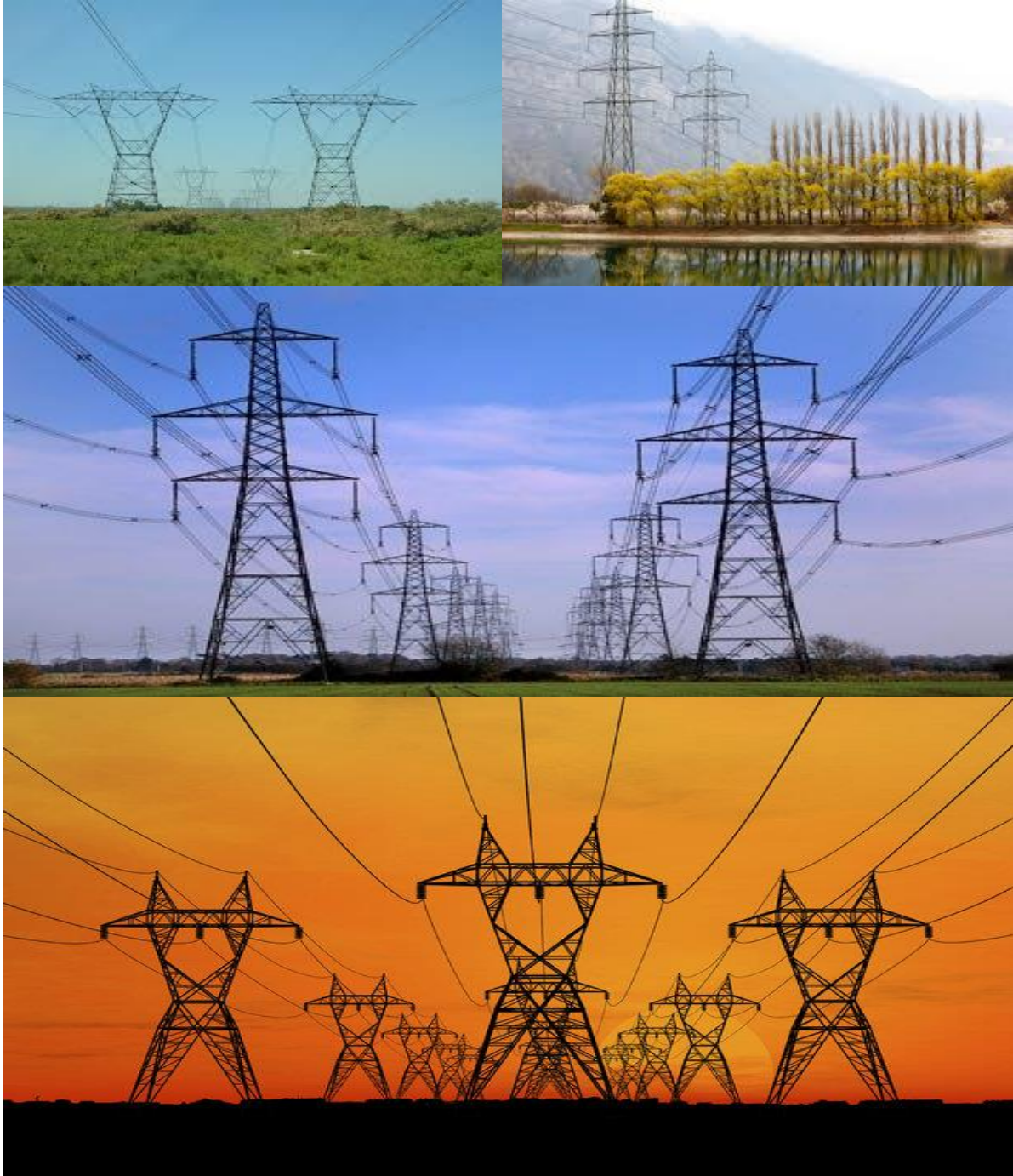


GENERIC ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE
DEVELOPMENT AND EXPANSION FOR OVERHEAD ELECTRICITY
TRANSMISSION AND DISTRIBUTION INFRASTRUCTURE



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

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INTRODUCTION

1. Background

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

2. Purpose

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

3. Objective

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

4. Scope

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

5. Structure of this document

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

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

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

Part	Section	Heading	Content
			This section applies only to additional impact management outcomes and impact management actions that are necessary for the avoidance, management and mitigation of impacts and risks associated with the specific development or expansion and which are not already included in <u>Part B: section 1</u> .
	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 EMP template

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

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

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

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

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

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

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

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

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

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

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

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

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

PART A – GENERAL INFORMATION

1. DEFINITIONS

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

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

"construction camp" is the area designated for key construction infrastructure and services, including but not limited to offices, overnight vehicle parking areas, stores, the workshop, stockpile and lay down areas, hazardous storage areas (including fuels), the batching plant (if one is located at the construction camp), designated access routes, equipment cleaning areas and the placement of staff accommodation, cooking and ablution facilities, waste and wastewater management;

"contractor" - The Contractor has overall responsibility for ensuring that all work, activities, and actions linked to the delivery of the contract, are in line with the Environmental Management Programme and that Method Statements are implemented as described.

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

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

The method statement must cover applicable details with regard to:

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

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

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

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

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

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

2. ACRONYMS and ABBREVIATIONS

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

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

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

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

Responsible Person (s)	Role and Responsibilities
Developer's Project Manager (DPM)	<p><u>Role</u> The Project Developer is accountable for ensuring compliance with the EMPr and any conditions of approval from the competent authority (CA). Where required, an environmental control officer (ECO) must be contracted by the Project Developer to objectively monitor the implementation of the EMPr according to relevant environmental legislation, and the conditions of the environmental authorisation (EA). The Project Developer is further responsible for providing and giving mandate to enable the ECO to perform responsibilities, and he must ensure that the ECO is integrated as part of the project team while remaining independent.</p> <p><u>Responsibilities</u></p> <ul style="list-style-type: none"> - Be fully conversant with the conditions of the EA; - Ensure that all stipulations within the EMPr are communicated and adhered to by the Developer and its Contractor(s); - Issuing of site instructions to the Contractor for corrective actions required; - Monitor the implementation of the EMPr throughout the project by means of site inspections and meetings. Overall management of the project and EMPr implementation; and - Ensure that periodic environmental performance audits are undertaken on the project implementation.
Developer Site Supervisor (DSS)	<p><u>Role</u> The DSS reports directly to the DPM, oversees site works, liaises with the contractor(s) and the ECO. The DSS</p>

Responsible Person (s)	Role and Responsibilities
	<p>is responsible for the day to day implementation of the EMPr and for ensuring the compliance of all contractors with the conditions and requirements stipulated in the EMPr.</p> <p><u>Responsibilities</u></p> <ul style="list-style-type: none"> - Ensure that all contractors identify a contractor's Environmental Officer (cEO); - Must be fully conversant with the conditions of the EA. Oversees site works, liaison with Contractor, DPM and ECO; - Must ensure that all landowners have the relevant contact details of the site staff, ECO and cEO; - Issuing of site instructions to the Contractor for corrective actions required; - Will issue all non-compliances to contractors; and - Ratify the Monthly Environmental Report.
Environmental Control Officer (ECO)	<p><u>Role</u></p> <p>The ECO should have appropriate training and experience in the implementation of environmental management specifications. The primary role of the ECO is to act as an independent quality controller and monitoring agent regarding all environmental concerns and associated environmental impacts. In this respect, the ECO is to conduct periodic site inspections, attend regular site meetings, pre-empt problems and suggest mitigation and be available to advise on incidental issues that arise. The ECO is also required to conduct compliance audits, verifying the monitoring reports submitted by the cEO. The ECO provides feedback to the DSS and Project Manager regarding all environmental matters. The Contractor, cEO and dEO are answerable to the Environmental Control Officer for non-compliance with the Performance Specifications as set out in the EA and EMPr.</p> <p>The ECO provides feedback to the DSS and Project Manager, who in turn reports back to the Contractor and potential and Registered Interested & Affected Parties' (RI&AP's), as required. Issues of non-compliance raised by the ECO must be taken up by the Project Manager, and resolved with the Contractor as per the conditions of his contract. Decisions regarding environmental procedures, specifications and requirements which have a cost implication (i.e. those that are deemed to be a variation, not allowed for in the Performance Specification) must be endorsed by the Project Manager. The ECO must also, as specified by the EA, report to the relevant CA as and when required.</p> <p><u>Responsibilities</u></p>

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

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

Responsible Person (s)	Role and Responsibilities
	<p>contained in the EMPr will be implemented during the development or expansion for overhead electricity transmission and distribution infrastructure activities.</p> <p><u>Responsibilities</u></p> <ul style="list-style-type: none"> - project delivery and quality control for the development services as per appointment; - employ a suitably qualified person to monitor and report to the Project Developer's appointed person on the daily activities on-site during the construction period; - ensure that safe, environmentally acceptable working methods and practices are implemented and that equipment is properly operated and maintained, to facilitate proper access and enable any operation to be carried out safely; - attend on site meeting(s) prior to the commencement of activities to confirm the procedure and designated activity zones; - ensure that contractors' staff repair, at their own cost, any environmental damage as a result of a contravention of the specifications contained in EMPr, to the satisfaction of the ECO.
contractor Environmental Officer (cEO)	<p><u>Role</u></p> <p>Each Contractor affected by the EMPr should appoint a cEO, who is responsible for the on-site implementation of the EMPr (or relevant sections of the EMPr). The Contractor's representative can be the site agent; site engineer; a dedicated environmental officer; or an independent consultant. The Contractor must ensure that the Contractor's Representative is suitably qualified to perform the necessary tasks and is appointed at a level such that she/he can interact effectively with other site Contractors, labourers, the Environmental Control Officer and the public. As a minimum the cEO shall meet the following criteria:</p> <p><u>Responsibilities</u></p> <ul style="list-style-type: none"> - Be on site throughout the duration of the project and be dedicated to the project; - Ensure all their staff are aware of the environmental requirements, conditions and constraints with respect to all of their activities on site; - Implementing the environmental conditions, guidelines and requirements as stipulated within the EA, EMPr and Method Statements; - Attend the Environmental Site Meeting;

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

4. ENVIRONMENTAL DOCUMENTATION REPORTING AND COMPLIANCE

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

4.1 Document control/Filing system

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

4.2 Documentation to be available

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

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

4.3 Weekly Environmental Checklist

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

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

4.4 Environmental site meetings

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

4.5 Required Method Statements

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

The method statement must cover applicable details with regard to:

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

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

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

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

4.6 Environmental Incident Log (Diary)

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

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

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

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

The Environmental Incident Log will be captured in the EAR.

4.7 Non-compliance

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

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

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

4.8 Corrective action records

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

4.9 Photographic record

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

The Contractor shall:

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

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

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

4.10 Complaints register

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

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

4.11 Claims for damages

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

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

4.12 Interactions with affected parties

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

The ECOs shall:

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

4.13 Environmental audits

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

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

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

4.14 Final environmental audits

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

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

5. IMPACT MANAGEMENT OUTCOMES AND IMPACT MANAGEMENT ACTIONS

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

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

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

5.1 Environmental awareness training

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

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - All staff must receive environmental awareness training prior to commencement of the activities; - The Contractor must allow for sufficient sessions to train all personnel with no more than 20 personnel attending each course; - Refresher environmental awareness training is available as and when required; - All staff are aware of the conditions and controls linked to the EA and within the EMPr and made aware of their individual roles and responsibilities in achieving compliance with the EA and EMPr; - The Contractor must erect and maintain information posters at key locations on site, and the posters must include the following information as a minimum: <ul style="list-style-type: none"> a) Safety notifications; and b) No littering. - Environmental awareness training must include as a minimum the following: <ul style="list-style-type: none"> a) Description of significant environmental impacts, actual or potential, related to their work activities; b) Mitigation measures to be implemented when carrying out specific activities; c) Emergency preparedness and response 	ECO and CEO	Environmental Induction training; Toolbox talks; other pertinent training aids	Initially prior to construction commencing ECO to induct Construction Management and CEO, and thereafter repeated for all new employees and yearly. Toolbox talks to be presented weekly	ECO	Monthly	Signed induction and toolbox talk, training registers

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

Impact management outcome: Impacts on the environment are minimised during site establishment and the development footprint are kept to demarcated development area.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - A method statement must be provided by the contractor prior 	Contractor	Method	Prior to	ECO	Monthly	Signed

<p>to any onsite activity that includes the layout of the construction camp in the form of a plan showing the location of key infrastructure and services (where applicable), including but not limited to offices, overnight vehicle parking areas, stores, the workshop, stockpile and lay down areas, hazardous materials storage areas (including fuels), the batching plant (if one is located at the construction camp), designated access routes, equipment cleaning areas and the placement of staff accommodation, cooking and ablution facilities, waste and wastewater management;</p> <ul style="list-style-type: none"> - Location of camps must be within approved area to ensure that the site does not impact on sensitive areas identified in the environmental assessment or site walk through; - Sites must be located where possible on previously disturbed areas; - The camp must be fenced in accordance with Section 5.5: Fencing and gate installation; and - The use of existing accommodation for contractor staff, where possible, is encouraged. 		<p>Statement compilation and communication of Method Statements to employees. Use of Specialist Studies to locate site camps</p>	<p>construction</p>			<p>Method Statements; signed proof of communication register; Liaison with ECO regarding site camp placement</p>
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5.3 Access restricted areas

<p>Impact management outcome: Access to restricted areas prevented.</p>						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - Identification of access restricted areas is to be informed by the environmental assessment, site walk through and any 	<p>Contractor</p>	<p>Use of Specialist Studies to locate</p>	<p>Prior to construction in</p>	<p>ECO</p>	<p>Monthly</p>	<p>Contractor compliance</p>

additional areas identified during development; – Erect, demarcate and maintain a temporary barrier with clear signage around the perimeter of any access restricted area, colour coding could be used if appropriate; and – Unauthorised access and development related activity inside access restricted areas is prohibited.		sensitive areas and 'no-go' areas	new area			with sensitive areas
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5.4 Access roads

Impact management outcome: Minimise impact to the environment through the planned and restricted movement of vehicles on site.						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> – Access to the servitude and tower positions must be negotiated with the relevant landowner and must fall within the assessed and authorised area; – An access agreement must be formalised and signed by the DPM, Contractor and landowner before commencing with the activities; – The access roads to tower positions must be signposted after access has been negotiated and before the commencement of the activities; – All private roads used for access to the servitude must be maintained and upon completion of the works, be left in at least the original condition – All contractors must be made aware of all these access routes. 	Contractor	Implementation of mitigation measures	Ongoing	ECO	Monthly	Signed access agreements and maintenance of access roads

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

<p>Impact management outcome: Minimise impact to the environment and ensure safe and controlled access to the site through the erection of fencing and gates where required.</p>						
<p>Impact Management Actions</p>	<p>Implementation</p>			<p>Monitoring</p>		
	<p>Responsible person</p>	<p>Method of implementation</p>	<p>Timeframe for implementation</p>	<p>Responsible person</p>	<p>Frequency</p>	<p>Evidence of compliance</p>

<ul style="list-style-type: none"> - Use existing gates provided to gain access to all parts of the area authorised for development, where possible; - Existing and new gates to be recorded and documented in accordance with section 4.9: photographic record; - All gates must be fitted with locks and be kept locked at all times during the development phase, unless otherwise agreed with the landowner; - At points where the line crosses a fence in which there is no suitable gate within the extent of the line servitude, on the instruction of the DPM, a gate must be installed at the approval of the landowner; - Care must be taken that the gates must be so erected that there is a gap of no more than 100 mm between the bottom of the gate and the ground; - Where gates are installed in jackal proof fencing, a suitable reinforced concrete sill must be provided beneath the gate; - Original tension must be maintained in the fence wires; - All gates installed in electrified fencing must be re-electrified; - All demarcation fencing and barriers must be maintained in good working order for the duration of overhead transmission and distribution electricity infrastructure development activities; - Fencing must be erected around the camp, batching plants, hazardous storage areas, and all designated access restricted areas, where appropriate and would not cause harm to the sensitive flora; - Any temporary fencing to restrict the movement of life-stock must only be erected with the permission of the land owner. - All fencing must be developed of high quality material bearing the SABS mark; - The use of razor wire as fencing must be avoided; 	Contractor and Applicant	Implementation of the mitigation measures	Ongoing	ECO	Monthly	Site observation; public complaints register
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<ul style="list-style-type: none"> - Fenced areas with gate access must remain locked after hours, during weekends and on holidays if staff is away from site. Site security will be required at all times; - On completion of the development phase all temporary fences are to be removed; - The contractor must ensure that all fence uprights are appropriately removed, ensuring that no uprights are cut at ground level but rather removed completely. 						
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5.6 Water Supply Management

Impact management outcome: Undertake responsible water usage.						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - All abstraction points or bore holes must be registered with the DWS and suitable water meters installed to ensure that the abstracted volumes are measured on a daily basis; - The Contractor must ensure the following: <ul style="list-style-type: none"> a. The vehicle abstracting water from a river does not enter or cross it and does not operate from within the river; b. No damage occurs to the river bed or banks and that the abstraction of water does not entail stream diversion activities; and c. All reasonable measures to limit pollution or 	Contractor and Applicant	Application to DWS where applicable. Implementation of mitigation measures	Construction	ECO	Monthly	Proof of water source used; submission of above proof to DWS

<p>sedimentation of the downstream watercourse are implemented.</p> <ul style="list-style-type: none"> - Ensure water conservation is being practiced by: <ul style="list-style-type: none"> a. Minimising water use during cleaning of equipment; b. Undertaking regular audits of water systems; and c. Including a discussion on water usage and conservation during environmental awareness training. d. The use of grey water is encouraged. 						
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5.7 Storm and waste water management

Impact management outcome: Impacts to the environment caused by storm water and wastewater discharges during construction are avoided.						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - Runoff from the cement/ concrete batching areas must be strictly controlled, and contaminated water must be collected, stored and either treated or disposed of off-site, at a location approved by the project manager; - All spillage of oil onto concrete surfaces must be controlled by the use of an approved absorbent material and the used absorbent material disposed of at an appropriate waste disposal facility; - Natural storm water runoff not contaminated during the development and clean water can be discharged directly to watercourses and water bodies, subject to the Project Manager's approval and support by the ECO; 	Contractor	Employ methods to prevent water pollution	Construction	ECO	Weekly	Inspection of areas where construction takes place near watercourses

<ul style="list-style-type: none"> 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. 						
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5.8 Solid and hazardous waste management

<p>Impact management outcome: Waste is appropriately stored, handled and safely disposed of at a recognised waste facility.</p>						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> All measures regarding waste management must be undertaken using an integrated waste management approach; Sufficient, covered waste collection bins (scavenger and weatherproof) must be provided; A suitably positioned and clearly demarcated waste collection site must be identified and provided; The waste collection site must be maintained in a clean and orderly manner; Waste must be segregated into separate bins and clearly marked for each waste type for recycling and safe disposal; 	Contractor	Following good waste management practices outlined in approved method statement	Construction	ECO	Weekly	Waste Safe disposal slips; service level agreements

<ul style="list-style-type: none"> - Staff must be trained in waste segregation; - Bins must be emptied regularly; - General waste produced onsite must be disposed of at registered waste disposal sites/ recycling company; - Hazardous waste must be disposed of at a registered waste disposal site; - Certificates of safe disposal for general, hazardous and recycled waste must be maintained. 						
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5.9 Protection of watercourses and estuaries

Impact management outcome: Pollution and contamination of the watercourse environment and or estuary erosion are prevented.						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - All watercourses must be protected from direct or indirect spills of pollutants such as solid waste, sewage, cement, oils, fuels, chemicals, aggregate tailings, wash and contaminated water or organic material resulting from the Contractor's activities; - In the event of a spill, prompt action must be taken to clear the polluted or affected areas; - Where possible, no development equipment must traverse any seasonal or permanent wetland - No return flow into the estuaries must be allowed and no disturbance of the Estuarine Functional Zone should occur; 	Contractor	Method statements; Stormwater Management Plan	Construction	ECO	Weekly	Method Statement compliance

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

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

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<p>General:</p> <ul style="list-style-type: none"> - Indigenous vegetation which does not interfere with the development must be left undisturbed; - Protected or endangered species may occur on or near the development site. Special care should be taken not to damage such species; - Search, rescue and replanting of all protected and endangered species likely to be damaged during project development must be identified by the relevant specialist and completed prior to any development or clearing; - Permits for removal must be obtained from the Department of Agriculture, Forestry and Fisheries prior to the cutting or clearing of the affected species, and they must be filed; - The Environmental Audit Report must confirm that all identified species have been rescued and replanted and that the location of replanting is compliant with conditions of approvals; - Trees felled due to construction must be documented and form part of the Environmental Audit Report; - Rivers and watercourses must be kept clear of felled trees, vegetation cuttings and debris; - Only a registered pest control operator may apply herbicides on a commercial basis and commercial 	<p>Contractor and Applicant</p>	<p>Specialist recommendations; Method statement; Search and Rescue Plan; Alien Vegetation Removal Plan (approved plans and strategies used by Eskom; site awareness</p>	<p>Pre-Construction and Construction and Operation</p>	<p>ECO</p>	<p>Pre-Construction and weekly during construction</p>	<p>Compliance to method statements and Search and Rescue Plan; Alien Vegetation Removal Plan (approved plans and strategies used by Eskom)</p>

<p>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;</p> <ul style="list-style-type: none"> - A daily register must be kept of all relevant details of herbicide usage; - No herbicides must be used in estuaries; - All protected species and sensitive vegetation not removed must be clearly marked and such areas fenced off in accordance to Section 5.3: Access restricted areas. <p>Servitude:</p> <ul style="list-style-type: none"> - Vegetation that does not grow high enough to cause interference with overhead transmission and distribution infrastructures, or cause a fire hazard to any plantation, must not be cut or trimmed unless it is growing in the road access area, and then only at the discretion of the Project Manager; - Where clearing for access purposes is essential, the maximum width to be cleared within the servitude must be in accordance to distance as agreed between the land owner and the EA holder - Alien invasive vegetation must be removed according to a plan (in line with relevant municipal and provincial procedures, guidelines and recommendations) and disposed of at a recognised waste disposal facility; - Vegetation must be trimmed where it is likely to intrude on the minimum vegetation clearance distance (MVCD) or will intrude on this distance before the next scheduled clearance. MVCD is determined from SANS 10280; - Debris resulting from clearing and pruning must be disposed of at a recognised waste disposal facility, unless the landowners wish to retain the cut vegetation; - In the case of the development of new overhead 						
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transmission and distribution infrastructures, a one metre "trace-line" must be cut through the vegetation for stringing purposes only and no vehicle access must be cleared along the "trace-line". Alternative methods of stringing which limit impact to the environment must always be considered.						
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5.11 Protection of fauna

Impact management outcome: Minimise disturbance to fauna.						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - No interference with livestock must occur without the landowner's written consent and with the landowner or a person representing the landowner being present; - The breeding sites of raptors and other wild birds species must be taken into consideration during the planning of the development programme; - Breeding sites must be kept intact and disturbance to breeding birds must be avoided. Special care must be taken where nestlings or fledglings are present; - Nesting sites on existing parallel lines must be documented; - Special recommendations of the avian specialist must be adhered to at all times to prevent unnecessary disturbance of birds; - Bird guards and diverters must be installed on the new line as per the recommendations of the specialist; 	Contractor	Method statement and adherence to exclusion/no-go zones; site awareness	Construction	ECO	Weekly	Public complaints register; adherence to exclusion/no-go zones and method statements

<ul style="list-style-type: none"> - 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; - No deliberate or intentional killing of fauna is allowed; - In areas where snakes are abundant, snake deterrents to be deployed on the pylons to prevent snakes climbing up, being electrocuted and causing power outages; and - No Threatened or Protected species (ToPs) and/or protected fauna as listed according NEMBA (Act No. 10 of 2004) and relevant provincial ordinances may be removed and/or relocated without appropriate authorisations/permits. 						
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5.12 Protection of heritage resources

<p>Impact management outcome: Minimise impact to heritage resources.</p>						
<p>Impact Management Actions</p>	<p>Implementation</p>			<p>Monitoring</p>		
	<p>Responsible person</p>	<p>Method of implementation</p>	<p>Timeframe for implementation</p>	<p>Responsible person</p>	<p>Frequency</p>	<p>Evidence of compliance</p>
<ul style="list-style-type: none"> - Identify, demarcate and prevent impact to all known sensitive heritage features on site in accordance with the No-Go procedure in Section 5.3: Access restricted areas; - Carry out general monitoring of excavations for potential fossils, artefacts and material of heritage importance; - All work must cease immediately, if any human remains 	<p>Contractor</p>	<p>Method Statement; Heritage Management Plan</p>	<p>Pre-construction and construction</p>	<p>ECO</p>	<p>Weekly and daily for zones highlighted by Heritage</p>	<p>Monitoring of construction areas; adherence to</p>

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.					Specialist where potsherds were found	management plan if chance finds found
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5.13 Safety of the public

Impact management outcome: All precautions are taken to minimise the risk of injury, harm or complaints.						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - Identify fire hazards, demarcate and restrict public access to these areas as well as notify the local authority of any potential threats e.g. large brush stockpiles, fuels etc.; - All unattended open excavations must be adequately fenced or demarcated; - Adequate protective measures must be implemented to prevent unauthorised access to and climbing of partly constructed towers and protective scaffolding; - Ensure structures vulnerable to high winds are secured; - Maintain an incidents and complaints register in which all incidents or complaints involving the public are logged. 	Contractor	Landowner agreements; Method Statement	Construction	ECO	Weekly	Site works barricaded; safe working site maintained; public complaints register

5.14 Sanitation

Impact management outcome: Clean and well maintained toilet facilities are available to all staff in an effort to minimise the risk of disease and impact to the environment.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - Mobile chemical toilets are installed onsite if no other ablution facilities are available; - The use of ablution facilities and or mobile toilets must be used at all times and no indiscriminate use of the veld for the purposes of ablutions must be permitted under any circumstances; - Where mobile chemical toilets are required, the following must be ensured: <ul style="list-style-type: none"> a) Toilets are located no closer than 100 m to any watercourse or water body; b) Toilets are secured to the ground to prevent them from toppling due to wind or any other cause; c) No spillage occurs when the toilets are cleaned or emptied and the contents are managed in accordance with the EMPr; d) Toilets have an external closing mechanism and are closed and secured from the outside when not in use to prevent toilet paper from being blown out; e) Toilets are emptied before long weekends and workers holidays, and must be locked after working hours; f) Toilets are serviced regularly and the ECO must inspect 	Contractor	Service level agreement with service provider; Method statement; site awareness	Construction	ECO	Weekly	Service level agreement with service provider; proof of safe disposal of waste

toilets to ensure compliance to health standards; – A copy of the waste disposal certificates must be maintained.						
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5.15 Prevention of disease

Impact Management outcome: All necessary precautions linked to the spread of disease are taken.						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> – Undertake environmentally-friendly pest control in the camp area; – Ensure that the workforce is sensitised to the effects of sexually transmitted diseases, especially HIV AIDS; – The Contractor must ensure that information posters on AIDS are displayed in the Contractor Camp area; – Information and education relating to sexually transmitted diseases to be made available to both construction workers and local community, where applicable; – Free condoms must be made available to all staff on site at central points; – Medical support must be made available; – Provide access to Voluntary HIV Testing and Counselling Services. 	Contractor	Method statement; awareness training	Construction	ECO	Monthly	Method statement; proof of awareness training

5.16 Emergency procedures

Impact management outcome: Emergency procedures are in place to enable a rapid and effective response to all types of environmental emergencies.

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

5.17 Hazardous substances

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

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - The use and storage of hazardous substances to be minimised and non-hazardous and non-toxic alternatives substituted where possible; - All hazardous substances must be stored in suitable containers as defined in the Method Statement; - Containers must be clearly marked to indicate contents, quantities and safety requirements; - All storage areas must be bunded. The bunded area must be of sufficient capacity to contain a spill / leak from the stored containers; - Bunded areas to be suitably lined with a SABS approved liner; - An Alphabetical Hazardous Chemical Substance (HCS) control sheet must be drawn up and kept up to date on a continuous basis; - All hazardous chemicals that will be used on site must have Material Safety Data Sheets (MSDS); - All employees working with HCS must be trained in the safe use of the substance and according to the safety data sheet; - Employees handling hazardous substances / materials must be aware of the potential impacts and follow appropriate safety measures. Appropriate personal protective equipment must be made available; - The Contractor must ensure that diesel and other liquid fuel, oil and hydraulic fluid is stored in appropriate storage tanks 	Contractor	Method statement; OHS requirements; adequate and responsible use and storage of hazardous substances; hazardous substance storage register	Construction	ECO	Weekly	Hazardous substance storage register; MSDS; method statement

<p>or in bowzers;</p> <ul style="list-style-type: none"> - The tanks/ bowzers 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/ bowzers (110% statutory requirement plus an allowance for rainfall); - The floor of the bund must be sloped, draining to an oil separator; - Provision must be made for refueling at the storage area by protecting the soil with an impermeable groundcover. Where dispensing equipment is used, a drip tray must be used to ensure small spills are contained; - All empty externally dirty drums must be stored on a drip tray or within a bunded area; - No unauthorised access into the hazardous substances storage areas must be permitted; - No smoking must be allowed within the vicinity of the hazardous storage areas; - Adequate fire-fighting equipment must be made available at all hazardous storage areas; - Where refueling away from the dedicated refueling station is required, a mobile refueling unit must be used. Appropriate ground protection such as drip trays must be used; - An appropriately sized spill kit kept onsite relevant to the scale of the activity/s involving the use of hazardous substance must be available at all times; - The responsible operator must have the required training to make use of the spill kit in emergency situations; - An appropriate number of spill kits must be available and must be located in all areas where activities are being 						
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<p>undertaken;</p> <ul style="list-style-type: none"> - In the event of a spill, contaminated soil must be collected in containers and stored in a central location and disposed of according to the National Environmental Management: Waste Act 59 of 2008. Refer to Section 5.7 for procedures concerning storm and waste water management and 5.8 for solid and hazardous waste management. 						
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5.18 Workshop, equipment maintenance and storage

<p>Impact management outcome: Soil, surface water and groundwater contamination is minimised.</p>						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - Where possible and practical all maintenance of vehicles and equipment must take place in the workshop area; - During servicing of vehicles or equipment, especially where emergency repairs are effected outside the workshop area, a suitable drip tray must be used to prevent spills onto the soil. The relevant local authority must be made aware of a fire as soon as it starts; - Leaking equipment must be repaired immediately or be removed from site to facilitate repair; - Workshop areas must be monitored for oil and fuel spills; 	<p>Contractor</p>	<p>Method statement; OHS requirements; hazardous substances storage register; vehicle daily checklist; vehicle service</p>	<p>Construction</p>	<p>ECO</p>	<p>Weekly</p>	<p>Method statement; hazardous substances storage register; vehicle daily checklist; vehicle</p>

<ul style="list-style-type: none"> - Appropriately sized spill kit kept onsite relevant to the scale of the activity taking place must be available; - The workshop area must have a bunded concrete slab that is sloped to facilitate runoff into a collection sump or suitable oil / water separator where maintenance work on vehicles and equipment can be performed; - Water drainage from the workshop must be contained and managed in accordance Section 5.7: storm and waste water management. 		register				service register
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5.19 Batching plants

<p>Impact management outcome: Minimise spillages and contamination of soil, surface water and groundwater.</p>						
<p>Impact Management Actions</p>	<p>Implementation</p>			<p>Monitoring</p>		
	<p>Responsible person</p>	<p>Method of implementation</p>	<p>Timeframe for implementation</p>	<p>Responsible person</p>	<p>Frequency</p>	<p>Evidence of compliance</p>
<ul style="list-style-type: none"> - Concrete mixing must be carried out on an impermeable surface; - Batching plants areas must be fitted with a containment facility for the collection of cement laden water. - Dirty water from the batching plant must be contained to prevent soil and groundwater contamination - Bagged cement must be stored in an appropriate facility and at least 10 m away from any water courses, gullies and drains; - A washout facility must be provided for washing of concrete associated equipment. Water used for washing must be 	<p>Contractor</p>	<p>Method statement</p>	<p>Construction</p>	<p>ECO</p>	<p>Weekly</p>	<p>Compliance to mitigation and method statement</p>

<p>restricted;</p> <ul style="list-style-type: none"> - Hardened concrete from the washout facility or concrete mixer can either be reused or disposed of at an appropriate licenced disposal facility; - Empty cement bags must be secured with adequate binding material if these will be temporarily stored on site; - Sand and aggregates containing cement must be kept damp to prevent the generation of dust (Refer to Section 5.20: Dust emissions) - Any excess sand, stone and cement must be removed or reused from site on completion of construction period and disposed at a registered disposal facility; - Temporary fencing must be erected around batching plants in accordance with Section 5.5: Fencing and gate installation. 						
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5.20 Dust emissions

<p>Impact management outcome: Dust prevention measures are applied to minimise the generation of dust.</p>						
<p>Impact Management Actions</p>	<p>Implementation</p>			<p>Monitoring</p>		
	<p>Responsible person</p>	<p>Method of implementation</p>	<p>Timeframe for implementation</p>	<p>Responsible person</p>	<p>Frequency</p>	<p>Evidence of compliance</p>
<ul style="list-style-type: none"> - Take all reasonable measures to minimise the generation of dust as a result of project development activities to the satisfaction of the ECO; 	<p>Contractor</p>	<p>Method statement; vehicle speed</p>	<p>Construction</p>	<p>ECO</p>	<p>Monthly</p>	<p>Site observation; dust</p>

<ul style="list-style-type: none"> - Removal of vegetation must be avoided until such time as soil stripping is required and similarly exposed surfaces must be re-vegetated or stabilised as soon as is practically possible; - Excavation, handling and transport of erodible materials must be avoided under high wind conditions or when a visible dust plume is present; - During high wind conditions, the ECO must evaluate the situation and make recommendations as to whether dust-damping measures are adequate, or whether working will cease altogether until the wind speed drops to an acceptable level; - Where possible, soil stockpiles must be located in sheltered areas where they are not exposed to the erosive effects of the wind; - Where erosion of stockpiles becomes a problem, erosion control measures must be implemented at the discretion of the ECO; - Vehicle speeds must not exceed 40 km/h along dust roads or 20 km/h when traversing unconsolidated and non-vegetated areas; - Straw stabilisation must be applied at a rate of one bale/10 m² and harrowed into the top 100 mm of top material, for all completed earthworks; - For significant areas of excavation or exposed ground, dust suppression measures must be used to minimise the spread of dust. 		limit; dust suppression				suppression register
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5.21 Blasting



Impact management outcome: Impact to the environment is minimised through a safe blasting practice.						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - Any blasting activity must be conducted by a suitably licensed blasting contractor; and - Notification of surrounding landowners, emergency services site personnel of blasting activity 24 hours prior to such activity taking place on Site. 	Contractor	Relevant legislation and regulation	Construction	ECO	Monthly	Public complaints register; proof of registration of blasting contractor

5.22 Noise

Impact Management outcome: Unnecessary noise is prevented by ensuring that noise from construction activities is mitigated.						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - The Contractor must keep noise level within acceptable limits, Restrict the use of sound amplification equipment for 	Contractor	Restriction of site	Construction	ECO	Monthly	Public

<p>communication and emergency only;</p> <ul style="list-style-type: none"> - All vehicles and machinery must be fitted with appropriate silencing technology and must be properly maintained; - Any complaints received by the Contractor regarding noise must be recorded and communicated. Where possible or applicable, provide transport to and from the site on a daily basis for construction workers; - Develop a Code of Conduct for the construction phase in terms of behaviour of construction staff. - Operating hours as determined by the environmental authorisation are adhered to during the development phase. Where not defined, it must be ensured that development activities must still meet the impact management outcome related to noise management. 		<p>hours to working hours</p>				<p>Complaints Register</p>
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5.23 Fire prevention

<p>Impact management outcome: Prevention of uncontrollable fires.</p>						
<p>Impact Management Actions</p>	<p>Implementation</p>			<p>Monitoring</p>		
<ul style="list-style-type: none"> - Designate smoking areas where the fire hazard could be regarded as insignificant; - Firefighting equipment must be available on all vehicles located on site; - The local Fire Protection Agency (FPA) must be informed of construction activities; 	<p>Contractor</p>	<p>Emergency Response Action Plan; Method Statement</p>	<p>Construction</p>	<p>ECO</p>	<p>Monthly</p>	<p>Public complaints register; compliance to ERAP</p>

<ul style="list-style-type: none"> - Contact numbers for the FPA and emergency services must be communicated in environmental awareness training and displayed at a central location on site; - Two-way swop of contact details between ECO and FPA. 						
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5.24 Stockpiling and stockpile areas

<p>Impact management outcome: Erosion and sedimentation as a result of stockpiling are reduced.</p>						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - All material that is excavated during the project development phase (either during piling (if required) or earthworks) must be stored appropriately on site in order to minimise impacts to watercourses, watercourses and water bodies; - All stockpiled material must be maintained and kept clear of weeds and alien vegetation growth by undertaking regular weeding and control methods; - Topsoil stockpiles must not exceed 2 m in height; - During periods of strong winds and heavy rain, the stockpiles must be covered with appropriate material (e.g. cloth, tarpaulin etc.); - Where possible, sandbags (or similar) must be placed at the 	Contractor	Method Statement	Construction	ECO	Monthly	Method Statement and site observations

bases of the stockpiled material in order to prevent erosion of the material.						
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5.25 Finalising tower positions

Impact management outcome: No environmental degradation occurs as a result of the survey and pegging operations.						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - No vegetation clearing must occur during survey and pegging operations; - No new access roads must be developed to facilitate access for survey and pegging purposes; - Project manager, botanical specialist and contractor to agree on final tower positions based on survey within assessed and approved areas; - The surveyor is to demarcate (peg) access roads/tracks in consultation with ECO. No deviations will be allowed without the prior written consent from the ECO. 	Applicant	Findings of the Specialist Studies	Pre-construction	ECO	Once off	Final pegging of tower positions

5.26 Excavation and Installation of foundations

Impact management outcome: No environmental degradation occurs as a result of excavation or installation of foundations.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - All excess spoil generated during foundation excavation must be disposed of in an appropriate manner and at a recognised disposal site, if not used for backfilling purposes; - Spoil can however be used for landscaping purposes and must be covered with a layer of 150 mm topsoil for rehabilitation purposes; - Management of equipment for excavation purposes must be undertaken in accordance with Section 5.18: Workshop equipment maintenance and storage; and - Hazardous substances spills from equipment must be managed in accordance with Section 5.17: Hazardous substances. - Batching of cement to be undertaken in accordance with Section 5.19: Batching plants; - Residual cement must be disposed of in accordance with Section 5.8: Solid and hazardous waste management. 	Contractor	Method Statement and Engineering Drawings	Construction	ECO	Weekly	Adherence to method statements

5.27 Assembly and erecting towers

Impact management outcome: No environmental degradation occurs as a result of assembly and erecting of towers.						
Impact Management Actions	Implementation			Monitoring		

	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - Prior to erection, assembled towers and tower sections must be stored on elevated surface (suggest wooden blocks) to minimise damage to the underlying vegetation; - In sensitive areas, tower assembly must take place off-site or away from sensitive positions; - The crane used for tower assembly must be operated in a manner which minimises impact to the environment; - The number of crane trips to each site must be minimised; - Wheeled cranes must be utilised in preference to tracked cranes; - Consideration must be given to erecting towers by helicopter or by hand where it is warranted to limit the extent of environmental impact; - Access to tower positions to be undertaken in accordance with access requirements in specified in Section 8.4: Access Roads; - Vegetation clearance to be undertaken in accordance with general vegetation clearance requirements specified in Section 8.10: Vegetation clearing; - No levelling at tower sites must be permitted unless approved by the Development Project Manager or Developer Site Supervisor; - Topsoil must be removed separately from subsoil material and stored for later use during rehabilitation of such tower sites; - Topsoil must be stored in heaps not higher than 1m to prevent destruction of the seed bank within the topsoil; - Excavated slopes must be no greater than 1:3, but where this 	Contractor	Method Statement	Construction	ECO	Weekly	Site observations

<p>is unavoidable, appropriate measures must be undertaken to stabilise the slopes;</p> <ul style="list-style-type: none"> - Fly rock from blasting activity must be minimised and any pieces greater than 150 mm falling beyond the Working Area, must be collected and removed; - Only existing disturbed areas are utilised as spoil areas; - Drainage is provided to control groundwater exit gradient with the spill areas such that migration of fines is kept to a minimum; - Surface water runoff is appropriately channeled through or around spoil areas; - During backfilling operations, care must be taken not to dump the topsoil at the bottom of the foundation and then put spoil on top of that; - The surface of the spoil is appropriately rehabilitated in accordance with the requirements specified in Section 5.29: Landscaping and rehabilitation; - The retained topsoil must be spread evenly over areas to be rehabilitated and suitably compacted to effect re-vegetation of such areas to prevent erosion as soon as construction activities on the site is complete. Spreading of topsoil must not be undertaken at the beginning of the dry season. 						
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5.28 Stringing

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

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - Where possible, previously disturbed areas must be used for the siting of winch and tensioner stations. In all other instances, the siting of the winch and tensioner must avoid Access restricted areas and other sensitive areas; - The winch and tensioner station must be equipped with drip trays in order to contain any fuel, hydraulic fuel or oil spills and leaks; - Refueling of the winch and tensioner stations must be undertaken in accordance with Section 5.17: Hazardous substances; - In the case of the development of overhead transmission and distribution infrastructure, a one metre "trace-line" may be cut through the vegetation for stringing purposes only and no vehicle access must be cleared along "trace-lines". Vegetation clearing must be undertaken by hand, using chainsaws and hand held implements, with vegetation being cut off at ground level. No tracked or wheeled mechanised equipment must be used; - Alternative methods of stringing which limit impact to the environment must always be considered e.g. by hand or by using a helicopter; - Where the stringing operation crosses a public or private road or railway line, the necessary scaffolding/ protection measures must be installed to facilitate access. If, for any reason, such access has to be closed for any period(s) during development, the persons affected must be given 	Contractor	Method Statement; adherence to exclusion zones	Construction	ECO	Weekly	Site observations

<p>reasonable notice, in writing;</p> <ul style="list-style-type: none"> - No services (electrical distribution lines, telephone lines, roads, railways lines, pipelines fences etc.) must be damaged because of stringing operations. Where disruption to services is unavoidable, persons affected must be given reasonable notice, in writing; - Where stringing operations cross cultivated land, damage to crops is restricted to the minimum required to conduct stringing operations, and reasonable notice (10 work days minimum), in writing, must be provided to the landowner; - Necessary scaffolding protection measures must be installed to prevent damage to the structures supporting certain high value agricultural areas such as vineyards, orchards, nurseries. 						
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5.29 Socio-economic

<p>Impact management outcome: Socio-economic development is enhanced.</p>						
<p>Impact Management Actions</p>	<p>Implementation</p>			<p>Monitoring</p>		
	<p>Responsible person</p>	<p>Method of implementation</p>	<p>Timeframe for implementation</p>	<p>Responsible person</p>	<p>Frequency</p>	<p>Evidence of compliance</p>
<ul style="list-style-type: none"> - Develop and implement communication strategies to facilitate public participation; - Develop and implement a collaborative and constructive approach to conflict resolution as part of the external 	<p>Contractor</p>	<p>Landowner Agreements; Issues and Complaints</p>	<p>Construction</p>	<p>ECO</p>	<p>Monthly</p>	<p>Landowner Agreement; Issues and Complaints</p>

stakeholder engagement process; – Sustain continuous communication and liaison with neighboring owners and residents – Create work and training opportunities for local stakeholders; and – Where feasible, no workers, with the exception of security personnel, must be permitted to stay over-night on the site. This would reduce the risk to local farmers.		Register				Register
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5.30 Temporary closure of site

<p>Impact management outcome: Minimise the risk of environmental impact during periods of site closure greater than five days.</p>						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> – Bunds must be emptied (where applicable) and need to be undertaken in accordance with the impact management actions included in sections 5.17: management of hazardous substances and 5.18 workshop, equipment maintenance and storage; – Hazardous storage areas must be well ventilated; – Fire extinguishers must be serviced and accessible. Service records to be filed and audited at last service; – Emergency and contact details displayed must be displayed; – Security personnel must be briefed and have the facilities to 	Contractor	Method Statement	Construction – when applicable	ECO	Monthly – when applicable	Method Statement

<p>contact or be contacted by relevant management and emergency personnel;</p> <ul style="list-style-type: none"> - Night hazards such as reflectors, lighting, traffic signage etc. must have been checked; - Fire hazards identified and the local authority must have been notified of any potential threats e.g. large brush stockpiles, fuels etc.; - Structures vulnerable to high winds must be secured; - Wind and dust mitigation must be implemented; - Cement and materials stores must have been secured; - Toilets must have been emptied and secured; - Refuse bins must have been emptied and secured; - Drip trays must have been emptied and secured. 						
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5.31 Landscaping and rehabilitation

<p>Impact management outcome: Areas disturbed during the development phase are returned to a state that approximates the original condition.</p>						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - All areas disturbed by construction activities must be subject to landscaping and rehabilitation; All spoil and waste must be disposed to a registered waste site and certificates of disposal provided; - All slopes must be assessed for contouring, and to contour 	<p>Contractor</p>	<p>Method Statements; erosion protection; alien</p>	<p>Concurrent with Construction</p>	<p>ECO</p>	<p>Monthly</p>	<p>Adequately revegetated work areas; no erosion or</p>

<p>only when the need is identified in accordance with the Conservation of Agricultural Resources Act, No 43 of 1983</p> <ul style="list-style-type: none"> - All slopes must be assessed for terracing, and to terrace only when the need is identified in accordance with the Conservation of Agricultural Resources Act, No 43 of 1983; - Berms that have been created must have a slope of 1:4 and be replanted with indigenous species and grasses that approximates the original condition; - Where new access roads have crossed cultivated farmlands, that lands must be rehabilitated by ripping which must be agreed to by the holder of the EA and the landowners; - Rehabilitation of tower sites and access roads outside of farmland; - Indigenous species must be used for with species and/grasses to where it compliments or approximates the original condition; - Stockpiled topsoil must be used for rehabilitation (refer to Section 5.24: Stockpiling and stockpiled areas); - Stockpiled topsoil must be evenly spread so as to facilitate seeding and minimise loss of soil due to erosion; - Before placing topsoil, all visible weeds from the placement area and from the topsoil must be removed; - Subsoil must be ripped before topsoil is placed; - The rehabilitation must be timed so that rehabilitation can take place at the optimal time for vegetation establishment; - Where impacted through construction related activity, all sloped areas must be stabilised to ensure proper rehabilitation is effected and erosion is controlled; - Sloped areas stabilised using design structures or vegetation as specified in the design to prevent erosion of embankments. The contract design specifications must be 		eradication plan				invasive plant species
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<p>adhered to and implemented strictly;</p> <ul style="list-style-type: none"> - Spoil can be used for backfilling or landscaping as long as it is covered by a minimum of 150 mm of topsoil. - Where required, re-vegetation including hydro-seeding can be enhanced using a vegetation seed mixture as described below. A mixture of seed can be used provided the mixture is carefully selected to ensure the following: <ul style="list-style-type: none"> a) Annual and perennial plants are chosen; b) Pioneer species are included; c) Species chosen must be indigenous to the area with the seeds used coming from the area; d) Root systems must have a binding effect on the soil; e) The final product must not cause an ecological imbalance in the area 						
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6 ACCESS TO THE GENERIC EMPr

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

PART B: SECTION 2

7 SITE SPECIFIC INFORMATION AND DECLARATION

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

7.1.1 Details of the applicant: Bonsmara Solar PV (RF) (Pty) Ltd

Name of applicant: Mr. Michael Mangnall

Tel No: 083 785 1492

Fax No: N/A

Postal Address: PO Box 762, Wilderness, 7708

Physical Address: Third Floor, Sunclare Building,

21 Dreyer Street,

Claremont,

Cape Town

7.1.2 Details and expertise of the EAP:

Name of applicant: SiVEST

Tel No: 031 581 1579

Fax No: N/A

E-mail address: michelleg@sivest.com

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

7.1.3 Project name:

Proposed development of the Bonsmara On-site Switching / Collector Substations and associated 132kV Powerline, near Kroonstad in the Free State Province.

7.1.4 Description of the project:

Bonsmara Solar PV (RF) (Pty) Ltd is proposing to develop one (1) new 132 kilovolt (kV) overhead power line and 33/132kV on-site switching substation / collector substations required to connect the proposed Bonsmara Solar Energy Facility (SEF) (part of a separate EIA process / application with DFFE (**DFFE Reference Number: 14/12/16/3/3/2/2228**)) to the national grid. The proposed development is approximately 12 km south-east of Kroonstad in the Moqhaka Local Municipality and the Fezile Dabi District, in the Free State Province, South Africa. The proposed Bonsmara SEF is for a renewable energy generating facility by an Independent Power Producer (IPP), namely Bonsmara Solar PV (RF) (Pty) Ltd, and forms part of South Africa's National Renewable Energy Independent Power Producer Procurement Programme (REIPPPP). The overall objective of the proposed development is to feed the electricity generated by the Bonsmara SEF into the national grid. The grid

connection and 33/132kV on-site substation and switching substation (this application) requires a separate Environmental Authorisation (EA), in order to allow the EA as well as the proposed infrastructure to be handed over to Eskom.

The substations will include an Eskom portion (switching station) and an Independent Power Producer (IPP) portion (facility substation) hence the facility substations have been included in the respective SEF EIAs as well as in the associated grid connection infrastructure BA to allow handover to Eskom. The current applicant will remain in control of the low voltage components (more specifically the 33kV yard) of the facility substation, while the high voltage components (i.e. 132kV components) of the facility substation will likely be ceded to Eskom shortly after the completion of construction.

The following properties will be affected by the power line corridor and substations:

- Portion 0 of Farm Scheveningen No. 636
- Portion 1 of Farm Scheveningen No. 636
- Portion 0 of Farm Oslaagte No. 2564

The proposed grid infrastructure (i.e. the 132 kilovolt (kV) overhead power line and 33/132kV on-site switching substation / collector substation) requires an Environmental Authorisation (EA) from the provincial authority (i.e. the Free State Department of Economic, Small Business Development, Tourism and Environmental Affairs (DESTEA)). The environmental assessment for the proposed development will be conducted in terms of the EIA Regulations, 2014 (as amended) promulgated in terms of Chapter 5 of the NEMA. In terms of these regulations, the proposed overhead power lines and 33/132kV on-site substation / switching substations will be subject to a BA process in terms of NEMA (as amended) and Appendix 1 of the EIA Regulations, 2014 (as amended). All relevant legislation and guidelines will be consulted during the BA process and will be compiled with at all times.

The proposed grid connection infrastructure to serve the Bonsmara SEF (part of separate application) will include the following components:

- One (1) new 33/132kV on-site facility substation and switching substation, occupying an area of up to approximately 0.3ha each. The proposed substation will be a step-up substation and will include an Eskom portion and an IPP portion; and
- One (1) new 132kV overhead power line connecting the on-site substation to the switching substation, thereby feeding the electricity into the national grid. Power line towers being considered for this development include self-supporting suspension monopole or lattice structures for relatively straight sections of the line and angle strain towers where the route alignment bends to a significant degree. Maximum tower height is expected to be approximately 30m and the power line towers will be located 200-400m m apart. The servitude width of the proposed power line towers will be 31m (i.e. 15.5m on either side).

7.1.5 Project location:

The proposed development is approximately 12 km south-east of Kroonstad in the Moqhaka Local Municipality and the Fezile Dabi District, in the Free State Province, South Africa (**Figure 1** below).

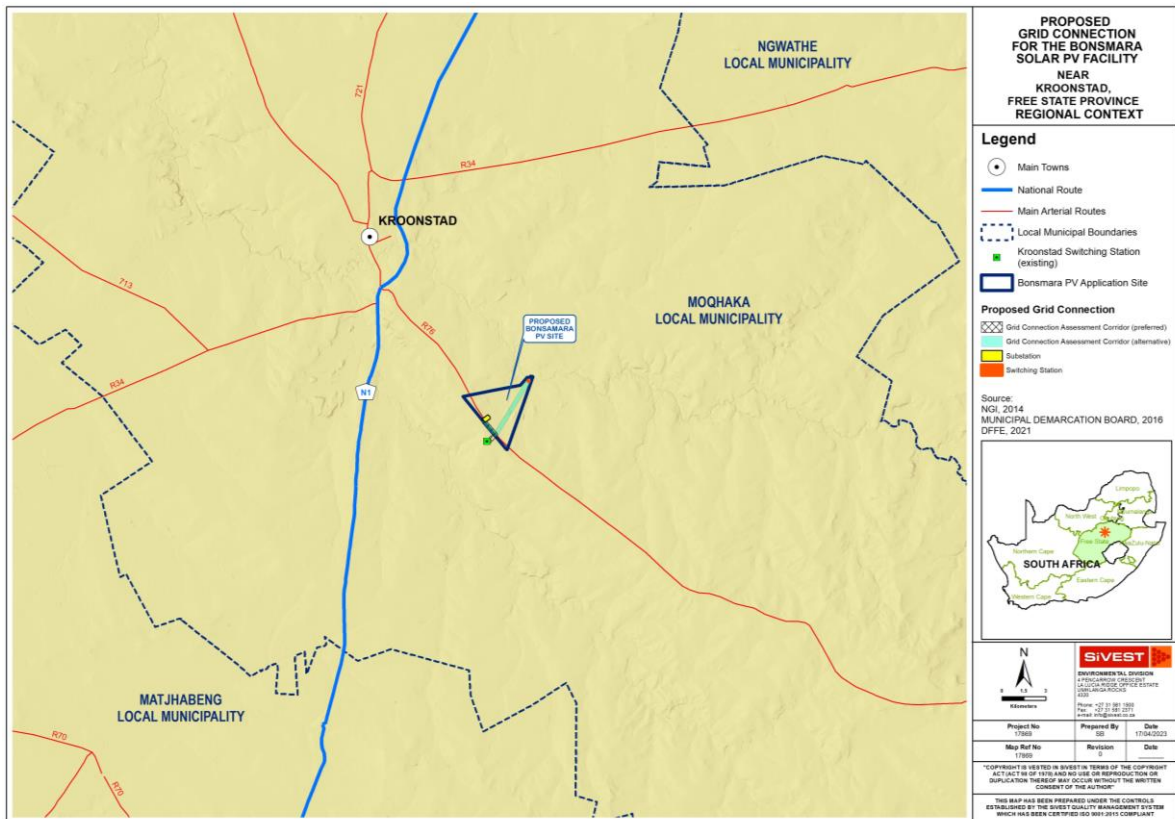


Figure 1: Bonsmara Regional Context

As this stage, it is proposed that a 132kV power line will connect the Bonsmara SEF on-site substation / switching substation to the national grid via the existing Kroonstad Switching Station or via a new proposed Switching Station. As such, two (2) power line corridor route alternatives are being proposed; and have been considered and assessed as part of the BA process for the grid connection infrastructure application. The proposed development (including both power line corridor route alternatives) will affect the following properties as tabulated below.

Table 2: Property Description

NO.	FARM NAME (if applicable)	FARM NUMBER (if applicable)	PORTION NAME	PORTION NUMBER	LATITUDE	LONGITUDE
1	Scheveningen	636	Portion 0 of Farm Scheveningen No. 636	0	Refer to table below.	
2	Scheveningen	636	Portion 1 of Farm Scheveningen No. 636	1	Refer to table below.	
3	Oslaagte	2564	Portion 0 of Farm Oslaagte No. 2564	0	Refer to table below.	

Table 3: GPS Co-ordinates of Power Line Corridor Route Alternatives

BONSMARA GRID CONNECTION

CENTRE LINE COORDINATES (DD MM SS.sss)				
CORRIDOR ALTERNATIVE	START POINT	MIDDLE POINT	END POINT	APPROX. LENGTH (KM)
PREFERRED POWERLINE	27°46'15.67"S	27°46'40.68"S	27°47'0.04"S	1,94
	27°18'30.25"E	27°18'49.83"E	27°18'34.56"E	
ALTERNATIVE POWERLINE	27°46'15.67"S	27°45'54.15"S	27°44'49.43"S	5,53
	27°18'30.25"E	27°19'33.50"E	27°20'21.43"E	

7.16 Preliminary technical specification of the overhead transmission and distribution:

The preliminary technical specifications pertaining to the proposed grid connection infrastructure are provided below:

- **Length** – The length of the preferred and alternative power line routes is approximately 1.94km and 5.53km, respectively.
- **Tower parameters:**
 - **Number and type of towers** – to be confirmed when the layout and EMPr is finalised.
 - **Tower spacing (mean and maximum)** – At this stage, it is anticipated that the power line towers will be located approximately 200 – 400m apart.
 - **Tower height (lowest, mean and height)** – The maximum height of the overhead power lines will be approximately 30m.
 - **Conductor attachment height (mean)** – to be confirmed when the layout and EMPr is finalised.
 - **Minimum ground clearance** – to be confirmed when the layout and EMPr is finalised.

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. raptor nest, threatened plant species, archaeological site, etc. Sensitivity maps shall identify features both within the planned working area and any known sensitive features in the surrounding landscape. The overhead transmission and distribution profile shall be illustrated at an appropriate resolution to enable fine scale interrogation. It is recommended that <20 km of overhead transmission and distribution length is illustrated per page in A3 landscape format. Where considered appropriate, photographs of sensitive features in the context of tower positions shall be used.

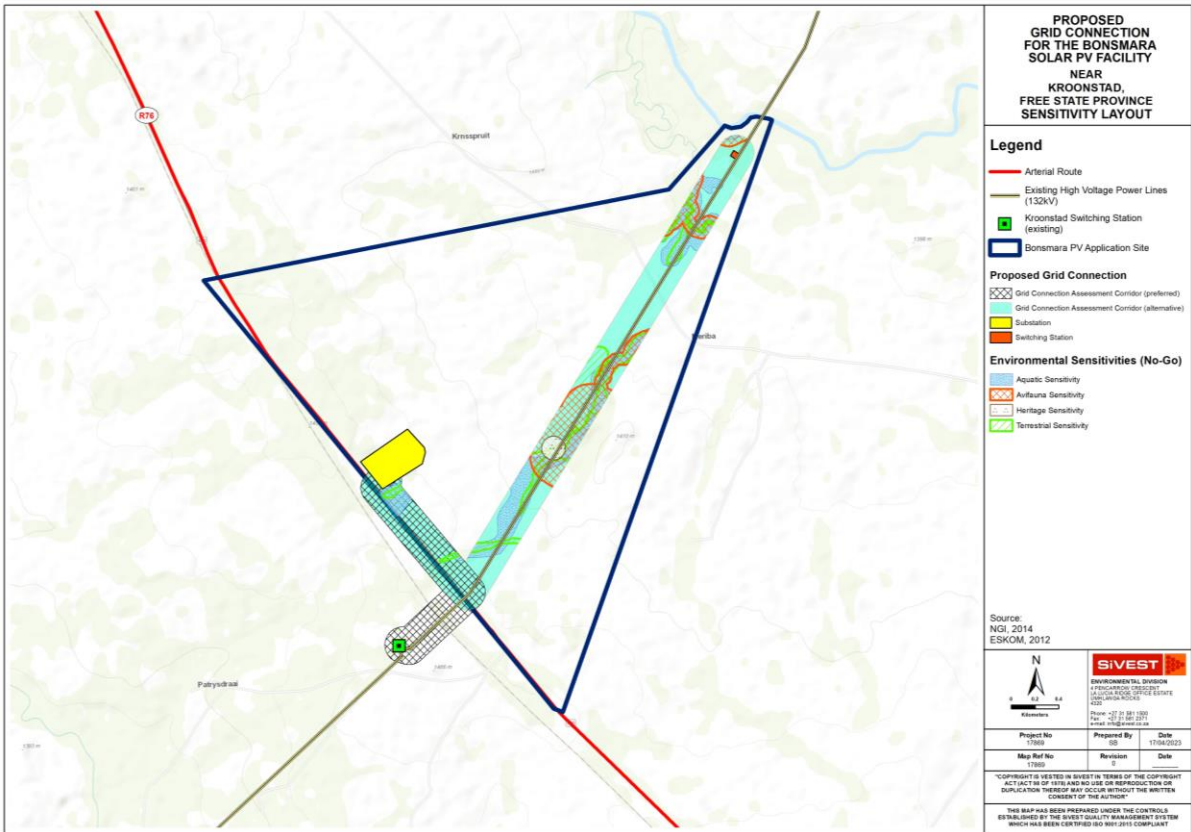
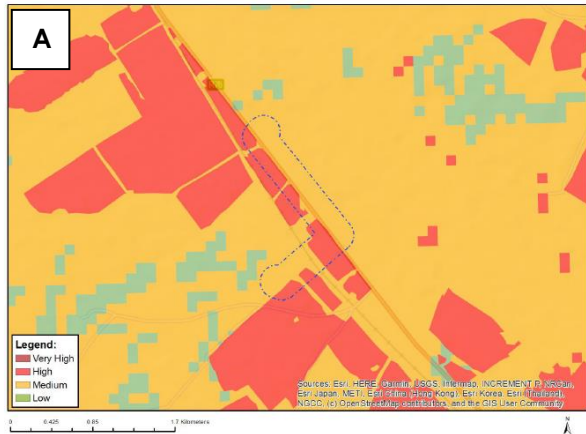


Figure 2: Preferred and alternative power line corridor routes in relation to the identified environmentally sensitive areas

MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY



MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY



Figure 3: Preferred (A) and alternative (B) power line corridor routes in relation to the Agricultural Theme Sensitivity (DFFE Screening Tool)

MAP OF RELATIVE ANIMAL SPECIES THEME SENSITIVITY



MAP OF RELATIVE ANIMAL SPECIES THEME SENSITIVITY

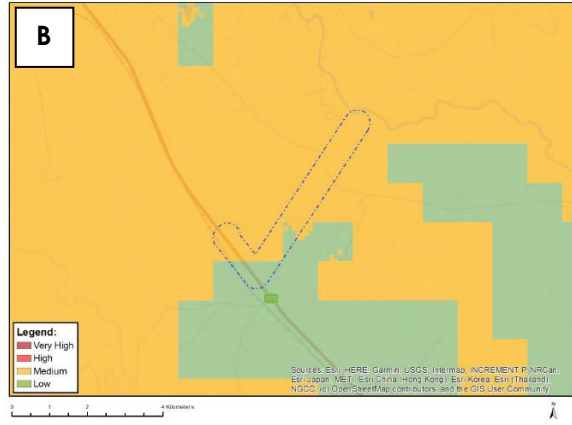


Figure 4: Preferred (A) and alternative (B) power line corridor routes in relation to the Animal Species Theme Sensitivity (DFFE Screening Tool)

MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY



MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY

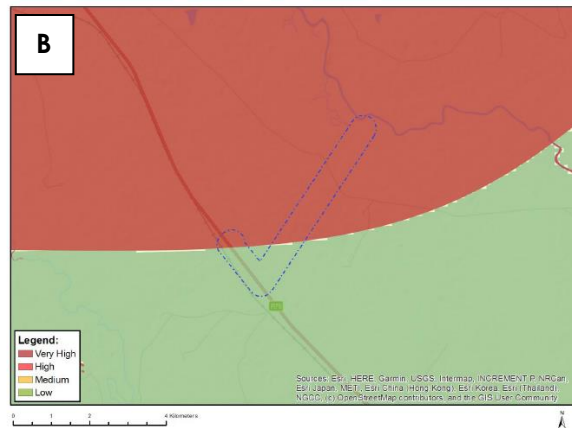
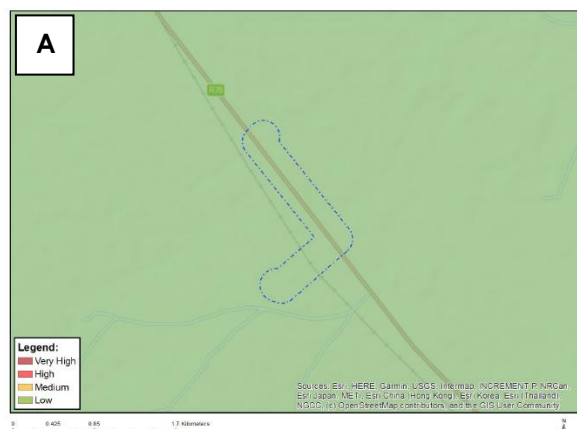


Figure 5: Preferred (A) and alternative (B) power line corridor routes in relation to the Aquatic Biodiversity Theme Sensitivity (DFFE Screening Tool)

MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY



MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY

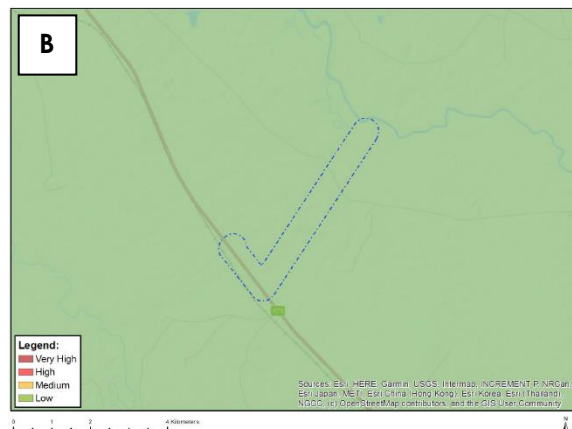
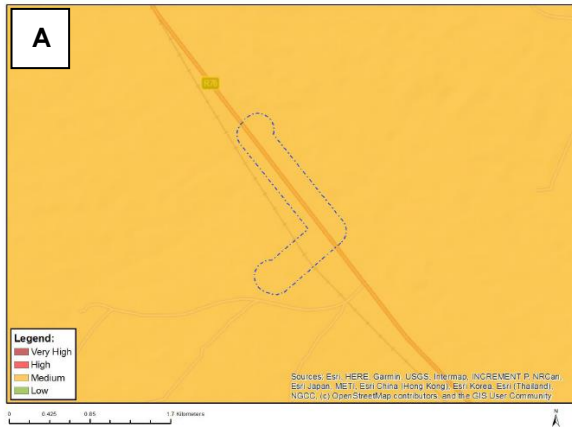


Figure 6: Preferred (A) and alternative (B) power line corridor routes in relation to the Archaeological and Cultural Heritage Theme Sensitivity (DFFE Screening Tool)

MAP OF RELATIVE CIVIL AVIATION THEME SENSITIVITY



MAP OF RELATIVE CIVIL AVIATION THEME SENSITIVITY

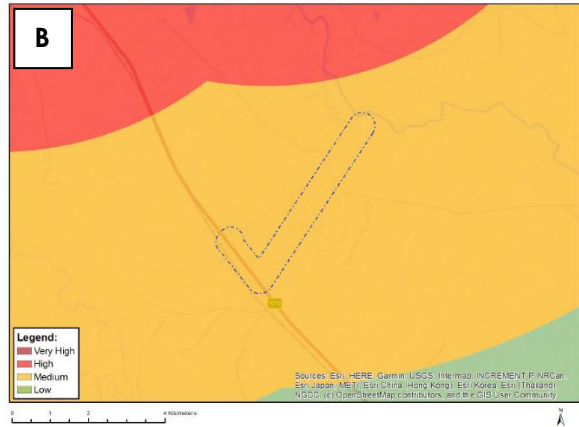
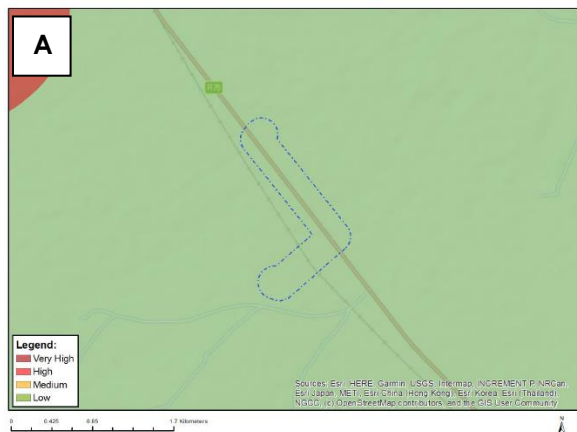


Figure 7: Preferred (A) and alternative (B) power line corridor routes in relation to the Civil Aviation Theme Sensitivity (DFFE Screening Tool)

MAP OF RELATIVE DEFENCE THEME SENSITIVITY

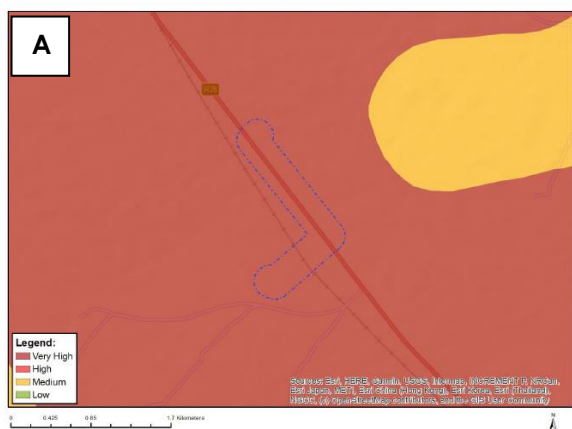


MAP OF RELATIVE DEFENCE THEME SENSITIVITY



Figure 8: Preferred (A) and alternative (B) power line corridor routes in relation to the Defence Theme Sensitivity (DFFE Screening Tool)

MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY



MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY

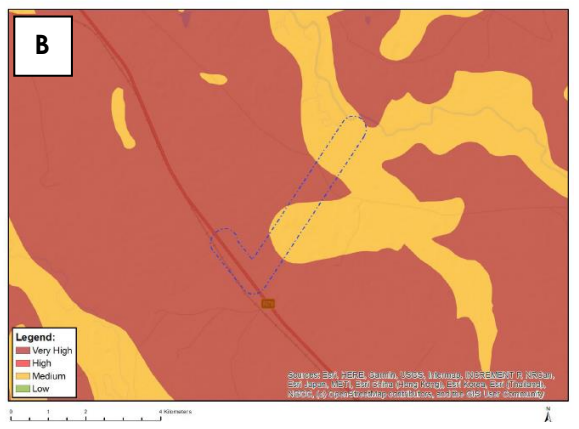
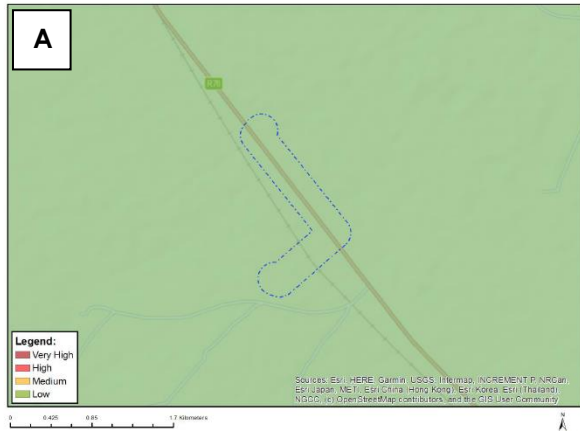


Figure 9: Preferred (A) and alternative (B) power line corridor routes in relation to the Paleontology Theme Sensitivity (DFFE Screening Tool)

MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY



MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY

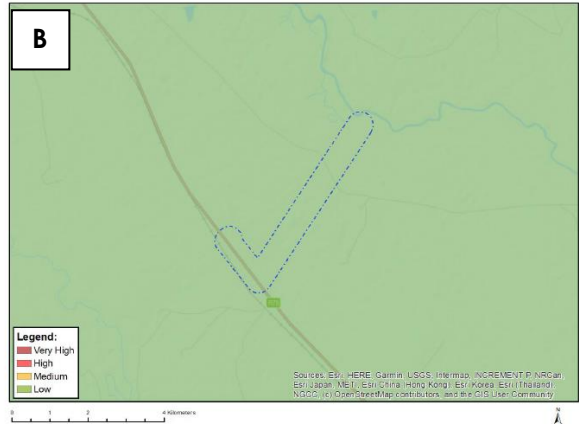


Figure 10: Preferred (A) and alternative (B) power line corridor routes in relation to the Plant Species Theme Sensitivity (DFFE Screening Tool)

MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY



MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY



Figure 11: Preferred (A) and alternative (B) power line corridor routes in relation to the Terrestrial Biodiversity Theme Sensitivity (DFFE Screening Tool)

7.3 Sub-section 3: Declaration

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

Signature Proponent/applicant/ holder of EA

Date:



06/05/2023

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

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

PART C

8 SITE SPECIFIC ENVIRONMENTAL ATTRIBUTES

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

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

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

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

- Agricultural and Soils Compliance Statement
- Aquatic / Freshwater Impact Assessment
- Avifaunal Impact Assessment;
- Terrestrial Biodiversity Impact Assessment
- Desktop Geotechnical Impact Assessment;
- Social Impact Assessment
- Heritage Impact Assessment (including Palaeontology, Archaeology & Cultural Landscape);
- Visual Impact Assessment.

The mitigation measures provide by the Specialists through the Impact Assessment process are included below. Pre-construction walk-through of the approved development footprint will be conducted to ensure that sensitive habitats and species are avoided where possible.

8.1 Pre-Construction Phase

8.1.1. Aquatic

This section deals with the issues relative to the aquatic biodiversity during the pre-construction phase.

Aspect/ Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
Loss of species of special concern.	Develop and implement a Rehabilitation and Monitoring plan post Environmental Authorisation. This plan must be developed following the finalization of the tower positions and access tracks and walk down has been completed. This plan should include relocation of suitable plant species, but more important protect any topsoil stores and promote the collection of vegetative material and propagules / seed to assist with the revegetation of the site.	Developer and Aquatic Specialist	Micrositing, Rehab and Monitoring Plan development . Species of special concern relocation if required.	Impact avoidance through micrositing and or species relocation, coupled to rehabilitation of disturbed areas.	Once - Pre-commencement
Damage or loss of riparian systems, ephemeral watercourses and wetland systems in the construction phase.	<ol style="list-style-type: none"> 1. A pre-construction walkthrough with an aquatic specialist is recommended and they can assist with the development of the stormwater management plan and Aquatic Rehabilitation and Monitoring plan, coupled to micro-siting of the final layout. 2. All alien plant re-growth, which is currently low within the greater region must be monitored and should it occur, these plants must be eradicated within the project footprints. 3. Where roads and crossings are upgraded, the following applies: <ul style="list-style-type: none"> • It is recommended that no new tracks or towers / pylons are placed / constructed within any of the delineated aquatic zones. 	Developer / Engineer and Aquatic Specialist	Walkdowns, and stormwater management planning	Impact avoidance through micrositing and development of suitable stormwater management and designs that prevent impedance or diversion of surface water.	Pre-commencement and construction phase

Aspect/ Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
	<ol style="list-style-type: none"> 4. River levels, regardless of the current state of the river / watercourse must be reinstated thus preventing any impoundments from being formed. 5. The related designs must be assessed by an aquatic specialist during a pre-construction walkdown. 6. Where large cut and fill areas are required these must be stabilised and rehabilitated during the construction process, to minimise erosion and sedimentation. 7. Suitable stormwater management systems must be installed along roads and other areas and monitored during the first few months of use. 8. Any erosion / sedimentation must be resolved through whatever additional interventions maybe necessary (i.e., extension, energy dissipaters, spreaders, etc). 9. A detailed monitoring plan must be developed in the pre-construction phase by an aquatic specialist, where any delineated system occurs within 50m of existing crossings. 				

8.1.2. Terrestrial

This section deals with the issues relative to the terrestrial biodiversity during the pre-construction phase.

Aspect/ Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
Vegetation loss	<ol style="list-style-type: none"> 1. Blanket clearing of vegetation must be limited to the site. No clearing outside of footprint to take place. 	Authorisation Holder	Adhere to Impact Management	To minimise vegetation loss.	Pre-commencement

Aspect/ Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
	<ol style="list-style-type: none"> Topsoil must be striped and stockpiled separately during site preparation and replaced on completion where revegetation will take place. Any site camps and laydown areas requiring clearing must be located within already disturbed areas away from watercourses. 		Actions		
Flora species loss	<ol style="list-style-type: none"> A flora search and rescue is recommended before commencement. Respective permits to be obtained beforehand. 	Authorisation Holder	Adhere to Impact Management Actions	To minimise flora species loss.	Pre-commencement
Erosion	<ol style="list-style-type: none"> Suitable measures must be implemented in areas that are susceptible to erosion. Areas must be rehabilitated, and a suitable cover crop planted once construction is completed. Topsoil must be stripped and stockpiled separately and replaced on completion. If natural vegetation re-establishment does not occur, a suitable grass must be applied. 	Authorisation Holder	Adhere to Impact Management Actions	To minimise erosion and erosion risk.	Pre-commencement, Quarterly and on completion
Ecological process disruptions	Blanket clearing of vegetation must be limited to the development footprint, and the area to be cleared must be demarcated before any clearing commences.	Authorisation Holder	Adhere to Impact Management Actions	To minimise disruptions to ecological processes.	Pre-commencement
Aquatic and riparian process disruption	<ol style="list-style-type: none"> Suitable structures to be constructed at watercourse crossings that do not alter flows. Stormwater discharge into watercourses to be protected against erosion. 	Authorisation Holder	Adhere to Impact Management Actions	To minimise loss of riparian habitat.	Pre-commencement, ongoing during construction in aquatic habitat

Aspect/ Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
Faunal habitat loss	<ol style="list-style-type: none"> 1. Blanket clearing of vegetation must be limited to the footprint. 2. It is important that clearing activities are kept to the minimum and take place in a phased manner, where applicable. This allows any smaller animal species to move into safe areas and prevents wind and water erosion of the cleared areas. 	Authorisation Holder	Adhere to Impact Management Actions	To minimise faunal habitat loss.	Pre-commencement
Faunal process disruption	<ol style="list-style-type: none"> 1. The habitats and microhabitats present on the project site are not unique and are widespread in the general area, hence the local impact associated with the footprint would be of low significance if mitigation measures are adhered to. 2. Small mammals within the habitat on and around the affected area are generally mobile and likely to be transient to the area. They will most likely vacate the area once construction commences. As with all construction sites there is a latent risk that there will be some accidental mortalities. Specific measures are made to reduce this risk. The risk of species of special concern is low, and it is unlikely that there will be any impact to populations of such species because of the activity. 3. Reptiles such as lizards are less mobile compared to mammals, and some mortalities could arise. It is recommended that a faunal 	Authorisation Holder	Adhere to Impact Management Actions	To minimise disruptions of faunal ecological processes.	Pre-commencement

Aspect/ Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
	<p>search and rescue be conducted before construction commences, although experience has shown that there could still be some mortalities as these species are mobile and may thus move onto site once construction is underway. A reptile handler should be on call for such circumstances.</p> <p>4. Should any amphibian migrations occur between wetland areas during construction, appropriate measures (including temporarily suspending works in the affected area) should be implemented.</p>				
Faunal species loss	<ol style="list-style-type: none"> 1. A pre-commencement faunal search and rescue is recommended. 2. Respective permits to be obtained beforehand. 3. No animals are to be harmed or killed during the course of operations. 4. Workers are NOT allowed to snare any faunal species. 	Authorisation Holder	Adhere to Impact Management Actions	To minimise faunal species loss.	Pre-commencement, quarterly during construction

8.1.3. Agricultural

This section deals with the issues relative to the agricultural landscape during the pre-construction phase.

Impact	Mitigation / Management Objectives and Outcomes	Mitigation / Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
Aspect: Protection of soil resources					
Erosion	That disturbance and existence of hard surfaces causes no erosion on or downstream of the site.	Design an effective system of storm water run-off control, where it is required - that is at any points where run-off water might accumulate. The system must effectively collect and safely disseminate any run-off water from all accumulation points and it must prevent any potential down slope erosion.	Ensure that the storm water run-off control is included in the engineering design.	Once-off during the design phase.	Holder of the EA

8.1.4. Social

This section deals with the issues relative to the social landscape during the pre-construction phase.

Aspect / Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
Maximise local employment and skills development opportunities associated with the construction phase.	The developer should aim to employ as many low-skilled and semi-skilled workers from the local area as possible. This should also be made a requirement for all contractors.	The Developer & EPC Contractors	<ul style="list-style-type: none"> Employ local contractors that are compliant with Broad Based Black Economic Empowerment (BBBEE) criteria. Adopt a local employment policy to maximise the opportunities made available to the local labour force as far as possible (preference to Local Municipality). Consideration must be given to 	<ul style="list-style-type: none"> Employment and business policy document that sets out local employment and targets completed before construction phase commences. The majority of 	Pre-construction and construction phase

Aspect / Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
			<p>women during the recruitment process.</p> <ul style="list-style-type: none"> • Set realistic local recruitment targets for the construction phase (preference to Local Municipality). • Training and skills development programmes must be initiated prior to the commencement of the construction phase. 	<p>employed semi and unskilled labour are from the local area or local municipality; and</p> <ul style="list-style-type: none"> • Training and skills development programme undertaken prior to the commencement of the construction phase. 	
<p>Maximise local economic multiplier effect during the construction phase.</p>	<p>1. Increase the procurement of goods and services, especially within the local economy.</p>	<p>The Developer & EPC Contractors</p>	<ul style="list-style-type: none"> • A local procurement policy to be adopted to maximise the benefit to the local economy, where feasible. • Develop a database of local companies, specifically Historically Disadvantaged (HD) companies which qualify as potential service providers (e.g. construction companies, security companies, catering companies, waste collection companies, transportation companies etc.) prior to the tender process and invite them to bid for project-related work where applicable. 	<ul style="list-style-type: none"> • Local procurement policy is adopted. • Local goods and services are purchased from local suppliers, where feasible (Local Municipality). 	<p>Pre-construction and construction phase</p>

Aspect / Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/Frequency
			<ul style="list-style-type: none"> Source as many goods and services as possible from the local area (Local Municipality). Engage with local authorities and business organisation to investigate the possibility. 		
<p>To avoid or reduce the possibility of the increase in crime and safety and security issues during the construction phase.</p>	<p>To avoid or minimise the potential impact on local communities and their livelihoods.</p>	<p>EPC Contractor</p>	<ul style="list-style-type: none"> Access in and out of the construction camp should be strictly controlled by a security company. The appointed EPC contractor must appoint a security company and appropriate security procedures are to be implemented to limit access to the site and surrounding areas. Open fires on site for heating, smoking or cooking are not allowed, except in designated areas. The contractor must provide adequate firefighting equipment on site and provide firefighting training to selected construction staff. A comprehensive employee induction programme must be developed and utilised to cover land access protocols, fire 	<ul style="list-style-type: none"> Employee induction programme, covering land access protocols, fire management and road safety. The construction site is appropriately secured with a controlled access system. Security company appointed and security procedures implemented. 	<p>Pre-construction and construction phase</p>

Aspect / Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
			<p>management and road safety.</p> <ul style="list-style-type: none"> A grievance mechanism should be implemented whereby local landowners can express any complaints or grievances with the construction process. 		
<p>To avoid or reduce traffic disruptions and movement patterns of local community during the construction phase.</p>	<p>To avoid or minimise the potential impacts associated with traffic and movement patterns on local communities.</p>	<p>The Developer & EPC contractor</p>	<ul style="list-style-type: none"> All vehicles must be road worthy, and drivers must be qualified, obey traffic rules, follow speed limits and made aware of the potential road safety issues. Heavy vehicles should be inspected regularly to ensure their road safety worthiness. Implement penalties for reckless driving for the drivers of heavy vehicles as a way to enforce compliance to traffic rules. Any damage / wear and tear caused by construction related traffic to the roads must be repaired. Provide adequate and strategically placed traffic warning signs and control measures along the regional and secondary roads to warn road users of the construction activities taking place, displaying road safety messages 	<ul style="list-style-type: none"> Vehicles are roadworthy, inspected regularly and speed limits are adhered to. Traffic warning signs along regional and secondary roads, also illuminated at night appointed and security procedures implemented. Community liaison officer available for community grievances and communication channel. 	<p>Pre-construction and construction phase</p>

Aspect / Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/Frequency
			<p>and speed limits for the duration of the construction phase. Traffic warning signs must also be well illuminated at night.</p> <ul style="list-style-type: none"> • A comprehensive employee induction programme that covers land access protocols and road safety must be prepared. • Appoint a Community Liaison Officer and a create method of communication whereby local community members can express any complaints or grievances 		
<p>Reduce the pressure on economic and social infrastructure and social conflicts from an influx of a non-local workforce and jobseekers during the construction phase.</p>	<p>To avoid or minimise the potential impact on economic and social infrastructure and reduce/eliminate social conflicts.</p>	<p>The Developer & EPC Contractor</p>	<ul style="list-style-type: none"> • Where possible, make it a requirement for contractors to implement a 'locals first' policy. It is suggested that advertisement for construction employment opportunities be placed in a local newspaper, especially for semi and low-skilled job categories (preference to Municipality). • Enhance employment opportunities for the immediate locals this is not possible, then the broader focus areas should be considered for sourcing workers such as the Local Municipality • Prior to construction commencing, 	<ul style="list-style-type: none"> • Percentage of the workers employed during construction come from local communities. • Community liaison officer available for community grievances and communication channel. 	<p>Pre-construction and construction phase</p>

Aspect / Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
			<p>representatives from the local community e.g., ward councillor, surrounding landowners should be informed of details of the construction schedule and exact size of the workforce.</p> <ul style="list-style-type: none"> • Recruitment of temporary workers at the gates of the development should not be allowed. A recruitment office located in town with a Community Liaison officer should be established to deal with jobseekers. • Have clear rules and regulations for access to the proposed site to control loitering. • A Community Liaison Officer should be appointed. A method of communication should be implemented whereby procedures to lodge complaints are set out in order for the local community to express any complaints or grievances with the construction process. 		
To avoid or minimize the potential impacts of	To avoid and or minimise the potential noise and dust impacts associated with construction activities.	The Developer and EPC contractor	<ul style="list-style-type: none"> • Implement dust suppression measures for heavy vehicles such as wetting the roads on a regular basis and ensuring that vehicles 	<ul style="list-style-type: none"> • Dust suppression measures implemented for all heavy vehicles 	Pre-construction and construction

Aspect / Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
noise and dust from construction activities during the construction phase.			<p>used to transport sand and building materials are fitted with tarpaulins or covers.</p> <ul style="list-style-type: none"> • Ensure all vehicles are road worthy, and that drivers are qualified and are made aware of the potential noise and dust issues. • Ensure that drivers adhere to speed limits. • A Community Liaison Officer should be appointed. A method of communication should be implemented whereby procedures to lodge complaints are set out in order for the local community to express any complaints or grievances with the construction process. 	<p>that require such measures during the construction phase.</p> <ul style="list-style-type: none"> • Enforcement of strict speeding limits. • Road worthy certificates in place for all vehicles. • Community liaison officer available for community grievances and communication. 	phase.

8.2 Construction Phase

8.2.1. Aquatic

This section deals with the issues relative to the aquatic biodiversity during the construction phase.

Aspect/ Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
Damage or loss of riparian systems,	1. All alien plant re-growth, which is currently low within the greater region must be monitored and should it occur, these plants must be	Developer / Engineer and Aquatic	Walkdowns, and stormwater	Impact avoidance through micro-siting and development of	Pre-commencement and

Aspect/ Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
ephemeral watercourses and wetland systems in the construction phase.	<p>eradicated within the project footprints.</p> <ol style="list-style-type: none"> 2. Where roads and crossings are upgraded, the following applies: <ul style="list-style-type: none"> • It is recommended that no new tracks or towers / pylons are placed / constructed within any of the delineated aquatic zones. 3. River levels, regardless of the current state of the river / watercourse must be reinstated thus preventing any impoundments from being formed. 4. Where large cut and fill areas are required these must be stabilised and rehabilitated during the construction process, to minimise erosion and sedimentation. 5. Suitable stormwater management systems must be installed along roads and other areas and monitored during the first few months of use. 6. Any erosion / sedimentation must be resolved through whatever additional interventions maybe necessary (i.e., extension, energy dissipaters, spreaders, etc). 	Specialist	management planning	suitable stormwater management and designs that prevent impedance or diversion of surface water	construction phase
Potential impact on localised surface water quality (construction materials and	<ol style="list-style-type: none"> 1. All liquid chemicals including fuels and oil, must be stored in with secondary containment (bunds or containers or berms) that can contain a leak or spill. Such facilities must be inspected routinely and must have the suitable PPE and spill kits needed to contain likely worst-case scenario leak or spill in that facility, safely. 	Developer, Contractor and ECO	Site monitoring of plant and any works activities	Minimise spills through awareness raising, monitoring and rapid clean up if spills occur.	Continuous

Aspect/ Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
fuel storage facilities) during the construction and decommissioning phases.	<ol style="list-style-type: none"> 2. Washing and cleaning of equipment must be done in designated wash bays, where rinse water is contained in evaporation/sedimentation ponds (to capture oils, grease cement and sediment). 3. Mechanical plant and bowsers must not be refuelled or serviced within 100m of a river channel. 4. All construction camps, lay down areas, wash bays, batching plants or areas and any stores should be more than 50m from any demarcated watercourses. 5. Littering and contamination associated with construction activity must be avoided through effective construction camp management. 6. No stockpiling should take place within or near a watercourse. 7. All stockpiles must be protected and located in flat areas where run-off will be minimised and sediment recoverable. 				

8.2.2. Terrestrial

This section deals with the issues relative to the terrestrial biodiversity during the construction phase.

Aspect/ Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
Alien Invasive Species	<ol style="list-style-type: none"> 1. Alien trees and weeds must be removed from the site as per CARA/NEMBA requirements. 2. A suitable weed management strategy to be 	Authorisation Holder	Adhere to Impact Management	To minimise regeneration of alien species and weeds	Quarterly and on completion

Aspect/ Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
Invasion	<p>implemented in construction and operation phases.</p> <p>3. After clearing and construction is completed, an appropriate cover may be required, should natural re-establishment of grasses not take place in a timely manner along road verges. This will also minimise dust.</p>		Actions		
Erosion	<p>1. Suitable measures must be implemented in areas that are susceptible to erosion. Areas must be rehabilitated, and a suitable cover crop planted once construction is completed.</p> <p>2. Topsoil must be stripped and stockpiled separately and replaced on completion.</p> <p>3. If natural vegetation re-establishment does not occur, a suitable grass must be applied.</p>	Authorisation Holder	Adhere to Impact Management Actions	To minimise erosion and erosion risk.	Pre-commencement, Quarterly and on completion
Aquatic and riparian process disruption	<p>1. Suitable structures to be constructed at watercourse crossings that do not alter flows.</p> <p>2. Stormwater discharge into watercourses to be protected against erosion.</p>	Authorisation Holder	Adhere to Impact Management Actions	To minimise loss of riparian habitat.	Pre-commencement, ongoing during construction in aquatic habitat
Faunal species loss	<p>1. A pre-commencement faunal search and rescue is recommended.</p> <p>2. Respective permits to be obtained beforehand.</p> <p>3. No animals are to be harmed or killed during the course of operations.</p> <p>4. Workers are NOT allowed to snare any faunal species.</p>	Authorisation Holder	Adhere to Impact Management Actions	To minimise faunal species loss.	Pre-commencement, quarterly during construction

8.2.3. Agricultural

This section deals with the issues relative to the agricultural landscape during the construction phase.

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

Impact	Mitigation / management objectives and outcomes	Mitigation / management actions	Monitoring		
			Methodology	Frequency	Responsibility
		rehabilitation. During rehabilitation, the stockpiled topsoil must be evenly spread over the entire disturbed surface.	replacement. Check that topsoil covers the entire disturbed area.		

8.2.4. Geotechnical

This section deals with the issues relative to the geotechnical landscape during the construction phase.

Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
Aspect: Disturbance / displacement / removal of soil and rock.					
Ground disturbance during access road construction, foundation earthworks, platform earthworks.	<ol style="list-style-type: none"> 1. Design access roads and pile locations to minimise earthworks and levelling based on high resolution ground contour information. 2. Correct topsoil and spoil management. 	Developer	Adhere to Impact Management Actions	To minimize disturbance, displacement and removal of soil and rock	Ongoing throughout construction phase
Aspect: Soil erosion					
Increased erosion due to vegetation clearing, alteration of natural drainage.	<ol style="list-style-type: none"> 1. Avoid development in preferential drainage paths 2. Appropriate engineering design of road drainage and watercourse crossings 3. Temporary berms and drainage channels to divert surface runoff where needed 4. Landscape and rehabilitate disturbed areas timeously (e.g. regressing) 5. Use designated access and laydown areas only to minimise disturbance to surrounding 	Developer	Adhere to Impact Management Actions	To minimize erosion as a result of vegetation clearance	Ongoing throughout construction phase

Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
	areas				

8.2.5. Social

This section deals with the issues relative to the social landscape during the construction phase.

Aspect / Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
Maximise local employment and skills development opportunities associated with the construction phase.	The developer should aim to employ as many low-skilled and semi-skilled workers from the local area as possible. This should also be made a requirement for all contractors.	The Developer & EPC Contractors	<ul style="list-style-type: none"> Employ local contractors that are compliant with Broad Based Black Economic Empowerment (BBBEE) criteria. Adopt a local employment policy to maximise the opportunities made available to the local labour force as far as possible (preference to Local Municipality). Consideration must be given to women during the recruitment process. Set realistic local recruitment targets for the construction phase (preference to Local Municipality). Training and skills development programmes must be initiated prior to the commencement of the construction phase. 	<ul style="list-style-type: none"> Employment and business policy document that sets out local employment and targets completed before construction phase commences. The majority of employed semi and unskilled labour are from the local area or local municipality; and Training and skills development programme undertaken prior to the commencement of 	Pre-construction and construction phase

Aspect / Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
Maximise local economic multiplier effect during the construction phase.	2. Increase the procurement of goods and services, especially within the local economy.	The Developer & EPC Contractors	<ul style="list-style-type: none"> • A local procurement policy to be adopted to maximise the benefit to the local economy, where feasible. • Develop a database of local companies, specifically Historically Disadvantaged (HD) companies which qualify as potential service providers (e.g. construction companies, security companies, catering companies, waste collection companies, transportation companies etc.) prior to the tender process and invite them to bid for project-related work where applicable. • Source as many goods and services as possible from the local area (Local Municipality). Engage with local authorities and business organisation to investigate the possibility. 	<p>the construction phase.</p> <ul style="list-style-type: none"> • Local procurement policy is adopted. • Local goods and services are purchased from local suppliers, where feasible (Local Municipality). 	Pre-construction and construction phase
To avoid or reduce the possibility of the increase in crime and	To avoid or minimise the potential impact on local communities and their livelihoods.	EPC Contractor	<ul style="list-style-type: none"> • Access in and out of the construction camp should be strictly controlled by a security company. • The appointed EPC contractor 	<ul style="list-style-type: none"> • Employee induction programme, covering land access protocols, 	Pre-construction and construction phase

Aspect / Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/Frequency
safety and security issues during the construction phase.			<p>must appoint a security company and appropriate security procedures are to be implemented to limit access to the site and surrounding areas.</p> <ul style="list-style-type: none"> • Open fires on site for heating, smoking or cooking are not allowed, except in designated areas. • The contractor must provide adequate firefighting equipment on site and provide firefighting training to selected construction staff. • A comprehensive employee induction programme must be developed and utilised to cover land access protocols, fire management and road safety. • A grievance mechanism should be implemented whereby local landowners can express any complaints or grievances with the construction process. 	<p>fire management and road safety.</p> <ul style="list-style-type: none"> • The construction site is appropriately secured with a controlled access system. • Security company appointed and security procedures implemented. 	
To avoid or reduce traffic disruptions and movement	To avoid or minimise the potential impacts associated with traffic and movement patterns on local communities.	The Developer & EPC contractor	<ul style="list-style-type: none"> • All vehicles must be road worthy, and drivers must be qualified, obey traffic rules, follow speed limits and made aware of the potential road safety issues. 	<ul style="list-style-type: none"> • Vehicles are roadworthy, inspected regularly and speed limits are 	Pre-construction and construction phase

Aspect / Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
patterns of local community during the construction phase.			<ul style="list-style-type: none"> • Heavy vehicles should be inspected regularly to ensure their road safety worthiness. • Implement penalties for reckless driving for the drivers of heavy vehicles as a way to enforce compliance to traffic rules. • Any damage / wear and tear caused by construction related traffic to the roads must be repaired. • Provide adequate and strategically placed traffic warning signs and control measures along the regional and secondary roads to warn road users of the construction activities taking place, displaying road safety messages and speed limits for the duration of the construction phase. Traffic warning signs must also be well illuminated at night. • A comprehensive employee induction programme that covers land access protocols and road safety must be prepared. • Appoint a Community Liaison Officer and a create method of communication whereby local 	<p>adhered to.</p> <ul style="list-style-type: none"> • Traffic warning signs along regional and secondary roads, also illuminated at night appointed and security procedures implemented. • Community liaison officer available for community grievances and communication channel. 	

Aspect / Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
<p>Reduce the pressure on economic and social infrastructure and social conflicts from an influx of a non-local workforce and jobseekers during the construction phase.</p>	<p>To avoid or minimise the potential impact on economic and social infrastructure and reduce/eliminate social conflicts.</p>	<p>The Developer & EPC Contractor</p>	<p>community members can express any complaints or grievances</p> <ul style="list-style-type: none"> • Where possible, make it a requirement for contractors to implement a 'locals first' policy. It is suggested that advertisement for construction employment opportunities be placed in a local newspaper, especially for semi and low-skilled job categories (preference to Municipality). • Enhance employment opportunities for the immediate locals this is not possible, then the broader focus areas should be considered for sourcing workers such as the Local Municipality • Prior to construction commencing, representatives from the local community e.g., ward councillor, surrounding landowners should be informed of details of the construction schedule and exact size of the workforce. • Recruitment of temporary workers at the gates of the development should not be allowed. A recruitment office located in town with a Community Liaison officer 	<ul style="list-style-type: none"> • Percentage of the workers employed during construction come from local communities. • Community liaison officer available for community grievances and communication channel. 	<p>Pre-construction and construction phase</p>

Aspect / Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
			<p>should be established to deal with jobseekers.</p> <ul style="list-style-type: none"> • Have clear rules and regulations for access to the proposed site to control loitering. • A Community Liaison Officer should be appointed. A method of communication should be implemented whereby procedures to lodge complaints are set out in order for the local community to express any complaints or grievances with the construction process. 		
<p>To avoid or minimize the potential impacts of noise and dust from construction activities during the construction phase.</p>	<p>To avoid and or minimise the potential noise and dust impacts associated with construction activities.</p>	<p>The Developer and EPC contractor</p>	<ul style="list-style-type: none"> • Implement dust suppression measures for heavy vehicles such as wetting the roads on a regular basis and ensuring that vehicles used to transport sand and building materials are fitted with tarpaulins or covers. • Ensure all vehicles are road worthy, and that drivers are qualified and are made aware of the potential noise and dust issues. • Ensure that drivers adhere to speed limits. • A Community Liaison Officer should be appointed. A method of 	<ul style="list-style-type: none"> • Dust suppression measures implemented for all heavy vehicles that require such measures during the construction phase. • Enforcement of strict speeding limits. • Road worthy certificates in place for all vehicles. 	<p>Pre-construction and construction phase.</p>

Aspect / Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
			communication should be implemented whereby procedures to lodge complaints are set out in order for the local community to express any complaints or grievances with the construction process.	<ul style="list-style-type: none"> Community liaison officer available for community grievances and communication. 	

8.2.6. Heritage

This section deals with the issues relative to the heritage landscape during the construction phase.

Aspect / Impact	Impact Management Actions	Responsibility	Impact Management Outcomes	Timeframes/ Frequency
Disturbance and destruction of scientifically valuable archaeological and palaeontological resources located either at the ground surface or below ground due to extensive bedrock excavations and surface disturbance (e.g. laydown areas, new access roads, transmission line pylon footings, on-site substation, foundations for the office / workshop, underground cables).	1. Monitoring of all bedrock excavations for archaeological resources or fossil remains during the construction phase.	ESO	Recording, judicious sampling and curation of any important archaeological or fossil heritage exposed during construction within the OHL development area. Safeguarding of scientifically important archaeological and fossil sites that cannot be effectively mitigated.	Construction phase
	2. Fossil finds to be safeguarded as per the Chance Finds Procedure and reported to SAHRA for possible mitigation.			
	Recording and judicious sampling of exceptional new fossil material or archaeological resources from the development footprint.	Archaeologist/ Paleontologist depending on the nature of the finds.		
	Curation of fossil specimens or archaeological resources at an approved repository (e.g. museum).			
Final technical report on palaeontological or archaeological heritage mitigated within study area submitted to SAHRA.		Following mitigation		

8.2.7. Visual

This section deals with the issues relative to visual during the construction phase.

Aspect / Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
Visual Quality	Limit vegetation clearance and the footprint of construction to what is absolutely essential.	Contractor	<ul style="list-style-type: none"> Plan which areas require the clearance of vegetation. Only clear the vegetation when works in the area will be undertaken. 	Limit deterioration of visual quality.	Throughout construction phase
	Consolidate the footprint of the construction camp to a functional minimum		Ensure that the construction camp is consolidated during the design phase.		
	Avoid excavation, handing and transport of materials which may generate dust under very windy conditions.		During very windy conditions cease excavation, handling and transportation of materials which may generate dust.		
	Keep stockpiled aggregated and sand covered to minimise dust generation.		<ul style="list-style-type: none"> Stockpile all aggregated and sand. Keep stockpiles covered when not in use. 		
	Keep construction site tidy.		<ul style="list-style-type: none"> Implement measures to keep the site tidy. 	<ul style="list-style-type: none"> Limit visual clutter and deterioration of visual quality. 	

8.3 Operational Phase

8.3.1. Aquatic

This section deals with the issues relative to the aquatic biodiversity during the operational phase.

Aspect/ Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
Impact on aquatic systems through the possible increase in surface water runoff on form and function during the operational phase.	A stormwater management plan must be developed in the preconstruction phase, detailing the stormwater structures and management interventions that must be installed to manage the increase of surface water flows directly into any natural systems. This stormwater control systems must be inspected on an annual basis to ensure these are functional. Effective stormwater management must include effective stabilisation (gabions and Reno mattresses) of exposed soil and the re-vegetation of any disturbed riverbanks.	Developer	Stormwater management plan and erosion control	Soil conservation and erosion protection	Continuous

8.3.2. Terrestrial

This section deals with the issues relative to the terrestrial biodiversity during the operational phase.

Aspect/ Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
Alien Invasive Species Invasion	<ol style="list-style-type: none"> 1. Alien trees and weeds must be removed from the site as per CARA/NEMBA requirements. 2. A suitable weed management strategy to be implemented in construction and operation phases. 3. After clearing and construction is completed, an appropriate cover may be required, should natural re-establishment of grasses not take place in a 	Authorisation Holder	Adhere to Impact Management Actions	To minimise regeneration of alien species and weeds	Quarterly

Aspect/ Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
	timely manner along road verges. This will also minimise dust.				
Erosion	<ol style="list-style-type: none"> 1. Suitable measures must be implemented in areas that are susceptible to erosion. Areas must be rehabilitated, and a suitable cover crop planted once construction is completed. 2. Topsoil must be stripped and stockpiled separately and replaced on completion. 3. If natural vegetation re-establishment does not occur, a suitable grass must be applied. 	Authorisation Holder	Adhere to Impact Management Actions	To minimise erosion and erosion risk.	Quarterly

8.3.3. Avifaunal

This section deals with the issues relative to avifaunal biodiversity during the operation phase.

Impact	Mitigation/Management Objectives and Outcomes	Mitigation/Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
Aspect: Bird Mortalities					
Bird Mortalities	<ol style="list-style-type: none"> 1. Bird Diverters 2. Perch Disrupters 	Collision frequency and intensity (# kills per species per unit time) will need to be assessed per species by specialist. However, any non-specific collision concentrations (> 10 kills per month clustering in a stretch of powerline) must initiate investigation and corrective measures (including retrofitting of	<ul style="list-style-type: none"> • For Grid Connection Infrastructure such as powerlines: Weekly surveys before dawn (prior to scavenger activity) by driving slowly along the servitudes and documenting each collision kill location and species (a georeferenced photograph as evidence is required). 	Weekly for powerlines between November and March.	Company appointed ECO or SACNASP Registered Zoologist

		mitigation measures).	<ul style="list-style-type: none"> Monthly reporting presenting data analysis results and mapping indicating locations of change. Specific reporting on negative change detection not directly attributable to Project activities (Solar Facility Operation) and their cause. All reporting to be accompanied by GIS shapefiles and any original photographs. 		
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8.3.4. Agricultural

This section deals with the issues relative to agricultural aspects during the operation phase.

Impact	Mitigation / management objectives and outcomes	Mitigation / management actions	Monitoring		
			Methodology	Frequency	Responsibility
Aspect: Protection of soil resources					
Erosion	That existence of hard surfaces causes no erosion on or downstream of the site.	Maintain the storm water run-off control system. Monitor erosion and remedy the storm water control system in the event of any erosion occurring.	Undertake a periodic site inspection to verify and inspect the effectiveness and integrity of the storm water run-off control system and to specifically record the occurrence of any erosion on site or downstream. Corrective action must be implemented to the run-off control system in the event of	Bi-annually	Facility Environmental Manager

Impact	Mitigation / management objectives and outcomes	Mitigation / management actions	Monitoring		
			Methodology	Frequency	Responsibility
			any erosion occurring.		
Erosion	That denuded areas are re-vegetated to stabilise soil against erosion	Facilitate re-vegetation of denuded areas throughout the site	Undertake a periodic site inspection to record the progress of all areas that require re-vegetation.	Bi-annually	Facility Environmental Manager

8.3.5. Geotechnical

This section deals with the issues relative to geotechnical aspects during the operation phase.

Aspect/ Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
Aspect: Soil erosion					
Increased erosion due to alteration of natural drainage	<ol style="list-style-type: none"> Maintain access roads including drainage features. Monitor for erosion and remediate and rehabilitate timeously. 	Developer	Adhere to Impact Management Actions	To minimize erosion as a result of vegetation clearance	Ongoing throughout construction phase

8.3.6. Social

This section deals with the issues relative to social aspects during the operation phase.

Aspect / Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
Maximise local employment and skills development opportunities	Maximise local community employment benefits in the local economy.	The Developer and Operator	<ul style="list-style-type: none"> Adopt a local employment policy to maximise the opportunities made available to the local labour force 	<ul style="list-style-type: none"> The majority of workers are employed from local communities 	Operational phase

Aspect / Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
associated with the construction phase.			<p>(preference to Local Municipality).</p> <ul style="list-style-type: none"> The recruitment selection process should seek to promote gender equality and the employment of women, wherever possible. Establish vocational training programs for the local labour force to promote the development skills. 	<p>(Local Municipality).</p> <ul style="list-style-type: none"> A number of people attending vocational training throughout the operation phase. 	
Reduce the visual and sense of place impacts associated with the operation phase of the project.	Reduce the visual disturbances to minimise the loss of the sense of place.	Operator	<ul style="list-style-type: none"> Vegetation screening to be placed between the site and adjacent properties, if required. 	<ul style="list-style-type: none"> Vegetation screening if required/necessary. 	Operational phase

8.3.7. Visual:

This section deals with the issues relative to visual aspects during the operation phase.

Aspect / Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
Altered Sense of Place and Visual Intrusion.	Do not install or affix lights on pylons	Contractor	Prohibit installation of lighting on pylons in the design.	Limit light pollution	Once the powerline is installed – throughout operational phase
Altered Visual Quality	Reduce the height of lighting masts to a workable minimum.	Developer and	Incorporate lighting requirements in the	Limit light pollution	Once construction activities have

Aspect / Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
	Direct lighting inwards and downwards to limit light pollution.	Contractor	design.		concluded – throughout operational phase

8.4 Decommissioning Phase

8.4.1 Aquatic

This section deals with the issues relative to aquatic biodiversity during the decommissioning phase.

Aspect/ Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
Potential impact on localised surface water quality (construction materials and fuel storage facilities) during the construction and decommissioning phases.	<ol style="list-style-type: none"> All liquid chemicals including fuels and oil, must be stored in with secondary containment (bunds or containers or berms) that can contain a leak or spill. Such facilities must be inspected routinely and must have the suitable PPE and spill kits needed to contain likely worst-case scenario leak or spill in that facility, safely. Washing and cleaning of equipment must be done in designated wash bays, where rinse water is contained in evaporation/sedimentation ponds (to capture oils, grease cement and sediment). Mechanical plant and bowsers must not be refuelled or serviced within 100m of a river channel. All construction camps, lay down areas, wash bays, batching plants or areas and any stores should be more than 50m from any 	Developer, Contractor and ECO	Site monitoring of plant and any works activities	Minimise spills through awareness raising, monitoring and rapid clean up if spills occur.	Continuous

Aspect/ Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
	<p>demarcated watercourses.</p> <p>5. Littering and contamination associated with construction activity must be avoided through effective construction camp management;</p> <p>6. No stockpiling should take place within or near a watercourse</p> <p>7. All stockpiles must be protected and located in flat areas where run-off will be minimised and sediment recoverable.</p>				

8.4.2. Terrestrial

This section deals with the issues relative to terrestrial biodiversity during the decommissioning phase.

Aspect/ Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
Alien Invasive Species Invasion	<ol style="list-style-type: none"> 1. Alien trees and weeds must be removed from the site as per CARA/NEMBA requirements. 2. A suitable weed management strategy to be implemented in construction and operation phases. 3. After clearing and construction is completed, an appropriate cover may be required, should natural re-establishment of grasses not take place in a timely manner along road verges. This will also minimise dust. 	Authorisation Holder	Adhere to Impact Management Actions	To minimise regeneration of alien species and weeds	On completion
Erosion	<ol style="list-style-type: none"> 1. Suitable measures must be implemented in areas that are susceptible to erosion. Areas must be rehabilitated, and a suitable cover crop planted once construction is completed. 	Authorisation Holder	Adhere to Impact Management Actions	To minimise erosion and erosion risk.	On completion

Aspect/ Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
	2. Topsoil must be stripped and stockpiled separately and replaced on completion. 3. If natural vegetation re-establishment does not occur, a suitable grass must be applied.				

8.4.3. Agricultural

This section deals with the issues relative to agricultural aspects during the decommissioning phase.

Impact	Mitigation / management objectives and outcomes	Mitigation / management actions	Monitoring		
			Methodology	Frequency	Responsibility
Aspect: Protection of soil resources					
Erosion	That disturbance and existence of hard surfaces causes no erosion on or downstream of the site.	Implement an effective system of storm water run-off control, where it is required - that is at any points where run-off water might accumulate. The system must effectively collect and safely disseminate any run-off water from all accumulation points and it must prevent any potential down slope erosion.	Undertake a periodic site inspection to verify and inspect the effectiveness and integrity of the storm water run-off control system and to specifically record the occurrence of any erosion on site or downstream. Corrective action must be implemented to the run-off control system in the event of any erosion occurring.	Every 2 months during the decommissioning phase, and then every 6 months after completion of decommissioning, until final sign-off is achieved.	Environmental Control Officer (ECO)
Erosion	That vegetation clearing does not pose a high erosion	Maintain where possible all vegetation cover and facilitate re-vegetation of denuded areas throughout the site, to	Undertake a periodic site inspection to record the occurrence of and re-	Every 4 months during the decommissioning	Environmental Control Officer (ECO)

Impact	Mitigation / management objectives and outcomes	Mitigation / management actions	Monitoring		
			Methodology	Frequency	Responsibility
	risk.	stabilize disturbed soil against erosion.	vegetation progress of all areas that require re-vegetation.	phase, and then every 6 months after completion of decommissioning, until final sign-off is achieved.	
Topsoil loss	That topsoil loss is minimised	If an activity will mechanically disturb the soil below surface in any way, then any available topsoil should first be stripped from the entire surface to be disturbed and stockpiled for re-spreading during rehabilitation. During rehabilitation, the stockpiled topsoil must be evenly spread over the entire disturbed surface.	Record GPS positions of all occurrences of below-surface soil disturbance (e.g. excavations). Record the date of topsoil stripping and replacement. Check that topsoil covers the entire disturbed area.	As required, whenever areas are disturbed.	Environmental Control Officer (ECO)

8.4.4. Geotechnical

This section deals with the issues relative to geotechnical aspects during the decommissioning phase.

Aspect/ Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
Aspect: Disturbance / displacement / removal of soil and rock					
Ground disturbance during access road construction, foundation	1. Restore natural site topography 2. Landscape and rehabilitate access roads and disturbed areas timeously (e.g.	Developer	Adhere to Impact Management	To minimize disturbance, displacement and	Ongoing throughout construction

Aspect/ Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
earthworks, platform earthworks.	regressing)		t Actions	removal of soil and rock.	phase
Aspect: Soil erosion					
Increased erosion due to vegetation clearing, alteration of natural drainage.	<ol style="list-style-type: none"> 1. Temporary berms and drainage channels to divert surface runoff where needed 2. Restore natural site topography 3. Use designated access and laydown areas only to minimise disturbance to surrounding areas 	Developer	Adhere to Impact Management t Actions	To minimize soil erosion as a result of vegetation clearance.	Ongoing throughout construction phase

8.4.5. Social

This section deals with the issues relative to the social component during the decommissioning phase.

Aspect / Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/ Frequency
Loss of economic opportunity and upskilling.	Major social impacts associated with decommissioning phase are linked to the loss of jobs and associated income.		As part of the decommissioning phase, it would likely involve the disassembly and replacement of existing components with more modern technology therefore creation of additional construction type jobs although limited.	It is recommended that the implementation of a reskilling, job placement, retrenchment and downscaling programme be implemented.	Decommissioning phase

8.4.6. Visual

This section deals with the issues relative to visual aspects during the decommissioning phase.

Aspect / Impact	Impact Management Actions	Responsibility	Methodology	Impact Management Outcomes	Timeframes/Frequency
Visual Quality	Limit vegetation clearance and the footprint of decommissioning to what is absolutely essential.	Contract or	<ul style="list-style-type: none"> Plan which areas require the clearance of vegetation. Only clear the vegetation when works in the area will be undertaken. 	Limit deterioration of visual quality	Throughout decommissioning phase
	Consolidate the footprint of the decommissioning camp to a functional minimum.		Ensure that the decommissioning camp footprint is consolidated where possible.		
	Avoid excavation, handling and transport of materials which may generate dust under very windy conditions.		During very windy conditions cease excavation, handling and transportation of materials which may generate dust.		
	Keep stockpiled aggregates and sand covered to minimise dust generation.		<ul style="list-style-type: none"> Stockpile all aggregates and sand. Keep stockpiles covered when not in use. 		
	Keep site tidy.		Implement measures to keep the site tidy.		

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.