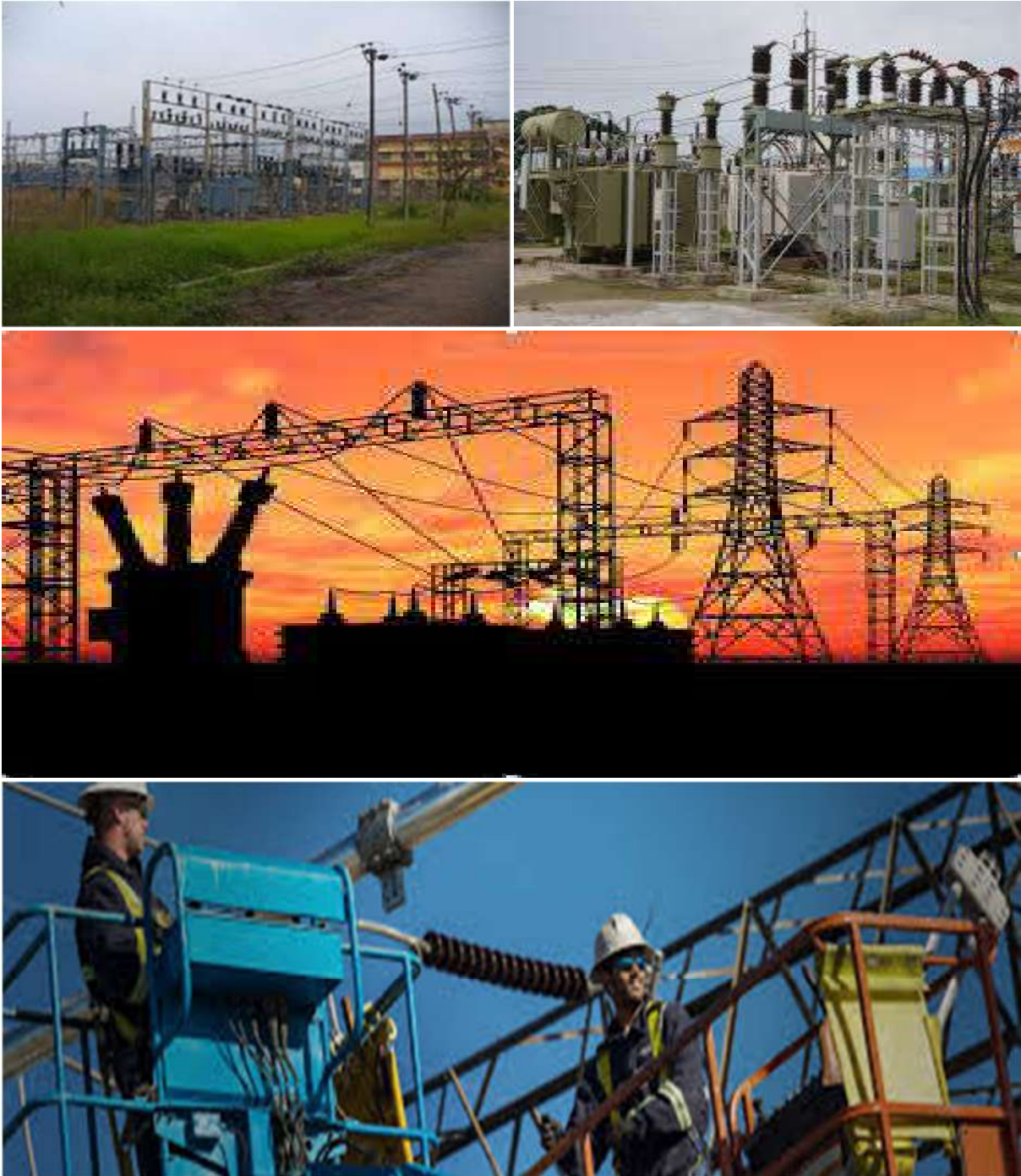


GENERIC ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE DEVELOPMENT AND EXPANSION OF SUBSTATION INFRASTRUCTURE FOR THE TRANSMISSION AND DISTRIBUTION OF ELECTRICITY

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environmental affairs

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REPUBLIC OF SOUTH AFRICA

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INTRODUCTION

1. Background

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

2. Purpose

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

3. Objective

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

4. Scope

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

5. Structure of this document

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

PART A – GENERAL INFORMATION

1. DEFINITIONS

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

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

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

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

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

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

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

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

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

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

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

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

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

2. ACRONYMS and ABBREVIATIONS

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

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

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

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

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

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

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

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

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

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

4. ENVIRONMENTAL DOCUMENTATION REPORTING AND COMPLIANCE

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

4.1 Document control/Filing system

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

4.2 Documentation to be available

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

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

4.3 Weekly Environmental Checklist

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

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

4.4 Environmental site meetings

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

4.5 Required Method Statements

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

The method statement must cover applicable details with regard to:

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

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

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

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

4.6 Environmental Incident Log (Diary)

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

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

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

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

The Environmental Incident Log will be captured in the EAR.

4.7 Non-compliance

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

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

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

4.8 Corrective action records

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

4.9 Photographic record

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

The Contractor shall:

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

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

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

4.10 Complaints register

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

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

4.11 Claims for damages

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

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

4.12 Interactions with affected parties

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

The ECOs shall:

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

4.13 Environmental audits

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

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

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

4.14 Final environmental audits

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

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

5. IMPACT MANAGEMENT OUTCOMES AND IMPACT MANAGEMENT ACTIONS

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

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

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

5.1 Environmental awareness training

Impact management outcome: All onsite staff are aware and understand the individual responsibilities in terms of this EMPr.						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All staff must receive environmental awareness training prior to commencement of the activities;	ECO / cEO / dEO	Hold environmental awareness training workshops	Pre-construction Construction	ECO dEO	Monthly and as and when required	Attendance register and training minutes / notes for the record
– The Contractor must allow for sufficient sessions to train all personnel, with no more than 20 personnel attending each course;	Contractor	Scheduling of sufficient sessions through consultation with the ECO / cEO / dEO	Pre-construction Construction	ECO dEO	Monthly and as and when required	Attendance register and training minutes / notes for the record
– Refresher environmental awareness training is available, as and when required;	cEO / dEO in consultation with the ECO	Hold refresher environmental awareness training workshops	During the construction phase	ECO dEO	Monthly and as and when required	Attendance register and training minutes / notes for the record
– All staff are aware of the conditions and controls linked to the EA and within the EMPr, and made aware of their individual roles and responsibilities in achieving compliance with the EA and EMPr;	cEO / dEO	Hold training workshops and ensure that the EA and EMPr is readily available	During the construction phase	ECO dEO	Monthly and as and when required	Attendance register and training minutes / notes for the record
– The Contractor must erect and maintain information posters at key locations on site, and the posters must include the following information as a minimum: a) Safety notifications; and	Contractor	Develop and place appropriate	Pre-construction Construction	ECO dEO cEO	Monthly	Photographic record

b) No littering.		posters at key locations				
<ul style="list-style-type: none"> - 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 procedures; d) Emergency procedures; e) Procedures to be followed when working near or within sensitive areas; f) Wastewater management procedures; g) Water usage and conservation; h) Solid waste management procedures; i) Sanitation procedures; j) Fire prevention; and k) Disease prevention. 	cEO / dEO in consultation with the ECO	Develop environmental awareness training material which covers the minimum requirements	Pre-construction Construction	ECO dEO	Prior to the commencement of the environmental awareness training	Environmental awareness training material requirements checklist
<ul style="list-style-type: none"> - A record of all environmental awareness training courses undertaken as part of the EMPr must be available; 	ECO / cEO / dEO	Filing system including all proof of training (i.e. attendance register and training minutes / notes for the record)	During the construction phase	ECO dEO	Monthly	Completed and up to date filing system with proof of training
<ul style="list-style-type: none"> - Educate workers on the dangers of open and/or unattended fires; 	cEO / dEO in consultation with the ECO	Develop environmental awareness training material which covers the dangers of open	Pre-construction Construction	ECO dEO	Prior to the commencement of the environmental awareness training	Environmental awareness training material requirements checklist

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

5.2 Site Establishment development

Impact management outcome: Impacts on the environment are minimized during site establishment and the development footprint are kept to demarcated development area.						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- A method statement must be provided by the contractor prior to any onsite activity. The method statement must include 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	Contractor	Development of an appropriate method statement	Pre-construction	ECO dEO	Once, prior to construction	Availability of the method statement which complies with the minimum

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;						requirements listed
– Location of construction camps must be within approved areas, to ensure that the site does not impact on sensitive areas identified in the environmental assessment or site walk through;	DPM	Place construction camps outside of sensitive areas identified in the Basic Assessment Report	Pre-construction Construction	ECO dEO	Once, prior to construction	Availability of a layout and sensitivity map indicating avoidance of sensitive areas
– Sites must be located on previously disturbed areas, where possible;	DPM	Place site outside of sensitive areas and within previously disturbed areas identified in the BA Report	Pre-construction	ECO dEO	Once, prior to construction	Availability of a layout and sensitivity map indicating avoidance of sensitive areas and placement within disturbed areas
– The camp must be fenced in accordance with <i>Section 5.5: Fencing and gate installation</i> ; and	DPM	Design and implementation of fencing as per the requirements of Section 5.5 of this EMPr	Pre-construction & Construction	ECO dEO	Once, prior to construction and once during the construction of the fencing	The camp is fenced in accordance with Section 5.5 of this EMPr
– The use of existing accommodation for contractor staff, where possible, is encouraged.	<u>Not applicable</u> – the development of new accommodation is not proposed.					

5.3 Access restricted areas

Impact management outcome: Access to restricted areas prevented.						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Identification of access restricted areas is to be informed by the environmental assessment, site walk through and any additional areas identified during development;	dEO / cEO in consultation with the ECO	Spatially demarcate access restricted areas informed by the BA Report	Pre-construction	ECO	Once, prior to construction	Access restricted areas are identified and provided in a spatial format
– Erect, demarcate and maintain a temporary barrier with clear signage around the perimeter of any access restricted area. Colour coding could be used if appropriate; and	dEO / cEO in consultation with the ECO	Erect appropriate temporary barriers around access restricted areas	At the commencement and for the duration of the construction phase	ECO	Monthly	Access restricted areas are closed-off through temporary barriers and barriers are maintained to a sufficient standard
– Unauthorised access and development related activity inside access restricted areas is prohibited.	Contractor / dEO / cEO	Erect appropriate temporary barriers around access restricted areas and provide clear signage of restricted status	During the construction phase	ECO	Monthly, and as and when required	Photographic evidence and notes of compliance that no unauthorised access or activities has taken place within the access restricted areas

5.4 Access roads

Impact management outcome: Minimise impact to the environment through the planned and restricted movement of vehicles on site.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– An access agreement must be formalized and signed by the DPM, Contractor and landowner before commencing with the activities;	DPM Contractor	Develop access agreements with the affected landowners. Ensure that agreements are approved and signed	Pre-construction	dEO ECO	Once, prior to construction	Availability of approved and signed negotiations
– All private roads used for access to the servitude must be maintained and upon completion of the works, be left in at least the original condition	Contractor	Undertake maintenance activities on private roads used for construction as degradation takes place	During the construction phase	cEO / ECO	Weekly	Photographic record of the pre-construction condition and degradation of roads, and records of the implementation and effectiveness of maintenance activities

<p>– All contractors must be made aware of all access routes.</p>	<p>dEO / cEO</p>	<p>Develop a map illustrating all access routes associated with the project and present and provide the map to all contractors</p>	<p>Pre-construction Construction</p>	<p>ECO</p>	<p>Once, prior to construction</p>	<p>Access routes map readily available</p>
<p>– Any access route deviation from that in the written agreement must be closed and re-vegetated immediately, at the contractor's expense;</p>	<p>Contractor</p>	<p>All access routes developed that are not in-line with the access route agreements must be closed and rehabilitated to the pre-disturbance state</p>	<p>Construction and Rehabilitation</p>	<p>ECO</p>	<p>Bi-weekly (every two weeks)</p>	<p>Photographic record of the closure of access roads and re-vegetation</p>
<p>– Maximum use of both existing servitudes and existing roads must be made to minimise further disturbance through the development of new roads;</p>	<p>Contractor (and Eskom maintenance staff where relevant to operation)</p>	<p>Existing access routes to be used must be specified and the development of new roads must be avoided as far as possible</p>	<p>Construction and operation</p>	<p>cEO Operation and maintenance team</p>	<p>Weekly</p>	<p>Implementation of the approved layout</p>
<p>– 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;</p>	<p>dEO / cEO</p>	<p>Record the conditions of private roads to be used (prior to use), as per the requirements of</p>	<p>During the construction phase</p>	<p>ECO</p>	<p>Prior to the use of private roads</p>	<p>Photographic record and proof of the road conditions agreed upon</p>

		section 4.9, and agree on the required condition of the roads with the landowner, DPM and contractor				with the relevant parties
– Access roads in flattish areas must follow fence lines and tree belts to avoid fragmentation of vegetated areas or croplands; and	DPM and Contractor	Design access roads to follow fence lines and avoid vegetated areas	Pre-construction	ECO	Once during the design and once prior to construction	Implementation of the approved layout
– Access roads must only be developed on pre-planned and approved roads.	Contractor	Construction of access roads only on pre-planned and approved access roads	During the construction phase	ECO dEO	Once during the design and weekly during the construction of access roads	Implementation of the approved layout

5.5 Fencing and Gate installation

Impact management outcome: Minimise impact to the environment and ensure safe and controlled access to the site through the erection of fencing and gates where required.						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Use existing gates provided to gain access to all parts of the area authorised for development, where possible;	Contractor	Identify and inform all relevant staff of	Pre-construction & Construction	dEO	Monthly	Existing gates are utilised on a frequent basis and only limited

		the existing gates to be used				new access gates are developed
- Existing and new gates to be recorded and documented in accordance with section 4.9: photographic record;	ECO	Existing and new gates will be recorded and documented as per the requirements of section 4.9	During the construction phase	ECO	Once, when the construction of all new gates have been completed	Photographic record of the existing and new gates as per the requirements of section 4.9
- All gates must be fitted with locks and be kept locked at all times during the development phase, unless otherwise agreed with the landowner;	Contractor (and Eskom maintenance staff where relevant to operation)	Ensure all relevant gates are fitted with locks and are always locked	Construction and Operation	ECO Operation and maintenance team	Bi-weekly (every second week)	All gates are locked and no complaints from landowners are received in this regard
- At points where the line crosses an existing fence in which there is no suitable gate within the extent of the line servitude, on the instruction of the DPM, a gate must be installed at the approval of the landowner;	dEO	Install new gates, where required, with the approval of the affected landowner	During the construction phase	ECO	Once, prior to construction and during the construction phase, as and when required	New gates are installed where required
- Care must be taken that the gates must be so erected that there is a gap of no more than 100 mm between the bottom of the gate and the ground;	Contractor	Install gates in a manner so that there is a gap of no more than 100mm between the bottom of the gate and the ground	During the construction phase	cEO	Once, during the erection of the gates during the construction phase	New gates installed as per the requirement
- Where gates are installed in jackal proof fencing, a suitable reinforced concrete sill must be provided beneath the gate;	Contractor	Implement a reinforced concrete sill beneath gates	During the construction phase	cEO	Once, during the erection of the gates during	New gates installed as per the requirement

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

- All fencing must be developed using high quality material bearing the SABS mark;	Contractor	Make use of high quality materials approved by SABS	During the construction phase	cEO	To be monitored as fencing is erected during the construction phase	Use of high quality materials for fencing approved by SABS
- The use of razor wire as fencing must be avoided, as far as possible;	Contractor	Razor wire must not be sourced or used for the erection of fencing	During the construction phase	ECO	To be monitored as fencing is erected during the construction phase	Fences erected do not make use of razor wire
- Fenced areas with gate access must remain locked after hours, during weekends and on holidays if staff is away from site. Site security will be required at all times;	DSS and Contractor	Ensure fenced areas are locked as required through the implementation of a formalised process. Appoint a security company	During the construction phase	cEO	Weekly and as and when required	Fences are locked and no complaints from landowners are received. A security company is appointed
- On completion of the development phase, all temporary fences are to be removed;	Contractor	Removal of all temporary fences	At the end of the Construction Phase	ECO dEO	Once, following the completion of the construction phase	No temporary fences associated with the project is present following the completion of the construction phase – photographic evidence
- The contractor must ensure that all fence uprights are appropriately removed, ensuring that no uprights are cut at ground level but rather removed completely.	Contractor	Appropriate removal of all fence uprights	At the end of the Construction Phase	ECO dEO	Once, following the completion of the	No fence uprights associated with the project is

					construction phase	present following the completion of the construction phase – photographic evidence
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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
– All abstraction points or bore holes must be registered with the DWS, and suitable water meters installed to ensure that the abstracted volumes are measured on a daily basis;	DPM / Contractor / dEO / cEO in consultation with the ECO	The onsite borehole must be registered with the DWS prior to commencement of activities	Prior to commencement, during construction and operational phase	ECO / dEO	Registration of borehole once off prior commencement of construction and monitoring of abstraction volumes on a daily basis during construction and during operation.	Proof of registration of borehole from DWS and proof of daily records of abstraction volumes to be attached to monthly audit reports.
– The Contractor must ensure the following: a. The vehicle abstracting water from a river does not enter or cross it, and does not operate from within the river;	<u>Not applicable</u> - During the construction phase, water will be sourced from the local municipality or existing boreholes (if groundwater is available and if suitable). The exact details of water requirements will be confirmed during the detailed engineering phase. At this stage, no water is planned to be abstracted from or discharged					

<ul style="list-style-type: none"> b. No damage occurs to the river bed or banks and that the abstraction of water does not entail stream diversion activities; and c. All reasonable measures to limit pollution or sedimentation of the downstream watercourse are implemented. 	to any surface water systems. During the operational phase of the proposed distribution line, water requirements are not applicable.					
<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; c. Including a discussion on water usage and conservation during environmental awareness training; and d. The use of grey water is encouraged. 	Contractor / dEO / cEO in consultation with the ECO	Implement the required water conservation measures throughout on-site construction processes	During the construction phase	ECO	Monthly, and as and when required	Successful implementation of water conservation

5.7 Storm and wastewater management

Impact management outcome: Impacts to the environment caused by storm water and wastewater discharges during construction are avoided.						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<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; 	Contractor	Implement measures for the control and management of runoff	During the construction phase	ECO	Weekly	No mismanagement of runoff or contaminated water due to the temporary concrete batching plant

<p>– 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;</p>	<p>Contractor and cEO</p>	<p>Obtain approved absorbent material and make use of licensed waste disposal facilities for disposal of oil</p>	<p>During the Construction Phase</p>	<p>ECO</p>	<p>Monthly</p>	<p>Availability of approved absorbent material at the construction site and proof of disposal of oil at licensed disposal facilities</p>
<p>– Natural stormwater runoff not contaminated during the development and clean water can be discharged directly to watercourses and water bodies, subject to the Project Manager's approval and support by the ECO;</p>	<p>DPM in consultation with the ECO</p>	<p>Consultation between the DPM and the ECO to determine if water can be discharged directly into water bodies (where present). The necessary water quality testing must be undertaken prior to discharge</p>	<p>During the construction phase</p>	<p>ECO</p>	<p>As and when the need arises to discharge natural stormwater runoff and clean water</p>	<p>Proof of consultation between the DPM and ECO and the outcomes thereof to be provided. Proof of water quality testing and the results thereof.</p>
<p>– 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.</p>	<p>DPM in consultation with the ECO</p>	<p>Consultation between the DPM and the ECO to determine if water can be discharged directly into water bodies (where present). The necessary</p>	<p>During the construction phase</p>	<p>ECO</p>	<p>As and when the need arises to discharge water</p>	<p>Proof of consultation between the DPM and ECO and the outcomes thereof to be provided. Proof of water quality testing and the results thereof.</p>

		water quality testing must be undertaken prior to discharge				
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5.8 Solid and hazardous waste management

Impact management outcome: Wastes are appropriately stored, handled and safely disposed of at a recognised waste facility.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All measures regarding waste management must be undertaken using an integrated waste management approach;	Contractor	Develop and implement a waste management plan	During the construction phase	ECO	Monthly	Implementation of the waste management plan and proof of waste management through proof of responsible disposal
– Sufficient, covered waste collection bins (scavenger and weatherproof) must be provided;	Contractor	Provision of appropriate waste collection bins which are strategically placed throughout the site	During the construction phase and decommissioning phase	ECO	Weekly	Appropriate waste collection bins are available throughout the site
– A suitably positioned and clearly demarcated waste collection site must be identified and provided;	DPM and Contractor	Identify an appropriate location for the	Design and Construction Phase	ECO	Once, prior to the	A waste collection site is appropriately

		waste collection site which must be clearly demarcated through signage and temporary fencing			commencement of construction	placed and demarcated
- The waste collection site must be maintained in a clean and orderly manner;	Contractor	Regular collection of waste and maintenance of the area must be undertaken as per the waste requirements for the project during construction	During the Construction Phase	ECO	Weekly	The waste collection site is maintained and clean
- Waste must be segregated into separate bins and clearly marked for each waste type for recycling and safe disposal;	Contractor	Provide separate and marked bins for the different waste types associated with the construction phase	During the Construction Phase	cEO	Weekly	Separate waste bins are available on site and waste generated is separated into the relevant bins
- Staff must be trained in waste segregation;	cEO / dEO in consultation with the ECO	Include waste segregation as part of the environmental awareness training material.	Pre-construction Construction	ECO	Monthly, and as and when required	Environmental awareness training material requirements checklist
- Bins must be emptied regularly;	Contractor	Bins must be emptied before reaching total	During the construction phase	ECO	Monthly	No mismanagement of bins.

		capacity and on a regular basis as required for the project				
- General waste produced onsite must be disposed of at registered waste disposal sites/ recycling company;	Contractor	Disposal of general waste at licensed waste disposal facilities must be undertaken as per the waste management plan	During the construction phase and decommissioning phase	ECO	Monthly	Disposal certificates of disposal at licensed facilities to be provided
- Hazardous waste must be disposed of at a registered waste disposal site;	Contractor	Disposal of hazardous waste at licensed waste disposal facilities must be undertaken as per the waste management plan	During the construction phase	ECO	Monthly	Disposal certificates of disposal at licensed facilities to be provided
- Certificates of safe disposal for general, hazardous and recycled waste must be maintained.	Contractor	Obtain certificates for safe disposal of waste	During the construction and decommissioning phase	ECO	Monthly	Disposal certificates of disposal at licensed facilities to be provided and filed as part of the filing system

5.9 Protection of watercourses and estuaries

Impact management outcome: Pollution and contamination of the watercourse environment and or estuary erosion are prevented.						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- All watercourses must be protected from direct or indirect spills of pollutants such as solid waste, sewage, cement, oils, fuels, chemicals, aggregate tailings, wash and contaminated water or organic material resulting from the Contractor's activities;	Contractor	Contractor to undertake activities which can cause spills of pollutants outside of watercourses	During the construction phase	ECO	Weekly	No incidents reported of spillage of pollutants into watercourses
- In the event of a spill, prompt action must be taken to clear the polluted or affected areas;	Contractor and cEO	Develop a management plan or process for implementation should a spill take place	During the construction phase	ECO	Weekly	Feedback must be provided by the contractor in terms of how the spill was handled and photographic evidence of the feedback must be provided and kept on record
- Where possible, no development equipment must traverse any seasonal or permanent wetland	cEO and Contractor	Ensure layout has been informed by the	Construction Phase	ECO	Once off review that the layout	Confirm no development equipment

		environmental sensitivities as determined by the basic assessment and specialist studies			used is the approved one	traverses any seasonal or permanent wetland as per the authorised layout by reviewing the as-built designs (once-off confirmation).
- No return flow into the estuaries must be allowed and no disturbance of the Estuarine functional Zone should occur;	<u>Not applicable</u> – no estuaries are located within the study area.					
- Development of permanent watercourse or estuary crossing must only be undertaken where no alternative access to tower position is available;	Development of permanent watercourse or estuary crossing must only be undertaken where no alternative access to tower position is available;	cEO, Contractor	Ensure that permeant crossings (access roads) are provided for access to the grid connection corridor if no alternative crossing is available.	During the construction phase	cEO	Weekly
- There must not be any impact on the long-term morphological dynamics of watercourses or estuaries	There must not be any impact on the long-term morphological dynamics of watercourses or estuaries;	DPM, cEO	Develop a management plan or process for implementation should a spill take place within a watercourse and ensure	During the construction and operation phase	ECO, dEO	For all phases of the project life cycle (i.e. construction, operation, decommissioning)

			continually monitoring			
- Existing crossing points must be favored over the creation of new crossings (including temporary access)	DPM, cEO	Develop a management plan or process for implementation should a spill take place within a watercourse and ensure continually monitoring	During the pre-construction and construction phase	ECO, dEO	During the construction phase of the project.	Existing crossing points utilised as opposed to new ones created and no incidents reported of spillage of pollutants into watercourses
- When working in or near any watercourse or estuary, the following environmental controls and consideration must be taken: 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.	Contractor	Activities undertaken near watercourses must be in-line with and consider the specified environmental controls	During the construction phase	ECO	Monthly, and as and when required	No degradation of the watercourses and no incidents of destruction reported

5.10 Vegetation clearing

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

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

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

- Rivers and watercourses must be kept clear of felled trees, vegetation cuttings and debris;	Contractor	Felled trees, vegetation cuttings and debris must be disposed of at a licensed waste disposal facility	During the Construction Phase	ECO	Monthly	No felled trees, vegetation cuttings and debris are dumped in inappropriate locations and disposal certificates are available as proof of responsible disposal
- Only a registered pest control operator may apply herbicides on a commercial basis and commercial application must be carried out under the supervision of a registered pest control operator, supervision of a registered pest control operator or is appropriately trained;	DPM and Contractor (and Eskom maintenance staff where relevant to operation)	A suitably qualified pest control operator must be appointed	Construction and Operation	ECO	As and when the use of herbicides is required	Only registered pest control operators must be appointed and proof of their registration must be provided
- A daily register must be kept of all relevant details of herbicide usage;	Contractor	Develop a daily register for the documentation of the details of herbicide usage	During the construction phase	ECO	Monthly	Daily register provided by the pest control operator
- No herbicides must be used in estuaries	<u>Not applicable</u> - no estuaries are present within the study area					
- All protected species and sensitive vegetation not removed must be clearly marked and such areas fenced off in accordance to Section 5.3: Access restricted areas.	Contractor in consultation with the cEO	Spatially demarcate protected species and sensitive vegetation and implement appropriate	During the construction phase	ECO	Once, during the undertaking of the demarcation of the areas and the erection of the fencing	Demarcation and fencing is undertaken in-line with the requirements of section 5.3

		fencing where required as per section 5.3				
- Alien invasive vegetation must be removed and disposed of at a licensed waste management facility.	Contractor	Remove all alien invasive vegetation and dispose of the removed vegetation at a licensed waste management facility	During the construction phase	ECO	Monthly, and as and when required	Disposal certificates of disposal at licensed facilities to be provided and filed as part of the filing system

5.11 Protection of fauna

Impact management outcome: Disturbance to fauna is minimised.						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- No interference with livestock must occur without the landowner's written consent and with the landowner or a person representing the landowner being present;	dEO / cEO Contractor	Develop a procedure for dealing with livestock within the affected properties	Pre-construction and during the construction phase	ECO	Once, prior to the commencement of construction and as and when required during the construction phase	Written consent provided by the landowner and proof of representation of the landowner during interference
- The breeding sites of raptors and other wild birds species must be taken into consideration during the planning of the development programme;	dEO / cEO in consultation	Ensure that the planning and development	Pre-construction & Construction	ECO	Once, prior to the commencement	The planning and development

	with the Contractor	programme considers breeding sites for wild bird species			t of construction and as and when required	programme which includes the consideration of breeding sites for wild bird species
- Breeding sites must be kept intact and disturbance to breeding birds must be avoided. Special care must be taken where nestlings or fledglings are present;	dEO / cEO in consultation with the Contractor (and Eskom maintenance staff where relevant to operation)	Avoid breeding sites and ensure that special care is taken in the presence of nestlings and fledgelings	During the Construction Phase Operation Phase	ECO Operation and maintenance team	Weekly, and as and when required during the construction. Monthly, and as and when required during operation	Photographic record of intact breeding sites
- Special recommendations of the avian specialist must be adhered to at all times to prevent unnecessary disturbance of birds;	dEO / cEO in consultation with the Contractor (and Eskom maintenance staff where relevant to operation)	All mitigation measures recommended by the avifauna specialist must be implemented	During the Construction Phase Operation Phase	ECO Operation and maintenance team	Weekly during construction and monthly during operation	Photographic record of compliance and successful implementation of the recommended measures
- No poaching must be tolerated under any circumstances. All animal dens in close proximity to the works areas must be marked as Access restricted areas;	dEO / cEO in consultation with the Contractor	All site staff must be informed of this requirement during the Environmental Awareness Training and the consequences of not adhering to the requirement.	During the Construction Phase	ECO	Monthly, and as and when required	No instances of poaching is reported

		These areas must be demarcated as Access Restricted Areas				
- No deliberate or intentional killing of fauna is allowed;	dEO / cEO in consultation with the Contractor	All site staff must be informed of this requirement during the Environmental Awareness Training and the consequences of not adhering to the requirement. These areas must be demarcated as Access Restricted Areas	During the Construction Phase	ECO	Monthly, and as and when required	No instances of deliberate or intentional killing is reported
- In areas where snakes are abundant, snake deterrents are to be deployed on the pylons to prevent snakes climbing up, being electrocuted and causing power outages; and	dEO / cEO in consultation with the Contractor (and Eskom maintenance staff where relevant to operation)	Implement and maintain snake deterrents in areas where snakes are abundant	During the Construction Phase Operation Phase	ECO Operation and maintenance team	Once, during the construction and as and when required. Monthly during operation	Photographic record of the implementation and maintenance of snake deterrents
- No Threatened or Protected species (ToPs) and/or protected fauna as listed according NEMBA (Act No. 10 of 2004) and relevant provincial ordinances may be removed and/or relocated without appropriate authorisations/permits.	DPM in consultation with the dEO	Undertake a permitting process to obtain the required permits	Pre-construction	ECO	Once, prior to the commencement of construction	Permits for removal and/relocation must be kept on

					and as and when required	file and be readily available
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5.12 Protection of heritage resources

Impact management outcome: Impact to heritage resources is minimised.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Identify, demarcate and prevent impact to all known sensitive heritage features on site in accordance with the No-Go procedure in Section 5.3: Access restricted areas;	DPM and a suitably qualified specialist dEO / cEO in consultation with the Contractor and ECO	Undertake a Heritage Walk-through Survey Spatially identify and demarcate areas of heritage significance as per the Heritage Walk-through Report and as per the requirements of section 5.3	Pre-construction	ECO	Once, prior to the commencement of construction	Proof of avoidance of sensitive heritage features through details of avoidance and photographic records
– Carry out general monitoring of excavations for potential fossils, artefacts and material of heritage importance;	Suitably qualified specialist in consultation with the ECO	Appoint a suitably qualified specialist to carry out the monitoring of excavations for	During the Construction Phase	ECO	During the undertaking of excavations of fossils, artefacts and heritage material	Proof of appointment of a suitably qualified specialist and photographic

		fossils, artefacts and important heritage material				record of required monitoring by the specialist
<ul style="list-style-type: none"> All work must cease immediately, if any human remains and/or other archaeological, palaeontological and historical material are uncovered. Such material, if exposed, must be reported to the nearest museum, archaeologist/ palaeontologist (or the South African Police Services), so that a systematic and professional investigation can be undertaken. Sufficient time must be allowed to remove/collect such material before development recommences. 	dEO / cEO in consultation with the Contractor and ECO	Develop and implement procedures for situations where human remains, archaeological, palaeontological or historical material are uncovered	During the Construction Phase	ECO	Weekly, during the construction phase and as required	Proof of work ceased and the required procedures followed in cases where material is discovered.

5.13 Safety of the public

Impact management outcome: All precautions are taken to minimise the risk of injury, harm or complaints.						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<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.; 	cEO in consultation with the Contractor	Develop an Emergency Preparedness, Response and Fire Management Plan specific to the project	Pre-construction Construction	ECO	Once, prior to the commencement of construction and weekly during the construction phase	Compliance with the Emergency Preparedness, Response and Fire Management Plan

<p>- All unattended open excavations must be adequately fenced or demarcated;</p>	<p>Contractor</p>	<p>Ensure that all excavations undertaken is fenced and demarcated within a reasonable timeframe and in instances where excavations will be open for long-periods of time</p>	<p>During the Construction Phase</p>	<p>ECO</p>	<p>Weekly</p>	<p>Excavations are fenced where required and photographic proof can be provided</p>
<p>- Adequate protective measures must be implemented to prevent unauthorised access to and climbing of partly constructed infrastructure and protective scaffolding;</p>	<p>Contractor</p>	<p>All staff must be easily identifiable and the climbing of infrastructure and scaffolding must be undertaken by authorised personnel as managed by the Contractor</p>	<p>During the construction phase</p>	<p>ECO</p>	<p>Monthly, and as and when required</p>	<p>No incidents of unauthorised climbing is reported</p>
<p>- Ensure structures vulnerable to high winds are secured;</p>	<p>Contractor</p>	<p>Ensure that sufficient stabilisation measures are implemented to secure structures vulnerable to high winds</p>	<p>During the construction phase</p>	<p>ECO</p>	<p>Weekly, and as and when required</p>	<p>No incidents of unstable structures due to high winds is reported</p>

<ul style="list-style-type: none"> - Maintain an incidents and complaints register in which all incidents or complaints involving the public are logged. 	cEO	Compile and regularly update as incidents and complaints are submitted from the public and indicate the actions taken to resolve the complaint	During the construction phase	ECO	Monthly, and as and when required	The incidents and complaints register is complete and provides all the required details
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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; 	Contractor	Mobile chemical toilets must be placed appropriately and in areas which avoid environmental sensitivities	During the Construction Phase	ECO	Weekly	Mobile toilets are installed and avoid environmental sensitivities
<ul style="list-style-type: none"> - The use of ablution facilities and/or mobile toilets must be used at all times and no indiscriminate use of the veld for the purposes of ablutions must be permitted under any circumstances; 	Contractor in consultation with the cEO	All site staff must be informed of this requirement during the Environmental	Pre-construction & Construction	ECO	Monthly, and as and when required	No evidence of non-compliance identified

		Awareness Training and the consequences of not adhering to the requirement.				
<p>– Where mobile chemical toilets are required, the following must be ensured:</p> <p>a) Toilets are located no closer than 100 m to any watercourse or water body;</p> <p>b) Toilets are secured to the ground to prevent them from toppling due to wind or any other cause;</p> <p>c) No spillage occurs when the toilets are cleaned or emptied and the contents are managed in accordance with the EMPr;</p> <p>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;</p> <p>e) Toilets are emptied before long weekends and workers holidays, and must be locked after working hours;</p> <p>f) Toilets are serviced regularly and the ECO must inspect toilets to ensure compliance to health standards;</p>	Contractor in consultation with the cEO	The installation of the toilets by the Contractor must be as per the listed requirements	During the Construction Phase	ECO	Weekly	No evidence of non-compliance identified
<p>– A copy of the waste disposal certificates must be maintained.</p>	Contractor	Certificates obtained from the licensed waste disposal facility with the emptying of the toilets must be kept on file	During the Construction Phase	ECO	Monthly, and as and when required	Certificates for waste disposal from the licensed waste disposal facility

5.15 Prevention of disease

Impact Management outcome: All necessary precautions linked to the spread of disease are taken.						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Undertake environmentally-friendly pest control in the camp area;	Contractor	Only environmentally-friendly pest control must be used, when required	During the Construction Phase	ECO	As and when pest control is required for the project	Contractor to provide proof of pest control used being environmentally-friendly
– Ensure that the workforce is sensitised to the effects of sexually transmitted diseases, especially HIV/ AIDS;	cEO / Contractor in consultation with the ECO	The effects of sexually transmitted diseases and HIV/ AIDS must be covered in the Environmental Awareness Training	Pre-construction & Construction	ECO	Once, prior to the commencement of construction and monthly during construction	Environmental awareness training material requirements checklist
– The Contractor must ensure that information posters on HIV/ AIDS are displayed in the Contractor Camp area;	Contractor	Develop and place information posters on HIV/ AIDS	During the Construction Phase	ECO	Weekly	Photographic evidence of poster placement

- Information and education relating to sexually transmitted diseases to be made available to both construction workers and local community, where applicable;	cEO / Contractor in consultation with the ECO	Information and education of sexually transmitted diseases must be covered in the Environmental Awareness Training.	Pre-construction & Construction	ECO	Monthly	Environmental awareness training material requirements checklist
- Free condoms must be made available to all staff on site at central points;	Contractor	Placement of free condoms in mobile toilets and at the construction camps	During the Construction Phase	ECO	Monthly	Proof of placement of free condoms by the contractor to be provided
- Medical support must be made available;	dEO / cEO in consultation Contractor (and Eskom maintenance staff where relevant to operation)	Ensure that designated personnel with first aid training are available on site and that first aid kits to provide medical support is readily available	Construction and Operations	ECO	Monthly	Check the availability of first aid trained personnel and medical kits (including if these are complete in terms of supplies)
- Provide access to Voluntary HIV Testing and Counselling Services.	Contractor	Compile a HIV testing schedule and provide counselling services where required	During the Construction Phase	ECO	Quarterly, and as and when required	Voluntary testing schedules and proof of counselling (where undertaken)

5.16 Emergency procedures

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

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- Compile an Emergency Response Action Plan (ERAP) prior to the commencement of the proposed project;	Contractor	Develop an Emergency Preparedness, Response and Fire Management Plan specific to the project	Pre-construction	ECO	Once, prior to the commencement of construction	Emergency Preparedness, Response and Fire Management Plan compiled
- The Emergency Plan must deal with accidents, potential spillages and fires in line with relevant legislation;	Contractor	Develop an Emergency Preparedness, Response and Fire Management Plan specific to the project which covers accidents, potential spillages and fires	Pre-construction	ECO	Once, prior to the commencement of construction	Emergency Preparedness, Response and Fire Management Plan includes required specifications

<p>– All staff must be made aware of emergency procedures as part of environmental awareness training;</p>	<p>cEO / dEO in consultation with the ECO</p>	<p>Develop environmental awareness training material which covers the relevant emergency procedures</p>	<p>Pre-construction</p>	<p>ECO</p>	<p>Prior to the commencement of the environmental awareness training</p>	<p>Environmental awareness training material requirements checklist</p>
<p>– The relevant local authority must be made aware of a fire as soon as it starts;</p>	<p>Contractor in consultation with the ECO</p>	<p>Develop and include a procedure in the Emergency Preparedness, Response and Fire Management Plan for the event of a fire and the procedure to be followed for informing the local authority</p>	<p>Construction</p>	<p>ECO</p>	<p>As and when a fire occurs</p>	<p>The local authority was informed as per the relevant procedure set out in the Emergency Preparedness, Response and Fire Management Plan</p>
<p>– In the event of emergency necessary mitigation measures to contain the spill or leak must be implemented (see Hazardous Substances section 5.17).</p>	<p>Contractor (and Eskom maintenance staff where relevant to operation)</p>	<p>Implement the required mitigation measures in the event of a spill or leak as per the requirements of Section 5.17.</p>	<p>Construction and Operations</p>	<p>ECO</p>	<p>As and when a spill or leak occurs</p>	<p>The mitigation measures included under Section 5.17 have been adhered to</p>

5.17 Hazardous substances

Impact management outcome: Safe storage, handling, use and disposal of hazardous substances.						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- The use and storage of hazardous substances to be minimised and non-hazardous and non-toxic alternatives substituted where possible;	cEO in consultation with the Contractor	Develop a strategy of how hazardous substances can be and should be minimised	Pre-construction & Construction	ECO	Once, prior to the commencement of construction and monthly during the construction phase	Contractor to provide evidence of substances used for proof of compliance
- All hazardous substances must be stored in suitable containers as defined in the Method Statement;	Contractor	Develop a Method Statement for the storage of hazardous substances in suitable containers	Pre-construction & Construction	ECO	Once, prior to the commencement of construction and monthly during the construction phase	Photographic proof that hazardous substances are stored in suitable containers as per the requirements of the relevant Method Statements
- Containers must be clearly marked to indicate contents, quantities and safety requirements;	Contractor	Where hazardous waste is stored	During the Construction Phase	ECO	Monthly	Photographic proof that containers are

		these must be clearly marked indicating the required details of the contents				marked as per the requirements
- All storage areas must be bunded. The bunded area must be of sufficient capacity to contain a spill / leak from the stored containers;	Contractor	Ensure that storage areas are sufficiently bunded which are of sufficient capacity to contain a spill / leak from the stored containers	During the Construction Phase	ECO	Monthly during the Construction Phase	Photographic proof that storage areas are bunded and proof that the bund areas are of sufficient capacity to contain a spill / leak from the stored containers
- Bunded areas to be suitably lined with a SABS approved liner;	Contractor	Ensure that bunded storage areas are suitably lined	During the Construction Phase	ECO	Once, during the Construction Phase	Photographic proof that bunded storage areas are suitably lined
- An Alphabetical Hazardous Chemical Substance (HCS) control sheet must be drawn up and kept up to date on a continuous basis;	cEO / Contractor	Compile and update an Alphabetical Hazardous Chemical Substance (HCS) control sheet specific to the project	During the Construction Phase	ECO	Monthly, and as and when required	Complete and up to date control sheet provided by the Contractor
- All hazardous chemicals that will be used on site must have Material Safety Data Sheets (MSDS);	cEO / Contractor	Keep a record of all hazardous chemicals and	During the Construction Phase	ECO	Monthly, and as and when required	Record of hazardous chemicals and

		the respective MSDS				the respective MSDS
- All employees working with HCS must be trained in the safe use of the substance and according to the safety data sheet;	cEO / Contractor	Provide training for personnel working with HCS	Pre-construction	ECO	Once, prior to the commencement of construction and as and when required	Record of training provided to personnel working with HCS
- Employees handling hazardous substances / materials must be aware of the potential impacts and follow appropriate safety measures. Appropriate personal protective equipment must be made available;	cEO / Contractor	Develop environmental awareness training material which covers the relevant impacts and safety measures. Provide appropriate training and personal protective equipment for the relevant personnel handling hazardous substances and materials	Pre-construction & Construction	ECO	Prior to the commencement of the environmental awareness training and monthly during the construction phase for personal protective equipment	Environmental awareness training material requirements checklist and all relevant personnel have undergone appropriate training and have access to personal protective equipment
- The Contractor must ensure that diesel and other liquid fuel, oil and hydraulic fluid is stored in appropriate storage tanks or in bowsers;	Contractor	Appropriate storage facilities must be constructed or obtained for the	During the Construction Phase	ECO	Monthly, and as and when required	Storage tanks for the project are appropriate and no incidents are

		storing of diesel, other liquid fuel, oil and hydraulic fluid				reported in this regard
- The tanks/ bowsers must be situated on a smooth impermeable surface (concrete) with a permanent bund. The impermeable lining must extend to the crest of the bund and the volume inside the bund must be 130% of the total capacity of all the storage tanks/ bowsers (110% statutory requirement plus an allowance for rainfall);	Contractor	Appropriate storage facilities must be constructed or obtained for tanks as per the requirements listed	During the Construction Phase	ECO	Monthly, and as and when required	Storage areas for the tanks/ bowsers for the project are appropriate and no incidents are reported in this regard
- The floor of the bund must be sloped, draining to an oil separator;	Contractor	Appropriate storage facilities must be constructed as per the requirements listed	During the Construction Phase	ECO	Once, during construction	Bunded storage areas are constructed according to the requirements
- Provision must be made for refuelling at the storage area by protecting the soil with an impermeable groundcover. Where dispensing equipment is used, a drip tray must be used to ensure small spills are contained;	Contractor	Appropriately constructed refuelling facility must be developed as per the requirements. Drip trays must be provided for use	During the Construction Phase	ECO cEO	Monthly Weekly	Soils at the refuelling facility are protected as required and drip trays are provided and used
- All empty externally dirty drums must be stored on a drip tray or within a bunded area;	Contractor	Ensure that empty dirty drums are stored appropriately as per the requirements	During the Construction Phase	ECO cEO	Monthly Weekly	Drip trays or bunded areas are used for the storage of dirty drums

- No unauthorised access into the hazardous substances storage areas must be permitted;	Contractor	Ensure through the implementation of procedures that no unauthorised access is undertaken into the storage areas	During the Construction Phase	ECO	Monthly	Proof of the implementation of the relevant procedure must be provided by the contractor
- No smoking must be allowed within the vicinity of the hazardous storage areas;	Contractor	Inform all employees of the requirement and develop and place relevant signage in the relevant areas	During the Construction Phase	ECO cEO	Monthly Weekly	Photographic record of the signage placed must be provided
- Adequate fire-fighting equipment must be made available at all hazardous storage areas;	Contractor	Hazardous storage areas must be fitted with adequate fire-fighting equipment	During the Construction Phase	ECO	Monthly	Adequate fire-fighting equipment is available and has been serviced
- Where refuelling away from the dedicated refuelling station is required, a mobile refuelling unit must be used. Appropriate ground protection such as drip trays must be used;	Contractor	Provide a mobile refuelling unit as well as suitable ground protection, where required	During the Construction Phase	ECO	Monthly, and as and when required	A mobile refuelling unit and suitable ground protection is available for use
- An appropriately sized spill kit kept onsite relevant to the scale of the activity/s involving the use of hazardous substance must be available at all times;	Contractor	Provide an appropriate spill kit for the project for the use of	During the Construction Phase	ECO	Monthly, and as and when required	Appropriate spill kits are available for use

		hazardous substances				
- The responsible operator must have the required training to make use of the spill kit in emergency situations;	cEO and Contractor	Provide training on the use of spill kits to the relevant employees	Pre-construction	ECO	Once, prior to the commencement of construction	Proof of training to be provided by the contractor
- An appropriate number of spill kits must be available and must be located in all areas where activities are being undertaken;	cEO and Contractor	Provide an appropriate number of spill kits in relevant areas	During the Construction Phase	ECO	Monthly	Proof of appropriate number of spill kits in appropriate areas to be provided by the contractor
- In the event of a spill, contaminated soil must be collected in containers and stored in a central location and disposed of according to the National Environmental Management: Waste Act 59 of 2008. Refer to Section 5.7 for procedures concerning storm and waste water management and 5.8 for solid and hazardous waste management.	cEO and Contractor	Storage and disposal of contaminated soil must be in accordance with the National Environmental Management: Waste Act and sections 5.7 and 5.8 of this EMPr	During the Construction Phase	ECO	Monthly, and as and when required	Proof of storage and disposal in terms of the National Environmental Management: Waste Act must be provided. Certificates of disposal at licensed waste disposal facilities must be provided

5.18 Workshop, equipment maintenance and storage

Impact management outcome: Soil, surface water and groundwater contamination is minimised.						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Where possible and practical, all maintenance of vehicles and equipment must take place in the workshop area;	Contractor	Demarcate specific areas for the maintenance of vehicles and equipment	During the Construction Phase	ECO	Monthly	A dedicated area for the maintenance of vehicles and machinery is used.
– During servicing of vehicles or equipment, especially where emergency repairs are effected outside the workshop area, a suitable drip tray must be used to prevent spills onto the soil. The relevant local authority must be made aware of a fire as soon as it starts;	Contractor	Ensure that a drip tray is available for an emergency repairs required	During the Construction Phase	ECO	Monthly	Contractor to provide evidence of drip tray use for emergency repairs
– Leaking equipment must be repaired immediately or be removed from site to facilitate repair;	Contractor	Ensure that where leaking equipment is identified it is repaired immediately or removed from site for repairs	During the Construction Phase	ECO	Monthly	Contractor to provide details of equipment repaired or removed from site
– Workshop areas must be monitored for oil and fuel spills;	cEO	Undertake regular inspections of the workshop areas for oil and fuel spills and	During the Construction Phase	ECO	Monthly	Register of inspection

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

5.19 Batching plants

Impact management outcome: Minimise spillages and contamination of soil, surface water and groundwater.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Concrete mixing must be carried out on an impermeable surface;	Contractor	Provide impermeable surface for the mixing of concrete	During the Construction Phase	ECO	Weekly	No concrete mixing is undertaken on open ground
– Batching plants areas must be fitted with a containment facility for the collection of cement laden water.	Contractor	Provide containment facility for the collection of cement laden water	During the Construction Phase	ECO	Weekly	No cement laden water is released into the environment
– Dirty water from the batching plant must be contained to prevent soil and groundwater contamination	Contractor	Provide containment facility for the collection of cement laden water (dirty water)	During the Construction Phase	ECO	Weekly	No cement laden water is released into the environment
– Bagged cement must be stored in an appropriate facility and at least 10 m away from any water courses, gullies and drains;	Contractor	Demarcate and provide a storage area for bagged cement in-line with the listed requirements	During the Construction Phase	ECO	Weekly	Photographic proof of bagged cement stored within the demarcated area

<p>– A washout facility must be provided for washing of concrete associated equipment. Water used for washing must be restricted;</p>	<p>Contractor</p>	<p>Provide a washout facility for the washing of associated equipment. Enforce limitations on water use for washing of equipment</p>	<p>During the Construction Phase</p>	<p>ECO</p>	<p>Weekly</p>	<p>No cement laden water is released into the environment. Only minimal water is used for washing</p>
<p>– Hardened concrete from the washout facility or concrete mixer can either be reused or disposed of at an appropriate licensed disposal facility;</p>	<p>Contractor</p>	<p>Make use of hardened concrete where possible or dispose of concrete in a suitable manner</p>	<p>During the Construction Phase</p>	<p>ECO</p>	<p>Monthly</p>	<p>Certificates of disposal of concrete at licensed waste disposal facility</p>
<p>– Empty cement bags must be secured with adequate binding material if these will be temporarily stored on site;</p>	<p>Contractor</p>	<p>Bind empty cement bags and temporarily store it in an appropriate area on site</p>	<p>During the Construction Phase</p>	<p>ECO</p>	<p>Monthly</p>	<p>Proof of binding of empty cement bags and storage in an appropriate area on site to be provided by the Contractor</p>
<p>– Sand and aggregates containing cement must be kept damp to prevent the generation of dust (Refer to Section 5.20: Dust emissions)</p>	<p>Contractor</p>	<p>Ensure that sand and aggregates are kept damp or otherwise protected from dust generation</p>	<p>During the Construction Phase</p>	<p>ECO</p>	<p>Monthly</p>	<p>Proof of damping (or alternative dust suppression) of sand and aggregates must be provided by the Contractor</p>

<p>- Any excess sand, stone and cement must be removed or reused from site on completion of the construction period and disposed at a registered disposal facility;</p>	<p>Contractor</p>	<p>Ensure that all excess sand, stone and cement is removed or reused</p>	<p>At the completion of the Construction Phase</p>	<p>ECO</p>	<p>Once, with the completion of construction</p>	<p>Certificates for the disposal of sand, stone and cement at licensed waste disposal facilities or proof of reuse must be provided</p>
<p>- Temporary fencing must be erected around batching plants in accordance with Section 5.5: Fencing and gate installation.</p>	<p>Contractor</p>	<p>Erect temporary fencing around batching plants as per the requirements listed in section 5.5</p>	<p>During the Construction Phase</p>	<p>ECO</p>	<p>Weekly</p>	<p>Temporary fencing is undertaken in accordance with section 5.5</p>

5.20 Dust emissions

Impact management outcome: Dust prevention measures are applied to minimise the generation of dust.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Take all reasonable measures to minimise the generation of dust as a result of project development activities to the satisfaction of the ECO;	Contractor	Apply appropriate dust suppressant	During the Construction Phase	ECO	Weekly	Contractor to provide proof of use of appropriate dust suppressants
– Removal of vegetation must be avoided until such time as soil stripping is required and similarly exposed surfaces must be re-vegetated or stabilised as soon as is practically possible;	Contractor	Proper planning for vegetation removal must be undertaken as well as for the associated rehabilitation	During the Construction Phase and Rehabilitation	ECO	Weekly	Plan for implementation must be provided by the Contractor
– Excavation, handling and transport of erodible materials must be avoided under high wind conditions or when a visible dust plume is present;	Contractor	Ensure that specific limitations are placed on the transport and handling of erodible materials during high wind conditions or when a visible dust plume is present	During the Construction Phase	ECO	Bi-weekly (every second week)	No complaints submitted in this regard

- During high wind conditions, the ECO must evaluate the situation and make recommendations as to whether dust-damping measures are adequate, or whether working will cease altogether until the wind speed drops to an acceptable level;	ECO	ECO to provide adequate recommendations	During the Construction Phase	<u>Not Applicable</u>		
- Where possible, soil stockpiles must be located in sheltered areas where they are not exposed to the erosive effects of the wind;	Contractor	Place soil stockpiles in areas less affected by wind	During the Construction Phase	ECO	Bi-weekly (every second week)	Soil stockpiles are not exposed to wind and have not been eroded
- Where erosion of stockpiles becomes a problem, erosion control measures must be implemented at the discretion of the ECO;	Contractor in consultation with the ECO	Contractor to implement erosion control measures as recommended and agreed with the ECO	During the Construction Phase	ECO	Weekly, until erosion is no longer a problem	Recommendations made by the ECO have been implemented by the Contractor
- Vehicle speeds must not exceed 40 km/h along dust roads or 20 km/h when traversing unconsolidated and non-vegetated areas;	eCO / dEO / contractor (and Eskom maintenance staff where relevant to operation)	Inform all drivers of speed limits and place appropriate signage along the relevant roads	During the Construction Phase Operation Phase	ECO Operation and Maintenance team	Monthly	No complaints from community members are submitted
- Straw stabilisation must be applied at a rate of one bale/10 m ² and harrowed into the top 100 mm of top material, for all completed earthworks;	Contractor	Ensure that straw stabilisation is undertaken as per the listed requirements	During the Construction Phase	ECO	Monthly	Photographic record of all straw stabilisation undertaken
- For significant areas of excavation or exposed ground, dust suppression measures must be used to minimise the spread of dust.	Contractor	Appropriate dust suppressant measures are implemented	During the Construction Phase	ECO	Weekly	Photographic record of measures being implemented and the results thereof

5.21 Blasting

Impact management outcome: Impact to the environment is minimized through a safe blasting practice.						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- Any blasting activity must be conducted by a suitably licensed blasting contractor; and	Not Applicable – no blasting proposed					
- Notification of surrounding landowners, emergency services site personnel of blasting activity 24 hours prior to such activity taking place on Site.	Not Applicable – no blasting proposed					

5.22 Noise

Impact Management outcome: Prevent unnecessary noise to the environment by ensuring that noise from development activity is mitigated.						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- The Contractor must keep noise level within acceptable limits, Restrict the use of sound amplification equipment for communication and emergency only;	Contractor	Ensure that noise limits do not exceed acceptable limits and avoid the use of amplification communication	During the Construction Phase	ECO	Monthly, and as and when required	No complaints registered in this regard. No amplification equipment is used.

<p>– All vehicles and machinery must be fitted with appropriate silencing technology and must be properly maintained;</p>	<p>Contractor</p>	<p>Provide and implement silencing technology</p>	<p>During the Construction Phase</p>	<p>ECO</p>	<p>Monthly, and as and when required</p>	<p>No complaints registered in this regard. Silencing technology is utilised.</p>
<p>– 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;</p>	<p>cEO</p>	<p>Update complaints register. Provide daily transport to and from site for employees</p>	<p>During the Construction Phase</p>	<p>ECO</p>	<p>Monthly, and as and when required</p>	<p>Complaints register provided by the cEO and proof of transportation services provided</p>
<p>– 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>	<p>cEO and Contractor in consultation with the ECO</p>	<p>Compile a Code of Conduct for staff. Appropriate operating hours must be identified for the project.</p>	<p>Pre-construction and Construction</p>	<p>ECO</p>	<p>Once, prior to the commencement of construction</p>	<p>No complaints registered in this regard.</p>

5.23 Fire prevention

Impact management outcome: Prevention of uncontrollable fires.						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Designate smoking areas where the fire hazard could be regarded as insignificant;	cEO / Contractor	Identify and demarcate through signage for designated smoking areas	Pre-construction & Construction	ECO	Monthly	Photographic record of designated smoking area
– Firefighting equipment must be available on all vehicles located on site;	cEO / dEO in consultation with the Contractor	Provide all vehicles with firefighting equipment	Construction	ECO	Monthly	All vehicles are fitted with firefighting equipment and the details thereof are provided by the cEO
– The local Fire Protection Agency (FPA) must be informed of construction activities;	cEO in consultation with the ECO	Undertake formal consultation to inform the local FPA of the associated construction activities	Pre-construction	ECO	Once, during the commencement of the Construction Phase	Proof of consultation with the FPA
– Contact numbers for the FPA and emergency services must be communicated in environmental awareness training and displayed at a central location on site;	dEO / cEO / Contractor in consultation with the ECO	Develop environmental awareness training material	Pre-construction & Construction	ECO	Prior to the commencement of the environmental awareness	Environmental awareness training material requirements checklist and

		<p>which covers the contact numbers for the FPA and emergency services.</p> <p>Place the contact numbers for the FPA and emergency services at a visible and central location</p>			<p>training and once during the construction phase</p>	<p>photographic record of contact numbers on display</p>
<p>– Two-way swop of contact details between ECO and FPA.</p>	ECO	<p>Consultation between the ECO and FPA in order to exchange contact details</p>	Pre-construction	<p><u>Not Applicable</u></p>		

5.24 Stockpiling and stockpile areas

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

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All material that is excavated during the project development phase (either during piling (if required) or earthworks) must be stored appropriately on site in order to minimise impacts to watercourses and water bodies;	Contractor	Identify and demarcate an appropriate location for the storage of excavated materials	Pre-construction & Construction	ECO	Monthly	Excavated material is not stored within sensitive environmental areas
– All stockpiled material must be maintained and kept clear of weeds and alien vegetation growth by undertaking regular weeding and control methods;	Contractor	Implement appropriate and sufficient maintenance on stockpiled material regularly	During the Construction Phase	ECO	Bi-monthly (every second month)	Stockpiled material is maintained sufficiently and is clear of weeds and alien vegetation
– Topsoil stockpiles must not exceed 2 m in height;	Contractor	Enforce limitations for the height of topsoil stockpiles	During the Construction Phase	ECO	Bi-monthly (every second month)	Topsoil stockpiles do not exceed 2m in height
– During periods of strong winds and heavy rain, the stockpiles must be covered with appropriate material (e.g. cloth, tarpaulin etc.);	Contractor	Appropriate material must be provided in order to cover stockpiles when required	During the Construction Phase	ECO	Monthly	Contractor to provide proof of availability of appropriate material to cover stockpiles when required

- Where possible, sandbags (or similar) must be placed at the bases of the stockpiled material in order to prevent erosion of the material.	Contractor	Sandbags must be provided in order to prevent erosion of stockpiled materials	During the Construction Phase	ECO	Monthly	Contractor to provide proof of availability of sandbags to prevent erosion of stockpiled materials
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5.25 Civil works

Impact management outcome: Impact to the environment minimised during civil works to create the substation terrace.						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- Where terracing is required, topsoil must be collected and retained for the purpose of re-use later to rehabilitate disturbed areas not covered by yard stone;	Contractor	Collect and retain topsoil for terracing	During the Construction Phase Rehabilitation	ECO	Weekly	Proof of collection and retaining of topsoil
- Areas to be rehabilitated include terrace embankments and areas outside the high voltage yards;	Contractor	Undertake rehabilitation of terrace embankments and areas outside of the high voltage yard where applicable	During the Construction Phase Rehabilitation	ECO	Weekly	Photographic record of rehabilitation of terrace embankments and areas outside the high voltage yards
- Where required, all sloped areas must be stabilised to ensure proper rehabilitation is effected and erosion is controlled;	Contractor	All disturbed slope areas must be stabilised	Rehabilitation	ECO	Weekly	Disturbed slopes are stabilised sufficiently

<ul style="list-style-type: none"> – These areas can be stabilised using design structures or vegetation, as specified in the design, to prevent erosion of embankments. The contract design specifications must be adhered to and implemented strictly; 	Contractor	Stabilise slopes as per the design specifications	Pre-construction & Rehabilitation	ECO	Weekly	Slopes are stabilised as per the design specifications
<ul style="list-style-type: none"> – Rehabilitation of the disturbed areas must be managed in accordance with Section 5.35: Landscaping and rehabilitation; 	Contractor	Undertaken rehabilitation of disturbed areas as per the requirements listed under section 5.35	Rehabilitation	ECO	Weekly	Rehabilitation of disturbed areas is undertaken in-line with the requirements of section 5.35
<ul style="list-style-type: none"> – All excess spoil generated during terracing activities must be disposed of in an appropriate manner and at a recognised landfill site; and 	Contractor	Use a licensed waste disposal facility for the disposal of excess spoil	During the Construction Phase	ECO	Monthly	Certificates obtained for the disposal of excess spoil at a licensed waste disposal facility
<ul style="list-style-type: none"> – Spoil can however be used for landscaping purposes and must be covered with a layer of 150 mm topsoil for rehabilitation purposes. 	Contractor	Spoil used for landscaping must be applied as per the listed requirements	Construction and Rehabilitation	ECO	Monthly	Photographic record of spoil used for landscaping purposes as well as feedback from the contractor

5.26 Excavation of foundation, cable trenching and drainage systems

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

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All excess spoil generated during foundation excavation must be disposed of in an appropriate manner and at a licensed landfill site, if not used for backfilling purposes;	Contractor	Use a licensed waste disposal facility for the disposal of excess spoil	During the Construction Phase	ECO	Monthly	Certificates obtained for the disposal of excess spoil at a licensed waste disposal facility
– Spoil can however be used for landscaping purposes and must be covered with a layer of 150 mm topsoil for rehabilitation purposes;	Contractor	Spoil used for landscaping must be applied as per the listed requirements	Construction and Rehabilitation	ECO	Monthly	Photographic record of spoil used for landscaping purposes as well as feedback from the contractor
– Management of equipment for excavation purposes must be undertaken in accordance with Section 5.18: Workshop, equipment maintenance and storage; and	Contractor	Undertake the management of equipment for excavation as per the requirements of section 5.18	During the Construction Phase	ECO	Monthly	Management of equipment is undertaken in line with the requirements of section 5.18
– Hazardous substances spills from equipment must be managed in accordance with Section 5.17: Hazardous substances.	Contractor	Undertake the management of hazardous substances spills from equipment	During the Construction Phase	ECO	Monthly	Management of hazardous substances spills from equipment is undertaken in

		as per the requirements of section 5.17				line with the requirements of section 5.17
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5.27 Installation of foundations, cable trenching and drainage systems

Impact management outcome: No environmental degradation occurs during the installation of foundation, cable trenching and drainage system.						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- Batching of cement to be undertaken in accordance with Section 5.19: Batching plants; and	Contractor	Undertake the batching of cement as per the requirements of section 5.19	During the Construction Phase	ECO	Monthly	Management of batching cement is undertaken in line with the requirements of section 5.19
- Residual solid waste must be disposed of in accordance with Section 5.8: Solid waste and hazardous management.	Contractor	Undertake the disposal of solid waste as per the requirements of section 5.8	During the Construction Phase	ECO	Monthly	The disposal of solid waste is undertaken in line with section 5.8.

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

Impact management outcome: No environmental degradation occurs as a result of installation of equipment.		
Impact Management Actions	Implementation	Monitoring

	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- Management of dust must be conducted in accordance with Section 5. 20: Dust emissions;	Contractor	Manage dust as per the requirements of section 5.20	During the Construction Phase	ECO	Weekly	The management of dust is undertaken as per the requirements of section 5.20
- Management of equipment used for installation must be conducted in accordance with Section 5.18: Workshop, equipment maintenance and storage;	Contractor	Undertake the management of equipment for installation as per the requirements of section 5.18	During the Construction Phase	ECO	Monthly	Management of equipment is undertaken in line with the requirements of section 5.18
- Management of hazardous substances and any associated spills must be conducted in accordance with Section 5.17: Hazardous substances; and	Contractor	Undertake the management of hazardous substances and associated spills as per the requirements of section 5.17	During the Construction Phase	ECO	Monthly	Management of hazardous substances and associated spills is undertaken in line with the requirements of section 5.17
- Residual solid waste must be recycled or disposed of in accordance with Section 5.8: Solid waste and hazardous management.	Contractor	Undertake the recycling or disposal of residual solid waste as per the requirements of section 5.8	During the Construction Phase	ECO	Monthly	The recycling or disposal of residual solid waste is undertaken in line with section 5.8.

5.29 Steelwork Assembly and Erection

Impact management outcome: No environmental degradation occurs as a result of steelwork assembly and erection.						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– During assembly, care must be taken to ensure that no wasted/unused materials are left on site e.g. bolts and nuts	Contractor	Inspect areas where construction is being undertaken and remove and appropriately dispose of wasted/unused materials	During the Construction Phase	ECO	Weekly	Contractor to provide proof of inspection and removal of waste/unused materials and the appropriate disposal thereof (i.e. disposal certificates)
– Emergency repairs due to breakages of equipment must be managed in accordance with Section 5.18: Workshop, equipment maintenance and storage and Section 5.16: Emergency procedures.	Contractor	Undertake emergency repairs of equipment as per the requirements of section 5.18 and 5.16	During the Construction Phase	ECO	Weekly	Emergency repairs of equipment is undertaken as per the requirements of section 5.18 and 5.16

5.30 Cabling and Stringing

Impact management outcome: No environmental degradation occurs as a result of stringing.		
Impact Management Actions	Implementation	Monitoring

	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Residual solid waste (off cuts etc.) shall be recycled or disposed of in accordance with Section 5.8: Solid waste and hazardous Management;	Contractor	Undertake the recycling or disposal of residual solid waste as per the requirements of section 5.8	During the Construction Phase	ECO	Monthly	The recycling or disposal of residual solid waste is undertaken in line with section 5.8.
– Management of equipment used for installation shall be conducted in accordance with Section 5.18: Workshop, equipment maintenance and storage;	Contractor	Undertake the management of equipment for installation as per the requirements of section 5.18	During the Construction Phase	ECO	Monthly	Management of equipment for installation is undertaken in line with the requirements of section 5.18
– Management of hazardous substances and any associated spills shall be conducted in accordance with Section 5.17: Hazardous substances.	Contractor	Undertake the management of hazardous substances and associated spills as per the requirements of section 5.17	During the Construction Phase	ECO	Monthly	Management of hazardous substances and associated spills is undertaken in line with the requirements of section 5.17

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

Impact management outcome: No environmental degradation occurs as a result of Testing and Commissioning.						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance

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

Impact management outcome: enhanced socio-economic development.						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
- Develop and implement communication strategies to facilitate public participation;	dEO / cEO	Identify and implement appropriate strategies for communication with the communities through consideration of the community needs	Pre-construction & Construction	ECO	Once, prior to the commencement of construction and monthly during the construction	Communication is undertaken as per the identified strategies and no complaints are submitted regarding communication
- Develop and implement a collaborative and constructive approach to conflict resolution as part of the external stakeholder engagement process;	Contractor	Development and implement a Grievance Mechanism which considers the community	Pre-construction & Construction	ECO	Once, prior to the commencement of construction and monthly during the	Conflict resolution is undertaken in line with the requirements of the Grievance

		needs and provides procedures for conflict resolution			construction phase	Mechanism. No complaints on conflict resolution is submitted by the community
- Sustain continuous communication and liaison with neighboring owners and residents	Contractor	Development and implement a Grievance Mechanism which provides procedures for communication / liaison with neighbouring landowners and residents	Pre-construction & Construction	ECO	Once, prior to the commencement of construction and monthly during the construction phase	Communication / liaison with neighbouring landowners and residents are undertaken in line with the requirements of the Grievance Mechanism. No complaints on communication with neighbouring landowners and residents is submitted
- Create work and training opportunities for local stakeholders; and	Contractor	Develop and implement a "locals first" policy for the provision of employment opportunities	Pre-construction & Construction	ECO	Once, prior to the commencement of construction and monthly during the construction phase	The "locals first" policy is considered in terms of the employment and training opportunities
- Where possible or applicable, provide transport to and from the site on a daily basis for construction workers;	cEO	Provide daily transport to and from site for employees	During the Construction Phase	ECO	When required	Proof of transportation services provided

<p>– Where feasible, no workers, with the exception of security personnel, must be permitted to stay overnight on the site. This would reduce the risk to local farmers.</p>	<p><u>Not Applicable</u> - no workers, other than security is proposed to stay on-site overnight.</p>
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5.33 Temporary closure of site

<p>Impact management outcome: Minimise the risk of environmental impact during periods of site closure greater than five days.</p>						
<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>
<p>– Bunds must be emptied (where applicable) and need to be undertaken in accordance with the impact management actions included in sections 5.17: Hazardous substances and 5.18: Workshop, equipment maintenance and storage;</p>	<p>Contractor</p>	<p>Regular emptying of the bunds must be undertaken. This must be undertaken as per the requirements listed in sections 5.17 and 5.18</p>	<p>During the Construction Phase</p>	<p>ECO</p>	<p>Prior to site closure for more than 05 days</p>	<p>Bunds are emptied as per the requirements listed under sections 5.17 and 5.18</p>
<p>– Hazardous storage areas must be well ventilated;</p>	<p>Contractor</p>	<p>Install appropriate ventilation in all hazardous storage areas</p>	<p>During the construction phase</p>	<p>ECO</p>	<p>Prior to site closure for more than 05 days</p>	<p>Effective ventilation is installed in hazardous storage areas</p>
<p>– Fire extinguishers must be serviced and accessible. Service records to be filed and audited at last service;</p>	<p>Contractor / cEO</p>	<p>Ensure fire extinguishers are serviced, as required and are easily accessible</p>	<p>During the Construction Phase</p>	<p>ECO</p>	<p>Prior to site closure for more than 05 days</p>	<p>Signage placed indicating location of fire extinguishers</p>

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

	consultation with the ECO	notify the relevant local authority				to the local authority must be provided by the Contractor
- Structures vulnerable to high winds must be secured;	Contractor	Ensure structures vulnerable to wind is secure prior to site closure	During the Construction Phase	ECO	Prior to site closure for more than 05 days	Structures vulnerable to wind is secured prior to site closure
- Wind and dust mitigation must be implemented;	Contractor	Implement wind and dust mitigation prior to site closure	During the Construction Phase	ECO	Prior to site closure for more than 05 days	Wind and dust mitigation is implemented prior to site closure
- Cement and materials stores must have been secured;	Contractor	Ensure cement and material stores are secured prior to site closure	During the Construction Phase	ECO	Prior to site closure for more than 05 days	Cement and material stores are secured prior to site closure
- Toilets must have been emptied and secured;	Contractor	Ensure toilets are emptied and secured prior to site closure	During the Construction Phase	ECO	Prior to site closure for more than 05 days	Toilets are emptied and secured prior to site closure
- Refuse bins must have been emptied and secured;	Contractor	Ensure refuse bins are emptied and secured prior to site closure	During the Construction Phase	ECO	Prior to site closure for more than 05 days	Refuse bins are emptied and secured prior to site closure
- Drip trays must have been emptied and secured.	Contractor	Ensure drip trays are emptied and secured prior to site closure	During the Construction Phase	ECO	Prior to site closure for more than 05 days	Drip trays are emptied and secured prior to site closure

5.34 Dismantling of old equipment

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

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All old equipment removed during the project must be stored in such a way as to prevent pollution of the environment;	Contractor	Appropriately store old equipment in a manner which prevents pollution to the environment. This could include the construction of bunded areas	Decommissioning	ECO	Monthly	Photographic record of appropriate storage of old equipment
– Oil containing equipment must be stored to prevent leaking or be stored on drip trays;	Contractor	Appropriately store equipment containing oil through the use of drip trays or other suitable methods	Decommissioning	ECO	Monthly	Photographic record of appropriate storage of equipment containing oil
– All scrap steel must be stacked neatly and any disused and broken insulators must be stored in containers;	Contractor	Ensure all scrap steel is stacked neatly and store disused and broken insulators in appropriate containers	Decommissioning	ECO	Monthly	Photographic record of stacked scrap steel and containers containing broken and

						disused insulators
– Once material has been scrapped and the contract has been placed for removal, the disposal Contractor must ensure that any equipment containing pollution causing substances is dismantled and transported in such a way as to prevent spillage and pollution of the environment;	Contractor	Develop and implement a procedure for the dismantling and transportation of equipment containing pollution causing substances which prevents spillage and pollution of the environment	Decommissioning	ECO	Monthly	Proof from contractor that dismantling and transportation of equipment containing pollution causing substances has been undertaken in an appropriate manner
– The Contractor must also be equipped to contain and clean up any pollution causing spills; and	Contractor	Ensure sufficient spill kits are available for the clean up of pollution causing spills	Decommissioning	ECO	Monthly	Sufficient spill kits are available on site
– Disposal of unusable material must be at a licensed waste disposal site.	Contractor	Make use of a licensed waste disposal site	Decommissioning	ECO	Monthly	Certificates obtained for the disposal at a licensed waste disposal site

5.35 Landscaping and rehabilitation

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

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All areas disturbed by construction activities must be subject to landscaping and rehabilitation; All spoil and waste must be disposed of to a registered waste site;	Contractor	Develop and implement a rehabilitation plan for the rehabilitation of all disturbed areas. Dispose of all spoil and waste at a licensed waste disposal facility	Pre-construction & Rehabilitation	ECO	Weekly	Rehabilitation of the disturbed areas is undertaken as per the rehabilitation plan. All certificates of waste disposal at licensed facilities are available.
– All slopes must be assessed for contouring, and to contour only when the need is identified in accordance with the Conservation of Agricultural Resources Act, No 43 of 1983	Contractor in consultation with the ECO	Assess all slopes and determine whether contouring is required	Rehabilitation	ECO	Weekly	All slopes are assessed and contoured as required
– All slopes must be assessed for terracing, and to terrace only when the need is identified in accordance with the Conservation of Agricultural Resources Act, No 43 of 1983;	Contractor in consultation with the ECO	Assess all slopes and determine whether terracing is required	Rehabilitation	ECO	Weekly	All slopes are assessed and terraced as required
– Berms that have been created must have a slope of 1:4 and be replanted with indigenous species and grasses that approximates the original condition;	Contractor	Ensure all berms have a slope of 1:4 and is replanted with indigenous species and grasses	Rehabilitation	ECO	Weekly	All berms have a slope of 1:4 and is replanted with indigenous species and grasses

- Where new access roads have crossed cultivated farmlands, that lands must be rehabilitated by ripping which must be agreed to by the holder of the EA and the landowners;	<u>Not applicable</u>						
- Rehabilitation of access roads inside of farmland;	<u>Not applicable</u>						
- Indigenous species must be used for with species and/grasses to where it compliments or approximates the original condition;	Contractor	Make use of indigenous species for rehabilitation	Rehabilitation	ECO	Weekly	Indigenous species are used for rehabilitation	
- Stockpiled topsoil must be used for rehabilitation (refer to Section 5.24: Stockpiling and stockpiled areas);	Contractor	Ensure stockpiled topsoil is used as per the requirements listed under section 5.24	Rehabilitation	ECO	Weekly	Stockpiled topsoil is used as per the requirements listed under section 5.24	
- Stockpiled topsoil must be evenly spread so as to facilitate seeding and minimise loss of soil due to erosion;	Contractor	Ensure that topsoil is spread evenly	Rehabilitation	ECO	Weekly	Topsoil is spread evenly	
- Before placing topsoil, all visible weeds from the placement area and from the topsoil must be removed;	Contractor	Remove all visible weeds from placement area and topsoil before spreading the topsoil	Rehabilitation	ECO	Weekly	No weeds are visible in the placement area or the topsoil	
- Subsoil must be ripped before topsoil is placed;	Contractor	Undertake the ripping of subsoil prior to the spreading of topsoil	Rehabilitation	ECO	Weekly	Subsoil is ripped before topsoil is placed	
- The rehabilitation must be timed so that rehabilitation can take place at the optimal time for vegetation establishment;	Contractor	Plan the timeframe for rehabilitation in order to	Rehabilitation	ECO	At the start of rehabilitation to confirm the	Rehabilitation is undertaken during the optimal time	

		undertake vegetation planting during the optimal time for vegetation establishment			correct timeframe	
- Where impacted through construction related activity, all sloped areas must be stabilised to ensure proper rehabilitation is effected and erosion is controlled;	Contractor	All disturbed slope areas must be stabilised	Rehabilitation	ECO	Weekly	Disturbed slopes are stabilised sufficiently
- Sloped areas stabilised using design structures or vegetation as specified in the design to prevent erosion of embankments. The contract design specifications must be adhered to and implemented strictly;	Contractor	Stabilise slopes as per the design specifications	Pre-construction & Rehabilitation	ECO	Weekly	Slopes are stabilised as per the design specifications
- Spoil can be used for backfilling or landscaping as long as it is covered by a minimum of 150 mm of topsoil.	Contractor	Spoil used for landscaping must be applied as per the listed requirements	Rehabilitation	ECO	Weekly	Photographic record of spoil used for landscaping purposes as well as feedback from the contractor
- Where required, re-vegetation including hydro-seeding can be enhanced using a vegetation seed mixture as described below. A mixture of seed can be used provided the mixture is carefully selected to ensure the following: 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	Contractor in consultation with a suitably qualified specialist	Make use of a suitable vegetation seed mixture should enhancement be required	Rehabilitation	ECO	As and when required	Use of a suitable vegetation seed mixture if required

6 ACCESS TO THE GENERIC EMPr

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

PART B: SECTION 2

7. SITE SPECIFIC INFORMATION AND DECLARATION

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

7.1.1. Details of the Applicant:

Applicant Name	Sutherland Wind Farm (Pty) Ltd
Contact Person	Eugene Marais
Physical Address	4th Floor Mariendahl House, Newlands on Main, Corner Main and Campground Road, Claremont, Cape Town, 7708
Postal Address	PO Box 45063, Claremont, 7735
Telephone	021 657 4045
Fax	N/A
Cell	(073) 871 5781
Email Address	Eugene.Marais@mainstreamrp.com

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

EAP Name	Arlene Singh
EAP Qualifications	B.Sc. (Hons.) Environmental Management
Professional Affiliation/Registration	SACNASP EAPASA
Physical Address	Waterfall, Cnr Old Main Road & Maxwell Drive, Johannesburg, 2090
Telephone	N/A
Fax	086 471 4190
Cell	084 277 7074
Email Address	arlene@veersgroup.com

Refer to **Appendix A** of the EMPr for the detailed experience of the EAP and the Project Team.

7.1.3. Project Details

Project Name:

DEVELOPMENT OF A NEW **33KV/132KV IPP SUBSTATION** FOR THE AUTHORISED SUTHERLAND AND RIETRUG WIND ENERGY FACILITIES, NORTHERN CAPE PROVINCE

7.1.4. Project Description

Sutherland Wind Farm (Pty) Ltd, is proposing the development of the new Acrux **33kV/132kV IPP substation** (14/12/16/3/3/1/2458) for the authorised Sutherland and Rietrug Wind Energy Facilities (WEFs). The proposed grid infrastructure will connect the substation to the authorised electrical grid connection infrastructure (DEA Ref.: 14/12/16/3/3/2077) that joins the Koring Main Transmission Substation..

The authorised wind energy facilities are located approximately 23 km south of the town Sutherland while the proposed project components fall within the Karoo Hoogland Municipality under the Namakwa District Municipality.

The developer has bid the wind energy facilities and associated infrastructure into the Renewable Energy IPP Procurement Programme (REIPPPP) Bid Window 5 for the procurement of up to 1 600MW of onshore wind energy technologies and has since been awarded preferred bidder status for the Sutherland and Rietrug Wind Energy Facilities. This allocation is in accordance with the generation capacity required as specified in the Integrated Resource Plan 2019 and accompanying ministerial determination from the Minister for the Department of Mineral Resources and Energy (DMRE).

The infrastructure and key components considered as part of the project includes:

- » 33kV underground cabling that will connect the wind energy facility to the substation
- » Development of a new Acrux 33kV/132kV IPP substation with a clearance footprint of approximately 12,14ha. The clearance footprint of the IPP portion of the substation will contain the following infrastructure:
 - A Battery Energy Storage System (BESS) with a footprint of 2ha in extent with an export capacity of approximately 500KWh and a total storage capacity of 100MW.
 - A laydown area with a footprint of 100m x 100m in extent;
 - An O&M Building with a footprint of 100m x 100m in extent

Remaining Extent of Nooitgedacht Farm 148 has been identified for the authorised Acrux 132kV IPP substation and associated infrastructure for the authorised Sutherland and Rietrug Wind Energy Facilities.

1) IPP Portion (33kV underground cabling, IPP Portion of 33kV/132kV Substation, BESS, Laydown Area & O&M Building):

Alternative 1 (Preferred Alternative):

- 33kV underground cabling will connect the wind energy facilities to the IPP portion of the 33kV/132kV substation.
- 132kV IPP Substation Alternative 1 (Preferred Alternative):
 - A 33kV/132kV IPP Portion of the substation is proposed to be located within the authorised Sutherland WEF site. The substation footprint is approximately 12,14ha and will house the O&M Buildings, Laydown area and BESS infrastructure. The proposed location of the IPP portion of the 33kV/ 132kV substation will allow for the Direct Current (DC) power from the authorised Rietrug Wind Farm (12-12-20-1782-1) and Sutherland Wind Farm (12-12-20-1782-2) will be converted into Alternating Current (AC) power in the inverters and the voltage will be stepped up to medium voltage in the inverter transformers. As the location of the 33kV/132kV IPP substation is located within the authorised Sutherland WEF site, it avoids environmentally sensitive areas, provides

suitable terrain and is deemed as technically feasible from an engineering perspective. **The preferred alternative has been authorised as per EA Reference 14/12/16/3/3/1/2458.**

Co-ordinates	Latitude	Longitude
Centre Point	32°37'58.33"S	20°57'47.58"E

The scope of this generic EMPr is applicable to the Development of the new 33kV/132kV IPP Substation for the authorised Sutherland and Rietrug Wind Energy Facilities, Northern Cape Province.

This section has been prepared by an Environmental Assessment Practitioner (EAP), with input from relevant specialists.

7.1.5. Project Location

Location details of the development of the substation:

Province	Northern Cape
District Municipality	Namakwa District Municipality
Local Municipality	Karoo Hoogland Local Municipality
Ward number(s)	Ward 4
Nearest town(s)	Sutherland
Affected Properties: Farm name(s), number(s) and portion numbers (on-site substation)	» Remaining Extent of Nooitgedacht Farm 148
SG 21 Digit Code (s)	» C07200000000014800000
Current zoning and land use	Agriculture

7.1.6. Preliminary Technical Specifications of the 132kV substation

Infrastructure	Footprint, dimensions and details
132kV Substation Capacity	Up to 132kV
132kV substation Development Footprint	12,14ha Alternative 1 (Preferred) – The Acrux on-site substation will be located within the authorised Sutherland WEF and will be shared with the Rietrug Wind Energy Facility.
O&M Building	The O&M Building will be located within the footprint of the substation and will have a footprint 100m x 100m in extent.
Laydown area	The laydown area will be located within the footprint of the substation and will have a footprint of 100m x 100m.
BESS	A Battery Energy Storage System (BESS) with a footprint of 2ha in extent with an export capacity of approximately 500KWh

Infrastructure	Footprint, dimensions and details
	and a total storage capacity of 100MW will be located within the footprint of the substation.

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

7.2. Sub-section 2: Development footprint site map

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

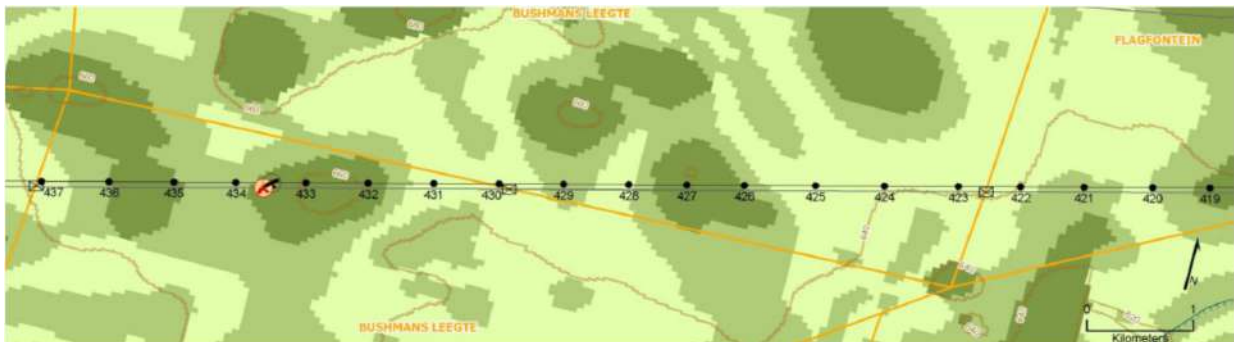


Figure 1: Example of an environmental sensitivity map in the context of a final overhead transmission and distribution profile

The national web-based environmental screening tool was utilised for this project and the grid connection corridor sensitivity maps can be seen in Figures 3 to 8. The site-specific environmental sensitivity map included in the BA Report is included as Figure 2.

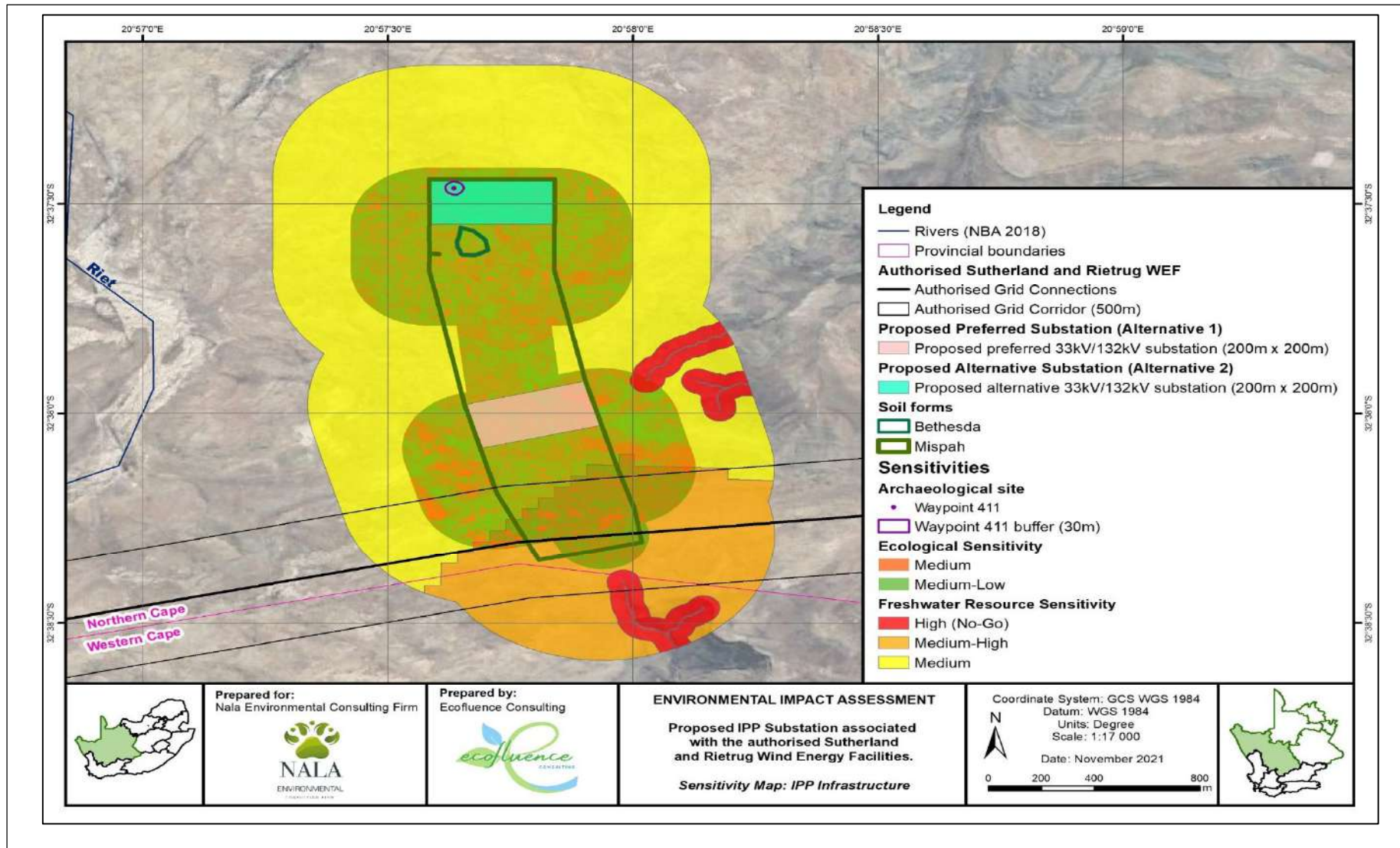


Figure 2: Environmental sensitivity map as per the for the proposed 33kV/132kV substation alternatives associated with the authorised Sutherland and Rietrug Wind Energy Facilities. The Preferred Alternative (Alternative 1) has been authorised.

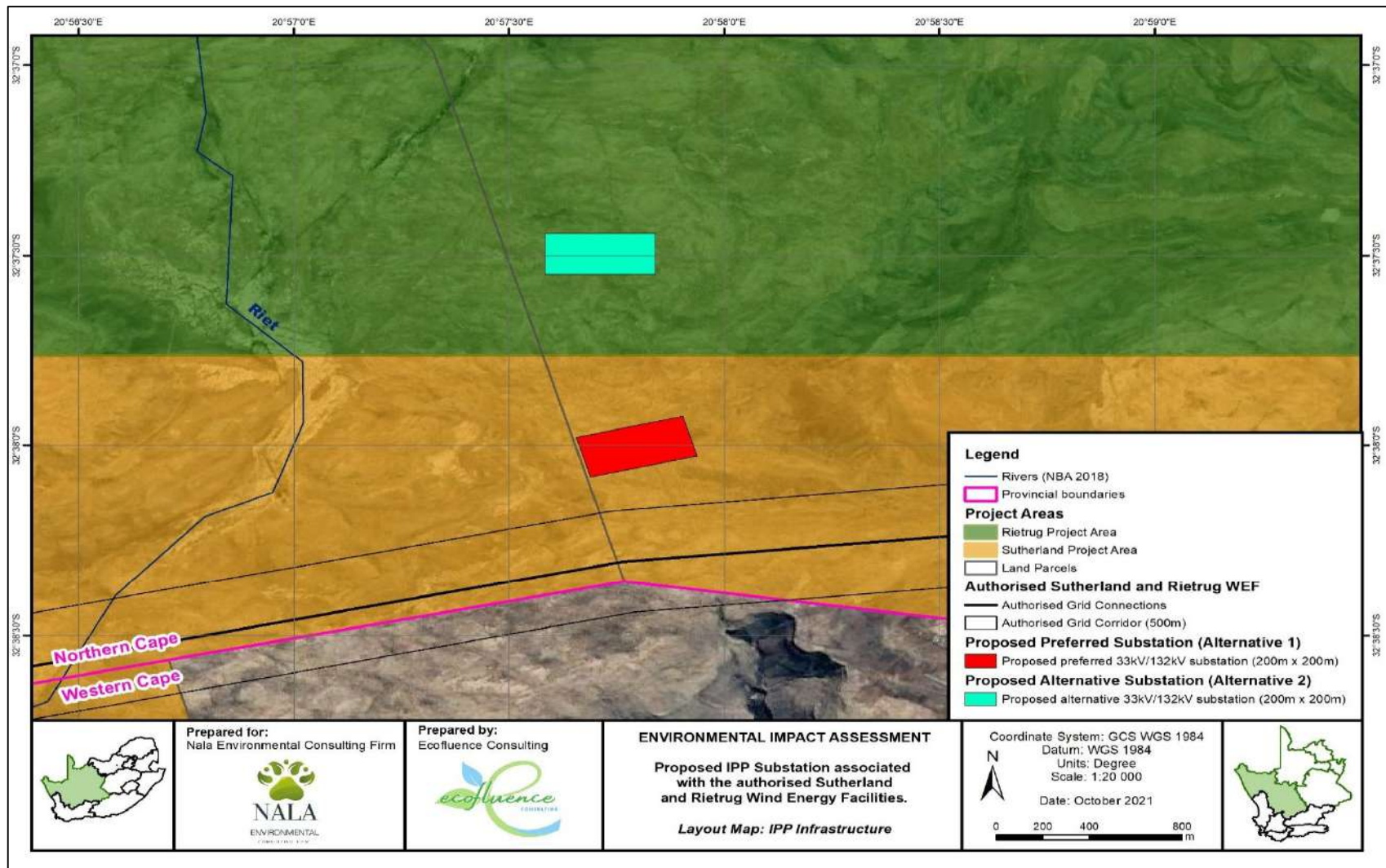


Figure 3: Layout map for the proposed 33kV/132kV IPP Substation alternatives associated with the authorised Sutherland and Rietrug Wind Energy Facilities. Alternative 1 (preferred alternative) in red has been authorised.



Figure 4: Map of Relative Agriculture Theme Sensitivity for Substation Alternative 1

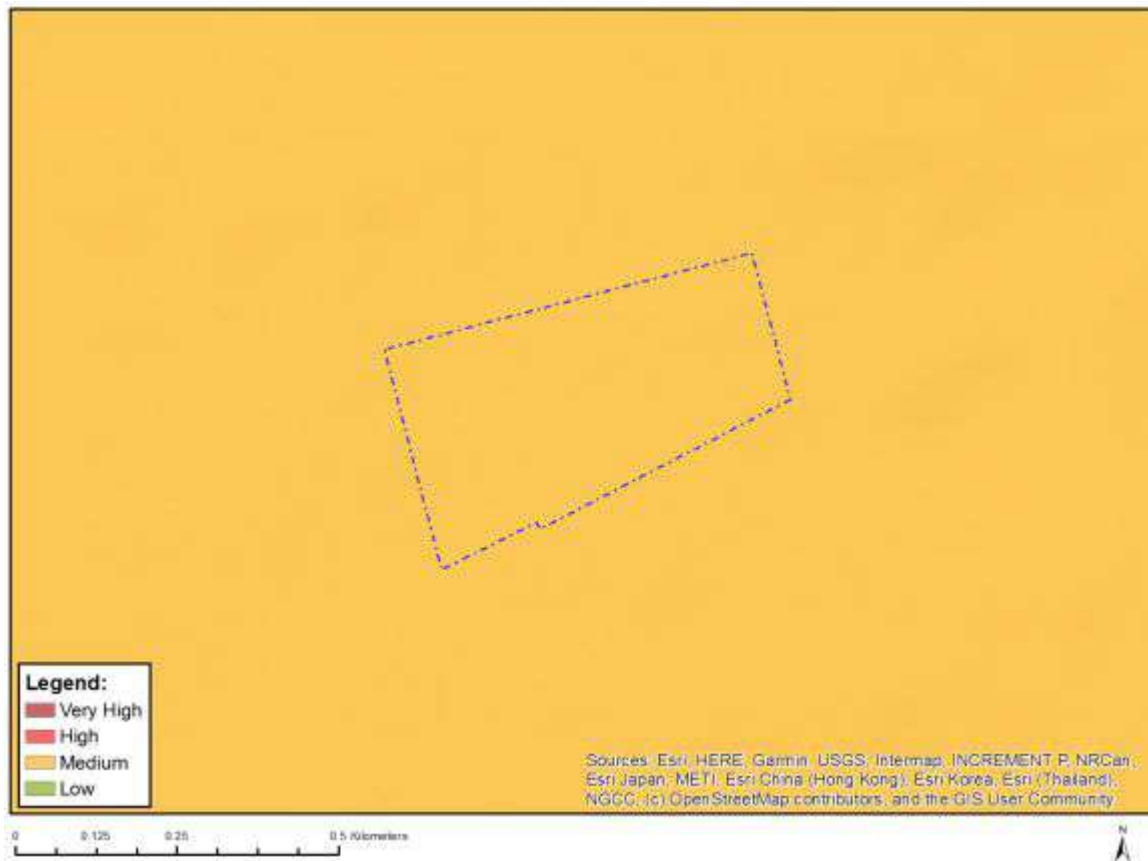


Figure 5: Map of Relative Animal Species Theme Sensitivity Substation Alternative 1



Figure 6: Map of Relative Aquatic Biodiversity Sensitivity Substation Alternative 1



Figure 7: Map of Archaeological and Cultural Heritage Theme Substation Alternative 1



Figure 8: Map of Palaeontological Theme Sensitivity Substation Alternative 1

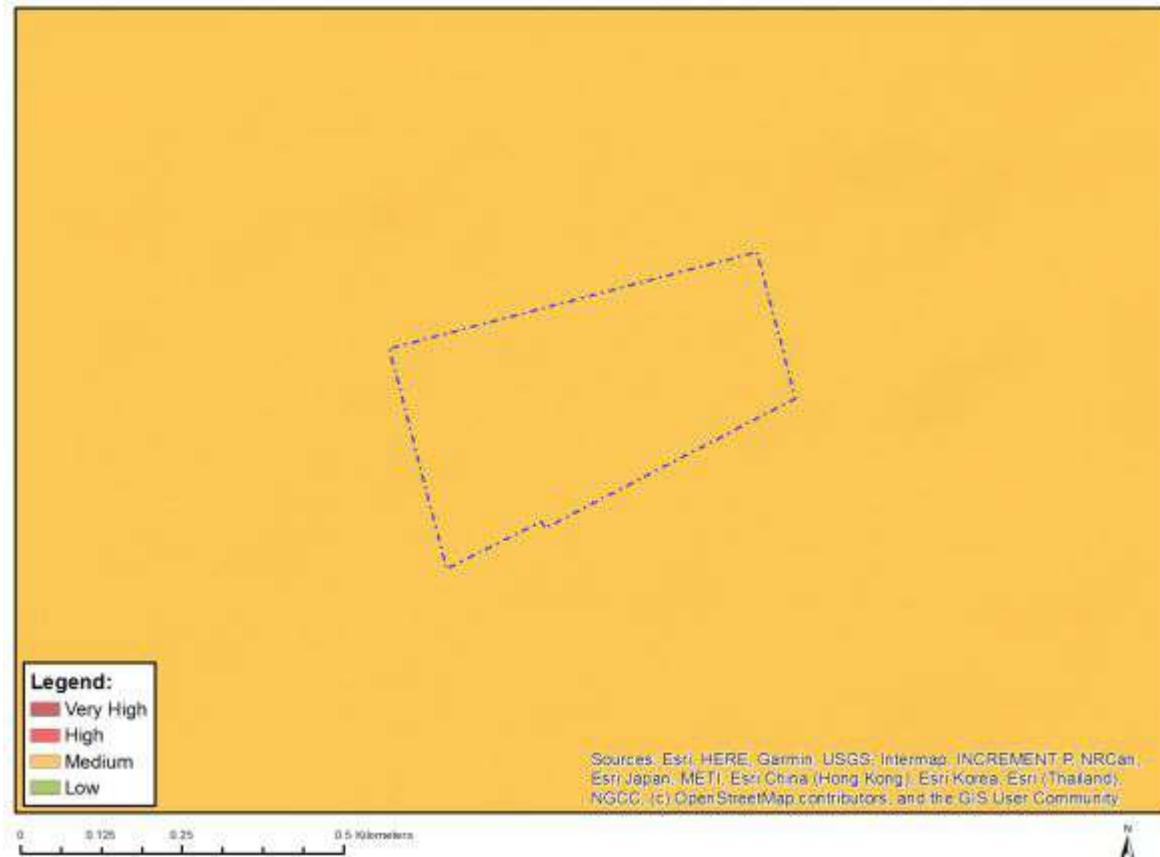


Figure 9: Map of Plant Species Theme Sensitivity Substation Alternative 1



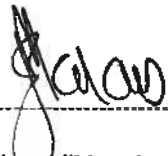
Figure 10: Map of Relative Terrestrial Biodiversity Theme Sensitivity Substation Alternative 1

7.3 **Sub-section 3: Declaration**

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

Signature Proponent/applicant/ holder of EA

Date:



2022/11/22

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

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

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

PART C

8. SITE SPECIFIC ENVIRONMENTAL ATTRIBUTES

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

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

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

8.1 Avifaunal Impacts

Impact management outcome: Reduce potential impact on avifauna						
Impact Management Action	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
Minimise displacement due to disturbance and habitat transformation associated with the construction of the IPP substation, associated infrastructure.	Project Manager /ECO	<ul style="list-style-type: none"> » Construction activity should be restricted to the immediate footprint of the infrastructure. » Access to the remainder of the site (i.e., areas where no construction activities are planned) should be strictly controlled to prevent unnecessary disturbance of priority species. » Access to the remainder of the site should be strictly controlled to prevent unnecessary disturbance of Species of Conservation Concern (SCC). » Removal of vegetation must be restricted to a minimum. » Measures to control noise and dust should be applied according to current best practice in the industry. 	During design & prior to the commencement of the construction activities.	ECO	Before Commencement and Ongoing	All activities constantly monitored for restriction into immediate footprint and prescribed access control

		<ul style="list-style-type: none"> » Maximum use should be made of existing access roads and the construction of new roads should be kept to a minimum. Construction of new roads should only be considered if existing roads cannot be upgraded. » Vehicle and pedestrian access to the site should be controlled and restricted to access roads to prevent unnecessary disturbance of SCC 				
Minimise electrocutions within the substation yard	<ul style="list-style-type: none"> » Project Manager/ ECO 	<ul style="list-style-type: none"> » The hardware within the proposed transmission substation yard is too complex to warrant any mitigation for electrocution at this stage. It is recommended that if on-going impacts are recorded once operational, site specific mitigation (i.e., insulation) be applied reactively. This is an acceptable approach because Red List priority species is unlikely to frequent the 	For duration of project lifecycle	ECO	Ongoing (Monthly)	Record and monitor ongoing impacts

		<p>substation and be electrocuted.</p> <ul style="list-style-type: none"> » All internal 33kV medium voltage cables are to be buried, if technically possible » There is one VE nest which is situated less than 1km from the proposed grid (closest distance 640m). 1km is the recommended no-disturbance buffer in the VE guidelines. » Construction work on structures 44 - 48 of the proposed Acrux to Koring 132kV grid connection should be timed to fall outside the Verreaux's Eagle breeding season i.e. construction should not take place from April to October. » As a minimum, post-construction monitoring should be undertaken for the first two years of operation, and then repeated again in Year 5, 				
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		and again every five years thereafter for the operational lifetime of the facility. The exact scope and nature of the post-construction monitoring will be determined on an ongoing basis by the results of the monitoring through a process of adaptive management.				
Minimise displacement due to disturbance associated with the decommissioning of the substation	ECO	<ul style="list-style-type: none"> » Decommissioning activity/activities should be restricted to the immediate footprint of the infrastructure. » Access to the remainder of the site (i.e., areas where no construction activities are planned) should be strictly controlled to prevent unnecessary disturbance of priority species. » Measures to control noise and dust should be applied according to current best practice in the industry. » Maximum use should be made of existing access roads and the 	Decommissioning phase	ECO	During the decommissioning phase	Footprint restriction and access control monitored and maintained during decommissioning.

		construction of new roads should be kept to a minimum.				
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8.2 Bat Impacts¹

Impact management outcome: Minimise disturbance to bats						
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"> Minimisation of light pollution and artificial habitat creation Keep artificial lighting to a minimum on the infrastructure (O&M buildings), while still adhering to safety and security requirements. 	Relevant specialist in consultation with the Project Developer	» It must become mandatory to only use lights with low sensitivity motion sensors that switch off automatically when no persons are nearby, to prevent the creation of regular insect gathering	Operational phase	Project Developer	Once, prior to the commencement of construction and as and when required during operation.	Proof of installation of low motion sensors and their maintenance, as required

¹ Bat Assessments are not required for the powerline and were not assessed during the BA process for this powerline, however as the infrastructure was included in the walkthrough we have only included the general measures that would be applicable.

		<p>pools, where practically possible without compromising security requirements</p> <ul style="list-style-type: none"> » Aviation lights should remain as required by aviation regulations. » Bi-annual visits to the facility at night must be conducted for the operational lifetime of the facility by operational staff of the facility, to assess the lighting setup and whether the passive motion sensors are functioning correctly. » The bat specialist conducting 				
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		<p>the operational bat mortality monitoring must conduct at least one visit to site during night-time to assess the placement and setup of outside lights on the facility. When lights are replaced and maintenance on lights is conducted, this Mitigation Action Plan must be consulted.</p>				
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8.3 Aquatic Ecology (Freshwater impacts)

Impact management outcome: Potential impact on aquatic (freshwater) resources						
Impact Management Actions	Implementation			Monitoring		
	Responsible	Method of implementation	Timeframe for implementation	Responsible	Frequency	Evidence of compliance

	person			person		
Reduce loss of riparian systems and disturbance of the alluvial water courses during the construction, operation and decommissioning phase	Project Manager/ECO	No direct impact or disturbance of riparian systems and alluvial water courses during the construction, operation and decommissioning phase, as such features are avoided.	N/A	ECO	N/A	N/A
Minimise the impact on freshwater resource systems through the increase in surface runoff on form and function during the operational and decommissioning phases	Project Manager/ECO	<ul style="list-style-type: none"> » Infrastructure footprint and associated area of disturbance should be minimised, as far as practically possible » Any storm-water within the substation site must be handled in a suitable manner, i.e. trap sediments, and reduce flow velocities » Stormwater from the substation and 	Construction, operation and decommissioning phase	ECO	Before commencement and Ongoing	<p>Monitor and implement the methods of minimising the impacts.</p> <p>Implementation of mitigation measures</p>

		<p>hardstand areas must be managed using appropriate channels and swales when located within steeper areas.</p> <ul style="list-style-type: none">» The runoff should be dissipated over a broad area covered by natural vegetation or managed using appropriate channels and swales.» Storm water run-off infrastructure must be maintained to mitigate both the flow and water quality impacts of any storm water leaving the substation site.				
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<p>Manage increase in sedimentation and erosion during the construction, operational and decommissioning phase</p>	<p>Project Manager/ECO</p>	<ul style="list-style-type: none"> » Any erosion problems observed to be associated with the project infrastructure should be rectified as soon as possible and monitored thereafter to ensure that they do not re-occur. » All bare areas, as a result of the development, should be revegetated with locally occurring species, to bind the soil and limit erosion potential. » Site rehabilitation should aim to restore surface drainage patterns, natural soil and vegetation, as far as is feasible. » An erosion control 	<p>Construction, operation and decommissioning phase</p>	<p>ECO</p>	<p>Before commencement and Ongoing</p>	<p>Monitor and implement the methods of minimising the impacts.</p> <p>Implementation of erosion control measures</p>
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		<p>management plan should be utilised to prevent erosion</p> <ul style="list-style-type: none"> » There should be reduced activity at the site after large rainfall events when the soils are wet. No driving off of hardened roads should occur immediately following large rainfall events until soils have dried out and the risk of bogging down has decreased. » Any storm-water within the site must be handled in a suitable manner, i.e. trap sediments, and reduce flow velocities » Stormwater from the substations and other hard stand areas, must be managed using 				
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		<p>appropriate channels and swales when located within steep areas.</p> <ul style="list-style-type: none"> » Storm water runoff infrastructure must be maintained to mitigate both the flow and water quality impacts of any storm water leaving the substation site. » Stormwater from any access or internal roads must be managed so that this does not interfere with the regional hydrology and or create the potential for any erosion. » Silt traps should be used where there is a danger of topsoil eroding and entering streams 				
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		<p>and other sensitive areas.</p> <ul style="list-style-type: none"> » Construction of gabions and other stabilisation features to prevent erosion, if deemed necessary. » No stormwater runoff must be allowed to discharge directly into any water course from the substations, and flows from these substations should be allowed to dissipate over a broad area covered by natural vegetation. » Store hydrocarbons off site where possible, or otherwise implement hydrocarbon storage using 				
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		<p>impermeable floors with appropriate bunding, sumps and roofing.</p> <ul style="list-style-type: none"> » Handle hydrocarbons carefully to limit spillage. » Ensure vehicles are regularly serviced so that hydrocarbon leaks are limited. » Designate a single location for refuelling and maintenance, outside of any freshwater resource features. » Keep a spill kit on site to deal with any hydrocarbon leaks. » Remove soil from the site which has been contaminated by hydrocarbon spillage. 				
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<p>Reduce potential compromise ecological processes as well as ecological functioning of important freshwater resource habitats</p>	<p>Project Manager/ECO</p>	<ul style="list-style-type: none"> » All highly sensitive major ephemeral washes and their associated buffer areas should be regarded as No-Go areas for all construction activities. » The recommended buffer (namely 50m) areas between the delineated freshwater resource features and proposed project activities should be maintained. » Vegetation clearing to be kept to a minimum. No unnecessary vegetation to be cleared. » The potential stormwater impacts of the proposed 	<p>Construction phase</p>	<p>ECO Landscape Architect / Contractor</p>	<p>Before commencement and Ongoing</p>	<p>Monitor and implement the methods of minimising the impacts.</p>
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		<p>developments areas should be mitigated on-site to address any erosion or water quality impacts.</p> <ul style="list-style-type: none"> » Good housekeeping measures, as stipulated in the EMPr for the project, should be in place where construction activities take place to prevent contamination of any freshwater features. » All construction materials including fuels and oil should be stored in demarcated areas that are contained within berms / bunds to avoid spread of any contamination. Washing and 				
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		<p>cleaning of equipment should also be done in berms or bunds, in order to trap any cement and prevent excessive soil erosion.</p> <p>Mechanical plant and bowsers must not be refuelled or serviced within or directly adjacent to any channel. It is therefore suggested that all construction camps, lay down areas, batching plants or areas and any stores should be outside of any demarcated water courses.</p> <p>» Disturbed areas should be rehabilitated through</p>				
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		<p>reshaping of the surface to resemble that prior to the disturbance, and vegetated with suitable local indigenous vegetation.</p> <p>» All alien plant re-growth (mostly forbs) must be monitored, and should it occur, these plants should be eradicated. The scale of the operation does however not warrant the use of a Landscape Architect and / or Landscape Contractor</p>				
<p>Reduce impact on localized surface water quality during the construction, operation and decommissioning phase</p> <p>(chemical pollutants (hydrocarbons from equipment and vehicles,</p>	Project Manager/ECO	<p>» Implement appropriate measures to ensure strict use and management of all hazardous</p>	construction, operation and decommissioning phase	ECO	Before commencement and Ongoing	Monitor and implement the methods of minimising the impacts.

<p>cleaning fluids, cement powder, wet concrete, shutter-oil, etc.) associated with site-clearing machinery and construction activities could be washed downslope into the freshwater resource features.)</p>		<p>materials used on site</p> <ul style="list-style-type: none"> » Implement appropriate measures to ensure strict management of potential sources of pollutants (e.g. litter, hydrocarbons from vehicles and machinery, cement during construction, etc.) » Implement appropriate measures to ensure the containment of all contaminated water through careful run-off management on the development site. » Implement appropriate measures to ensure strict control over the 				<p>Implementation of pollution control measures</p>
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		<p>behaviour of construction workers.</p> <ul style="list-style-type: none"> » Working protocols incorporating pollution control measures (including approved method statements by the Contractor) should be clearly set out in the Construction Environmental Management Plan (CEMP) for the project and strictly enforced. » Appropriate ablution facilities should be provided for construction workers during construction of the substation. » All construction materials, including fuels and oil, should be stored in demarcated 				
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		<p>areas that are contained within berms / bunds to avoid spread of any contamination. Washing and cleaning of equipment should also be done in berms or bunds, in order to trap any cement and prevent excessive soil erosion. Mechanical plant and bowzers must not be refuelled or serviced within or directly adjacent to any channel. It is therefore suggested that all construction camps, lay down areas, batching plants or areas and any stores should be outside of any</p>				
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		demarcated water courses				
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8.4 Terrestrial Ecology

9 Impact management outcome: Reduce potential impact on fauna and flora						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
Minimise potential impacts on vegetation and listed protected plant species	Project Manager /ECO	<ul style="list-style-type: none"> » Pre-construction walk-through of the approved substation footprint to locate species of conservation concern that can be translocated or avoided. » A spring survey of the approved footprint for red data and protected plants must be undertaken in order to finalise the applications for permits prior to the commencement of construction and site clearing activities. 	During design & prior to the commencement of the construction activities.	ECO/ Specialist Ecologist	Before Commencement and Ongoing	Walkthrough reports of file (Appendix A1) and translocation evidence.
Minimise disturbance of sensitive areas	Project Manager/ECO	<ul style="list-style-type: none"> » On the rock sheets the <i>Mesembryanthemaceae</i>, <i>Colchicaceae</i>, <i>Crassulaceae</i> and <i>Apocynaceae</i> were present and therefore these areas are sensitive and must be avoided. It 	Pre-construction and construction activities	ECO/ Specialist Ecologist	Before Commencement and Ongoing	<p>Proof of buffers put in place and adhered to.</p> <p>Evidence of non-compliance as per ECO audit reports</p>

		<p>will be important to keep a 5m buffer around the outer edges to ensure no permanent damage results. No driving over these areas is permitted at any time.</p> <ul style="list-style-type: none"> » The landscape, with the drainage features, have a number of small drainage lines that congregate into larger streams. These areas must be avoided as far as possible and limited crossing is recommended » It is very important to stay within the 8/10m corridor (final layout of the road system) for the roads during construction. » No activity must occur outside the road margins. » It is recommended that the road layout follow the less steep inclines and contours to limit access on steep and sensitive slopes. » No driving over the sensitive bedrock sheets 				
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		<p>are allowed at any time during the construction, operational or decommissioning phases for this project. This include any driving into the veld outside any demarcated corridors or footprint areas.</p> <p>» All activities during construction must be restricted to take place within the footprint area</p>				
Minimise erosion potential	Project Manager/ECO	<p>» All hard surfaces (roads footprints) will contribute to the erosion potential and the accelerated flow velocities from roads, culverts and areas cleared of vegetation are of concern.</p> <p>» It will be important to monitor these areas regularly, especially downstream of these zones, as accelerated flows are the main concern related to increased erosion.</p>	Pre-construction and construction activities	ECO/ Specialist Ecologist	Before Commencement and Ongoing	No evidence of erosion

		» The exposed areas must be rehabilitated to prevent erosion and to ensure no alien plant species establish in these areas. As plants associated with the vegetation unit are slower to recover, the clearing footprint must be kept to an absolute minimum e.g. leave 300mm basal layer.				
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8.5. Heritage and Paleontological Impacts

Impact management outcome: Potential impact on heritage and archaeological resources						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
Management of Impacts to archaeology and impacts to the cultural landscape.	Project Manager/ ECO / dEO / cEO in consultation with the Contractor and ECO	» Develop and implement procedures for situations where archaeological	During construction only (Archaeology impacts).	ECO	Ongoing (Monthly)	Record and monitor ongoing impacts and proof of communication to SAHRA APM

		<p>sites or remains are uncovered</p> <p>» If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources are found during the proposed development, SAHRA APM Unit (Natasha Higgitt/Phillip Hine 021 462 5402) must be alerted as per</p>	<p>During all development phases (cultural landscape impacts)</p>			<p>Unit and the required procedures followed in cases where material is discovered.</p>
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		<p>section 35(3) of the NHRA.</p> <p>» If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves (BGG) Unit (Thingahangwi Tshivhase/Mimi Seetelo 012 320 8490), must be alerted immediately as per section 36(6) of the NHRA.</p>				
<p>The sites identified for avoidance must be avoided (Northern Cape and Western Cape);</p> <p>Any unsurveyed sections of the approved layout must be checked in the field in case of further small sites requiring recording or mitigation (Northern Cape);</p>	<p>Project Manager/ dEO / cEO in consultation with the Contractor</p>	<p>» Flagging of no-go areas is required for sites less than 30 m from the project footprint (Northern Cape). This must be done before construction and the sites must be monitored for compliance during construction by the ECO (at least weekly while construction is</p>	<p>Pre-construction and during construction and as and when required</p>	<p>ECO/ dEO / cEO in consultation with the Contractor</p>	<p>Once before construction and as and when required</p>	<p>Proof of flagged no-go areas for sites less than 30m from the project footprint</p>

		<p>busy in the relevant areas) (Sites that are not visually prominent and are located more than 30 m from the footprint should not be flagged, as it is preferable to not draw attention to them). All sites lying less than 30 m from the footprint are assumed to be at risk from construction work and should be flagged as no-go areas;</p> <p>» No stones may be removed from any heritage sites (Northern Cape);</p>				
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Management of Impacts to archaeology and impacts to the cultural landscape.	Project Manager/ dEO / cEO in consultation with the Contractor	All construction work must occur within the demarcated project footprints and vehicles may not move outside of these areas (Northern Cape)	Pre-construction and during construction	ECO/ dEO / cEO in consultation with the Contractor	During construction and as and when required	Evidence of all construction work occurring within demarcated footprints
Compliance to permit requirements	Project Manager/ dEO / cEO in consultation with the Contractor	A Permit application must be lodged with SAHRA for any mitigation required in Northern Cape (currently none is needed)	Pre-construction and during construction	ECO/ dEO / cEO in consultation with the Contractor	During construction and as and when required	Proof of permit application lodged with SAHRA
Prevent impacts to scientifically valuable fossil material	Project Manager/ dEO / cEO in consultation with the professional palaeontologist	The final, approved layouts of the Grid Connection Infrastructure must be cross-checked by a professional palaeontologist against the available palaeontological database prior to commencement of site clearing and excavation activities. Residual, potentially sensitive, unsurveyed sectors of the approved	Pre-construction	Project Manager/ dEO in consultation with the professional palaeontologist	Pre-construction	Proof of appointment of professional palaeontologist

		<p>project footprint must be surveyed and mitigated in the Pre-construction Phase (prior to any site clearance and bedrock excavations) by a professional palaeontologist, with recording and judicious sampling or collection of scientifically valuable fossil material.</p> <p>The palaeontologist responsible for any mitigation work in must apply for a Fossil Collection Permit from SAHRA for professional mitigation in the Northern Cape. All fieldwork and reporting should meet the standards of international best practice as well as those developed for PIA reports by SAHRA (2013) and Heritage Western Cape (2021). Fossil material collected must be</p>			<p>On-going during construction</p>	<p>Proof of Fossil Collection Permit on file and appointment of a professional palaeontologist.</p>
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		safeguarded and curated within an approved palaeontological repository (e.g. museum or university collection) with full collection data.				
Prevent impacts to scientifically valuable fossil material during construction activities	Project Manager/ dEO / cEO in consultation with the Contractor	<p>New fossil material encountered or exposed during the Construction Phase is best handled through the Chance Fossil Finds Protocol.</p> <p>The Environmental Control Officer (ECO) / Environmental Site Officer (ESO) responsible for the WEF and grid connection developments should be made aware of the possibility of important fossil remains (vertebrate bones, teeth and burrows, petrified wood, plant-rich horizons etc.) being found or unearthed</p>	Pre-construction and during construction	ECO/ dEO / cEO in consultation with the Contractor	During construction and as and when required	Proof of fossil finds as per ECO audit reporting.

		<p>during the construction phase of the projects. Monitoring for fossil material of all major surface clearance (including access roads) and deeper (>1m) excavations by the ESO on an on-going basis during the construction phase is therefore recommended.</p> <p>Significant fossil finds should be safeguarded, preferably in situ, and reported at the earliest opportunity to SAHRA for recording and sampling by a professional palaeontologist. If triggered, these mitigation actions to conserve legally-protected fossil heritage are considered to be essential.</p>				
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APPENDIX 1: METHOD STATEMENTS

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

APPENDIX 2: CURRICULA VITAE

CURRICULUM VITAE OF ARLENE SINGH

- Profession:** Environmental Assessment Practitioner (EAP) / Director
- Specialisation:** Environmental Assessments, report writing, report reviewing, development of project proposals for procuring new projects and project administration.
- Work Experience:** 9 years' experience in Environmental Assessments and 1 year in Sustainability Consulting.

VOCATIONAL EXPERIENCE

Professional execution of consulting services for projects in the environmental management field, specialising in Environmental Impact Assessment studies, environmental permitting, public participation, compilation of Environmental Management Plans and Programmes, environmental policy, and integrated environmental management. Responsibilities include report writing, project management, review of specialist studies and the identification and assessment of potential negative environmental impacts and benefits. Compilation of the reports for environmental studies is in accordance with all relevant environmental legislation.

Experience in conducting environmental impact assessments for infrastructure development projects (roads, stormwater, pipelines), Mixed Use Developments and Section 24G Applications for complex projects. She has extensive experience in managing and monitoring ECO functions and compliance on relevant projects. She has gained the ability to conduct sustainability assurance audits for non-financial environmental KPI's through her experience with listed mining corporations.

SKILLS BASE AND CORE COMPETENCIES

- Compilation of environmental impact assessment reports and environmental management programmes in accordance with relevant environmental legislative requirements;
- Identification and assessment of potential negative environmental impacts and benefits through the review of specialist studies;
- Key experience in the assessment of impacts associated with complex Section 24G Applications.
- Review of environmental impact assessment reports, impacts matrices and environmental management programme reports;
- Conducting of ECO audits, managing ECO staff, review of ECO reports and liaison with the client;
- Review of Carbon Footprint Analysis report and provision of recommendations for industry;
- Developing Business Development Plans, action plans and carrying out Business Development initiatives;
- Compilation of Integrated Reports in line with King IV;
- Conducting Mining Permit Applications with the DMR and the associated Basic Assessment process in line with the MPRDA;
- Extensive experience in compilation and submission of Tenders and Proposals;

EDUCATION AND PROFESSIONAL STATUS

Degrees:

- B.Sc. (Hons.) Environmental Management (2016), University of South Africa (UNISA);
- B.Sc. Environmental Science (2012), University of Kwa-Zulu Natal, Westville

Short Courses:

- Official DWS Section 21 (c) and (i) Water Use Authorisation Course (2018)- Dr Wietsche Roets, Specialist Scientist: (In Stream Water Use);
- SMME Green Building Face to Face Workshop (2018)- GBCSA hosted by JP Morgan;
- ArcGISBasic 10,3 (2016)- Esri South Africa
- Energy within Environmental Constraints (2020)- Harvard (Online)
- Becoming an Entrepreneur (2020)- Massachusetts Institute of Technology (Online)

Professional Society Affiliations:

- South African Council for Natural Scientific Professionals - Professional Natural Scientist: Environmental Scientist) – Reg No. 118872
- Environmental Assessment Practitioners Association of South Africa- Reg No: 2019/898

Other Relevant Skills:

- Compiling and submission of invoices on projects;
- Registration of Waste Management Facilities on GWIS

EMPLOYMENT

Date	Company	Roles and Responsibilities
16 December 2020- Current	Nala Environmental (Pty) Ltd	Environmental Assessment Practitioner / Director <i>Tasks include:</i> <i>Compilation of Environmental Impact Assessment (EIA) reports; Basic Assessment (BA) reports and Environmental Management Programmes; Environmental Screening reports; Co-ordination of the public participation process; Project management; project proposals and tenders; Client liaison and Marketing; Process EIA Applications. Business Development, Integrated reporting. Strategy, policy and procedure</i>

Date	Company	Roles and Responsibilities
		<i>development. Planning of staff on engagements and Invoicing of clients.</i>
08 April 2019- 15 December 2020:	Savannah Environmental (Pty) Ltd	<p>Environmental Assessment Practitioner</p> <p><i>Tasks include:</i> <i>Compilation of Environmental Impact Assessment (EIA) reports; Basic Assessment (BA) reports and Environmental Management Programmes; Environmental Screening reports; Co-ordination of the public participation process; Project management; project proposals and tenders; Client liaison and Marketing; Process EIA Applications.</i></p>
01 January 2016- 05 April 2019	Triplo4 Sustainable Solutions (Pty) Ltd	<p>Environmental Consultant/Gauteng Office Manager</p> <p><i>Tasks included:</i> <i>Review of Basic Assessment reports, Environmental Management Programme reports, Impact Matrices. Review of Environmental Control Officer functions, report and planning of site visits. Compiling Waste Management License Applications and Section 24G Application with reports for review by company Director. Review of specialist reports. Compilation of tenders, proposals and fee proposals. Co-ordinate public participation processes. Liaison with clients, stakeholders and competent authorities. Business Development, Integrated reporting. Strategy, policy and procedure development. Planning of staff on engagements and Invoicing of clients.</i></p>
01 October 2014 – 31 December 2015	PricewaterHouse Coopers (PwC)	<p>Sustainability Consultant 2</p> <p><i>Tasks included:</i> <i>Non-financial auditing of Environmental KPI's (Primary water, Total Waste, Total Electricity, Total GDP Calc, Scope 1, 2 and 3 emissions, Total CSI spend, Total Environmental incidents and Total Rock waste generated) for listed mining companies. Role included, testing of controls, applications of audit standards and guidelines, preparation and conclusions of audit papers and files, reporting to management and preparation of audit reports.</i></p>

Date	Company	Roles and Responsibilities
01 January 2013- 30 September 2014	Triplo4 Sustainable Solutions (Pty) Ltd	Junior Environmental Consultant <i>Tasks included:</i> <i>Conducting Environmental Control Officer audits and drafting of ECO reports for review. Drafting of Basic Assessment (BA) reports, Environmental Management Programme reports for review by Environmental Consultant. Conducting public participation by liaison with competent authorities and stakeholders. Assisting with compiling of Basic Assessment documents.</i>

PROJECT EXPERIENCE

Arlene has extensive experience in conducting environmental impact assessments for infrastructure development projects (roads, stormwater, pipelines) and renewable energy projects (solar, wind, csp and hybrid projects), Mixed Use Developments and Section 24G Applications for complex projects and housing developments. She has extensive experience in managing and monitoring ECO functions and compliance on relevant projects. She has gained the ability to conduct sustainability assurance audits for non-financial environmental KPI's through her experience with listed mining corporations. She has also been involved in undertaking Part 2 Amendment Applications and impact assessments for Renewable Energy Projects in South Africa. She currently manages staff and undertakes project planning to ensure that projects are executed within the appropriate timeframes and within budget.

MINING SECTOR PROJECTS

Environmental Impact Assessments and Environmental Management Programmes

<i>Project Name & Location</i>	<i>Client Name</i>	<i>Role</i>
<i>Yzermyn Coal Mine EMP, Piet Retief, Mpumalanga</i>	<i>Atha Group</i>	<i>EAP</i>

Basic Assessments

<i>Project Name & Location</i>	<i>Client Name</i>	<i>Role</i>
<i>Shaya Quarry Basic Assessment process, Empangeni, Kwazulu-Natal</i>	<i>Mbavuz Minerals</i>	<i>Project Manager</i>
<i>Umvoti River Sand Mining Basic Assessment process, Kwazulu-Natal</i>	<i>Izimpiwe Minerals Pty Ltd</i>	<i>Project Manager</i>

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

<i>Project Name & Location</i>	<i>Client Name</i>	<i>Role</i>
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<i>Shaya Quarry Mining Permit Application, Empangeni, Kwazulu-Natal</i>	<i>Mbavuza Minerals</i>	<i>Project Manager</i>
<i>Umvoti River Sand Mining Mining Permit Application, Kwazulu-Natal</i>	<i>Izimbiwe Minerals Pty Ltd</i>	<i>Project Manager</i>
<i>Newark Quarry, Ilembe Municipality, Kwazulu-Natal</i>	<i>iLembe Concrete Pty Ltd</i>	<i>Junior EAP</i>

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

Basic Assessments

<i>Project Name & Location</i>	<i>Client Name</i>	<i>Role</i>
<i>Replacement of Nseleni Bridge- Empangeni, Kwazulu-Natal</i>	<i>RHDHV</i>	<i>EAP</i>
<i>Construction of the GOML Ntuzuma Reservoir, Ntuzuma, Kwazulu-Natal</i>	<i>eThekweni Metropolitan Municipality</i>	<i>Project Manager</i>
<i>Upgrade of the Nyathikazi box culvert, Darnell, Kwazulu-Natal</i>	<i>KwaDukuza Municipality</i>	<i>Junior EAP</i>
<i>Upgrade and Expansion Provincial Main Road D887, Kwazulu-Natal</i>	<i>RHDHV</i>	<i>Junior EAP</i>
<i>Expansion of LOX and Diesel Storage at the Air Products Facility in Coega, Eastern Cape</i>	<i>Air Products South Africa (Pty) Ltd</i>	<i>EAP</i>

Environmental Compliance, Auditing and ECO

<i>Project Name & Location</i>	<i>Client Name</i>	<i>Role</i>
<i>ECO Monitoring for Construction of Offtake 1 Reservoir, KwaDukuza, Kwazulu-Natal</i>	<i>KwaDukuza Municipality</i>	<i>Project Manager</i>
<i>ECO Monitoring for Construction of Offtake 6A2, 6D, 8C, 8D, 9, 11D Pipelines, KwaDukuza, Kwazulu-Natal</i>	<i>KwaDukuza Municipality</i>	<i>Project Manager</i>
<i>ECO Monitoring for the Construction of the Jozini RCWSS Phase 1A, Jozini, Kwazulu-Natal</i>	<i>RHDHV</i>	<i>ECO (1 year), Project Manager</i>
<i>ECO Monitoring for the Greytown BWSS, Greytown, Kwazulu-Natal</i>	<i>RHDHV</i>	<i>Project Manager</i>
<i>ECO Monitoring for the Kranskop Water Supply Scheme, Kranskop, Kwazulu-Natal</i>	<i>RHDHV</i>	<i>ECO</i>
<i>ECO Monitoring for the Zulti South Access Road, Richards Bay, Kwazulu-Natal</i>	<i>RHDHV</i>	<i>Project Manager</i>

Compliance Advice and ESAP reporting

<i>Project Name & Location</i>	<i>Client Name</i>	<i>Role</i>
<i>Ethafeni Cemetery Environmental Assessment Report, KwaDukuza, Kwazulu-Natal</i>	<i>KwaDukuza Municipality</i>	<i>EAP</i>

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

Project Name & Location	Client Name	Role
<i>General Authorisation for the Replacement of the Nseleni Bridge, Empangeni, KwaZulu-Natal</i>	<i>RHDHV</i>	<i>EAP</i>
<i>Water Use Licence Amendment for Country Club Johannesburg</i>	<i>Country Club Johannesburg</i>	<i>EAP</i>

HOUSING AND URBAN PROJECTS**Environmental Impact Assessments and Environmental Management Programmes**

Project Name & Location	Client Name	Role
<i>Ethafeni Precinct Project Section 24G Application- Groutville , Kwazulu- Natal.</i>	<i>KwaDukuza Municipality</i>	<i>Project Manager/Lead Consultant</i>
<i>Environmental Management Programme report Brettenwood Residential Development, Kwazulu-Natal.</i>	<i>Brettenwood Coastal Estate</i>	<i>EAP</i>
<i>Environmental Management Programme report for CTM Ballito, Ballito, Kwazulu-Natal</i>	<i>CTM</i>	<i>EAP</i>

Basic Assessments

Project Name & Location	Client Name	Role
<i>Upgrade of residential dwelling on Colwyn Drive, Salt Rock, Kwazulu-Natal</i>	<i>Mike Graham</i>	<i>Junior EAP</i>
<i>Ethafeni Precinct Project Basic Assessment, Groutville, Kwazulu-Natal</i>	<i>KwaDukuza Municipality</i>	<i>Project Manager</i>
<i>105 Nkwazi Drive Single Residential House Basic Assessment, Zinkwazi, Kwazulu-Natal</i>	<i>Ituwiz Pty Ltd</i>	<i>Project Manager</i>

Environmental Compliance, Auditing and ECO

Project Name & Location	Client Name	Role
<i>88 Compensation ECO Audits – Ballito, Kwazulu- Natal</i>	<i>Imali Corp</i>	<i>Environmental Control Officer (ECO)</i>
<i>Oceans Umhlanga Hotel & Residential Development, Umhlanga, Kwazulu-Natal</i>	<i>Edison Property Group</i>	<i>Project Manager</i>
<i>Inoxa Cookware Factory Warehouse, Woodmead Estate, Shakaskraal, Kwazulu-Natal</i>	<i>Shree Property</i>	<i>Project Manager</i>
<i>Woodmead Estate Warehousing, Gauteng</i>	<i>Shree Property</i>	<i>Project Manager</i>
<i>Ridgeside Commercial Development, Umhlanga, Kwazulu-Natal</i>	<i>Shree Property</i>	<i>Project Manager</i>

<i>Construction of Jozini Shopping Centre, Jozini, Kwazulu-Natal</i>	<i>GK Projects</i>	<i>ECO</i>
<i>Birdhaven Residential Development, Ballito, Kwazulu-Natal</i>	<i>Mike Graham Trust</i>	<i>ECO</i>
<i>Foxhill Church and Residential Development, Ballito, Kwazulu-Natal</i>	<i>M&C Janigh Trust</i>	<i>ECO</i>
<i>Beema Bamboo Plantation Site (Bamboo to Energy project, Kwazulu-Natal)</i>	<i>Green Grid Energy</i>	<i>ECO</i>

OTHER PROJECTS

Environmental Compliance, Auditing and ECO

<i>Project Name & Location</i>	<i>Client Name</i>	<i>Role</i>
<i>Beema Bamboo Plantation Site (Bamboo to Energy project, Kwazulu-Natal)</i>	<i>Green Grid Energy</i>	<i>ECO</i>
<i>Mkondeni Medical Waste External Waste Management License Audit, Pietermaritzburg</i>	<i>Ecocycle Waste Solutions</i>	<i>Auditor</i>
<i>Dube Tradeport External Audit, eThekwini</i>	<i>Dube Tradeport Corporation</i>	<i>Junior Auditor</i>

Carbon Footprint Analysis

<i>Project Name & Location</i>	<i>Client Name</i>	<i>Role</i>
<i>Carbon footprint analysis of Newcastle and Sasolburg Plants, (Kwazulu Natal & North West)</i>	<i>Karbochem Pty Ltd</i>	<i>EAP</i>
<i>Measure Carbon Emissions and provide updated baseline that would enable DTPC to quantify, monitor and assess carbon footprint and its climate change impact for DTPC, eThekwini</i>	<i>Dube Tradeport Corporation</i>	<i>Junior EAP</i>

Waste Management

<i>Project Name & Location</i>	<i>Client Name</i>	<i>Role</i>
<i>Waste Classification Assessment for Karbochem Newcastle facility, Kwazulu-Natal</i>	<i>Karbochem Pty Ltd</i>	<i>EAP</i>
<i>Waste Management Licenses for Wadeville & Rosslyn Waste Management Facilities, Gauteng.</i>	<i>Planet Care Pty Ltd</i>	<i>EAP</i>

Compliance Advice and ESAP reporting

<i>Project Name & Location</i>	<i>Client Name</i>	<i>Role</i>
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<i>Environmental Opinion and Enquiry for the Rosslyn Tyre Pyrolysis Plant, Gauteng</i>	<i>Cosmic Energy</i>	<i>EAP</i>
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Non-Financial Auditing

<i>KPI'S Audited</i>	<i>Client Name & Location</i>	<i>Role</i>
<i>Total Primary Water Use, Total Electricity Used, Total Waste Generated, Scope 1, 2 & 3 Emissions and Total Number of Environmental Incidents.</i>	<i>Anglo Platinum (South Africa)</i>	<i>Sustainability Consultant</i>
<i>Total Primary Water Use, Total Waste Generate and Total Number of Environmental Incidents.</i>	<i>De Beers (Namibia)</i>	<i>Sustainability Consultant</i>
<i>Scope 1, 2 & 3 Emissions, Total Electricity Purchased, Total Primary Water Used.</i>	<i>Harmony Gold (South Africa)</i>	<i>Sustainability Consultant</i>
<i>Scope 1, 2 & 3 Emissions, Total Electricity Purchased, Total Primary Water Used and Total Rock Waste Generated.</i>	<i>Exxaro (South Africa, Papua New Guinea)</i>	<i>Sustainability Consultant</i>
<i>Total Corporate Social Investment fund spend by Barclays Group</i>	<i>Barclays Group</i>	<i>Sustainability Consultant</i>
<i>Audit Environmental and Social Risk Finance Projects - Equator Principles</i>	<i>MTN (South Africa & Nigeria)</i>	<i>Sustainability Consultant</i>

Renewable Energy Projects

Part 2 Amendment Applications and Motivation Reports

<i>Project Name & Location</i>	<i>Client Name</i>	<i>Role</i>
<i>Transalloys Coal-Fired Power Station near Emalahleni, Mpumalanga Province</i>	<i>Transalloys (Pty) Ltd</i>	<i>EAP</i>
<i>Zen Wind Energy Facility, Western Cape</i>	<i>Energy Team (Pty) Ltd</i>	<i>EAP</i>
<i>Hartebeest Wind Energy Facility, Western Cape</i>	<i>juwi Renewable Energies (Pty) Ltd</i>	<i>EAP</i>
<i>Khai-Ma and Korana Wind Energy Facilities</i>	<i>Mainstream Renewable Power (Pty) Ltd</i>	<i>EAP</i>
<i>Korana Solar PV facility</i>	<i>Mainstream Renewable Power (Pty) Ltd</i>	<i>EAP</i>
<i>Sutherland Wind Energy Facility</i>	<i>Mainstream Renewable Power (Pty) Ltd</i>	<i>EAP</i>
<i>Rietrug Wind Energy Facility</i>	<i>Mainstream Renewable Power (Pty) Ltd</i>	<i>EAP</i>

Basic Assessments

<i>Project Name & Location</i>	<i>Client Name</i>	<i>Role</i>
<i>Upilanga Solar Park, Northern Cape (x6 100MW PV's and x3 350MW PV Basic Assessments)</i>	<i>Emvelo Capital Projects (Pty) Ltd</i>	<i>EAP</i>
<i>Kolkies and Sadawa PV facilities and associated grid infrastructure</i>	<i>Mainstream Renewable Power South Africa (Pty) Ltd</i>	<i>EAP</i>
<i>Hyperion Overhead Powerline</i>	<i>Red Rocket (Pty) Ltd</i>	<i>EAP</i>
<i>132KkV Phinda Power underground transmission line</i>	<i>Phinda Power Producers (Pty) Ltd</i>	<i>EAP</i>
<i>Msenge Emoyeni Wind Energy Facility supporting infrastructure</i>	<i>Windlab (Pty) Ltd</i>	<i>EAP</i>
<i>Sutherland Wind Energy Facility Grid Infrastructure</i>	<i>Mainstream Renewable Power South Africa (Pty) Ltd</i>	<i>EAP</i>
<i>Rietrug Wind Energy Facility Grid Infrastructure</i>	<i>Mainstream Renewable Power South Africa (Pty) Ltd</i>	<i>EAP</i>

Environmental Impact Assessments

<i>Project Name & Location</i>	<i>Client Name</i>	<i>Role</i>
<i>Upilanga Solar Park, Northern Cape (350MW GSP Tower)</i>	<i>Emvelo Capital Projects (Pty) Ltd</i>	<i>EAP</i>
<i>350MW Risk Mitigation Power Plant (Gas to Power facility)</i>	<i>Phinda Power Producers (Pty) Ltd</i>	<i>EAP</i>
<i>75mw Thermal Dual Fuel Facility and associated infrastructure (Hybrid facility i.e. gas to power and solar pv)</i>	<i>Red Rocket (Pty) Ltd</i>	<i>EAP</i>
<i>Berg River Wind Energy Facility</i>	<i>Energy Team (Pty) Ltd</i>	<i>EAP</i>

Section 54 Audits

<i>Project Name & Location</i>	<i>Client Name</i>	<i>Role</i>
<i>Mulilo 20MW PV Facility, Prieska, Northern Cape</i>	<i>Mulilo (Pty) Ltd</i>	<i>Auditor</i>
<i>Mulilo 10MW PV Facility, De Aar, Northern Cape</i>	<i>Mulilo (Pty) Ltd</i>	<i>Auditor</i>
<i>Karashoek CSP I Facility/ Solar One., Upington, Northern Cape</i>	<i>Karashoek Solar One (Pty) Ltd</i>	<i>Audit</i>



Registration No. 2019/898

Herewith certifies that

Arlene Singh

is registered as an

Environmental Assessment Practitioner

***Registered in accordance with the prescribed criteria of Regulation 15. (1)
of the Section 24H Registration Authority Regulations
(Regulation No. 849, Gazette No. 40154 of 22 July 2016, of the
National Environmental Management Act (NEMA), Act No. 107 of 1998, as
amended).***

Effective: 01 March 2022

Expires: 28 February 2023

Chairperson

Registrar





herewith certifies that

Arlene Singh

Registration Number: 118872

is a registered scientist

in terms of section 20(3) of the Natural Scientific Professions Act, 2003
(Act 27 of 2003)
in the following field(s) of practice (Schedule 1 of the Act)

Environmental Science (Professional Natural Scientist)

Effective **6 June 2018**

Expires **31 March 2023**



A handwritten signature in black ink, appearing to read 'Botha', written over a horizontal line.

Chairperson

A handwritten signature in black ink, appearing to read 'M. J. ...', written over a horizontal line.

Chief Executive Officer



APPENDIX 3: CHANCE FIND PROCEDURE

CHANCE FOSSIL FINDS PROCEDURE: Authorised Grid Connection Infrastructure, Northern Province

Province & region:	Northern Cape, Sutherland & Laingsburg Districts	
Responsible Heritage Resources Agency	SAHRA, 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Phone: +27 (0)21 462 4502. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za	
Rock unit(s)	Abrahamskraal Formation (Lower Beaufort Group, Karoo Supergroup) Late Caenozoic alluvium along water courses and calcrete hardpans	
Potential fossils	Petrified wood and other plant remains, skeletal remains of tetrapods (e.g. therapsids), trace fossils of invertebrates and vertebrates (fish / tetrapod burrows, trails & trackways) in Abrahamskraal Formation bedrocks. Bones, teeth and horn cores of mammals, freshwater molluscs, calcretised termitaria and other trace fossils in older consolidated alluvium.	
ECO protocol	1. Once alerted to fossil occurrence(s): alert site foreman, stop work in area immediately (<i>N.B.</i> safety first!), safeguard site with security tape / fence / sand bags if necessary.	
	2. Record key data while fossil remains are still <i>in situ</i> :	
	<ul style="list-style-type: none"> • Accurate geographic location – describe and mark on site map / 1: 50 000 map / satellite image / aerial photo • Context – describe position of fossils within stratigraphy (rock layering), depth below surface • Photograph fossil(s) <i>in situ</i> with scale, from different angles, including images showing context (e.g. rock layering) 	
	3. If feasible to leave fossils <i>in situ</i> :	3. If <i>not</i> feasible to leave fossils <i>in situ</i> (emergency procedure only):
	<ul style="list-style-type: none"> • Alert Heritage Resources Authority and project palaeontologist (if any) who will advise on any necessary mitigation • Ensure fossil site remains safeguarded until clearance is given by the Heritage Resources Agency for work to resume 	<ul style="list-style-type: none"> • <i>Carefully</i> remove fossils, as far as possible still enclosed within the original sedimentary matrix (e.g. entire block of fossiliferous rock) • Photograph fossils against a plain, level background, with scale • Carefully wrap fossils in several layers of newspaper / tissue paper / plastic bags • Safeguard fossils together with locality and collection data (including collector and date) in a box in a safe place for examination by a palaeontologist • Alert Heritage Resources Agency and project palaeontologist (if any) who will advise on any necessary mitigation
4. If required by Heritage Resources Agency, ensure that a suitably-qualified specialist palaeontologist is appointed as soon as possible by the developer.		
5. Implement any further mitigation measures proposed by the palaeontologist and Heritage Resources Authority		
Specialist palaeontologist	Record, describe and judiciously sample fossil remains together with relevant contextual data (stratigraphy / sedimentology / taphonomy). Ensure that fossils are curated in an approved repository (e.g. museum / university / Council for Geoscience collection) together with full collection data. Submit Palaeontological Mitigation report to Heritage Resources Agency. Adhere to best international practice for palaeontological fieldwork and Heritage Resources Authority minimum standards.	

APPENDIX 4: EROSION MANAGEMENT PLAN

EROSION MANAGEMENT PLAN

OBJECTIVES:

To ensure that erosion is managed during the operation of the facility.

TARGETS:

To ensure compliance with the local authority by laws and any other statutory requirements relating to management of stormwater and erosion.

MEASURES:

- Regular inspection to assess erosion which may result from a loss in vegetation or cavitation from soil slumping;
- Continued watering to ensure wind erosion is limited at the construction sites until such time that the natural vegetation is effectively established; and
- Maintain and clean all drainage structures along roads within the project area

EROSION AND SEDIMENT CONTROL PRINCIPLES

The goal of erosion control during and after construction within the study area should be to:

- Protect the land surface from erosion;
- Intercept and safely direct run-off water from undisturbed upslope areas through the study area without allowing it to cause erosion within the site or become contaminated with sediment;
- Progressively re-vegetate or stabilise disturbed areas.

These goals can be achieved by applying the management practices outlined in the following sections.

1. PURPOSE

This Erosion Management Plan addresses the management and mitigation of potential impacts relating to soil erosion. The objective of the plan is to provide:

- » A general framework for soil erosion and sediment control, which enables the Contractor to identify areas where erosion can occur and is likely to be accelerated by construction related activities.
- » An outline of general methods to monitor, manage and rehabilitate erosion prone areas, ensuring that all erosion resulting from all phases of the development is addressed.

This plan must be updated and refined once the construction/ civil engineering plans have been finalised following detailed design.

2. RELEVANT ASPECTS OF THE STUDY AREA

According to Mucina and Rutherford (2006) the Roggeveld Shale Renosterveld (FRs 3) comprises of an undulating, slightly sloping plateau landscape, with low hills and broad shallow valleys (sandy soils). The natural vegetation is characterised by the moderately

tall shrublands which is dominated by *Elytropappus rhinocerotis* and where the more moist and rocky habitats support a rich geophytic flora.

The broad geology of the vegetation unit overlies mudrocks and sandstones of the Adelaide Subgroup (Beaufort Group of the Karoo Supergroup), with some intrusions of the Karoo Dolerite Suite. The vegetation unit is regarded to have a moderate erosion potential (Mucina and Rutherford, 2006), but on sloped areas devoid of vegetation, the impact can be high.

It is noted that the study area forms part of the core zone of the Hantam Roggeveld Centre of Endemism (Mucina and Rutherford, 2006; van Wyk and Smith, 2001) where it is distributed across the Northern and Western Cape provinces. To the west it is on the edge of the Great Escarpment above the Tanqua Basin with the Hantam Plateau region to the south. Dispersed within the landscape one find numerous isolated high plateau areas.

During construction, there will be a lot of disturbed and loose soil within the development footprint which will render the area vulnerable to erosion. Erosion is one of the greater risk factors associated with the development and it is therefore critically important that proper erosion control structures are built and maintained over the lifespan of the project.

3. EROSION AND SEDIMENT CONTROL PRINCIPLES

These goals can be achieved by applying the management practices outlined in the following sections.

GENERAL EROSION CONTROL

The Contractor should take all reasonable measures to prevent soil erosion resulting from the construction activities as well as to prevent the restriction or increase in the flow of storm water caused by the presence of temporary / permanent works. Erosion prevention measures must be implemented to the satisfaction of the Engineer and the ESCO / ECO. Areas affected by construction related activities must be monitored regularly for evidence of erosion. Areas particularly susceptible to erosion include areas stripped of topsoil and soil stockpiles and steep slopes (gradients > 6 %). Where evidence of erosion appears, the construction of contour berms, cut-off drains or planting of grass sods may be necessary. Where soil erosion does occur, the Contractor shall reinstate such areas and areas damaged by the erosion, at his own cost and to the satisfaction of the Engineer and ESCO / ECO.

PREVENTATIVE MEASURES

The following prevention measures are recommended:

- The Contractor is to provide a method statement on erosion control showing clearly how cleared surfaces and stormwater will be managed on site during construction and rehabilitation;
- Wind screening and stormwater control will be undertaken to prevent soil loss from the study site;
- All erosion control mechanisms will be regularly maintained;
- Re-vegetation of disturbed surfaces will occur immediately after the construction activities are completed;
- In the case of existing surface wash-away and wind erosion, the Contractor shall implement remedial measures as soon as possible to prevent further erosion;

- During construction, the Contractor shall protect areas susceptible to erosion by installing necessary temporary and permanent drainage works as soon as possible and by taking other measures necessary to prevent the surface water from being concentrated in streams and from scouring the slopes, banks or other
- » areas; and
- Traffic and movement over stabilised areas is to be restricted and controlled, and damage to stabilised areas shall be repaired and maintained to the satisfaction of the ESCO / ECO.

EROSION AND SEDIMENT CONTROL MEASURES

The following precautionary measures must be implemented onsite to manage erosion and sediment control:

- Re-vegetate areas that have been disturbed as soon as possible;
- Cut and fill slopes must be made stable and be re-vegetated as soon as possible during the construction phase;
- Newly formed terraces within the facility must be vegetated to stabilise the soil;
- Where erosion and/or sedimentation, whether on or off the site, occurs despite the Contractor complying with the foregoing, rectification shall be carried out in accordance with details specified by the ESCO / ECO;
- Where erosion and/or sedimentation occur due to the fault of the Contractor, rectification shall be carried out to the reasonable requirements of the ESCO / ECO and at the expense of the Contractor;
- If the Site is closed for a period exceeding 5 days, the Contractor, in consultation with the ESCO / ECO, shall carry out the following checklist procedure:
- Excavated and filled slopes and stockpiles are at a stable angle and capable of accommodating normal expected water flows; and
- Re-vegetated areas have a watering schedule and the supply to such areas is secured.

3.1. On-Site Erosion Management

General factors to consider regarding erosion risk at the site includes the following:

- » Due to the sandy nature of soils in the study area, soil loss will be greater during dry periods as it is more prone to wind erosion. Therefore, precautions to prevent erosion should be present throughout the year.
- » Soil loss will be greater on steeper slopes. Ensure that steep slopes are not de-vegetated unnecessarily and subsequently become hydrophobic (i.e. have increased runoff and a decreased infiltration rate) increasing the erosion potential.
- » Soil loss is related to the length of time that soils are exposed prior to rehabilitation or stabilisation. Therefore, the gap between construction activities and rehabilitation should be minimised. Phased construction and progressive rehabilitation, where practically possible, are therefore important elements of the erosion control strategy.
- » The extent of disturbance will influence the risk and consequences of erosion. Therefore, site clearing should be restricted to areas required for construction purposes only. As far as possible, large areas should not be cleared all at once, especially in areas where the risk of erosion is higher.
- » Roads should be planned and constructed in a manner which minimises their erosion potential. Roads should therefore follow the natural contour as far as possible. Roads parallel to the slope direction should be avoided as far as possible.
- » Where necessary, new roads constructed should include water diversion structures with energy dissipation features present to slow and disperse the water into the receiving area.
- » Roads used for project-related activities and other disturbed areas should be regularly monitored for erosion. Any erosion problems recorded should be rectified as soon as possible and monitored thereafter to ensure that they do not re-occur.
- » Runoff may have to be specifically channelled or storm water adequately controlled to prevent localised rill and gully erosion.

- » Compacted areas should have adequate drainage systems to avoid pooling and surface flow. Heavy machinery should not compact those areas which are not intended to be compacted as this will result in compacted hydrophobic, water repellent soils which increase the erosion potential of the area. Where compaction does occur, the areas should be ripped.
- » All bare areas should be revegetated with appropriate locally occurring species, to bind the soil and limit erosion potential.
- » Silt fences should be used where there is a danger of topsoil or material stockpiles eroding and entering streams and other sensitive areas.
- » Gabions and other stabilisation features must be used on steep slopes and other areas vulnerable to erosion to minimise erosion risk as far as possible.
- » Activity at the site after large rainfall events when the soils are wet and erosion risk is increased should be reduced. No driving off of hardened roads should occur at any time, and particularly immediately following large rainfall events.
- » Topsoil should be removed and stored in a designated area separately from subsoil and away from construction activities (as per the recommendations in the EMP_r). Topsoil should be reapplied where appropriate as soon as possible in order to encourage and facilitate rapid regeneration of the natural vegetation in cleared areas.
- » Regular monitoring of the site for erosion problems during construction (on-going) and operation (at least twice annually) is recommended, particularly after large summer thunderstorms have been experienced. The ECO will determine the frequency of monitoring based on the severity of the impacts in the erosion prone areas.

3.1.1. Erosion Control Mechanisms

The Contractor may use the following mechanisms (whichever proves more appropriate/ effective) to combat erosion when necessary:

- » Reno mattresses;
- » Slope attenuation;
- » Hessian material;
- » Shade catch nets;
- » Gabion baskets;
- » Silt fences;
- » Storm water channels and catch pits;
- » Soil bindings;
- » Geofabrics;
- » Hydro-seeding and/or re-vegetating;
- » Mulching over cleared areas;
- » Boulders and size varied rocks; and
- » Tilling.

3.2. Engineering Specifications

A detailed engineering specifications Storm Water Management Plan describing and illustrating the proposed stormwater control measures must be prepared during the detailed design phase and should be based on the underlying principles of the Storm Water Management Plan (**Appendix G** of the WEF EMP_r is also applicable to this grid infrastructure) and this should include erosion control measures. Requirements for project design include:

- » Erosion control measures to be implemented before and during the construction period, including the final storm water control measures (post construction).
- » All temporary and permanent water management structures or stabilisation methods must be indicated within the Storm water Management Plan.
- » An on-site Engineer or Environmental Officer (EO)/ SHE Representative to be responsible for ensuring implementation of the erosion control measures on site during the construction period. The ECO should monitor the effectiveness of these measures on the interval agreed upon with the Site Manager and EO.
- » The Contractor holds ultimate responsibility for remedial action in the event that the approved Storm Water Management Plan is not correctly or appropriately implemented and damage to the environment is caused.

APPENDIX 5: WASTE MANAGEMENT PLAN

WASTE MANAGEMENT PLAN

PURPOSE

A Waste Management Plan (WMP) plays a key role in achieving sustainable waste management throughout all phases of the project. The plan prescribes measures for the collection, temporary storage and safe disposal of the various waste streams associated with the project and includes provisions for the recovery, re-use and recycling of waste. The purpose of this plan is therefore to ensure that effective procedures are implemented for the handling, storage, transportation and disposal of waste generated from the project activities on site.

This WMP has been compiled as part of the project EMP and is based on waste stream information available at the time of compilation. Construction and operation activities must be assessed on an ongoing basis in order to determine the efficacy of the plan and whether further revision of the plan is required. This plan should be updated once further detail regarding waste quantities and categorisation become available, during the construction and/or operation phases. This plan should be updated throughout the life cycle of the infrastructure established for the Wind Energy Facilities and associated grid infrastructure, as required in order to ensure that appropriate measures are in place to manage and control waste and to ensure compliance with relevant legislation.

Prior to the commencement of construction, a detailed Waste Management Method Statement for the site should be compiled by the Contractor.

OBJECTIVE: Promote proper waste disposal, waste reduction, re-use, and recycling opportunities

2. RELEVANT ASPECTS OF THE SITE

It is expected that the development of various infrastructure will generate construction solid waste, as well as general waste and hazardous waste during the lifetime of the grid connection infrastructure.

Waste generated on site, originates from various sources, including but not limited to:

- » Concrete waste generated from spoil and excess concrete.
- » Contaminated water, soil, rocks and vegetation due to hydrocarbon spills.
- » Hazardous waste from vehicle, equipment and machinery parts and servicing, fluorescent tubes, used hydrocarbon containers, batteries situated in specially adapted shipping containers, and waste ink cartridges.
- » Recyclable waste in the form of paper, glass, steel, aluminium, wood/ wood pallets, plastic (PET bottles, PVC, LDPE) and cardboard.
- » Organic waste from food waste as well as alien and endemic vegetation removal.
- » Sewage from portable toilets and septic tanks.
- » Inert waste from spoil material from site clearance and trenching works.

3. LEGISLATIVE REQUIREMENTS

Waste in South Africa is currently governed by several regulations, including:

- » National Environmental Management: Waste Act (NEM: WA), 2008 (Act 59 of 2008);

- » National Environmental Management: Waste Amendment Act, 2014 (Act 26 of 2014);
- » The South African Constitution (Act 108 of 1996);
- » Hazardous Substances Act (Act 5 of 1973);
- » Health Act (Act 63 of 1977);
- » Environment Conservation Act (Act 73 of 1989);
- » Occupational Health and Safety Act (Act 85 of 1993);
- » National Water Act (Act 36 of 1998);
- » The National Environmental Management Act (Act 107 of 1998) (as amended);
- » Municipal Structures Act (Act 117 of 1998);
- » Municipal Systems Act (Act 32 of 2000);
- » Mineral and Petroleum Resources Development Act (Act 28 of 2002); and
- » Air Quality Act (Act 39 of 2004).

Storage of waste must be conducted in accordance with the National Norms and Standards for the Storage of Waste, published in GNR 926.

4. WASTE MANAGEMENT PRINCIPLES

An integrated approach to waste management is needed on site. Such an approach is illustrated in Figure 1.

It is important to ensure that waste is managed with the following objectives in mind during all phases of the project:

- » Reducing volumes of waste is the greatest priority;
- » If reduction is not feasible, the maximum amount of waste is to be recycled; and
- » Waste that cannot be recycled is to be disposed of in the most environmentally responsible manner.

The Integrated Waste Management Approach to Waste

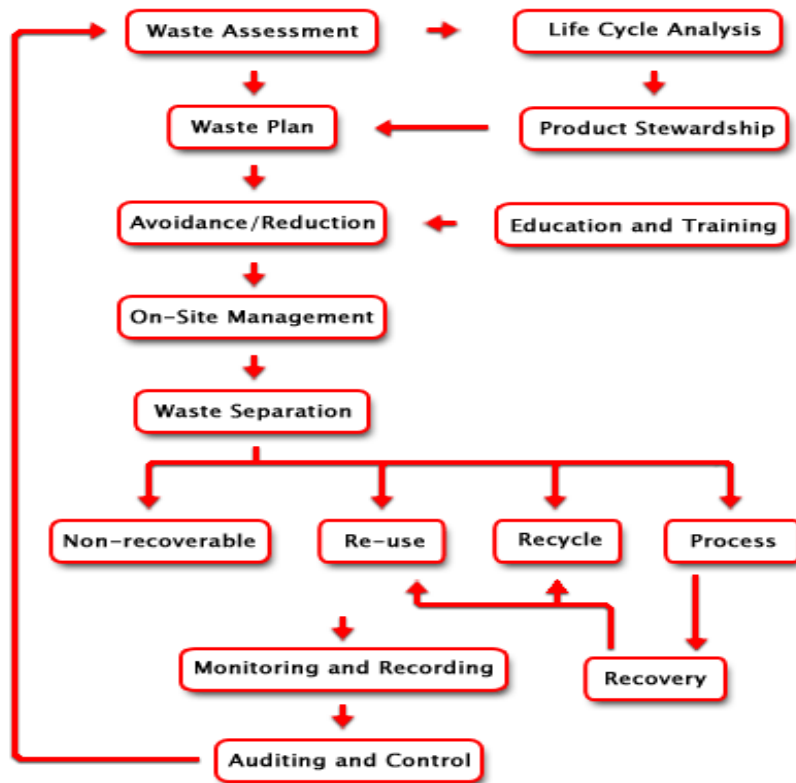


Figure 1: Integrated Waste Management Flow Diagram

(Source: <http://www.enviroserv.co.za>)

4.1. Construction phase

A plan for the management of waste during the construction phase is detailed below. A Method Statement detailing specific waste management practices during construction should be prepared by the Contractor prior to the commencement of construction, for approval by the Resident Engineer.

4.1.1. Waste Assessment / Inventory

- » The Environmental Officer (EO), or designated staff member, must develop, implement and maintain a waste inventory reflecting all waste generated during construction for both general and hazardous waste streams.
- » Construction methods and materials should be carefully considered in view of waste reduction, re-use, and recycling opportunities, to be pro-actively implemented.
- » Once a waste inventory has been established, targets for the recovery of waste (minimisation, re-use, recycling) should be set.
- » The EO must conduct waste classification and rating in terms of SANS 10288 and Government Notice 634 published under the NEM: WA.

4.1.2. Waste collection, handling and storage

- » Off-cuts (steel, wood etc.) will be re-used or recycled, as far as possible.
- » Vegetative material will be kept on site and mulched after construction to be spread over the disturbed areas to enhance rehabilitation of the natural vegetation.
- » Waste separation is encouraged and therefore receptacles should be labelled to reflect the different waste types.

- » Adequate containers for the cleaning of equipment and materials (paint, solvent) must be provided as to avoid spillages.
- » Waste water from construction and painting activities must be collected in a designated container and disposed of at a suitable disposal point off site.
- » Ensure an adequate and sustainable use of resources.
- » A suitable area for the storage of waste must be selected (away from water courses) and included in the site layout plan.
- » Ensuring that an adequate number of rubbish and "spill" bins are provided will also prevent litter and ensure the proper disposal of waste and spills
- » It is the responsibility of the EO to ensure that each subcontractor implements their own waste recycling system, i.e. separate bins for food waste, plastics, paper, wood, glass cardboard, metals, etc. Such practises must be made contractually binding upon appointment of the subcontractors.
- » Waste manifests and waste acceptance approvals (i.e. receipts) from designated waste facilities must be kept on file at the site office, in order to record and prove continual compliance for future auditing.
- » Septic tanks and portable toilets must be monitored by the EO or responsible subcontractor and maintained regularly. Below ground storage of septic tanks must withstand the external forces of the surrounding environment. The area above the tank must be demarcated to prevent any vehicles or heavy machinery from moving around in the surrounding area.
- » Waste collection bins and hazardous waste containers must be provided by the principal contractor and subcontractors and placed at strategic locations around the site for the storage of organic, recyclable and hazardous waste.
- » A dedicated waste area must be established on site for the storage of all waste streams before removal from site. The storage period must not trigger listed waste activities as per the NEMWA, GN 921 of November 2013.
- » Signage/ colour coding must be used to differentiate disposal areas for the various waste streams (i.e. paper, cardboard, metals, food waste, glass etc.).
- » Hazardous waste must be stored within a bunded area constructed according to SABS requirements and must ensure complete containment of the spilled material in the event of a breach. As such, appropriate bunding material, design, capacity and type must be utilised to ensure that no contamination of the surrounding environment will occur despite a containment breach. The net capacity of a bunded compound in a storage facility should be at least 120% of the net capacity of the largest tank.
- » Take into consideration the capacity displaced by other tanks within the same bunded area and any foundations.
- » Treat interconnected tanks as a single tank of equivalent total volume for the purposes of the bund design criteria.
- » The location of all temporary waste storage areas must aim to minimise the potential for impact on the surrounding environment, including prevention of contaminated runoff, seepage, and vermin control, while being reasonably placed in terms of centrality and accessibility on site. Where required, an additional temporary waste storage area may be designated, provided identical controls are exercised for these locations.
- » Waste storage shall be in accordance with all Regulations and best-practice guidelines and under no circumstances may waste be burnt on site.
- » A dedicated waste management team must be appointed by the principal contractors' SHE Officer, who will be responsible for ensuring the continuous sorting of waste and maintenance of the area. The waste management team must be trained in all areas of waste management and monitored by the SHE Officer.
- » All waste removed from site must be done by a registered/ licensed subcontractor, who must supply information regarding how waste recycling/ disposal will be achieved. The registered subcontractor must provide waste manifests for all removals at least once a month or for every disposal made, records of which must be kept on file at the site camp for the duration of the construction period.

4.1.3. Management of waste storage areas

- » Control and implement waste management plans provided by contractors. Ensure that relevant legislative requirements are respected.

- » Implement effective waste management in order to prevent construction related waste from entering the freshwater environments.
- » Waste storage must be undertaken in accordance with the relevant Norms and Standards.
- » The position of all waste storage areas must be located so as to ensure minimal degradation to the environment. The main waste storage area must have a suitable storm water system separating clean and contaminated storm water.
- » Collection bins placed around the site and at subcontractors' camps (if at a different location than the main site camp) must be maintained and emptied on a regular basis by the principal contractor to avoid overflowing receptacles.
- » Inspections and maintenance of the main waste storage area must be undertaken daily. Skips and storage containers must be clearly marked, or colour coded and well-maintained. Monitor for rodents and take corrective action if they become a problem.
- » Waste must be stored in designated containers and not on the ground.
- » Inspections and maintenance of bunds must be undertaken regularly. Bunds must be inspected for leaks or cracks in the foundation and walls.
- » It is assumed that any rainwater collected inside the bund is contaminated and must be treated by oil/water separation (or similar method) prior to dewatering, or removed and stored as hazardous waste, and not released into the environment.
- » If any leaks occur in the bund, these must be amended immediately.
- » Bund systems must be designed to avoid dewatering of contaminated water, but to rather separate oil and hydrocarbons from water prior to dewatering.
- » Following rainfall event bunds must always be dewatered in order to maintain a sufficient storage capacity in the event of a breach.
- » No mixing of hazardous and general waste is allowed.

4.1.4. Disposal

- » All operational waste (concrete, steel, rubbles etc.) to be removed from the site and waste hierarchy of prevention, as the preferred option, followed by reuse, recycling, recovery must be implemented, where possible.
- » Other non-hazardous solid waste (e.g. packaging material) to be disposed of at a licensed landfill.
- » All liquid waste (used oil, paints, lubricating compounds and grease) to be packaged and disposed of by appropriate means.
- » The subcontractor shall not dispose of any waste and/or construction debris by burning or burying.
- » Where solid waste disposal is to take place on site, ensure that only non-toxic materials which have no risk of polluting the groundwater, are buried in designated approved areas at acceptable depths below ground level.
- » Waste generated on site must be removed on a regular basis. This frequency may change during construction depending on waste volumes generated at different stages of the construction process, however removal must occur prior to the storage capacity being reached to avoid overflow of containers and poor waste storage.
- » Waste must be removed by a suitably qualified contractor and disposed of at an appropriately licensed landfill site. Proof of appropriate disposal must be provided by the contractor to the EO and ECO.

4.1.5. Record keeping

The success of the WMP is determined by measuring criteria such as waste volumes, cost recovery from recycling and cost of disposal. Recorded data can indicate the effect of training and education, or the need for education. It will provide trends and benchmarks for setting goals and standards. It will provide clear evidence of the success or otherwise of the plan.

- » Documentation (waste manifest, certificate of issue or safe disposal) must be kept detailing the quantity, nature, and fate of any regulated waste for audit purposes.

- » Waste management must form part of the monthly reporting requirements in terms of volumes generated, types, storage and final disposal.

4.1.6. Training

Training and awareness regarding waste management shall be provided to all employees and contractors as part of the toolbox talks or on-site awareness sessions with the EO and at the frequency as set out by the ECO.

4.2. Operation phase

It is expected that the operation phase will result in the production of limited amounts of general waste consisting mostly of cardboard, paper, plastic, tins, metals and a variety of synthetic compounds. Hazardous wastes (including grease, oils) will also be generated. All waste generated will be required to be temporarily stored at the facility in appropriately sealed containers prior to disposal at a permitted landfill site or other facilities.

The following waste management principles apply during the operation phase:

- » The SHE Manager must develop, implement and maintain a waste inventory reflecting all waste generated during operation for both general and hazardous waste streams.
- » Adequate waste collection bins at site must be supplied. Separate bins should be provided for general and hazardous waste.
- » Recyclable waste must be removed from the waste stream and stored separately.
- » All waste must be stored in appropriate temporary storage containers (separated between different operation wastes, and contaminated or wet waste).
- » Waste storage shall be in accordance with all best-practice guidelines and under no circumstances may waste be burnt on site.
- » Waste generated on site must be removed on a regular basis throughout the operation phase.
- » Waste must be removed by a suitably qualified contractor and disposed of at an appropriately licensed landfill site. Proof of appropriate disposal must be provided by the contractor and kept on site.

5. Monitoring of Waste Management Activities

Records must be kept of the volumes/ mass of the different waste streams that are collected from the site throughout the life of the project. The appointed waste contractor is to provide monthly reports to the operator containing the following information:

- » Monthly volumes/ mass of the different waste streams collected;
- » Monthly volumes/ mass of the waste that is disposed of at a landfill site;
- » Monthly volumes/ mass of the waste that is recycled;
- » Data illustrating progress compared to previous months.

This report will aid in monitoring the progress and relevance of the waste management procedures that are in place. If it is found that the implemented procedures are not as effective as required, this WMP is to be reviewed and amended accordingly. This report must form part of the EO's reports to the ECO on a monthly basis.

APPENDIX 6: FIRE MANAGEMENT & EMERGENCY PREPARENESS PLAN

FIRE MANAGEMENT AND EMERGENCY PREPAREDNESS MANAGEMENT PLAN

1. PURPOSE

The purpose of the Emergency Preparedness, Response and Fire Management Plan is:

- » To assist contractor personnel to prepare for and respond quickly and safely to emergency incidents, and to establish a state of readiness which will enable prompt and effective responses to possible events.
- » To control or limit any effect that an emergency or potential emergency may have on site or on neighbouring areas.
- » To facilitate emergency responses and to provide such assistance on the site as is appropriate to the occasion.
- » To ensure communication of all vital information as soon as possible.
- » To facilitate the reorganisation and reconstruction activities so that normal operations can be resumed.
- » To provide for training so that a high level of preparedness can be continually maintained.

This plan outlines response actions for potential incidents of any size. It details response procedures that will minimise potential health and safety hazards, environmental damage, and clean-up efforts. The plan has been prepared to ensure quick access to all the information required in responding to an emergency event. The plan will enable an effective, comprehensive response to prevent injury or damage to the construction personnel, public, and environment during the project. Contractors are expected to comply with all procedures described in this document. A Method Statement should be prepared at the commencement of the construction phase detailing how this plan is to be implemented as well as details of relevant responsible parties for the implementation. The method statement must also reflect conditions of the IFC Performance Standard I and include the following:

- » Identification of areas where accidents and emergency situations may occur;
- » Communities and individuals that may be impacted;
- » Response procedure;
- » Provisions of equipment and resources;
- » Designation of responsibilities;
- » Communication; and
- » Periodic training to ensure effective response to potentially affected communities.

2. PROJECT-SPECIFIC DETAILS

The authorised powerline is located in the Karoo Hoogland Local Municipality, Northern Cape Province near the town of Sutherland on Remaining Extent of Nooitgedacht Farm 148. The project will comprise the following key infrastructure and components:

- » Fencing;
- » An IPP portion of the on-site substation (Acrux);
- » Laydown area;
- » Operation & Maintenance (O&M) Building;

Due to the scale and nature of this development, it is anticipated that the following risks could potentially arise during the construction and operation phases:

- » Fires;

- » Leakage of hazardous substances;
- » Storage of flammable materials and substances;
- » Flood events;
- » Accidents; and
- » Natural disasters.

3. EMERGENCY RESPONSE PLAN

There are three levels of emergency as follows:

- » Local Emergency: An alert confined to a specific locality.
- » Site Emergency: An alert that cannot be localised and which presents danger to other areas within the site boundary or outside the site boundary.
- » Evacuation: An alert when all personnel are required to leave the affected area and assemble in a safe location.

If there is any doubt as to whether any hazardous situation constitutes an emergency, then it must be treated as an Evacuation.

Every effort must be made to control, reduce or stop the cause of any emergency, provided it is safe to do so. For example, in the event of a fire, isolate the fuel supply and limit the propagation of the fire by cooling the adjacent areas. Then confine and extinguish the fire (where appropriate) making sure that re-ignition cannot occur.

3.1. Emergency Scenario Contingency Planning

3.1.1. Scenario: Spill which would result in the contamination of land, surface or groundwater

OBJECTIVE: PREVENT AND MONITOR ACCIDENTAL LEAKAGES AND SPILLAGES

- » All hazardous chemicals should be stored on bunded surfaces and no storage of such chemicals should be permitted within the riparian buffer zones
- » It must be ensured that all hazardous storage containers and storage areas comply with the relevant SABS standards to prevent leakage. All vehicles must be regularly inspected for leaks. Refuelling must take place on a sealed surface area to prevent ingress of hydrocarbons into topsoil; and
- » All spills, should they occur, should be immediately cleaned up and treated accordingly
- » All vehicles and other equipment (generators etc.) must be regularly serviced to ensure they do not spill oil. Vehicles should be refuelled on paved (impervious) areas. If liquid product is being transported it must be ensured this does not spill during transit.
- » Emergency measures and plans must be put in place and rehearsed in order to prepare for accidental spillage.
- » Diesel fuel storage tanks must be above ground in a bunded area.
- » Engines that stand in one place for an excessive length of time must have drip trays.
- » Vehicle and washing areas must also be on paved surfaces and the by-products removed to an evaporative storage area or a hazardous waste disposal site (if the material is hazardous).
- » Establish an effective record keeping system for accidental leakage/spillage incidents.
- » Excess or spilled concrete should be confined within the work area and then removed to a licensed landfill site.
- » Concrete shall be mixed on mortar boards, away from drainage channels and water courses.
- » The visible remains of the mixing of concrete, either solid or from washings, shall be physically removed and disposed of as waste at a licensed landfill site.

- » All excess aggregate shall also be removed from site.

i. Spill Prevention Measures

Preventing spills must be the top priority at all operations which have the potential of endangering the environment. The responsibility to effectively prevent and mitigate any scenario lies with the Contractor and the ECD. In order to reduce the risk of spills and associated contamination, the following principles should be considered during construction and operation activities:

- » All equipment refuelling, servicing and maintenance activities should only be undertaken within appropriately sealed/contained or banded designated areas.
- » All maintenance materials, oils, grease, lubricants, etc. should be stored in a designated area in an appropriate storage container.
- » No refuelling, storage, servicing, or maintenance of equipment should take place within sensitive environmental resources in order to reduce the risk of contamination by spills.
- » No refuelling or servicing should be undertaken without absorbent material or drip pans properly placed to contain spilled fuel.
- » Any fluids drained from the machinery during servicing should be collected in leak-proof containers and taken to an appropriate disposal or recycling facility.
- » If these activities result in damage or accumulation of product on the soil, the contaminated soil must be disposed of as hazardous waste. Under no circumstances shall contaminated soil be added to a spoils pile and transported to a regular disposal site.
- » Chemical toilets used during construction must be regularly cleaned. Chemicals used in toilets are also hazardous to the environment and must be controlled. Portable chemical toilets could overflow if not pumped regularly or they could spill if dropped or overturned during moving. Care and due diligence should be taken at all times.
- » Contact details of emergency services and HazMat Response Contractors are to be clearly displayed on the site. All staff are to be made aware of these details and must be familiar with the procedures for notification in the event of an emergency.

ii. Procedures

The following action plan is proposed in the event of a spill:

1. Spill or release identified.
2. Assess person safety, safety of others and the environment.
3. Stop the spill if safely possible.
4. Contain the spill to limit entering surrounding areas.
5. Identify the substance spilled.
6. Quantify the spill (under or over guideline/threshold levels).
7. Notify the Site Manager and emergency response crew and authorities (in the event of major spill).
8. Inform users (and downstream users) of the potential risk.
9. Clean up of the spill using spill kit or by HazMat team.
10. Record of the spill incident on company database.

a) Procedures for containing and controlling the spill (i.e. on land or in water)

Measures can be taken to prepare for quick and effective containment of any potential spills. Each contractor must keep sufficient supplies of spill containment equipment at the construction sites, at all times during and after the construction phase. These should include specialised spill kits or spill containment equipment. Other spill containment measures include using drip pans underneath vehicles and equipment every time refuelling, servicing, or maintenance activities are undertaken.

Specific spill containment methods for land and water contamination are outlined below.

Containment of Spills on Land

Spills on land include spills on rock, gravel, soil and/or vegetation. It is important to note that soil is a natural sorbent, and therefore spills on soil are generally less serious than spills on water as contaminated soil can be more easily recovered. It is important that all measures be undertaken to avoid spills reaching open water bodies located outside of the development footprint. The following methods could be used:

- » Dykes - Dykes can be created using soil surrounding a spill on land. These dykes are constructed around the perimeter or down slope of the spilled substance. A dyke needs to be built up to a size that will ensure containment of the maximum quantity of contaminant that may reach it. A plastic tarp can be placed on and at the base of the dyke such that the contaminant can pool up and subsequently be removed with sorbent materials or by pump into barrels or bags. If the spill is migrating very slowly, a dyke may not be necessary, and sorbents can be used to soak up contaminants before they migrate away from the source of the spill.
- » Trenches - Trenches can be dug out to contain spills. Spades, pickaxes or a front-end loader can be used depending on the size of the trench required. Spilled substances can then be recovered using a pump or sorbent materials.

b) Procedures for transferring, storing, and managing spill related wastes

Used sorbent materials are to be placed in plastic bags for future disposal. All materials mentioned in this section are to be available in the spill kits. Following clean up, any tools or equipment used must be properly washed and decontaminated or replaced if this is not possible.

Spilled substances and materials used for containment must be placed into empty waste oil containers and sealed for proper disposal at an approved disposal facility.

c) Procedures for restoring affected areas

Criteria that may be considered include natural biodegradation of oil, replacement of soil and revegetation. Once a spill of reportable size has been contained, the ECO and the relevant Authority must be consulted to confirm that the appropriate clean up levels are met.

3.1.2. Scenario: Fire (and fire water handling)

Fire Management Plan

OBJECTIVE: REDUCE THE RISK OF FIRE IN THE GRASSLAND ENVIRONMENT

- » Construct fire-breaks around the site/footprint area before any other construction begins.

- » Prohibit smoking on-site or alternatively indicate designated smoking areas for staff.
- » Prohibit open fires.
- » Designate cooking areas for staff where fire hazard will be insignificant.
- » Educate staff of the dangers of open and unattended fires.
- » Educate staff as to proper fire safety.
- » Enforce proper waste management including disposal of flammable material (e.g. cigarette butts and packaging).
- » Place firefighting equipment at appropriate locations on site and ensure staff are aware of such equipment and associated procedure.
- » No fires are allowed around the construction area.
- » Welding, gas cutting or cutting of metal will only be permitted in an area designated as safe by the subcontractor.

i. Action Plan

The following action plan is proposed in the event of a fire:

1. Quantify risk.
2. Assess person safety, safety of others and the environment.
3. If safe – attempt to extinguish the fire using appropriate equipment.
4. If not safe to extinguish, contain fire.
5. Notify the Site Manager and emergency response crew and authorities.
6. Inform users of the potential risk of fire.
7. Record the incident on the company database or filing register.

ii. Procedures

Because large scale fires may spread very fast it is most advisable that the employee/contractor not put his/her life in danger in the case of an uncontrolled fire.

Portable firefighting equipment must be provided at strategic locations throughout the site, in line with the Building Code of South Africa and the relevant provincial building code. All emergency equipment including portable fire extinguishers, hose reels and hydrants must be maintained and inspected by a qualified contractor in accordance with the relevant legislation and national standards.

Current evacuation signs and diagrams for the building or site that are compliant to relevant state legislation must be provided in a conspicuous position, on each evacuation route. Contact details for the relevant emergency services should be clearly displayed on site and all employees should be aware of procedures to follow in the case of an emergency.

d) Procedures for initial actions

Persons should not fight the fire if any of the following conditions exist:

- » They have not been trained or instructed in the use of a fire extinguisher.
- » They do not know what is burning.
- » The fire is spreading rapidly.
- » They do not have the proper equipment.
- » They cannot do so without a means of escape.

- » They may inhale toxic smoke.

e) Reporting procedures

In terms of the requirements of NEMA, the responsible person must, within 14 days of the incident, report to the Director General, provincial head of department and municipality.

- » Report fire immediately to the site manager, who will determine if it is to be reported to the relevant emergency services and authorities.
- » The Site Manager must have copies of the Report form to be completed.

SUMMARY: RESPONSE PROCEDURE

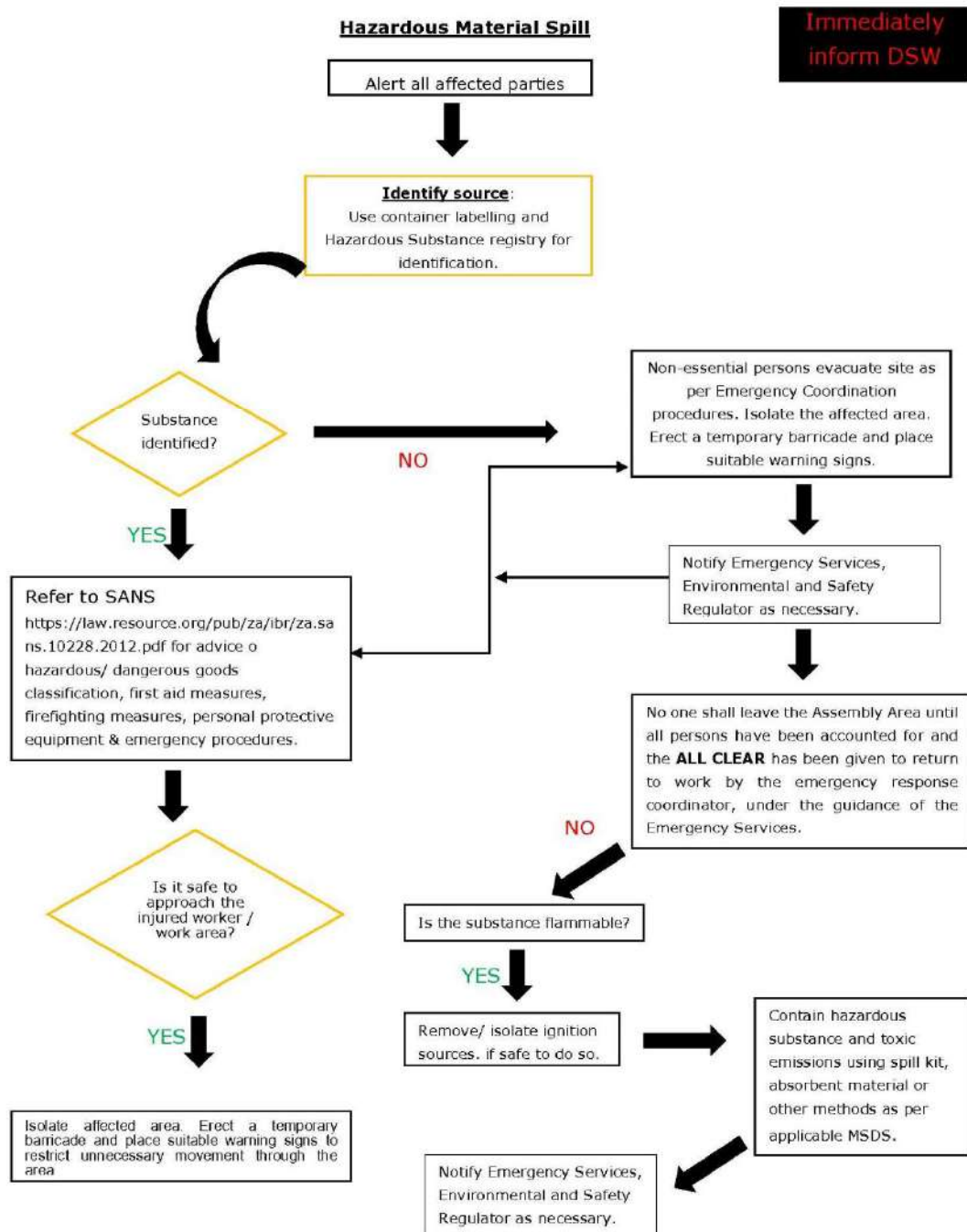


Figure 1: Hazardous Material Spill

Fire/Medical Emergency Situation

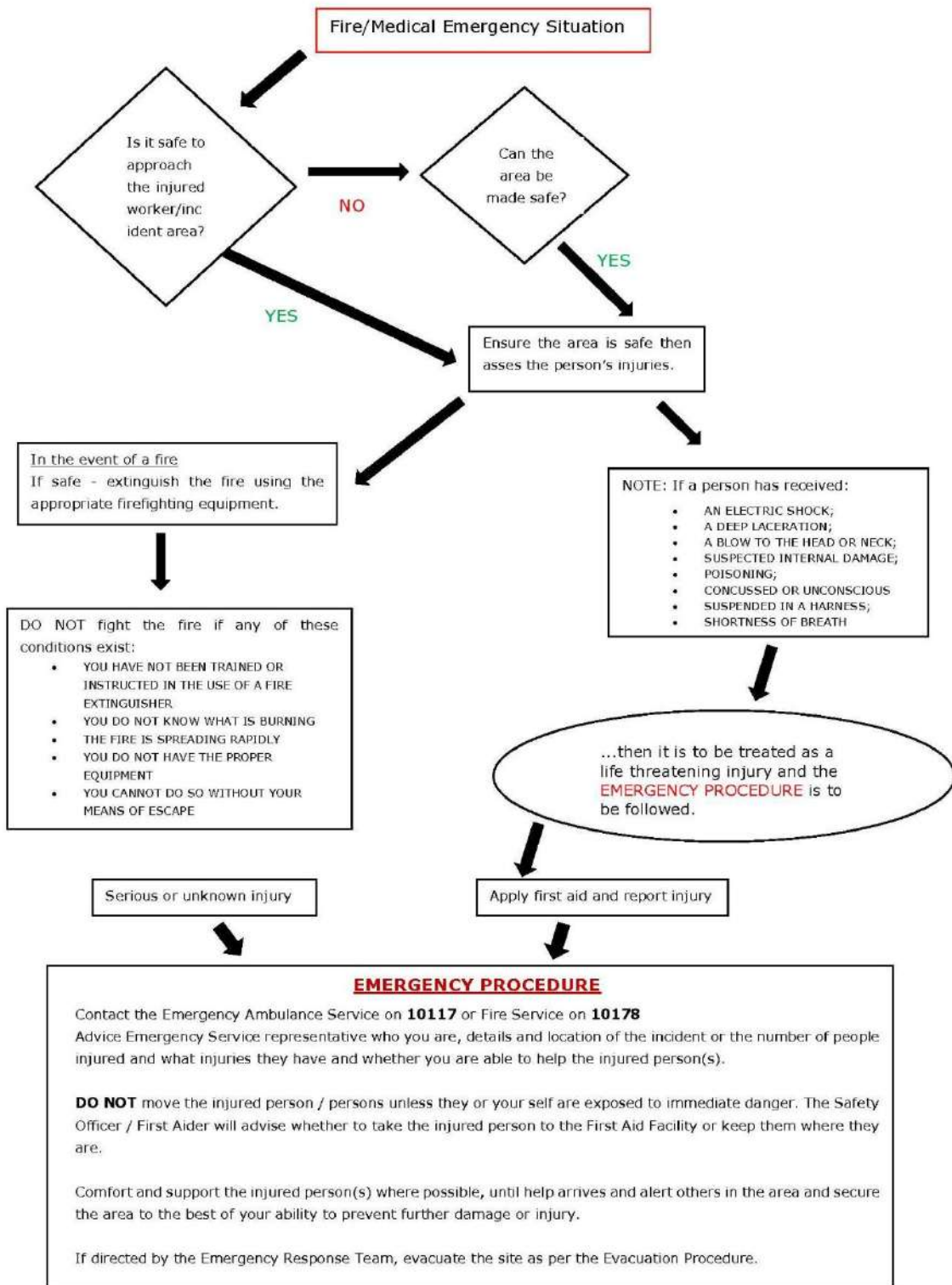


Figure 2: Emergency Fire/Medical

4. PROCEDURE RESPONSIBILITY

The Contractor's Safety, Health and Environment (SHE) Representative, employed by the Contractor, is responsible for managing the day-to-day on-site implementation of this Plan, and for the compilation of regular (usually weekly) Monitoring Reports. In addition, the SHE must act as liaison and advisor on all environmental and related issues.

The local authorities will provide their assistance when deemed necessary, or when it has been requested and/or indicated in Section 30(8) of NEMA. The provincial authority will provide assistance and guidance where required and conduct awareness programmes.