Implementation of the Reserve in the Olifants/Letaba System* | *Department of Water and Sanitation*<br>*Golder Associates* | *Secretarial Services* |
| *Orange River Bulk Water Supply System* | | |
| *Levuvu-Letaba Resources Quality Objectives* | | |

***Facilitation***

| ***Project Name & Location*** | ***Client Name*** | ***Meeting Type*** |
|---|---|---|
| *Thabametsi IPP Power Station, Limpopo Province* | *Thabametsi Power Company*<br>*EAP: Savannah Environmental* | *Focus Group Meeting & Public Meeting* |

***Environmental Impact Assessments and Environmental Management Programmes***

| ***Project Name & Location*** | ***Client Name*** | ***Role*** |
|---|---|---|
| *Richards Bay Combined Cycle Power Plant, Richards Bay, Kwa-Zulu Natal Province (Impact Phase)* | *Eskom Holdings*<br>*EAP: Savannah Environmental* | *Public Participation* |
| *Medupi Flue Gas Desulphurisation Project (up to completion of Scoping Phase), Limpopo Province* | *Eskom Holdings SOC Ltd*<br>*EAP: Zitholele Consulting* | *Public Participation, Landowner and Community Consultation* |
| *Kendal 30-year Ash Disposal Facility, Mpumalanga Province* | | |
| *Kusile 60-year Ash Disposal Facility, Mpumalanga Province* | | |

| | | |
|---|---|---|
| *Camden Power Station Ash Disposal Facility, Mpumalanga Province* | | |
| *Tutuka Fabric Filter Retrofit and Dust Handling Plant Projects, Mpumalanga Province* | *Eskom Holdings SOC Ltd*<br>*EAP: Lidwala Environmental* | *Public Participation, Landowner and Community Consultation* |
| *Eskom's Majuba and Tutuka Ash Dump Expansion, Mpumalanga Province* | | *Public Participation, Landowner and Community Consultation* |
| *Hendrina Ash Dam Expansion, Mpumalanga Province* | | *Public Participation, Landowner and Community Consultation* |

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

***Facilitation***

| ***Project Name & Location*** | ***Client Name*** | ***Meeting Type*** |
|---|---|---|
| *Determination, Review and Implementation of the Reserve in the Olifants/Letaba System* | *Department of Water and Sanitation*<br>*Golder Associates* | *Secretarial Services* |
| *Orange River Bulk Water Supply System* | *Department of Water and Sanitation*<br>*Golder Associates* | *Secretarial Services* |
| *Levuvu-Letaba Resources Quality Objectives* | *Department of Water and Sanitation*<br>*Golder Associates* | *Secretarial Services* |
| *SmancorCR Chemical Plant (Public Meeting), Gauteng Province* | *Samancor Chrome (Pty) Ltd*<br>*EAP: Environment al Science Associates* | *Public Meeting* |
| *SANRAL N4 Toll Highway Project (2nd Phase), Gauteng & North West Provinces* | *Department of Transport*<br>*EAP:* | *Public Meetings* |

***Environmental Impact Assessments and Environmental Management Programmes***

| ***Project Name & Location*** | ***Client Name*** | ***Role*** |
|---|---|---|
| *Transnet's New Multi-Products Pipeline traversing Kwa-Zulu Natal, Free State and Gauteng Provinces* | *Transnet*<br>*EAP: Bohlweki Environmental* | *Public Participation* |

**Basic Assessments**

| ***Project Name & Location*** | ***Client Name*** | ***Role*** |
|---|---|---|
| *Realignment of the Bulshoek Dam Weir near Klawer and the Doring River Weir near Clanwilliam, Western Cape Province* | *Dept of Water and Sanitation*<br>*EAP: Zitholele* | *Public Participation* |

**MINING SECTOR**

**Environmental Impact Assessment and Environmental Management Programme**

| **Project Name & Location** | **Client Name** | **Role** |
|---|---|---|
| *Zero Waste Recovery Plant at highveld Steel, Mpumalanga Province* | *Anglo African Metals*<br>*EAP: Savannah Environmental* | *Public Participation* |
| *Koffiefontein Slimes Dam, Free State Province* | *Petra Diamond Mines*<br>*EAP: Zitholele* | *Public Participation* |

| | | |
|---|---|---|
| *Baobab Project: Ethenol Plant, Chimbanje, Middle Sabie, Zimbabwe* | *Applicant: Green Fuel*<br>*EAP: SiVEST* | *Public Participation & Community Consultation* |
| *BHP Billiton Energy Coal SA's Middelburg Water Treatment Plant, Mpumalanga* | *BHP Billiton Group*<br>*EAP: Jones & Wagener* | *Public Participation* |