

GENERIC ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPR) FOR THE DEVELOPMENT OF MAHIKENG MAIN TRANSMISSION SUBSTATION INFRASTRUCTURE FOR THE TRANSMISSION AND DISTRIBUTION OF ELECTRICITY WITHIN NORTH WEST AND GAUTENG PROVINCES

DFFE REFERENCE: 14/12/16/3/3/2/1051

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









environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

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INTRODUCTION

1. Background

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

2. Purpose

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

3. Objective

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

4. Scope

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

5. Structure of this document

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

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

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

Part	Section	Heading	Content
			information in this section must be prepared by an EAP and must contain his/her name and expertise including a curriculum vitae. Once approved, Part C forms part of the EMPr for the site and is legally binding. This section applies only **to additional** impact management outcomes and impact management actions that are necessary for the avoidance, management and mitigation of impacts and risks associated with the specific development or expansion and which are not already included in Part B: section 1.
Appendix 1			Contains the method statements to be prepared prior to commencement of the activity. The method statements are **not required** to be submitted to the competent authority.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

PART A – GENERAL INFORMATION

1. DEFINITIONS

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

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

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

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

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

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

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

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

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

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

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

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

"works" means the works to be executed in terms of the Contract

2. ACRONYMS and ABBREVIATIONS

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

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

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

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

Responsible Person(s)	**Role and Responsibilities**
Developer's Project Manager (DPM)	<u>Role</u> The Project Developer is accountable for ensuring compliance with the EMPr and any conditions of approval from the competent authority (CA). Where required, an environmental control officer (ECO) must be contracted by the Project Developer to objectively monitor the implementation of the EMPr according to relevant environmental legislation, and the conditions of the environmental authorisation (EA). The Project Developer is further responsible for providing and giving mandate to enable the ECO to perform responsibilities, and he must ensure that the ECO is integrated as part of the project team while remaining independent. <u>Responsibilities</u> - 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)	Role 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. Responsibilities - 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)	Role 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. The ECO provides feedback to the DSS and Project Manager, who in turn reports back to the Contractor and potential and Registered Interested &Affected Parties' (RI&AP's), as required. Issues of non-compliance raised by the ECO must be taken up by the Project Manager, and resolved with the Contractor as per the conditions of his contract. Decisions regarding environmental procedures, specifications and requirements which have a cost implication (i.e. those that are deemed to be a

Responsible Person(s)	Role and Responsibilities
	variation, not allowed for in the Performance Specification) must be endorsed by the Project Manager. The ECO must also, as specified by the EA, report to the relevant CA as and when required. <u>Responsibilities</u> The responsibilities of the ECO will include the following: - 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
	- Assisting in the resolution of conflicts; - Facilitate training for all personnel on the site – this may range from carrying out the training, to reviewing the training programmes of the Contractor; - In case of non-compliances, the ECO must first communicate this to the Senior Site Supervisor, who has the power to ensure this matter is addressed. Should no action or insufficient action be taken, the ECO may report this matter to the authorities as non-compliance; - Maintenance, update and review of the EMPr; - Communication of all modifications to the EMPr to the relevant stakeholders.
developer Environmental Officer (dEO)	<u>Role</u> 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. <u>Responsibilities</u> - Be fully conversant with the EMPr; - Be familiar with the recommendations and mitigation measures of this EMPr, and implement these measures; - Ensure that all stipulations within the EMPr are communicated and adhered to by the Employees, Contractor(s) ; - Confine the development site to the demarcated area; - Conduct environmental internal audits with regards to EMPr and authorisation compliance (on cEO); - Assist the contractors in addressing environmental challenges on site; - Assist in incident management: - Reporting environmental incidents to developer and ensuring that corrective action is taken, and lessons learnt shared; - Assist the contractor in investigating environmental incidents and compile investigation reports; - Follow-up on pre-warnings, defects, non-conformance reports;

Responsible Person(s)	Role and Responsibilities
	- Measure and communicate environmental performance to the Contractor; - Conduct environmental awareness training on site together with ECO and cEO; - Ensure that the necessary legal permits and / or licenses are in place and up to date; - Acting as Developer's Environmental Representative on site and work together with the ECO and contractor;
Contractor	<u>Role</u> 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. <u>Responsibilities</u> - project delivery and quality control for the development services as per appointment; - employ a suitably qualified person to monitor and report to the Project Developer's appointed person on the daily activities on-site during the construction period; - ensure that safe, environmentally acceptable working methods and practices are implemented and that equipment is properly operated and maintained, to facilitate proper access and enable any operation to be carried out safely; - attend on site meeting(s) prior to the commencement of activities to confirm the procedure and designated activity zones; - ensure that contractors' staff repair, at their own cost, any environmental damage as a result of a contravention of the specifications contained in EMPr, to the satisfaction of the ECO.

Responsible Person(s)	Role and Responsibilities
contractor Environmental Officer (cEO)	<u>Role</u> Each Contractor affected by the EMPr should appoint a cEO, who is responsible for the on-site implementation of the EMPr (or relevant sections of the EMPr). The Contractor's representative can be the site agent; site engineer; a dedicated environmental officer; or an independent consultant. The Contractor must ensure that the Contractor's Representative is suitably qualified to perform the necessary tasks and is appointed at a level such that she/he can interact effectively with other site Contractors, labourers, the Environmental Control Officer and the public. As a minimum the cEO shall meet the following criteria: <u>Responsibilities</u> - 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 contactor and the holder of the EA. This template, once signed and dated, is legally binding. The holder of the EA will remain responsible for its implementation.

5.1 Environmental awareness training

Impact management outcome: All onsite staff are aware and understands the individual responsibilities in terms of this EMPr.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All staff must receive environmental awareness training prior to commencement of the activities; – The Contractor must allow for sufficient sessions to train all personnel with no more than 20 personnel attending each course; – Refresher environmental awareness training is available as and when required; – All staff are aware of the conditions and controls linked to the EA and within the EMPr and made aware of their individual roles and responsibilities in achieving compliance with the EA and EMPr; – The Contractor must erect and maintain information posters at key locations on site, and the posters must include the following information as a minimum: a) Safety notifications; and b) No littering. – Environmental awareness training must include as a minimum the following: 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;	**Contractor, ECO**	**Onsite training and Posters**	**Commencement of the project and as and when required**	**ECO**	**Once off**	**Certificates, Attendance registers, course material and photographs**

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. – A record of all environmental awareness training courses undertaken as part of the EMPr must be available; – Educate workers on the dangers of open and/or unattended fires; – A staff attendance register of all staff to have received environmental awareness training must be available. – Course material must be available and presented in appropriate languages that all staff can understand.						

5.2 Site Establishment development

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

development area.						
N **Impact Management Actions**	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– A method statement must be provided by the contractor prior to any onsite activity that includes the layout of the construction camp in the form of a plan showing the location of key infrastructure and services (where applicable), including but not limited to offices, overnight vehicle parking areas, stores, the workshop, stockpile and lay down areas, hazardous materials storage areas (including fuels), the batching plant (if one is located at the construction camp), designated access routes, equipment cleaning areas and the placement of staff accommodation, cooking and ablution facilities, waste and wastewater management; – Location of camps must be within approved area to ensure that the site does not impact on sensitive areas identified in the environmental assessment or site walk through; – Sites must be located where possible on previously disturbed areas; – The camp must be fenced in accordance with ***Section 5.5: Fencing and gate installation***; and – The use of existing accommodation for contractor staff, where possible, is encouraged.	**Contractor**	**Method statement provided, Fencing and strict access control and warning signs**	**Throughout the project**	**ECO**	**Throughout the project**	**Method statement and site inspection**

5.4 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; – Erect, demarcate and maintain a temporary barrier with clear signage around the perimeter of any access restricted area, colour coding could be used if appropriate; and – Unauthorised access and development related activity inside access restricted areas is prohibited.	**Contractor**	**Method statement provided, Fencing and strict access control and warning signs**	**Throughout the project**	**ECO**	**Throughout the project**	**Method statement and site inspection**

5.5 Access roads

Impact management outcome: Minimise impact to the environment through the planned and restricted movement of vehicles on site.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– An access agreement must be formalised and signed by the DPM, Contractor and landowner before commencing with the activities; – All private roads used for access to the servitude must be	**Contractor**	**Use existing roads and negotiated access roads,**	**Throughout the project**	**ECO**	**Once off**	**Photograph and signed agreement**

maintained and upon completion of the works, be left in at least the original condition – All contractors must be made aware of all these access routes. – Any access route deviation from that in the written agreement must be closed and re-vegetated immediately, at the contractor's expense; – Maximum use of both existing servitudes and existing roads must be made to minimize further disturbance through the development of new roads; – In circumstances where private roads must be used, the condition of the said roads must be recorded in accordance with ***section 4.9: photographic record***; prior to use and the condition thereof agreed by the landowner, the DPM, and the contractor; – Access roads in flattish areas must follow fence lines and tree belts to avoid fragmentation of vegetated areas or croplands – Access roads must only be developed on a pre-planned and approved roads.		**Photograph and signed agreement records**				**records**

5.6 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; – Existing and new gates to be recorded and documented in accordance with **section *4.9: photographic record***; – All gates must be fitted with locks and be kept locked at all times during the development phase, unless otherwise agreed with the landowner; – At points where the line crosses a fence in which there is no suitable gate within the extent of the line servitude, on the instruction of the DPM, a gate must be installed at the approval of the landowner; – Care must be taken that the gates must be so erected that there is a gap of no more than 100 mm between the bottom of the gate and the ground; – Where gates are installed in jackal proof fencing, a suitable reinforced concrete sill must be provided beneath the gate; – Original tension must be maintained in the fence wires; – All gates installed in electrified fencing must be re-electrified; – All demarcation fencing and barriers must be maintained in	**Contractor**	**Maintain fencing and notices at the fence and gates and also site inspection**	**Throughout the project**	**ECO**	**Throughout the project**	**Photograph and signed agreement records, site inspection**

good working order for the duration of the development activities; – Fencing must be erected around the camp, batching plants, hazardous storage areas, and all designated access restricted areas, where applicable; – Any temporary fencing to restrict the movement of life-stock must only be erected with the permission of the land owner. – All fencing must be developed of high quality material bearing the SABS mark; – The use of razor wire as fencing must be avoided; – Fenced areas with gate access must remain locked after hours, during weekends and on holidays if staff is away from site. Site security will be required at all times; – On completion of the development phase all temporary fences are to be removed; – The contractor must ensure that all fence uprights are appropriately removed, ensuring that no uprights are cut at ground level but rather removed completely.						

5.7 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; – 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; 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. – Ensure water conservation is being practiced by: a. Minimising water use during cleaning of equipment; b. Undertaking regular audits of water systems; and c. Including a discussion on water usage and conservation during environmental awareness training. d. The use of grey water is encouraged.	**Contractor**	**Environmental awareness training, prevent unauthorized water abstraction**	**Throughout the project**	**ECO**	**Throughout the project**	**Site inspection and audit reports**

5.8 Storm and waste water management

Impact management outcome: Impacts to the environment caused by storm water and wastewater discharges during construction are avoided.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Runoff from the cement/ concrete batching areas must be strictly controlled, and contaminated water must be collected, stored and either treated or disposed of off-site, at a location approved by the project manager; – All spillage of oil onto concrete surfaces must be controlled by the use of an approved absorbent material and the used absorbent material disposed of at an appropriate waste disposal facility; – Natural storm water runoff not contaminated during the development and clean water can be discharged directly to watercourses and water bodies, subject to the Project Manager's approval and support by the ECO; – Water that has been contaminated with suspended solids, 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.	**Contractor**	**Implementation of stormwater management**	**Throughout the project**	**ECO**	**Once off**	**Site inspection**

5.9 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; – Sufficient, covered waste collection bins (scavenger and weatherproof) must be provided; – A suitably positioned and clearly demarcated waste collection site must be identified and provided; – The waste collection site must be maintained in a clean and orderly manner; – Waste must be segregated into separate bins and clearly marked for each waste type for recycling and safe disposal; – Staff must be trained in waste segregation; – Bins must be emptied regularly; – General waste produced onsite must be disposed of at registered waste disposal sites/ recycling company; – Hazardous waste must be disposed of at a registered waste disposal site; – Certificates of safe disposal for general, hazardous and recycled waste must be maintained.	**Contractor**	**Covered waste storage areas and Emptying bins regularly**	**Throughout the project**	**ECO**	**Throughout the project**	**Audit report**

5.10 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; – In the event of a spill, prompt action must be taken to clear the polluted or affected areas; – Where possible, no development equipment must traverse any seasonal or permanent wetland – No return flow into the estuaries must be allowed and no disturbance of the Estuarine functional Zone should occur; – Development of permanent watercourse or estuary crossing must only be undertaken where no alternative access to tower position is available; – There must not be any impact on the long term morphological dynamics of watercourses or estuaries; – Existing crossing points must be favored over the creation of new crossings (including temporary access) – When working in or near any watercourse or estuary, the following environmental controls and consideration must be	**NO watercourse**					

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.						

5.11 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; – Protected or endangered species may occur on or near the development site. Special care should be taken not to damage such species; – Search, rescue and replanting of all protected and endangered species likely to be damaged during project development must be identified by the relevant specialist and completed prior to any development or clearing; – Permits for removal must be obtained from the relevant CA prior to the cutting or clearing of the affected species, and they must be filed; – The Environmental Audit Report must confirm that all identified species have been rescued and replanted and that the location of replanting is compliant with conditions of approvals; – Trees felled due to construction must be documented and form part of the Environmental Audit Report;	**Contractor**	**As per EA and Ecological report**	**Throughout the project**	**ECO**	**Throughout the project**	**Audit report**

– Rivers and watercourses must be kept clear of felled trees, vegetation cuttings and debris; – Only a registered pest control operator may apply herbicides on a commercial basis and commercial application must be carried out under the supervision of a registered pest control operator, supervision of a registered pest control operator or is appropriately trained; – A daily register must be kept of all relevant details of herbicide usage; – No herbicides must be used in estuaries; – All protected species and sensitive vegetation not removed must be clearly marked and such areas fenced off in accordance to ***Section 5.3: Access restricted areas***. Alien invasive vegetation must be removed and disposed of at a licensed waste management facility.						

5.12 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; – The breeding sites of raptors and other wild birds species must be taken into consideration during the planning of the development programme; – Breeding sites must be kept intact and disturbance to breeding birds must be avoided. Special care must be taken where nestlings or fledglings are present; – Special recommendations of the avian specialist must be adhered to at all times to prevent unnecessary disturbance of birds; – No poaching must be tolerated under any circumstances. All animal dens in close proximity to the works areas must be marked as Access restricted areas; – No deliberate or intentional killing of fauna is allowed; – In areas where snakes are abundant, snake deterrents to be deployed on the pylons to prevent snakes climbing up, being electrocuted and causing power outages; and – No Threatened or Protected species (ToPs) and/or protected	**Contractor**	**As per EA and avifauna report**	**Throughout the project**	**ECO**	**Throughout the project**	**Site inspection and audit report**

fauna as listed according NEMBA (Act No. 10 of 2004) and relevant provincial ordinances may be removed and/or relocated without appropriate authorisations/permits.						

5.13 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***; – Carry out general monitoring of excavations for potential fossils, artefacts and material of heritage importance; – All work must cease immediately, if any human remains and/or other archaeological, palaeontological and historical material are uncovered. Such material, if exposed, must be reported to the nearest museum, archaeologist/ palaeontologist (or the South African Police Services), so that a systematic and professional investigation can be undertaken. Sufficient time must be allowed to remove/collect such material before development recommences.	**Contractor**	**As per EA and Site inspection**	**Prior construction and throughout the project**	**ECO**	**Prior construction and throughout the project**	**Site inspection, audit report and photographs**

5.14 Safety of the public

Impact management outcome: All precautions are taken to minimise the risk of injury, harm or complaints.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Identify fire hazards, demarcate and restrict public access to these areas as well as notify the local authority of any potential threats e.g. large brush stockpiles, fuels etc.; – All unattended open excavations must be adequately fenced or demarcated; – Adequate protective measures must be implemented to prevent unauthorised access to and climbing of partly constructed towers and protective scaffolding; – Ensure structures vulnerable to high winds are secured; – Maintain an incidents and complaints register in which all incidents or complaints involving the public are logged.	**Contractor**	**Fencing, signage, implementation of approved designs. Maintain complaints records**	**Through out the project**	**ECO**	**Throughout the project**	**Contractors record and site inspection**

5.15 Sanitation

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

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Mobile chemical toilets are installed onsite if no other ablution facilities are available; – The use of ablution facilities and or mobile toilets must be used at all times and no indiscriminate use of the veld for the purposes of ablutions must be permitted under any circumstances; – Where mobile chemical toilets are required, the following must be ensured: a) Toilets are located no closer than 100 m to any watercourse or water body; b) Toilets are secured to the ground to prevent them from toppling due to wind or any other cause; c) No spillage occurs when the toilets are cleaned or emptied and the contents are managed in accordance with the EMPr; d) Toilets have an external closing mechanism and are closed and secured from the outside when not in use to prevent toilet paper from being blown out; e) Toilets are emptied before long weekends and workers	**Contractor**	**Use of licensed sanitation suppliers**	**Throughout the project**	**ECO**	**Weekly**	**Site inspection and documentation**

holidays, and must be locked after working hours; f) Toilets are serviced regularly and the ECO must inspect toilets to ensure compliance to health standards; – A copy of the waste disposal certificates must be maintained.						

5.16 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; – Ensure that the workforce is sensitised to the effects of sexually transmitted diseases, especially HIV AIDS; – The Contractor must ensure that information posters on AIDS are displayed in the Contractor Camp area; – Information and education relating to sexually transmitted diseases to be made available to both construction workers and local community, where applicable; – Free condoms must be made available to all staff on site at central points; – Medical support must be made available; – Provide access to Voluntary HIV Testing and Counselling Services.	**Contractor**	**Use of pest control were required and HIV/Aids awareness training**	**Prior construction**	**ECO**	**Once off**	**Certificates and attendance register**

5.17 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; – The Emergency Plan must deal with accidents, potential spillages and fires in line with relevant legislation; – All staff must be made aware of emergency procedures as part of environmental awareness training; – The relevant local authority must be made aware of a fire as soon as it starts; – In the event of emergency necessary mitigation measures to contain the spill or leak must be implemented (see ***Hazardous Substances section 5.17***).	**Contractor**	**Approved ERAP and onsite training**	**Prior construction**	**ECO**	**Once off**	**Poof of approved ERAP and course material for training**

5.18 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; – All hazardous substances must be stored in suitable containers as defined in the Method Statement; – Containers must be clearly marked to indicate contents, quantities and safety requirements; – All storage areas must be bunded. The bunded area must be of sufficient capacity to contain a spill / leak from the stored containers; – Bunded areas to be suitably lined with a SABS approved liner; – An Alphabetical Hazardous Chemical Substance (HCS) control sheet must be drawn up and kept up to date on a continuous basis; – All hazardous chemicals that will be used on site must have Material Safety Data Sheets (MSDS); – All employees working with HCS must be trained in the safe use of the substance and according to the safety data sheet;	**Contractor** **Contractor**	**Safe disposal certificates available,** **•Hazardous substances discussed in awareness training,** **•Bunded hazardous waste areas,** **•Clearly marked storage containers,** **• Spill kits made available**	**Throughout** **Throughout**	**ECO** **ECO**	**Throughout** **Throughout**	**Audit report** **Audit report**

– Employees handling hazardous substances / materials must be aware of the potential impacts and follow appropriate safety measures. Appropriate personal protective equipment must be made available; – The Contractor must ensure that diesel and other liquid fuel, oil and hydraulic fluid is stored in appropriate storage tanks or in bowsers; – The tanks/ bowsers must be situated on a smooth impermeable surface (concrete) with a permanent bund. The impermeable lining must extend to the crest of the bund and the volume inside the bund must be 130% of the total capacity of all the storage tanks/ bowsers (110% statutory requirement plus an allowance for rainfall); – The floor of the bund must be sloped, draining to an oil separator; – Provision must be made for refueling at the storage area by protecting the soil with an impermeable groundcover. Where dispensing equipment is used, a drip tray must be used to ensure small spills are contained; – All empty externally dirty drums must be stored on a drip tray or within a bunded area; – No unauthorised access into the hazardous substances storage areas must be permitted; – No smoking must be allowed within the vicinity of the hazardous storage areas; – Adequate fire-fighting equipment must be made available at all hazardous storage areas; – Where refueling away from the dedicated refueling station is required, a mobile refueling unit must be used. Appropriate ground protection such as drip trays must be used; – An appropriately sized spill kit kept onsite relevant to the		**• Diesel and fuel storage areas in line with fuel storage requirements** **•Refueling of vehicles in designated bunded areas**				

scale of the activity/s involving the use of hazardous substance must be available at all times; – The responsible operator must have the required training to make use of the spill kit in emergency situations; – An appropriate number of spill kits must be available and must be located in all areas where activities are being undertaken; – In the event of a spill, contaminated soil must be collected in containers and stored in a central location and disposed of according to the National Environmental Management: Waste Act 59 of 2008. Refer to ***Section 5.7*** for procedures concerning ***storm and waste water management*** and ***5.8*** for ***solid and hazardous waste management.***						

5.19 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; – 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**	**Demarcate a service area and implement emergency procedures for spills.**	**Throughout construction**	**ECO**	**Throughout the project**	**Site inspection and monitoring report**

– Leaking equipment must be repaired immediately or be removed from site to facilitate repair; – Workshop areas must be monitored for oil and fuel spills; – Appropriately sized spill kit kept onsite relevant to the scale of the activity taking place must be available; – The workshop area must have a bunded concrete slab that is sloped to facilitate runoff into a collection sump or suitable oil / water separator where maintenance work on vehicles and equipment can be performed; – Water drainage from the workshop must be contained and managed in accordance Section ***5.7: Storm and waste water management***.						

5.20 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; – Batching plants areas must be fitted with a containment facility for the collection of cement laden water. – Dirty water from the batching plant must be contained to prevent soil and groundwater contamination – Bagged cement must be stored in an appropriate facility and at least 10 m away from any water courses, gullies and drains;	**contractor**	**Appropriate cement mixing and storage facilities, Monitor water use Use of bunded concrete washing area, Obtain waste**	**During construction**	**ECO**	**Throughout the project**	**Site inspection and contractor documentation**

– A washout facility must be provided for washing of concrete associated equipment. Water used for washing must be restricted; – Hardened concrete from the washout facility or concrete mixer can either be reused or disposed of at an appropriate licenced disposal facility; – Empty cement bags must be secured with adequate binding material if these will be temporarily stored on site; – Sand and aggregates containing cement must be kept damp to prevent the generation of dust (Refer to ***Section 5.20: Dust emissions***) – Any excess sand, stone and cement must be removed or reused from site on completion of construction period and disposed at a registered disposal facility; – Temporary fencing must be erected around batching plants in accordance with Section ***5.5: Fencing and gate installation***.		**disposal certificates**				

5.21 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; – Removal of vegetation must be avoided until such time as	**contractor**	**Enforce vehicle speed limits Implement dust controls from**	**Throughout the project**	**ECO**	**Throughout the project**	**Site inspection**

soil stripping is required and similarly exposed surfaces must be re- vegetated or stabilised as soon as is practically possible; – Excavation, handling and transport of erodible materials must be avoided under high wind conditions or when a visible dust plume is present; – During high wind conditions, the ECO must evaluate the situation and make recommendations as to whether dust-damping measures are adequate, or whether working will cease altogether until the wind speed drops to an acceptable level; – Where possible, soil stockpiles must be located in sheltered areas where they are not exposed to the erosive effects of the wind; – Where erosion of stockpiles becomes a problem, erosion control measures must be implemented at the discretion of the ECO; – Vehicle speeds must not exceed 40 km/h along dust roads or 20 km/h when traversing unconsolidated and non-vegetated areas; – Straw stabilisation must be applied at a rate of one bale/10 m² and harrowed into the top 100 mm of top material, for all completed earthworks; – For significant areas of excavation or exposed ground, dust suppression measures must be used to minimise the spread of dust.		**stockpiles where needed**				

5.22 Blasting

Impact management outcome: Impact to the environment is minimised through a safe blasting practice.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Any blasting activity must be conducted by a suitably licensed blasting contractor; and – Notification of surrounding landowners, emergency services site personnel of blasting activity 24 hours prior to such activity taking place on Site.	**contractor**	**Blasting license and notification af landowners**	**Once off**	**ECO**	**Once off**	**Documentation and proof of notification**

5.23 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	**Contractor**	**EA compliance**	**Throughout the**	**ECO**	**Throughout the**	**Site**

communication and emergency only; – All vehicles and machinery must be fitted with appropriate silencing technology and must be properly maintained; – Any complaints received by the Contractor regarding noise must be recorded and communicated. Where possible or applicable, provide transport to and from the site on a daily basis for construction workers; – Develop a Code of Conduct for the construction phase in terms of behaviour of construction staff. Operating hours as determined by the environmental authorisation are adhered to during the development phase. Where not defined, it must be ensured that development activities must still meet the impact management outcome related to noise management.			**project**		**project**	**inspection**

5.24 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; – Firefighting equipment must be available on all vehicles located on site;	**Contractor**	**Ongoing site maintenance Emergency signage**	**Throughout the project**	**ECO**	**Throughout the project**	**Site inspection**

– The local Fire Protection Agency (FPA) must be informed of construction activities; – Contact numbers for the FPA and emergency services must be communicated in environmental awareness training and displayed at a central location on site; – Two way swop of contact details between ECO and FPA.		**available**				

5.25 Stockpiling and stockpile areas

Impact management outcome: Reduce erosion and sedimentation as a result of stockpiling.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All material that is excavated during the project development phase (either during piling (if required) or earthworks) must be stored appropriately on site in order to minimise impacts to watercourses, watercourses and water bodies; – All stockpiled material must be maintained and kept clear of weeds and alien vegetation growth by undertaking regular weeding and control methods; – Topsoil stockpiles must not exceed 2 m in height; – During periods of strong winds and heavy rain, the stockpiles must be covered with appropriate material (e.g. cloth, tarpaulin etc.);	**Contractor**	**Adhere to EA**	**Throughout the project**	**ECO**	**Throughout the project**	**Site inspection**

– Where possible, sandbags (or similar) must be placed at the bases of the stockpiled material in order to prevent erosion of the material.						

5.26 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; – Areas to be rehabilitated include terrace embankments and areas outside the high voltage yards; – Where required, all sloped areas must be stabilised to ensure proper rehabilitation is effected and erosion is controlled; – These areas can be stabilised using design structures or vegetation as specified in the design to prevent erosion of embankments. The contract design specifications must be adhered to and implemented strictly; – Rehabilitation of the disturbed areas must be managed in accordance with ***Section 5.35: Landscaping and***	**Contractor**	**Implement management action**	**Once off**	**ECO**	**Once off**	**Site inspection**

rehabilitation; – All excess spoil generated during terracing activities must be disposed of in an appropriate manner and at a recognised landfill site; and – Spoil can however be used for landscaping purposes and must be covered with a layer of 150 mm topsoil for rehabilitation purposes.						

5.27 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; – Spoil can however be used for landscaping purposes and must be covered with a layer of 150 mm topsoil for rehabilitation purposes; – Management of equipment for excavation purposes must	**Contractor**	**Implement management action**	**Throughout the project**	**ECO**	**Throughout the project**	**Site inspection**

be undertaken in accordance with ***Section 5.18: Workshop, equipment maintenance and storage***; and – Hazardous substances spills from equipment must be managed in accordance with ***Section 5.17: Hazardous substances***.						

5.28 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 – Residual solid waste must be disposed of in accordance with **Section *5.8: Solid waste and hazardous management***.	**Contractor**	**Implement management action**	**Throughout the project**	**ECO**	**Throughout the project**	**Site inspection**

5.29 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***; – Management of equipment used for installation must be conducted in accordance with Section ***5.18: Workshop, equipment maintenance and storage***; – Management hazardous substances and any associated spills must be conducted in accordance with Section ***5.17: Hazardous substances***; and – Residual solid waste must be recycled or disposed of in accordance with ***Section 5.8: Solid waste and hazardous management***.	**Contractor**	**Implement management action**	**Throughout the project**	**ECO**	**Throughout the project**	**Site inspection**

5.30 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 – 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**	**Implement management action**	**Throughout the project**	**ECO**	**Throughout the project**	**Site inspection**

5.31 Cabling and Stringing

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

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Residual solid waste (off cuts etc.) shall be recycled or disposed of in accordance with **Section *6.8: Solid waste and hazardous Management***; – Management of equipment used for installation shall be conducted in accordance with **Section *5.18: Workshop, equipment maintenance and storage***; – Management hazardous substances and any associated spills shall be conducted in accordance with ***Section 5.17: Hazardous substances***.	**Contractor**	**As indicated in the applicable management action**	**Throughout construction**	**ECO**	**Throughout construction**	**Site inspection**

5.32 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	Method of	Timeframe for	Responsible	Frequency	Evidence of

	person	implementation	implementation	person		compliance
– Residual solid waste must be recycled or disposed of in accordance with ***Section 5.8: Solid waste and hazardous management***.						

5.33 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; – Develop and implement a collaborative and constructive approach to conflict resolution as part of the external stakeholder engagement process; – Sustain continuous communication and liaison with neighboring owners and residents – Create work and training opportunities for local stakeholders; and – Where feasible, no workers, with the exception of security personnel, must be permitted to stay over-night on the site. This would reduce the risk to local farmers.	**Contractor**	**communication with the community liaison officer and project steering committee**	**Monthly**	**ECO**	**Monthly**	**Record of meetings**

5.34 Temporary closure of site

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

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Bunds must be emptied (where applicable) and need to be undertaken in accordance with the impact management actions included in ***sections 5.17: Hazardous substances and 5.18: Workshop, equipment maintenance and storage***; – Hazardous storage areas must be well ventilated; – Fire extinguishers must be serviced and accessible. Service records to be filed and audited at last service; – Emergency and contact details displayed must be displayed; – Security personnel must be briefed and have the facilities to contact or be contacted by relevant management and emergency personnel; – Night hazards such as reflectors, lighting, traffic signage etc. must have been checked; – Fire hazards identified and the local authority must have been notified of any potential threats e.g. large brush stockpiles, fuels etc.; – Structures vulnerable to high winds must be secured; – Wind and dust mitigation must be implemented; – Cement and materials stores must have been secured;	**Contractor**	**Fire, security and emergency preparedness plan should be adhered to**	**Before temporary closure**	**ECO**	**Once off**	**Reviewing the contractor's documentation for temporary site closure and site inspection**

– Toilets must have been emptied and secured; – Refuse bins must have been emptied and secured; – Drip trays must have been emptied and secured.						

5.35 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; – Oil containing equipment must be stored to prevent leaking or be stored on drip trays; – All scrap steel must be stacked neatly and any disused and broken insulators must be stored in containers; – Once material has been scrapped and the contract has been placed for removal, the disposal Contractor must ensure that any equipment containing pollution causing substances is dismantled and transported in such a way as to prevent spillage and pollution of the environment; – The Contractor must also be equipped to contain and clean up any pollution causing spills; and – Disposal of unusable material must be at a licensed waste disposal site.	**Contractor**	**As per Environmental Authorization requirements**	**End of construction**	**ECO**	**End of construction**	**Site inspection and report**

5.36 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; – All slopes must be assessed for contouring, and to contour only when the need is identified in accordance with the Conservation of Agricultural Resources Act, No 43 of 1983 – All slopes must be assessed for terracing, and to terrace only when the need is identified in accordance with the Conservation of Agricultural Resources Act, No 43 of 1983; – Berms that have been created must have a slope of 1:4 and be replanted with indigenous species and grasses that approximates the original condition; – Where new access roads have crossed cultivated farmlands, that lands must be rehabilitated by ripping which must be agreed to by the holder of the EA and the landowners; – Rehabilitation of access roads outside of farmland; – Indigenous species must be used for with species and/grasses to where it compliments or approximates the	**Contractor**	**As per Environmental Authorization requirements**	**End of construction**	**ECO**	**End of construction**	**Site inspection and report**

original condition; – Stockpiled topsoil must be used for rehabilitation (refer to ***Section 5.24: Stockpiling and stockpiled areas***); – Stockpiled topsoil must be evenly spread so as to facilitate seeding and minimise loss of soil due to erosion; – Before placing topsoil, all visible weeds from the placement area and from the topsoil must be removed; – Subsoil must be ripped before topsoil is placed; – The rehabilitation must be timed so that rehabilitation can take place at the optimal time for vegetation establishment; – Where impacted through construction related activity, all sloped areas must be stabilised to ensure proper rehabilitation is effected and erosion is controlled; – Sloped areas stabilised using design structures or vegetation as specified in the design to prevent erosion of embankments. The contract design specifications must be adhered to and implemented strictly; – Spoil can be used for backfilling or landscaping as long as it is covered by a minimum of 150 mm of topsoil. – Where required, re-vegetation including hydro-seeding can be enhanced using a vegetation seed mixture as described below. A mixture of seed can be used provided the mixture is carefully selected to ensure the following: 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						

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: **National Transmission Company South Africa SOC Ltd (NTCSA)**

Name of applicant: **David Tunnicliff**

Tel No: **(011) 800 5145**

Fax No: **N/A**

Postal Address: **P.O. Box 1091, Johannesburg, 2001**

Physical Address: **Megawatt Park, Maxwell Drive, Sunninghill, Sandton**

7.1.2 Details and expertise of the EAP: **Vhubvo Consultancy**

Name of applicant: **Brenda S Makanza**

Tel No: **011 312 2878**

Fax No: **011 312 7824**

E-mail address: brenda@vhubvo.co.za

Expertise of the EAP of the EAP is given below, and the Curriculum Vitae included is attached in Appendix 2.

Principal EAP	
EAP's name and surname:	Brenda Makanza
Postal address:	P.O. Box 7068, Midrand, 1685
Tel:	011 312 2878
Fax:	011 312 7824
E-mail:	brenda@vhubvo.co.za
Qualifications and relevant experience	• B.Sc. Honours Environmental Science. • Professional Diploma Geographic Information Systems • Twenty-one (21) in the environmental consulting field. Refer to Appendix 2 for CV and Qualifications

Professional affiliations	• South African Council for Natural Scientific Professions (SACNASP). Registration Number 400016/17. • Environmental Assessment Practitioners of South Africa (EAPASA). Registration Number 2019/1542.

7.1.3 Project name: Proposed Mahikeng Main Transmission Substation and 1x400kV Pluto-Mahikeng Powerline within the Merafong, Ditsobotla, Ramotshere Moilao, JB Marks and Mahikeng Local Municipalities in North West and Gauteng Provinces.

7.1.4 Description of the project:

The Watershed Strengthening Phase 3 project is a strategically important transmission initiative identified in Eskom's Transmission Development Plans (2016-2025 and 2019-2028), aimed at addressing existing network constraints within South Africa's power system. Specifically, the project seeks to alleviate capacity limitations and improve voltage regulation at the Watershed Substation, thereby enhancing overall network performance and reliability. Implemented by the National Transmission Company South Africa (NTCSA), the development includes the establishment of the Mafikeng Main Transmission Substation (MTS) and the associated Pluto-Mahikeng 400kV transmission power line, forming part of a broader, long-term strategy to reinforce the national 400kV network and support increased capacity for both power evacuation and regional distribution. The management actions discussed in this report are for the following scope of works.

i. The construction of the Mahikeng MTS.

ii. The erection of 55m communication tower mast.

The management actions for the proposed Pluto-Mahikeng 400kV powerline and associated infrastructure are discussed in the Generic EMPr for the development or expansion of powerlines.

7.1.5 **Project location:**

The proposed Mahikeng Main Transmission Substation (MTS) is situated on Remainder Portion and Portion 3 of Westwood Park 400 JO, within Ward 3 of the Mahikeng Local Municipality, Ngaka Modiri Molema District Municipality, North West Province. The site is located approximately 3 km south of Miga Village, west of Ikopeleng Village, and southwest of the Botswana border. The surrounding landscape comprises natural areas, residential settlements, and transportation infrastructure. Access to the proposed substation site is provided via the N18 national road.Refer to Figure 1 for the location and surroundings.

NO	FARM NAME(if applicable)	FARM NUMBER(if applicable)	PORTION NAME	PORTION NUMBER	LATITUDE	LONGITUDE
01	Westwood Park	400 JO	Farm Portion	RE	25°40'44.21"S	25°32'43.4"E
02	Westwood Park	400 JO	Farm Portion	3	25°41'57.81"S	25°34'08.67"E

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.

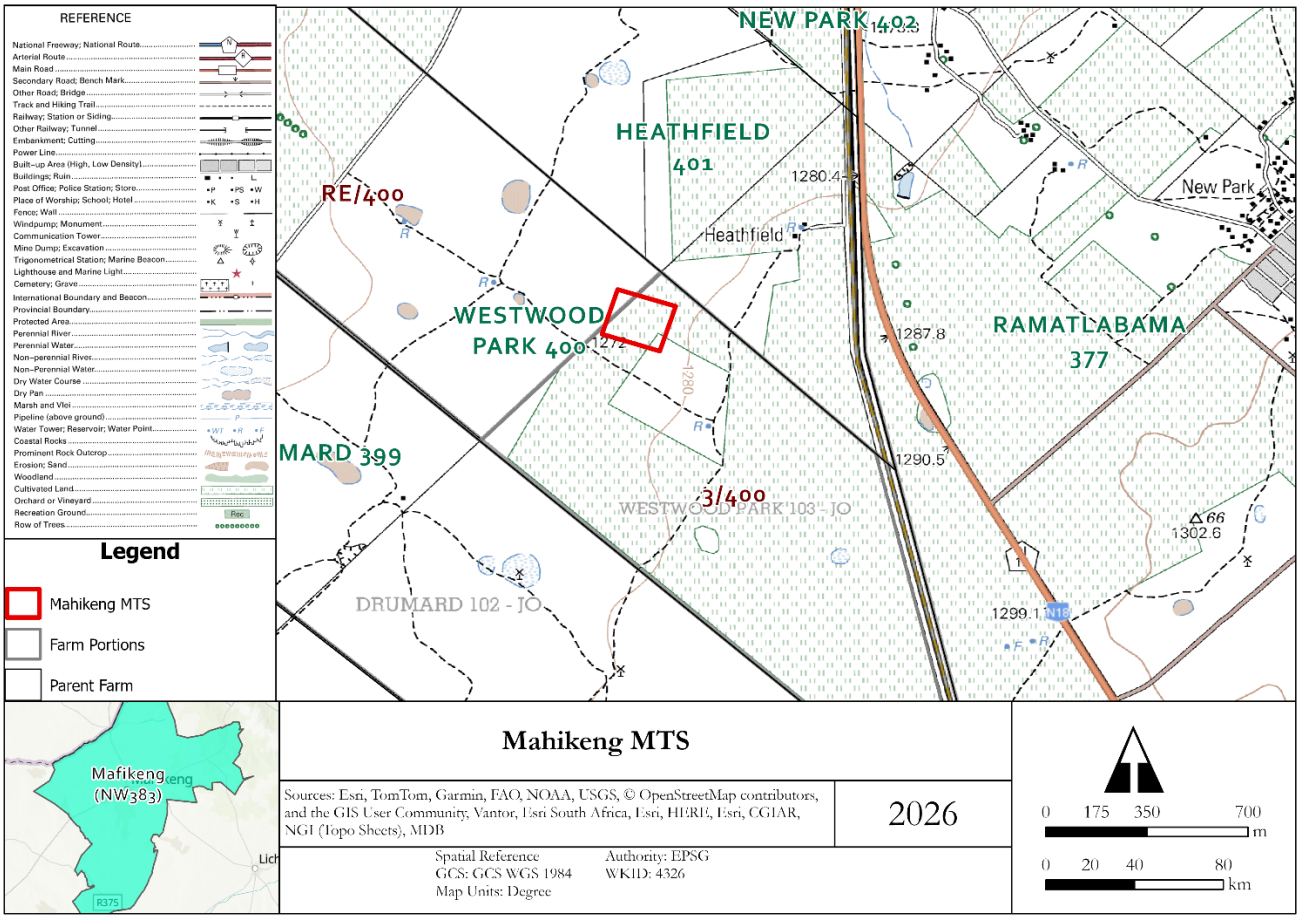
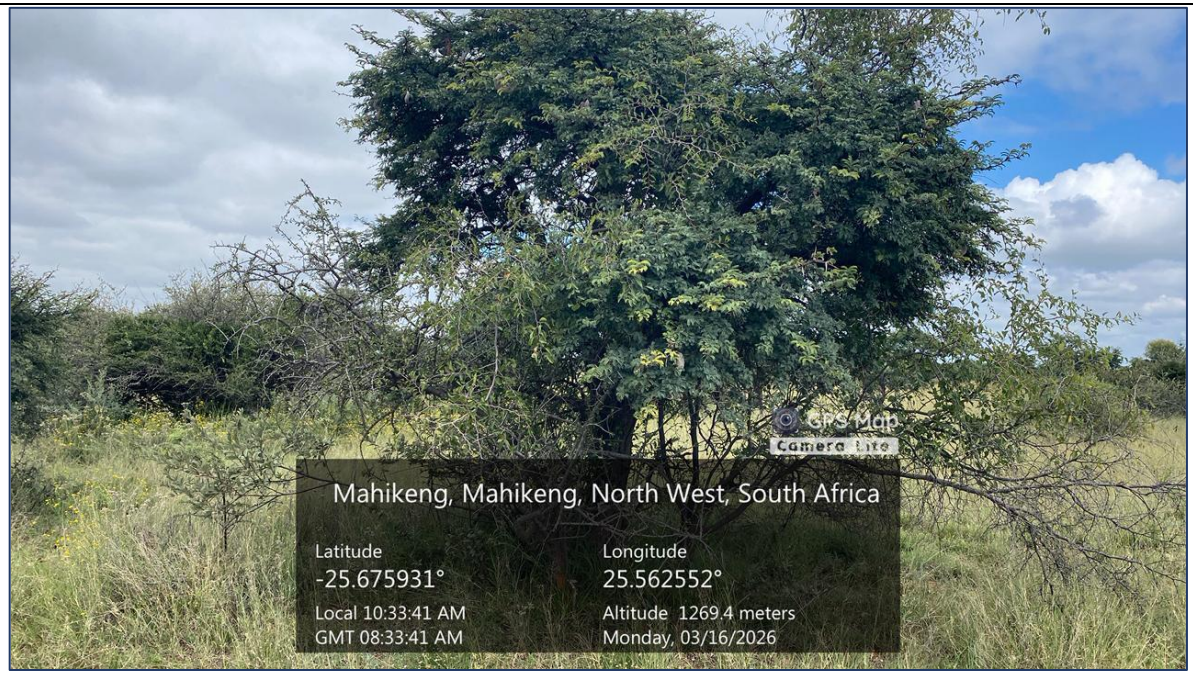


Figure 1: Substation location

Substation Footprint

FARM NAMES	Remainder Portion and Portion 3 of Westwood Park 400 JO	 **General** Proposed Mahikeng Substation is dominated by Vachellia erioloba scattered all over the area. Other tree species include Ziziphus mucronata, Peltophorum africanum and Searsia tenuinervis. The grass layer is well developed with grass species such as Anthephora pubescens, Eragrostis lehmanniana, E superba, Aristida congesta, Cymbopogon pospischilii, Schmiditia pappophoroides and Cynodon dactylon. Asparagus africanus was the only woody climber recorded in the area.

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:



David Tunnicliff
0488327

06/10/2026

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.

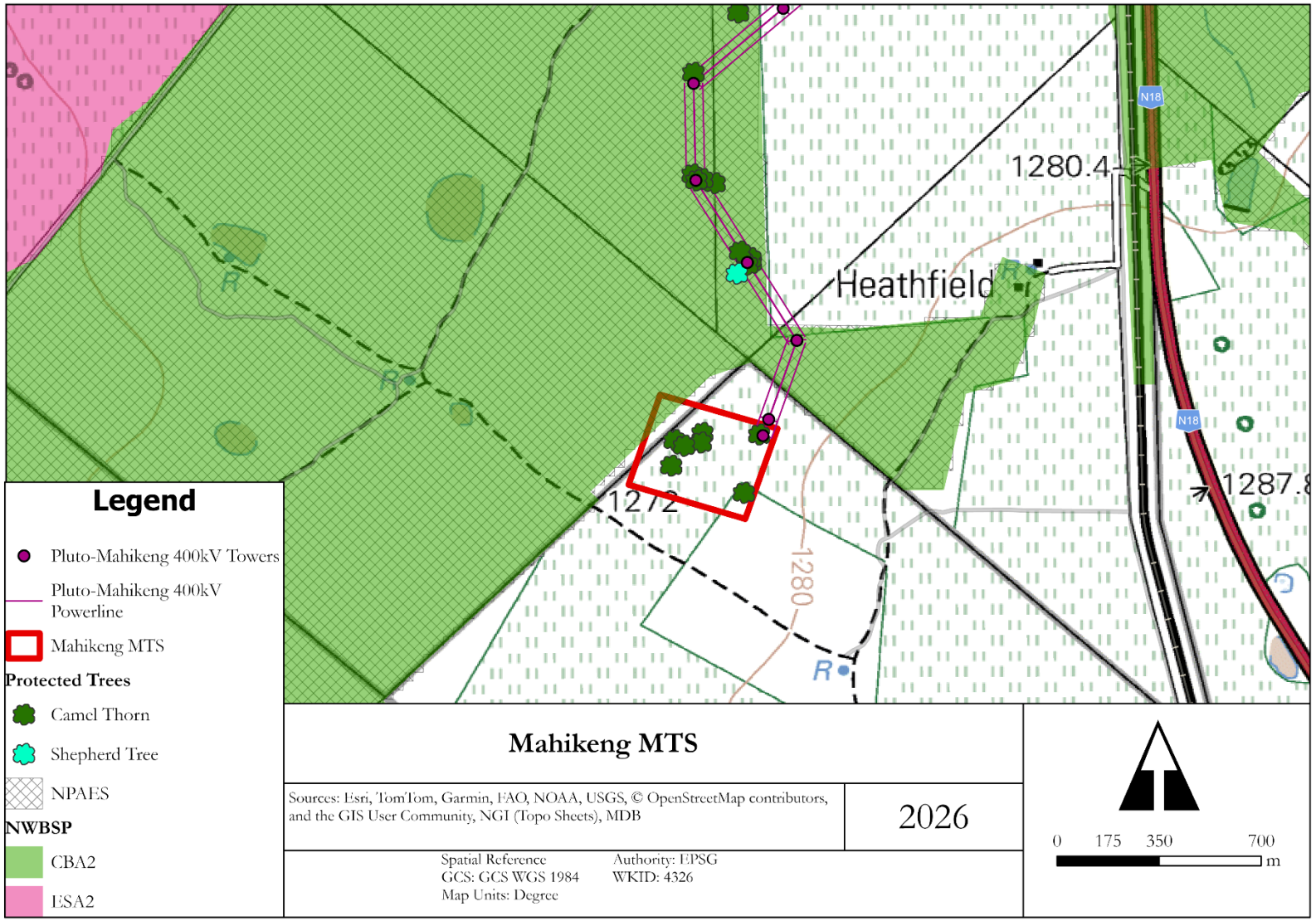


Figure 2: Sensitivity Map

SPECIALIST RECOMMENDATIONS

8.1.1 Animals

Management Objective: *To minimise bird collision risk and habitat impacts associated with the substation; to protect sensitive avifaunal species (particularly threatened and near-threatened birds) and their habitats during construction, operation and decommissioning phases.*

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
CONSTRUCTION PHASE						
Avifauna – Bird Collision Risk Mitigation						
Impact Management Outcome: *Bird collision risk with the substation infrastructure is minimised through the installation of appropriately spaced bird flight deterrent devices at all sensitive locations.*						
Avifauna – Bird Collision Risk Mitigation - A "walk-through" must be conducted prior to the construction phase to identify areas where marking of lines by means of "bird flight deterrent devices" is considered to be beneficial or compulsory. - All intact grassland, river/stream and drainage line crossings should by default be marked (the spanning of pans should be avoided).	Contractor; Avifauna Specialist; ECO	• Pre-construction walk-through by avifauna specialist to identify marking requirements • All intact grassland and wetland/river crossings marked by default	Pre-construction: avifauna walk-through. Construction	Avifauna Specialist; ECO	Pre-construction: once (walk-through). Post-installation: once (compliance inspection). Operation: annually.	Avifauna Specialist walk-through report and marking specification; installation records; annual operation phase monitoring report.

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
Construction Site Management – Avifauna and General Biodiversity						
Impact Management Outcome: *Construction activities do not disturb sensitive avifaunal species or habitat; threatened and near-threatened species are protected; the construction footprint is confined to low-sensitivity areas.*						
Construction Site Management – Avifauna - All construction sites must be confined to disturbed areas or those identified with low conservation importance. All construction sites must be demarcated on site layout plans (preferably), and no construction personnel or vehicles may leave the demarcated area except those authorised to do so. Those areas surrounding the construction sites that are not part of the demarcated development area should be considered as "no-go" areas for employees, machinery or even visitors. - A natural buffer zone (to be announced by the wetland specialist) should be allowed between the substation and any wetland/river/stream. - All road networks must be planned with care to minimize	Contractor; ECO; Avifauna Specialist; Wetland Specialist	• Construction footprint demarcated on site layout plans; no-go areas signposted • Natural buffer from wetland/river determined by wetland specialist and physically marked • Existing road network used where possible • Breeding status of threatened species assessed pre-construction; nest sites barricaded with 200 m buffer if breeding confirmed; construction deferred until fledglings have left nest • Fire management plan enforced; labour awareness	Pre-construction: site layout planning, species assessment, design specification. Construction: ongoing demarcation and enforcement; deferred in breeding areas.	ECO; Avifauna Specialist	Pre-construction: once (breeding status assessment). Construction: daily (no-go area compliance); weekly (inspection).	Site layout plan with demarcated no-go areas; nest assessment report; breeding deferral records; fire management plan; labour induction records; ECO weekly inspection

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
dissection or fragmentation of important avifaunal habitat type. Where possible, the use of existing roads is encouraged. Access must be determined during the "walk-through" process. - The breeding and roosting status of threatened and near threatened species corresponding to the servitude, in particular birds of prey, vultures, bustards, African Grass-owl and White-bellied Korhaan, should be evaluated prior to construction/decommissioning. If breeding is confirmed, the nest site must be barricaded and appropriately buffered (by at least 200 m or as proposed by the specialist). - Construction/decommissioning activities shall only commence once the fledglings are successfully reared and have left the nesting site. - Open fires is strictly prohibited and only allowed at designated areas. - Killing or poaching of any bird species should be avoided by means of awareness programs		programme on avifauna presented at induction			reports.

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
presented to the labour force. The labour force should be made aware of the conservation issues pertaining to the bird taxa occurring on the study area. Any person found deliberately harassing any bird species in any way should face disciplinary measures, following the possible dismissal from the site.						
Fauna – Protection of Sensitive Fauna Species						
Impact Management Outcome: *Sensitive, threatened and near-threatened fauna species are protected from disturbance, injury and mortality during construction; construction activities are restricted to daylight hours.*						
Fauna – Protection of Sensitive Fauna Species - A "walk-through" must be conducted prior to the construction phase to identify areas where conservation-dependent species are likely to occur; and when a threatened or near threatened faunal species/population is identified. - All wetland areas (including man-made areas, pans, rivers and streams), tall woodland with eminent canopy constituents,	Fauna Specialist; Contractor; ECO	• Pre-construction fauna walk-through; • Existing access roads used in preference to new roads; termitaria avoided • Firewood and plant material harvesting prohibited (enforced via Code of Conduct) • Hunting and snaring prohibited • Recovered fossorial/subterranean	Pre-construction: fauna walk-through. Construction: ongoing enforcement.	Fauna Specialist; ECO	Pre-construction: once (walk-through). Construction: weekly inspection; daily (working hours compliance).	Fauna Specialist walk-through report; relocation records; voucher specimen records; labour

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
ridges and rocky grassland (irrespective of their surface area) are regarded as sensitive habitat units. - The construction of "new" access roads should be limited, and existing roads are encouraged for use during the construction phase. - Unnecessary loss (or destruction) of termitaria should be avoided. - The extent of the construction sites and access roads should be demarcated on site layout plans and should be restricted to disturbed areas or those identified with low conservation importance. No construction personnel or vehicle may leave the demarcated area except those authorised to do so. Those areas surrounding the construction site that are not part of the demarcated development area should be considered as "no-go" areas for employees, machinery or even visitors. - Checks must be carried out at regular intervals to identify areas where erosion is occurring.		species relocated to suitable habitat • Accidentally killed species preserved as voucher specimens in consultation with ECO • All construction activities limited to daylight hours • Labour awareness programme on fauna presented at induction			induction records; working hours register; ECO weekly inspection reports.

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
Appropriate remedial action, including the rehabilitation of eroded areas should be undertaken. - Harvesting of firewood or any plant material (for medicinal or cultural purpose) during the construction phase is strictly prohibited. Labour or personnel shall only assist with the removal of plant matter if requested to do so by the ECO. - Hunting/snaring is strictly prohibited. Any person found hunting or in the possession of any indigenous animal (including invertebrate taxa) should face disciplinary measures, following the possible dismissal from the site. - Intentional killing of any faunal species (in particular invertebrates and snakes) should be avoided by means of awareness programs presented to the labor force. Any person found deliberately harassing any animal in any way should face disciplinary measures, following the possible dismissal from the site. - If any subterranean/fossorial						

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
reptile, scorpion, amphibian or mammal species is recovered during the construction phase, this species must be relocated to the nearest area or natural open space with suitable habitat. If accidentally killed, then this species should be adequately preserved as a "voucher" specimen (with the assistance and knowledge of the ECO). These specimens may contribute towards a better understanding of biogeography and animal systematics. - All construction activities must be limited to daylight hours. See Social Assessment measures).						

8.1.2 Archaeology

Management Objective: *To protect archaeological and heritage resources; to ensure compliance with the National Heritage Resources Act (Act 25 of 1999); to manage all chance heritage finds in a legally compliant manner in consultation with the Provincial Heritage Resources Authority (PHRA) and SAHRA.*

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
PRE-CONSTRUCTION AND CONSTRUCTION PHASE						
Protection of Archaeological Resources – General Requirements						
Impact Management Outcome: *Archaeological and palaeontological resources are identified and protected prior to and during construction; construction teams are aware of their obligations; SAHRA is notified of any finds in compliance with the National Heritage Resources Act.*						
Protection of Archaeological Resources – General Requirements - Given the sensitivity of sub-surface materials (both archaeological and paleontological), a walk down survey must be conducted. - The construction teams must be inducted on the possibility of encountering archaeological resources that may be accidentally exposed during clearance and excavation for substation footprint prior to commencement of work on the site.	ECO; Project Archaeologist; Contractor; SAHRA	• Archaeological walk-down survey conducted after final substation footprint selection • Pre-construction induction of all construction teams on chance find obligations • ECO monitors all excavation in archaeologically sensitive areas • Strict stop-work	Pre-construction: walk-down survey and labour induction. Construction: continuous monitoring during excavation.	Project Archaeologist; ECO; SAHRA	Pre-construction: once (walk-down and induction). During excavation: continuous monitoring.	Archaeological Walk-Down Survey Report; labour induction records; ECO monitoring reports;

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
- If archaeological materials are uncovered, work must cease immediately and the SAHRA be notified and activity should not resume until appropriate management provisions are in place. - The digging of foundations in the sensitive area should be monitored by a qualified Environmental Control Officer and if any archaeological or palaeontological remains are uncovered, work must cease immediately and the project archaeologist and SAHRA must be duly informed. - Strict and clear reporting procedures for chance findings must be followed by NTCSA and its contractors throughout the whole period of construction.		and reporting procedure enforced from commencement				SAHRA notification records.
Chance Find Procedure – Archaeological and Heritage Resources						
Impact Management Outcome: *All accidental discoveries of archaeological or heritage resources are managed in a legally compliant manner; human remains are handled with involvement of both PHRA and SAPS; no heritage material is destroyed or removed without authorisation.*						

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
Chance Find Procedure – Archaeological and Heritage Resources - In situations where unpredicted impacts occur, construction activities must be stopped and the heritage authority should be notified immediately. - Where remedial action is warranted, minimize disruption in construction scheduling while recovering archaeological data. - Where necessary, implement emergency measures to mitigate. - Where burial sites are accidentally disturbed during construction, the affected area should be demarcated as a no-go zone by use of fencing during construction, and access thereto by the construction team must be denied. - Accidentally discovered burials in development context should be salvaged and rescued to safe sites as may be directed by the relevant heritage authority.	Contractor; ECO; Heritage Specialist; PHRA; SAPS (for human remains)	• Immediate stop-work on discovery; heritage authority (PHRA) notified immediately • Burial sites demarcated as no-go zones with fencing • Salvage and rescue of accidentally discovered burials directed by heritage authority • Heritage Specialist and PHRA secure necessary permits for grave relocation • Emergency mitigation measures implemented to minimise construction schedule disruption	Construction phase: triggered immediately on a chance find event.	Heritage Specialist; PHRA; ECO; SAPS (if human remains)	Per chance find event; as directed by PHRA.	Chance find notification records; stop-work records; PHRA notification and response; demarcation photographs; salvage/rescue report; permits for grave relocation (if applicable); SAPS notification (if human

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
- The heritage officer responsible should secure relevant heritage and health authorities permits for possible relocation of affected graves accidentally encountered during construction work.						remains).
Heritage Management Plan						
Impact Management Outcome: *All known and discovered heritage resources are demarcated as no-go areas; heritage material is protected and no heritage resource is destroyed or removed without authorisation from the relevant heritage authority.*						
Heritage Management Plan - **Planning:** Ensure all known sites of cultural, archaeological, and historical significance are demarcated on the site layout plan, and marked as no-go areas. - **Construction and Operation:** Should any archaeological or physical cultural property heritage resources be exposed during excavation, construction in the vicinity of the finding must be stopped until the heritage authority has cleared the development to continue. - Should any archaeological,	ECO; Heritage Specialist; Contractor; PHRA	• All known heritage sites identified, demarcated on site layout plan and physically marked as no-go areas prior to construction • Registered Heritage Specialist or PHRA official called to site upon any discovery • Stop-work enforced in vicinity of find; no heritage	Pre-construction: heritage sites demarcated on site layout plan. Construction and operation: ongoing stop-work and reporting compliance.	Heritage Specialist; ECO; PHRA	Pre-construction: once. Construction: weekly inspection of no-go areas; per chance find event.	Site layout plan with heritage no-go areas marked; Heritage Management Plan; ECO weekly inspection reports;

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
cultural property heritage resources be exposed during excavation or be found on the development site, a registered heritage specialist or PHRA official must be called to site for inspection. - Under no circumstances may any archaeological, historical or any physical cultural property heritage material be destroyed or removed from site. - Should remains and/or artefacts be discovered on the development site during earthworks, all work will cease in the area affected and the Contractor will immediately inform the Construction Manager who in turn will inform PHRA. - Should any remains be found on site that is potentially human remains, the PHRA and South African Police Service should be contacted.		material removed or destroyed without PHRA authorisation • PHRA and SAPS contacted immediately if potentially human remains are found				stop-work and PHRA notification records; photographic records.

8.1.3 Flora and Fauna

Management Objective: *To avoid, minimise and rehabilitate impacts on natural vegetation, protected plant species, fauna, and ecological features during all phases of the project; to prevent the establishment and spread of alien invasive plant species; to ensure compliance with the National Environmental Management: Biodiversity Act (Act 10 of 2004) and the National Forests Act (Act 84 of 1998).*

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
CONSTRUCTION PHASE						
Destruction of Natural Vegetation						
Impact Management Outcome: *Vegetation loss is confined to the approved development footprint; disturbed areas are rehabilitated to a functional natural state within one growing season.*						
Destruction of Natural Vegetation - An independent Ecological Control Officer (ECO) should be appointed to oversee construction. - Areas designated for vegetation clearing should be identified and visibly marked off. - Vegetation clearing in natural areas should be kept to a minimum and restricted to the proposed development footprint only, i.e. the confirmed servitude and access road. - A temporary fence or demarcation must be erected around the	ECO (independent appointment); Contractor; NTCSA Project Manager	• Independent ECO appointed before construction commences • Development footprint demarcated with temporary fencing prior to any clearing • Grass sods stripped and stockpiled in transformed	Pre-construction: ECO appointment, footprint demarcation, rehabilitation plan. Construction: ongoing; sod reinstatement post-construction.	ECO	Daily during vegetation clearing; weekly thereafter.	ECO appointment letter; demarcation inspection record; photographic record; vegetation rehabilitation plan; sod removal and reinstatement

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
construction area (include the servitude, construction camps, areas where material is stored and the actual footprint of the development) to prevent access to sensitive environs. - Prohibit vehicular or pedestrian access into natural areas beyond the demarcated boundary of the construction area. - No open fires are permitted within naturally vegetated areas. - Formalise access roads and make use of existing roads including farm roads and tracks where feasible, rather than creating new routes through naturally vegetated areas. - A vegetation rehabilitation plan should be implemented. - Grass can be removed as sods and stored within transformed vegetation – remove alien invasive vegetation prior to storing grassland sods in transformed areas. Smaller shrubs and bulbs should also be removed and used for rehabilitation.		areas (winter); reinstated post-construction • Open fire prohibition enforced through contractor Code of Conduct and site induction • Vegetation rehabilitation plan compiled and implemented • Existing farm roads and tracks used in preference to new routes			register; labour induction records.

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
- The plants must preferably be removed during the winter months and be replanted by latest springtime. The grass sods should not be stacked on top of each other. - Once construction is completed, these sods should be used to rehabilitate the disturbed areas from where they were removed. In the absence of timely rainfall, the sods should be watered well after planting and at least twice more over the next 2 weeks. - Construction workers may not remove flora and neither may anyone collect seed from the plants without permission from the local authority.						
Exposure to Erosion						
Impact Management Outcome: *Soil erosion is prevented or effectively controlled during and after construction; vegetation cover is re-established within one growing season.*						
Exposure to Erosion - Do not allow erosion to develop on a large scale before taking action.	Contractor; ECO; Engineer	• Erosion control measures (silt fences, brush	Construction: ongoing; post-	ECO	Weekly during construction; after significant	ECO inspection reports;

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
- Make use of existing roads and tracks where feasible, rather than creating new routes through grassland areas. - Retain vegetation and soil in position for as long as possible, removing it immediately ahead of construction / earthworks in that area. - Runoff from roads must be managed to avoid erosion and pollution problems. - Remove only the vegetation where essential for construction and do not allow any disturbance to the adjoining natural vegetation cover. The grassland can be removed as sods and re-established after construction is completed. - Colonisation of the disturbed areas by plant species from the surrounding natural vegetation must be monitored to ensure that vegetation cover is sufficient within one growing season. If not, then the areas need to be rehabilitated with a grass seed mix containing species		packing, rock armour) installed immediately upon observation of erosion • Road runoff managed through dispersal measures • Vegetation retained until immediately prior to earthworks • Grass seed mix (locally occurring species) applied where natural colonisation insufficient within one growing season	construction: monitoring for 12 months.		rainfall events; monthly post-construction for 12 months.	photographic records; erosion incident log; rehabilitation records; vegetation re-establishment monitoring report.

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
that naturally occur within the study area. - Protect all areas susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction camp and work areas.						
Destruction of Listed and/or Protected Plant Species						
Impact Management Outcome: *No listed or protected plant species are destroyed without the necessary authorisation; all rescued plants are successfully relocated and rehabilitated.*						
Destruction of Listed and/or Protected Plant Species - The plants of conservation concern should be removed by a suitably qualified specialist prior to construction. This can only be done if authorised by the local conservation authority by means of a permit. - Once construction is complete, the plants should be reused as part of rehabilitation of the disturbed areas and replanted from where they were removed. - Where possible, construction	Botanical Specialist; Contractor; ECO; Provincial DFFE	• Pre-construction survey by botanical specialist to identify plants of conservation concern • Permit obtained from Provincial DFFE prior to any plant removal • Plant Rescue and Rehabilitation	Pre-construction: specialist survey, permit application, and rescue operations (winter preferred). Construction: ongoing protection of cordoned areas.	Botanical Specialist; ECO	Pre-construction: specialist survey (once). Construction: weekly inspection of cordoned areas.	Botanical Specialist survey report; Provincial DFFE permit; Plant Rescue and Rehabilitation Plan; plant rescue records;

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
activities must be restricted to previously disturbed areas. - Implement a Plant Rescue and Rehabilitation Plan: Where the plants of conservation concern are deemed to be under threat from the construction activity, the plants should be removed by a suitably qualified specialist and replanted as part of vegetation rehabilitation after the construction (Note: these plants may only be removed with the permission of the provincial authority – permit). - Construction workers may not tamper or remove these plants and neither may anyone collect seed from the plants without permission from the local authority. - Cordon off the sensitive vegetation that house the protected plant species and the plants of conservation concern and protect from construction activities and vehicles. - Slight deviations of access road must		Plan compiled • Sensitive areas cordoned off with temporary fencing; plants relocated by specialist • Post-construction replanting at original locations				photographic records; post-construction rehabilitation report.

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
be permitted, so as to avoid plant populations of conservation concern (DWAF, 2005).						
Establishment and Spread of Declared Weeds and Alien Invasive Plants						
Impact Management Outcome: *No net increase in alien invasive plant species as a result of construction activities; all identified alien plants are eradicated prior to soil disturbance.*						
Establishment and Spread of Declared Weeds - Alien invasive species that were identified within the study area should be removed prior to construction-related soil disturbances. By removing these species, the spread of seeds will be prevented into disturbed soils. - All alien seedlings and saplings must be removed as they become evident for the duration of construction. - Manual / mechanical removal is preferred to chemical control. - All construction vehicles and equipment, as well as construction material should be free of plant	Contractor; ECO; Alien Invasive Specialist	• Pre-construction: Targeted alien plant survey and eradication within substation footprint, completed before any earthworks commence (Section 9.4.4 -- Naledzani 2018). This is a separate activity from, and precedes, general vegetation clearing during	Pre-construction: alien plant survey and eradication before any earthworks. Construction: ongoing monitoring and removal of new seedlings/saplings.	ECO; Alien Invasive Specialist	Pre-construction: once (survey and eradication). Construction: weekly inspection; monthly treatment record.	Alien plant survey and eradication report; vehicle and equipment cleaning register (ECO verified); alien plant treatment records; ECO inspection reports; photographic records.

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
material. Therefore, all equipment and vehicles should be thoroughly cleaned prior to access on to the construction areas. This should be verified by the ECO.		construction • Manual/mechanical removal is the primary control method (hand-pulling, cut-stumping, slashing). Chemical control is a last resort only used exclusively for established infestations where mechanical control has failed, requiring ECO approval and a statutory contractor permit (Act No. 36 of 1947) per Section 11.10 of Naledzani 2018 • All construction				

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
		vehicles, equipment and materials inspected and cleaned before entering construction site (verified by ECO) • Ongoing removal of alien seedlings and saplings during construction as they become evident				
OPERATIONAL PHASE						
Deterioration of Natural Vegetation (Operational Phase)						
Impact Management Outcome: *Natural vegetation recovers effectively post-construction and is maintained in a healthy functional state; no uncontrolled vehicular or livestock access to rehabilitated areas.*						
Deterioration of Natural Vegetation - After construction, the land must be cleared of rubbish, surplus materials, and equipment, and all parts of the	NTCSA Operations; ECO	• Post-construction site cleared of all waste, materials and equipment • Rehabilitation	Post-construction / operational phase: immediately after construction completion;	NTCSA Environmental Officer;	Monthly (first 12 months post-construction); quarterly	Post-construction site clearance record;

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
land must be left in a condition as close as possible to that prior to construction. - Ensure that maintenance work does not take place haphazardly, but according to a fixed plan. - Cordon off areas that are under rehabilitation as no-go areas using danger tape and steel droppers. If necessary, these areas should be fenced off to prevent vehicular, pedestrian and livestock access. - Delay the re-introduction of livestock (where applicable) to all rehabilitation areas until an acceptable level of re-vegetation has been reached. - Maintenance workers may not trample natural vegetation and work should be restricted to previously disturbed footprint.		areas cordoned off with danger tape and steel droppers (fenced if necessary) • Livestock access restricted until acceptable re-vegetation level achieved • Fixed maintenance plan developed; maintenance activities restricted to previously disturbed footprint	ongoing maintenance.	ECO	thereafter.	rehabilitation monitoring reports; photographic records; livestock exclusion records; fixed maintenance plan.
Alien Invasive Management Plan						
Impact Management Outcome: *Alien invasive plant species are controlled throughout all project phases; no new infestations established; re-invaded areas revegetated with indigenous species.*						

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
Alien Invasive Management Plan - A prevention strategy should be established, including regular surveys and monitoring for invasive alien plants, effective rehabilitation of disturbed areas and prevention of unnecessary disturbance of natural areas. Prevention also includes washing the working parts and wheels of earth-moving equipment prior to bringing them onto site, and visual walk-through surveys every three months. - Early identification and eradication: Keeping up to date on which weeds are an immediate threat to the site is important. When new Invasive Alien Plant Species are spotted, an immediate response of locating the site for future monitoring and either hand-pulling the weeds or applying a suitable herbicide should be planned. - Containment and control: If any alien invasive plants are found to become established on site, action	ECO; Alien Invasive Specialist; Contractor	• Alien Invasive Management Plan compiled and implemented • Prevention strategy includes equipment washing protocols and 3-monthly walk-through surveys • Control method decision hierarchy (confirmed per Section 11.10 Naledzani 2018): (1) Mechanical/manual first — uprooting, cut-stumping, slashing; (2) Chemical only as last resort for	Pre-construction: plan compilation. Construction: daily (ECO clearing permission); weekly (monitoring and treatment); monthly (control methods). Operation: bi-annually (revegetation); monthly (monitoring).	ECO; Alien Invasive Specialist	Daily: ECO clearing permission. Weekly: monitoring and treatment. Monthly: control methods and reporting. Bi-annually: revegetation assessment.	Alien Invasive Management Plan; ECO daily clearance permission records; weekly inspection reports; monthly treatment records; herbicide use records (with ECO approval notation); bi-annual revegetation monitoring reports; photographic records.

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
plans for their control should be developed, depending on the size of the infestations, budgets, manpower considerations and time. - The ECO must provide permission prior to any vegetation being cleared for development. - Clearing of vegetation should be undertaken as the work front progresses – mass clearing should not occur unless the cleared areas are to be prepared immediately afterwards. - Cleared areas that have become invaded can be sprayed with appropriate herbicides provided that these products break down on contact with the soil. Residual herbicides should not be used. - No foreign organic material for revegetation purposes should be brought onto site. - Care must be taken to avoid the introduction of alien plant species to the site and surrounding areas. Particular attention must be paid to		established infestations where mechanical control has failed, with prior ECO approval and statutory contractor permit (Act No. 36 of 1947). Non-residual herbicides only; no pesticides; not used near watercourses • General vegetation clearing during construction proceeds progressively with the work front (Section11.12)- this is distinct from the pre-			

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
imported material such as building sand or dirty earth-moving equipment. - Alien vegetation regrowth on areas disturbed by construction must be controlled throughout the entire site. - Pesticides may not be used. Herbicides may be used to control listed alien weeds and invaders only. - Where areas of natural vegetation have been disturbed by construction activities, revegetation with indigenous, locally occurring species should take place where the natural vegetation is slow to recover or where repeated invasion has taken place following disturbance. Biannually, but revegetation should take place at the start of the rainy season.		construction alien plant eradication campaign • Early detection and rapid response: new infestations hand-pulled or treated immediately on discovery • Revegetation with indigenous locally occurring species at start of rainy season (biannually) • DWAF Working for Water guidelines adhered to (www.invasives.org.za)				

8.1.4 Freshwater

Management Objective: *To protect and manage watercourses and wetlands in a manner that avoids or minimises direct and indirect impacts on their extent, hydrological functioning and aquatic biodiversity throughout all phases of the project; to ensure compliance with the National Water Act (Act 36 of 1998) and conditions of the Water Use Licence.*

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
CONSTRUCTION PHASE						
General – Sensitive Watercourse Features						
Impact Management Outcome: *Watercourses and wetlands are identified, protected and managed to avoid or minimise direct and indirect impacts on their extent, hydrological functioning and aquatic biodiversity throughout all project phases.*						
General – Sensitive Watercourse Features - All delineated watercourses are regarded as sensitive features, specifically natural watercourses (excluding excavations with potential artificial wetland habitat). These areas should therefore be avoided by all practical means and no construction may be undertaken in these areas without the necessary environmental authorization and adherence to mitigation	Eskom/ NTCSA Project Engineer; Wetland Specialist; ECO	• EMPr Walk Down by wetland specialist (summer survey) to verify and map watercourse boundaries • Watercourse boundaries physically marked (flagging tape / pegs) for construction	Pre-construction: EMP Walk Down Construction phase: ongoing monitoring of marked boundaries.	ECO; Wetland Specialist	Pre-construction: once (summer survey). Construction: monthly site inspection; after each significant rainfall event.	Wetland Specialist EMPr Walk Down Report; GIS map showing delineated watercourses; substation drawings; marked boundary

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
measures. - Construction impacts should be avoided or reduced as far as possible in watercourses due to their vulnerability to erosion and potential to support rare and protected biodiversity. - A summer survey is recommended for the EMP Walk Down survey to allow the widest array of wetland indicators, enabling more accurate identification and demarcation of watercourses and provision of site-specific recommendations. - A summer survey will also enable a more reliable assessment of 'species of conservation concern' (sensu Raimondo et al., 2009), informing the Ecological Importance and Sensitivity (EIS) assessment of associated watercourses. - Watercourse boundaries should be marked for construction		teams • Water Use Licence (WUL) obtained where required for permanent structures			photographs; WUL certificate (if applicable); ECO monthly inspection reports.

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
teams to ensure easy identification and trigger appropriate mitigation measures/actions. - It is important to determine whether new project-related infrastructure structures in watercourses will be permanent or temporary. Water Use Licence requirements for permanent structures are expected to require more thorough mitigation than temporary structures. - The creation of new watercourse road crossings should be kept to the absolute minimum by giving preference to existing access roads and vehicle tracks. - Monitoring is recommended along sediment control structures and road crossings during the construction phase. - Vehicle tracks / roads created for access and maintenance in						

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
watercourses should be monitored for erosion and blockages during the operational phase.						
Loss of Watercourse Habitat						
Impact Management Outcome: *Watercourse habitat loss is avoided or minimised by restricting construction within and adjacent to watercourses; where unavoidable, impacts are mitigated and disturbed areas fully rehabilitated.*						
Loss of Watercourse Habitat - The proposed Mahikeng Main Transmission Substation should not be located within 100 m of delineated watercourses. - An EMPr Walk Down should be undertaken by a wetland specialist once the final substation boundaries have been finalised. The boundaries and types of wetland and other watercourse should be verified and refined during the walk down to help ensure that impacts can be avoided in as many of these features as possible.	Project Engineer; Contractor; ECO; Wetland Specialist	• Construction drawings to incorporate 100 m substation buffer • Site demarcated with flagging / temporary fencing prior to any clearing • EMPr Walk Down to verify and refine watercourse boundaries • Existing access tracks used in	Pre-construction: site planning and EMPr Walk Down. Construction phase: ongoing adherence to buffer setbacks.	ECO; Wetland Specialist	Pre-construction: once. Construction: weekly inspection; post-construction: once.	Construction drawings showing 100 m buffers; site layout plan; EMPr Walk Down Report; photographic record of boundary demarcation; ECO weekly

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
- The smallest possible footprint should be utilized and positioned as close to the boundary of the affected watercourse as possible. - New access tracks should not be constructed in watercourses as far as possible. Existing access tracks and roads should rather be used where available.		preference to new tracks				inspection reports.
Changes to the Hydrological Regime due to Infrastructure Construction in Watercourses						
Impact Management Outcome: *The hydrological functioning of watercourses is maintained throughout construction, with no permanent disruption to natural flow regimes or channel morphology.*						
Changes to the Hydrological Regime due to Infrastructure Construction in Watercourses - Restrict the construction of infrastructure in watercourses as far as possible. - The proposed Mahikeng Main Transmission Substation should not be located within a 100 m of delineated watercourses.	Contractor; Engineer; ECO; Wetland Specialist	• Construction method statement for watercourse crossings developed prior to commencement • Geotextile-based formal crossing	Pre-construction: method statement and crossing structure design. Construction phase: ongoing; rehabilitation immediately post-construction.	ECO; Wetland Specialist	Construction: weekly. Post-construction rehabilitation: monthly for 6 months.	Construction method statement; crossing structure design drawings; rehabilitation records;

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
- Watercourses and their buffers affected by unavoidable construction activities should be rehabilitated soon after construction. Emphasis should be placed on the reinstatement of the topography to a similar profile as was present pre-construction. - No furrows or drains should be made to channel water from infrastructure. Where this is unavoidable, these furrows and drains need to be closed and revegetated as soon as possible. - Construction and access track roads should be located outside of watercourses as far as practically possible. - Avoid driving in watercourses during the construction phase to prevent vehicle track incision and the potential for channel initiation. - Where this is unavoidable in		structures installed where driving in watercourses is unavoidable • Furrows and drains closed and revegetated immediately after construction • Site-specific recommendations from EMPr Walk Down incorporated into construction drawings • Rehabilitation plan implemented immediately following construction in affected				photographic records before, during and after; ECO weekly inspection reports.

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
watercourses with channels or wetlands with temporary seasonal or permanent zones of wetness, crossing structures should be in place. A wearing course should be added as a surface layer on top of geotextile fabrics. A wearing course of good quality clastic or gravel material has the potential to reduce surface scour. - New material for track creation into certain watercourses, such as indistinct watercourses that lack an entrenched channel or wetlands with only a marginal temporary wetness zone must not be introduced. - Site-specific recommendations should be made as part of the EMPr Walk Down phase, which would also be used to verify the presence and extent of wetlands along the final selectedproposed substation footprint.		watercourses				

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
- Geotextiles provide four important functions in temporary road and trail surface construction: separation, drainage, reinforcement, and stabilisation. - Formal crossing structures define a single route alignment for vehicle travel, provide a 'wear and carry' surface over unsuitable wetland soils, halt the widening of braided crossing sections, and allow formerly used track alignments to naturally stabilise and revegetate.						
Decrease in Surface Water Quality (Construction Phase)						
Impact Management Outcome: *Surface water resources are not contaminated with hydrocarbons, sediment or construction-related pollutants during the construction phase.*						
Decrease in Surface Water Quality (Construction Phase) - No refuelling of construction vehicles should occur within 50 m of delineated watercourses.	Contractor; ECO	• Establish 50 m no-refuelling and no-hydrocarbon-storage exclusion zones around	Construction phase: prior to commencement of earthworks; maintained	ECO	Weekly inspection; after each significant rainfall event; per spill event.	ECO weekly inspection reports; site instruction

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
- Hydrocarbons should not be stored within 50 m of delineated watercourses. - Use stormwater control measures around construction works where areas have been cleared within watercourses or their buffers, as well as around stockpiles. - Sediment traps, such as hay bales or silt traps can be used, but require maintenance throughout the construction phase. - Construction phase stormwater control measures should be applied to vehicle access tracks and the proposed and the substation.		watercourses (demarcated on site) • Designate a base camp refuelling area located more than 50 m from any watercourse. All vehicles to be fuelled at this designated area. • Install and maintain sediment traps (hay bales / silt fences) around cleared areas and stockpiles • Apply stormwater control measures to access tracks and substation	throughout construction.			records; spill register; photographic record of control measures; sediment trap maintenance log; designated refuelling area map.

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
		construction area • Maintain spill response kit on site at all times				
Watercourse Erosion						
Impact Management Outcome: *Watercourse banks and channels remain stable; erosion is prevented or effectively controlled during and after construction.*						
Watercourse Erosion • New headcut and channel features that have resulted during construction should be stabilised once observed. • Implement erosion protection measures, such as energy dissipaters, at new formalised vehicle tracks that contain pipes or culverts. • New access tracks should be designed and implemented appropriately. • During rehabilitation at the end of the construction phase, emphasis should be placed	Contractor; ECO; Engineer	• Immediate stabilisation of new headcuts or channel features using appropriate measures (e.g. rock armour, energy dissipaters, gabions) • Install energy dissipaters at culvert and pipe outlets • Topsoil	Construction phase: ongoing; rehabilitation immediately post-construction.	ECO	Weekly during construction; monthly post-construction for 12 months.	ECO weekly inspection reports; rehabilitation plan; photographic records of erosion features and repairs; topsoil management record.

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
on the reinstatement of the topography to a similar profile as was present pre-construction and to create stable and well-vegetated surfaces. • The separate removal and storage of top soils, as well as the correct reintroduction of top soil (after subsoil has been reintroduced) is important to help create stable surfaces in areas affected by construction.		separately stripped and stockpiled for re-use; reintroduced after subsoil reinstatement • Implement rehabilitation plan at end of construction phase				
Encroachment of Alien Plant Species into Watercourses						
Impact Management Outcome: *No net increase in alien invasive plant species within or adjacent to watercourses as a result of the project; cleared watercourse areas revegetated with indigenous species.*						
Encroachment of Alien Plant Species into Watercourses - Restrict the clearing of watercourse vegetation as far as possible. - Areas that have been cleared should be revegetated with	Contractor; ECO; Alien Invasive Specialist	• Watercourse vegetation clearing minimised • All cleared areas revegetated with locally	Pre-construction: siting and programme compilation. Construction: ongoing.	ECO; Alien Invasive Specialist	Construction: monthly. Operation: bi-annually.	Alien Plant Control Programme; photographic records;

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
indigenous species after construction. - Compile and implement an alien plant control program during the operational phase of the project.		occurring indigenous species post-construction • Alien Plant Control Programme compiled and implemented during operation phase (refer to Terrestrial Biodiversity: Alien Invasive Management Plan)	Operation: programme implementation.			treatment and revegetation records; ECO monthly inspection reports.
OPERATIONAL PHASE						
Decrease in Surface Water Quality (Operational Phase)						
Impact Management Outcome: *Surface water quality is maintained during the operational phase through effective stormwater management at the substation and along access tracks.*						
Decrease in Surface Water Quality (Operational Phase) - The use of vegetation in the	Operations; Engineer; ECO	• Use indigenous vegetation in and around watercourses	Pre-operational: design and installation of stormwater	Eskom/ NTCSA Environmental Officer; ECO	Quarterly operational inspection;	Stormwater Management Plan; inspection

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
watercourse, especially downstream of unsealed road surfaces, will help to provide soil stability and reduce sediment input. - It is important to use local and indigenous plant species.		downstream of access tracks • Regular maintenance of stormwater management infrastructure	management infrastructure. Operation: ongoing maintenance.		annually.	reports; maintenance records; photographic records.
Increased Sedimentation and Erosion (Operational Phase)						
Impact Management Outcome: *Watercourse channels and banks are protected from sedimentation and erosion caused by access tracks and vehicle crossings during the operational phase.*						
Increased Sedimentation and Erosion (Operational Phase) - Locate vehicle access track outside of watercourses and their buffers as far as possible. A 30 m buffer is recommended around watercourses affected by vehicle access tracks. - Unavoidable vehicle access crossings in watercourses should make provision for dispersed flow and energy dissipation. - Management of roadside	Eskom/ NTCSA Operations; Engineer; ECO	• Access track design to maintain 30 m buffer from watercourses; substation sited 100 m from watercourses • Formal crossing structures designed per best-practice ford design guidelines	Pre-operational: design finalisation. Operation: ongoing maintenance and annual inspection.	Environmental Officer; Engineer; ECO	Quarterly inspection; annually (structure stability); before wet season (blockage clearance).	Access track design drawings; crossing structure design documentation; annual structure stability assessment report; maintenance

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
drainage is the most effective way of controlling sediment runoff from unsealed roads. Stormwater should be diverted away from access tracks early and often, so as to reduce the catchment area of the road. - The use of drains, such as table drains and cut-off drains, should not be used in any of the watercourse vehicle crossings. These types of drains typically have concentrated high-velocity flows and can frequently form channels within the watercourse, providing an easy pathway for sediment to reach streams. - Permanent crossing structures across channelled watercourses can include unvented fords constructed of riprap, gabions, or concrete. They should be designed so that they can only be used during low flows, with water flowing over the structures		• Road drainage diverted away from access tracks; table drains and cut-off drains prohibited in watercourse crossing areas • Structure stability evaluated annually; blockages cleared before wet season			records; photographic records.

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
without causing erosion during higher flows. - If the construction of a crossing is unavoidable, ensure that substrate continuity in the watercourse is maintained within upstream and downstream portions of the channel bed. - Other best management practices for ford design include: locating crossings on straight channel segments; aligning crossings perpendicular to the stream channel; minimising hydrological disruption; using appropriate energy dissipaters and erosion control; minimising impact to riparian vegetation; preventing excavated material from running into water bodies; using appropriate sediment barriers. - Compact bed material and tie constructed banks into upstream and downstream						

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
banks. - Evaluate structure stability once a year. - Blockages should be removed before the wet season from crossings with pipe flumes and culverts.						
DECOMMISSIONING PHASE						
Loss of Watercourse Habitat as a Result of Infrastructure Removal						
Impact Management Outcome: *Watercourse habitats affected by decommissioning activities are fully rehabilitated to a functional state equivalent to or better than pre-project conditions.*						
Loss of Watercourse Habitat as a Result of Infrastructure Removal - A site-specific rehabilitation plan must be developed and implemented to address affected infrastructure footprints located within watercourses and watercourse buffers, and other sensitive areas during the decommissioning phase.	Contractor; ECO; Wetland Specialist	• Site-specific rehabilitation plan developed prior to decommissioning • Access tracks within and adjacent to watercourses rehabilitated (topsoil	Decommissioning phase: rehabilitation plan prior to commencement; implementation during and post-decommissioning.	ECO; Wetland Specialist	Weekly during decommissioning; monthly post-decommissioning for 12 months.	Site-specific Rehabilitation Plan; ECO inspection reports; photographic records; post-rehabilitation

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
		reinstatement, re-grading, revegetation with indigenous species) • Watercourse functionality assessed post-rehabilitation				wetland functionality assessment report.

8.1.5 Palaeontology

Management Objective: *To protect palaeontological resources encountered during construction; to ensure any chance fossil finds are identified, recorded, and managed appropriately in compliance with the National Heritage Resources Act (Act 25 of 1999).*

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
CONSTRUCTION PHASE						
Protection of Palaeontological Resources and Chance Fossil Finds						
Impact Management Outcome: *Palaeontological resources are identified, protected and managed in compliance with the National Heritage Resources Act; no significant fossil material is destroyed; all chance finds are appropriately recorded, assessed and managed.*						

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
Protection of Palaeontological Resources - In the event of the discovery of an exceptional stromatolite formation it is advised that it should on principle not be destroyed. - Disturbed fossils should be collected and stored safely until they can be inspected by a palaeontologist. - No attempt should be made to remove such accidentally discovered fossils from the rock by an unqualified person.	ECO; Palaeontologist ; Contractor	• Pre-construction induction of construction teams on possibility of encountering palaeontological resources • Disturbed fossils collected, labelled and stored safely by ECO pending palaeontologist assessment • Unqualified persons prohibited from removing fossils from rock	Pre-construction: induction of construction teams. Construction: ongoing monitoring during excavation.	ECO; Palaeontologist	Pre-construction: once (induction). During excavation: continuous monitoring.	Labour induction records; ECO monitoring reports; fossil find register (GPS coordinates, photographs, description); palaeontologist assessment reports.
Procedure for Chance Palaeontological Finds						

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
Impact Management Outcome: *A standardised and legally compliant procedure is in place for all chance palaeontological finds; significant fossil material is preserved and incorporated into a recognised repository in compliance with heritage legislation.*						
Procedure For Chance Palaeontological Finds - (Extracted and adapted from the National Heritage Resources Act, 1999 Regulations Reg No. 6820, GN: 548.) - Surface excavations should continuously be monitored by the ECO and any fossil material unearthed – the excavation must be halted. - If fossiliferous material has been disturbed during the excavation process it should be put aside to prevent it from being destroyed. - The ECO then has to take a GPS reading of the site and take digital pictures of the fossil material and the site from which it came. - The ECO then should contact a palaeontologist and supply the palaeontologist with the information (locality and pictures)	ECO; Palaeontologist; Contractor; SAHRA	• Stop-work procedure implemented immediately on fossil discovery • ECO records GPS coordinates and photographs • Palaeontologist notified with location and photographic evidence • Site inspection scheduled if major find confirmed • SAHRA permit obtained if required for	Construction phase: triggered by a chance find event; procedure implemented immediately on discovery.	Palaeontologist; SAHRA; ECO	Per chance find event; as directed by palaeontologist and SAHRA.	Chance find notification record; stop-work records; GPS coordinates and digital photographs; palaeontologist assessment report; SAHRA permit (if applicable); fossil repository deposit record; monitoring

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
so that the palaeontologist can assess the importance of the find and make recommendations. - If the palaeontologist is convinced that this is a major find, an inspection of the site must be scheduled as soon as possible in order to minimise delays to the development. - From the photographs and/or the site visit the palaeontologist will make one of the following recommendations: The material is of no value so development can proceed; OR Fossil material is of some interest and a representative sample should be collected and incorporated into a recognised fossil repository after a SAHRA permit is obtained; OR The fossils are scientifically important and the palaeontologist must obtain a SAHRA permit to excavate the fossils for a recognised fossil repository. - If any fossils are found then a		removal/excavation • Fossils deposited in recognised fossil repository • Monitoring schedule agreed between developer and palaeontologist following any find			schedule.

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
schedule of monitoring will be set up between the developer and palaeontologist in case of further discoveries.						

8.1.6 Social

Management Objective: *To manage social impacts and ensure positive stakeholder engagement, responsible worker conduct, and effective communication with directly affected landowners, residents, farmers and communities throughout all project phases.*

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
PRE-CONSTRUCTION PHASE						
Planning and Stakeholder Engagement						
Impact Management Outcome: *All directly affected stakeholders are identified, meaningfully engaged and adequately informed prior to construction; a Code of Conduct and construction timetable are in place.*						
- Engagement with respective owners must be done especially those who have the game farms. This would be to gain their requirements and recommendations that may be specific to the site with regard to the management of the area in the construction phase. - Unskilled job opportunities that could benefit local people who live in the area should be advertised. - The formation of an intended time table of which area would undergo construction with respective dates should be shared with directly affected stakeholders ahead of the	Eskom/ NTCSA Project Manager; Social Specialist; Contractor	• Stakeholder engagement meetings conducted with all directly affected landowners, including game farm owners • Requirements and site-specific recommend ations	Pre-construction: prior to commencement of any construction activities.	Eskom/ NTCSA Project Manager; Social Specialist	Pre-construction: ongoing engagement until construction commences; monthly review during construction.	Stakeholder meeting minutes and attendance registers; landowner requirements register; local employment advertisements; construction timetable;

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
construction phase. - A Code of Conduct for the Behaviour of employees that would be living in the construction camp for the period of the construction phase must be compiled. It should address elements of having no guests staying over in the construction camp at any point in time; the effective waste management within the camp.		documented • Local unskilled job opportunities identified and advertised in local areas • Construction timetable developed and shared with affected stakeholders in advance • Code of Conduct drafted, covering camp guest prohibition, waste management and community conduct				Code of Conduct document.

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
CONSTRUCTION PHASE						
Residential Sites						
Impact Management Outcome: *Social impacts on game farm owners and residents are minimised; privacy and security are maintained; construction activities are conducted within agreed hours and road use protocols.*						
- Entry and exit points for construction workers must be strictly monitored. - Strict working hours must be kept by the construction team. - Regulation of keeping to the respective roads that have been stipulated to be used by the respective owners. - Strict working hours must be kept ensuring that there is a retained element of privacy for the residents. Working hours should be restricted to 8am-5pm during weekdays only. - Security barriers such as fencing hindered during the construction phase must be replaced such that the respective resident is not compromised. - A timetable must be provided to the resident of the intended	Contractor; Site Manager; ECO; Eskom/ NTCSA Project Manager	• Access control system at all entry and exit points (sign-in/sign-out register) • Working hours strictly restricted to 08:00–17:00 Monday to Friday (see C-5) • Workers confined to stipulated roads as agreed with landowners	Construction phase: throughout.	ECO; Eskom/ NTCSA Project Manager; Site Manager	Daily (access control and working hours); weekly (ECO inspection).	Access control register; working hours register; landowner road use agreement; demarcation inspection records; fencing replacement records; timetable delivery

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
duration of construction that would directly affect them, and it must be received ahead of time.		• Construction footprint demarcated • Security barriers (fencing) damaged during construction replaced immediately • Construction timetable provided to affected residents in advance				confirmation.
Agricultural Sites						
Impact Management Outcome: *Agricultural activities are minimally disrupted; existing access roads are used in preference to new roads; waste is managed responsibly*.						
- Existing access roads shall be utilised as far as practicable. Where new access roads are required it shall be agreed upon	Contractor; Eskom/ NTCSA Project Manager	• Pre-construction consultation with farmers	Pre-construction: consultation with farmers.	ECO; Eskom/ NTCSA Project	Weekly during construction.	Farmer consultation records;

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
with the affected landowner prior to construction. - Bins for the management of physical waste must be provided.		on any new access road requirements • Existing access roads used in preference to new roads • Any new access roads agreed with a farmer must also satisfy the environmental avoidance hierarchy in the Freshwater, Terrestrial Biodiversity and Avifauna) • Waste collection bins placed	Construction: ongoing.	Manager		access road use register; waste management records; ECO weekly inspection reports.

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
		on site; waste removed from site regularly				
Construction Camp Site						
Impact Management Outcome: *Construction camp activities are managed to prevent negative social impacts on surrounding communities; worker conduct is regulated; waste is managed responsibly.*						
- A code of conduct must be signed by every employee living in the construction camp during the duration of the construction phase. - A formal entry system must be implemented upon entering the construction camp. - An effective waste management system must be adhered to. - An awareness briefing about sexually transmitted diseases as well as conduct that can have a minimal effect on the surrounding communities must be done.	Contractor; Site Manager	• Code of Conduct signed by all camp residents prior to occupation • Formal entry/exit system implemented (biometric or sign-in register) • Waste management system	Pre-construction: Code of Conduct signing, entry system and waste management setup. Construction: ongoing.	Site Manager; ECO	Daily (entry system and waste management). Monthly (Code of Conduct and waste audit).	Signed Code of Conduct register; entry/exit register; waste management records; STD/HIV awareness briefing records and attendance register.

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
		(bins, collection schedule, disposal records) established • STD/HIV awareness briefing conducted by qualified health practitioner at camp establishment				
OPERATIONAL PHASE						
Operation – Employment and Stakeholder Management						
Impact Management Outcome: *Local communities benefit from operational employment opportunities; a stakeholder database supports effective communication during operation and maintenance.*						
- Employment opportunities should be prioritized for local people in the area in the respective skill category where it is available.	Eskom/ NTCSA Operations; Human	• Preferential recruitment policy for local people	Operational phase: ongoing.	Eskom/ NTCSA Operations Manager;	Annually.	Local employment records;

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
- A database list of people to contact at which sites should be compiled so if there is a component of the substation that would need to be repaired, there is knowledge of the respective stakeholder that would need to be engaged with.	Resources	in relevant skill categories • Stakeholder and landowner contact database compiled and maintained • Database updated annually or when contact details change		Human Resources		stakeholder database; contact list for relevant sites.

8.1.7 Visual

Management Objective: *To minimise the visual impact of substation infrastructure on the surrounding landscape through appropriate siting, design, rehabilitation and screening measures.*

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
CONSTRUCTION AND OPERATIONAL PHASE						
Visual Impact of Substation Infrastructure						
Impact Management Outcome: *Visual impacts of the substation infrastructure are minimised through appropriate design, placement, coating and rehabilitation measures; the substation is screened from neighbouring properties and roads.*						
Visual Impact Management - Rehabilitation of the construction areas must be implemented by re-vegetation of the sites and surrounding area. - Vegetation should be cleared only by cutting and not earth moving equipment. - Where possible, use existing roads for access roads. - Plant some indigenous trees and vegetation to create a barrier between the substation and neighbours and roads.	Contractor; ECO; Landscape Specialist; Eskom/ NTCSA Engineer	• Re-vegetation plan compiled and implemented post-construction • Vegetation cleared by cutting only (no earthmoving equipment for vegetation clearing) • Existing roads used for access • Indigenous trees and vegetation planted around substation perimeter to	Construction: re-vegetation. Pre-operational: substation landscaping. Operation: maintenance of vegetation screen.	ECO; Landscape Specialist; Eskom/ NTCSA Environmental Officer	Post-construction: quarterly (vegetation re-establishment, first 12 months). Operation: annually (visual inspection).	Re-vegetation plan and implementation records; photographic records (before and after); substation landscaping plan and planting records; annual visual impact monitoring report.

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
		create visual screen from neighbouring properties and roads				

9 SITE-SPECIFIC MITIGATION MEASURES

9.1 Agriculture

Theme	Description	Sensitivity	Management Actions	Implementation	Monitoring
Agriiculture	Open grassland veld, natural veld	Very Low – Medium	• Implement silt fencing, retaining walls or geotextiles while soils are in stockpile to stabilise soils and create windbreaks. • Apply organic mulch to stockpiled soils to reduce wind erosion. • Place soil stockpiles away from watercourses and drainage lines. • Keep stockpile height to less than 2 metres. • Cover or seed stockpiles stored for long periods to prevent erosion.	**Responsible Person:** • Contractor; Eskom/ NTCSA Construction Manager **Method of Implementation:** • Implement erosion control measures as per approved EMPr and construction specifications; briefing of site personnel on soil management requirements **Timeframe:** • Throughout the construction phase, from site establishment to final rehabilitation	**Responsible Person:** • ECO **Frequency:** • Weekly site inspections during construction; after significant rainfall events **Evidence of Compliance:** • ECO inspection reports; photographic records; compliance register entries

9.2 Avifauna

Theme	Description	Sensitivity	Management Actions	Implementation	Monitoring
Avifauna (Construction)	Sensitive avian habitats.	Low	• Avoid removal of sensitive vegetation types. • Strictly implement the recommendations of the botanical study, particularly regarding limitation of the construction footprint. • Restrict construction activity to the immediate infrastructure footprint. • Manage all construction activities according to generally accepted environmental best practice. • Rehabilitate all temporarily disturbed areas following construction per the site rehabilitation plan. • Maximise use of existing access roads; minimise construction of new roads.	**Responsible Person:** • Contractor; Eskom/ NTCSA Construction Manager **Method of Implementation:** • Implement footprint restrictions as per botanical recommendations and EMPr; brief all construction personnel on no-go areas **Timeframe:** • Throughout the construction phase	**Responsible Person:** • ECO **Frequency:** • Weekly site inspections during construction **Evidence of Compliance:** • ECO inspection reports; photographic records; rehabilitation completion certificates
Avifauna (Operation)	Potential presence of perching and/or roosting species	Low	• All bird electrocutions encountered during routine inspections of the Mahikeng MTS must be reported to the Eskom-Endangered Wildlife Trust Strategic Partnership, who will provide additional site-specific mitigation recommendations if required.	**Responsible Person:** • Eskom/ NTCSA Environmental Manager; Substation Manager **Method of Implementation:** • Establish a formal bird electrocution reporting	**Responsible Person:** • ECO **Frequency:** • Weekly site inspections during construction **Evidence of Compliance:** Bird electrocution

Theme	Description	Sensitivity	Management Actions	Implementation	Monitoring
			• Suitable insulation mitigation to be applied reactively according to industry standards & specifications. • All insulation mitigation (if installed) must be maintained for the duration of the operational lifespan of the Mahikeng MTS	protocol as part of routine Mahikeng MTS inspection procedures • Submit all incident records to the Eskom-EWT Strategic Partnership as encountered • Implement EWT insulation mitigation recommendations per industry standards. **Timeframe:** For the duration of the operational lifespan of the Mahikeng MTS; as required when nests are identified.	incident reports; EWT site-specific mitigation recommendations on file; Insulation mitigation installation records and specifications; Maintenance records; inspection reports.
	High density of raptors and corvids nesting on tower structures posing a quality-of-supply risk.	Low	• Unoccupied nests posing a quality-of-supply risk may be removed without a permit. • Do not remove nests containing eggs, chicks or adult birds without obtaining the required permit. • Notify the Eskom–EWT Strategic Partnership when occupied nests require removal to arrange for translocation or safe removal.	**Responsible Person:** • Eskom/ NTCSA Environmental Manager; Line & Servitude Manager **Method of Implementation:** • Follow Eskom/ NTCSA permit application procedure for occupied nest removal; coordinate translocation with EWT Strategic Partnership	**Responsible Person:** • ECO; Eskom–EWT Strategic Partnership **Frequency:** • As required when nests are identified during patrols **Evidence of Compliance:** • Nest removal records; permit documentation; EWT correspondence;

Theme	Description	Sensitivity	Management Actions	Implementation	Monitoring
				Timeframe: • For the duration of the operational lifespan of the Mahikeng MTS; as required when nests are identified	photographic evidence

9.3 Archaeology

Theme	Description	Sensitivity	Management Actions	Implementation	Monitoring
Archaeology	Subsurface archaeological resources	Low-High	• Implement a Chance Find Procedure.	**Responsible Person:** • Contractor; Eskom/ NTCSA Construction Manager; Heritage Specialist **Method of Implementation:** • Brief all construction staff on the CFP **Timeframe:** • Throughout the construction phase	**Responsible Person:** • ECO; Heritage Specialist (if chance finds occur) **Frequency:** • Regularly during excavations. **Evidence of Compliance:** • Toolbox talks presentation; attendance register

9.4 Freshwater

Theme.	Description	Sensitivity	Management Actions	Implementation	Monitoring
Water	Water resources- general requirements	Low	**Water Use Licence** • Submit a Water Use Licence Application (WULA) / General Authorisation application to the Department of Water and Sanitation (DWS) for activities under Section 21(c) and Section 21(i). **Buffer Zones & No-Go Areas** • No construction camps, stockpiling or laydown areas within 50 m of wetlands. • No construction camps, stockpiling or laydown areas within 100 m of rivers and streams. **Construction Management** • Restrict construction activities to demarcated areas only. • Avoid working in wetlands during wet conditions. • Maintain natural drainage patterns and flow paths. • Implement erosion and sediment control measures. • Prevent contamination from fuels, oils and waste. **Rehabilitation** • Rehabilitate all disturbed areas immediately after	**Responsible Person:** • Eskom/ NTCSA Environmental Manager; Contractor; Eskom/ NTCSA Construction Manager; Aquatic Specialist **Method of Implementation:** • Submit WULA prior to construction commencement; implement buffer zones and construction management measures as per EMPr; appoint ECO and Aquatic Specialist **Timeframe:** • WULA: pre-construction phase; all other measures: throughout the construction phase	**Responsible Person:** • ECO; Aquatic Specialist **Frequency:** • Weekly site inspections during construction; specialist inspections at high-sensitivity crossings **Evidence of Compliance:** • WULA approval and conditions on file; ECO inspection reports; specialist monitoring reports; photographic records; rehabilitation completion sign-off

Theme.	Description	Sensitivity	Management Actions	Implementation	Monitoring
			construction. • Reinstate natural vegetation, stabilise soils and restore drainage patterns. **Specialist Oversight** • Appoint an ECO to monitor compliance, protect wetlands and watercourses, and report non-compliance. • High-risk areas (rivers and high-sensitivity wetlands) must be monitored by a qualified aquatic specialist during construction.		

9.5 Flora

Theme	Description	Sensitivity	Management Actions	Implementation	Monitoring
Flora	Grass and scattered woody species; regenerating vegetation.	Low-Very High	• Avoid unnecessary disturbance to regenerating vegetation. • Prevent further soil degradation within and adjacent to the construction footprint. • Support rehabilitation and natural succession post-construction. • Demarcate construction boundaries clearly to avoid disturbance beyond the approved footprint. • Implement a selective clearing approach, avoiding unnecessary removal of woody species.	**Responsible Person:** • Contractor; Eskom/ NTCSA Construction Manager; Rehabilitation Specialist **Method of Implementation:** • Demarcate construction boundaries before work commences; brief all personnel on selective clearing requirements and no-go areas **Timeframe:** • Pre-construction (demarcation and briefing); throughout construction phase; post-construction rehabilitation	**Responsible Person:** • ECO; Rehabilitation Specialist **Frequency:** • Weekly during construction; monthly post-construction until rehabilitation is established **Evidence of Compliance:** • ECO inspection reports; photographic records of vegetation condition; rehabilitation completion assessment by specialist
	Protected Trees (Camel Thorn -Vachellia erioloba): protected under the National Forests Act.	Very High	• Obtain a permit from the provincial DFFE office under the National Forests Act before any disturbance or removal.	**Responsible Person:** • Contractor; Eskom/ NTCSA Construction Manager **Method of Implementation:** • Apply for National Forests Act permit.	**Responsible Person:** • ECO; Botanist **Frequency:** • Once before construction ; inspection at commencement of

Theme	Description	Sensitivity	Management Actions	Implementation	Monitoring
				Timeframe: • Pre-construction.	construction in this area. **Evidence of Compliance:** • Tree permit. ECO pre-construction checklist

APPENDIX 1: METHOD STATEMENTS

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

APPENDIX 2: CV

CURRICULUM VITAE BRENDA MAKANZA

Role: Principal EAP/ECO

Name of Firm: Vhubvo Consultancy

Name of Staff: Brenda Makanza

Date of Birth: 24 March 1981

Total Years of Experience: 20 years

EDUCATION:

Qualification	Institution	Date obtained
Incident Investigation- Level 3	NOSA	2020
ISO 45001:2018 & ISO 14001:2015: Implementation & Audit	NOSA	2020
SAMTRAC	NOSA	2020
Post Graduate Diploma: Geoinformatics (GIS)	Universetat Salzburg	2016
Bachelor of Science (Hons) Environmental Science	National University of Science and Technology	2004

MEMBERSHIP OF PROFESSIONAL ASSOCIATIONS:

Professional Associations	Membership
SACNASP	Pr. Sci. Nat (Reg No.: 400016/17)
EAPASA	Environmental Assessment Practitioner (Reg No. 2019/1542)
WISA	Member

OTHER TRAINING:

- Project Estimating and Procurement – University of Pretoria.
- Integrated Water Resources Management- Saxon University, The Netherlands

EMPLOYMENT RECORD:

Vhubvo Consultancy
Senior Environmental Scientist/ECO – January 2023 to Current

DIGES Group
Senior Environmental Scientist/ECO – February 2009 to December 2022

Ministry of Environment, Water & Climate
SABSP Project Assistant- March 2005 to Jan 2009

IUCN: The World Conservation Union
Ecosystems Programme: Aug 2002- July 2003

PROFESSIONAL SKILLS

Skill	Competency	Duration
Project Management	Advanced	14 years
Environmental Monitoring	Advanced	8 years
Environmental Impact Assessment	Advanced	14 years
Water Use Licence Application	Advanced	10 years
GIS and Map Production	Advanced	11 Years
Tree Cutting Permit	Advanced	8 Years

SOME PROJECTS AND PROFESSIONAL TECHNICAL EXPERIENCE

Walkdowns and CEMPr

- **2014:** Walkdown and CEMPr for the Ariadne-Venus 400kV powerline within various Municipalities in KZN Province
- **2016:** Walkdown and compilation of CEMPr for the Medupi Witkop 400kV powerline in various Municipalities, Limpopo Province.

Basic Assessment

- **EAP, 2010:** EMP and Basic Assessment Report for Establishment of Seshego Cemetery within Polokwane Local Municipality.
- **EAP, 2010:** EMP and Basic Assessment Report for Upgrading of gravel road from Praktiseer to Taung village within Greater Tubatse Local Municipality
- **EAP, 2014:** Basic Assessment for the construction of Klarinet Bridge within Emalahleni Local Municipality.
- **EAP, 2015-2017:** Proposed construction of a 132kV power line from PPRUST substation to the proposed Akanani substation within Mogalakwena Local Municipality.
- **EAP, 2015-2018:** Basic Assessment for the establishment of Sakhelwe extension within Emakhazeni Local Municipality.
- **Project Manager, Reviewer. 2020.** Proposed Southgate Township Establishment within Polokwane Local Municipality**.**

Scoping & Environmental Impact Assessments

- **EAP, 2010-2011:** Proposed construction of a 30 km 132kV power line from Amandla substation within Elias Motsoaledi Local Municipality, Greater Sekhukhune District to Kwaggafontein substation within Thembisile Hani Local Municipality, Nkangala District.
- **EAP, 2010-2011:** Proposed construction of a 45 km 132kV power line from Jane Furse ss to the new Mamatsekele ss within Makhuduthamage Local Municipality, Greater Sekhukhune District.
- **EAP, 2011-2012:** Proposed Koedoesdoorns township establishment within Thabazimbi Local Municipality;
- **EAP, 2011-2012:** Proposed Madala township establishment within Emakhazeni Local Municipality.
- **EAP, 2014-2016:** Proposed Rustenburg Strengthening Project within Rustenburg Local Municipality.
- **EAP, 2016-2018:** Proposed construction for the Limpopo East Strengthening Corridor within Limpopo Province.
- **Reviewer, 2018:** Proposed construction of Hyperrama pipeline within COE.

Amendments

- **EAP, 2013 and 2014:** First and second amendment for the 132kV Mamatsekele poweline within Limpopo Province.

Water Use Licence Applications

- **EAP, 2014:** WULA for Klarinet Ext5 and Ext6 Bridge Construction.
- **EAP, 2017:** WULA for construction of 400kV Ariadne-Venus power line within KZN province.
- **EAP, 2019:** General Authorisation for the construction of Hyperrama pipeline within COE.

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Monitoring

- **Lead Auditor, 2019-2022:** Landfill auditing and water monitoring at City of Ekurhuleni's operational and closed landfills.
- **Lead Auditor, 2017-2019:** Landfill auditing and water monitoring at City of Ekurhuleni's operational and closed landfills.

Curriculum Vitae of Frank Mhandu

Cell No: 071 054 3325
Email: frank@vhubvo.co.za

PERSONAL DETAILS

Full Names	: Frank Mhandu
Birth date	: 12 February 1983
Gender	: Male

ACADEMIC ACHIEVEMENTS

Qualification	: MSc Conservation Biology
Institution	: Bindura University
Obtained	: 2013
Qualification	: Bachelor of Environmental Science
Institution	: Bindura University
Obtained	: 2007

PROFESSIONAL MEMBERSHIP

South African Council for Natural Scientific Professions: Pr. Sci.Nat, Reg. No. 120638
EAPASA: Registered EAP Reg. No.: 2020/268

CURRENT EMPLOYMENT

Organisation	: Vhubvo Consultancy CC
Position held	: Environmental Assessment Practitioner/ Environmental Control Officer
Duration	: 2021 January to date
Duties	: Conduct Site Assessments
	: Compiling Biodiversity and Wetland Delineation Reports
	: Conduct environmental monitoring
	: Conduct environmental audits
	: Compiling water use license applications
	: Compiling waste management license applications
	: Drafting waste management plans

PAST WORK EXPERIENCE

Organisation	: Masingita Geo Environmental Consultants
Position	: Environmental Assessment Practitioner
Duration	: 2015-2017
Organisation	: Bindura University
Position	: Lecturer
Duration	: 2008-2017

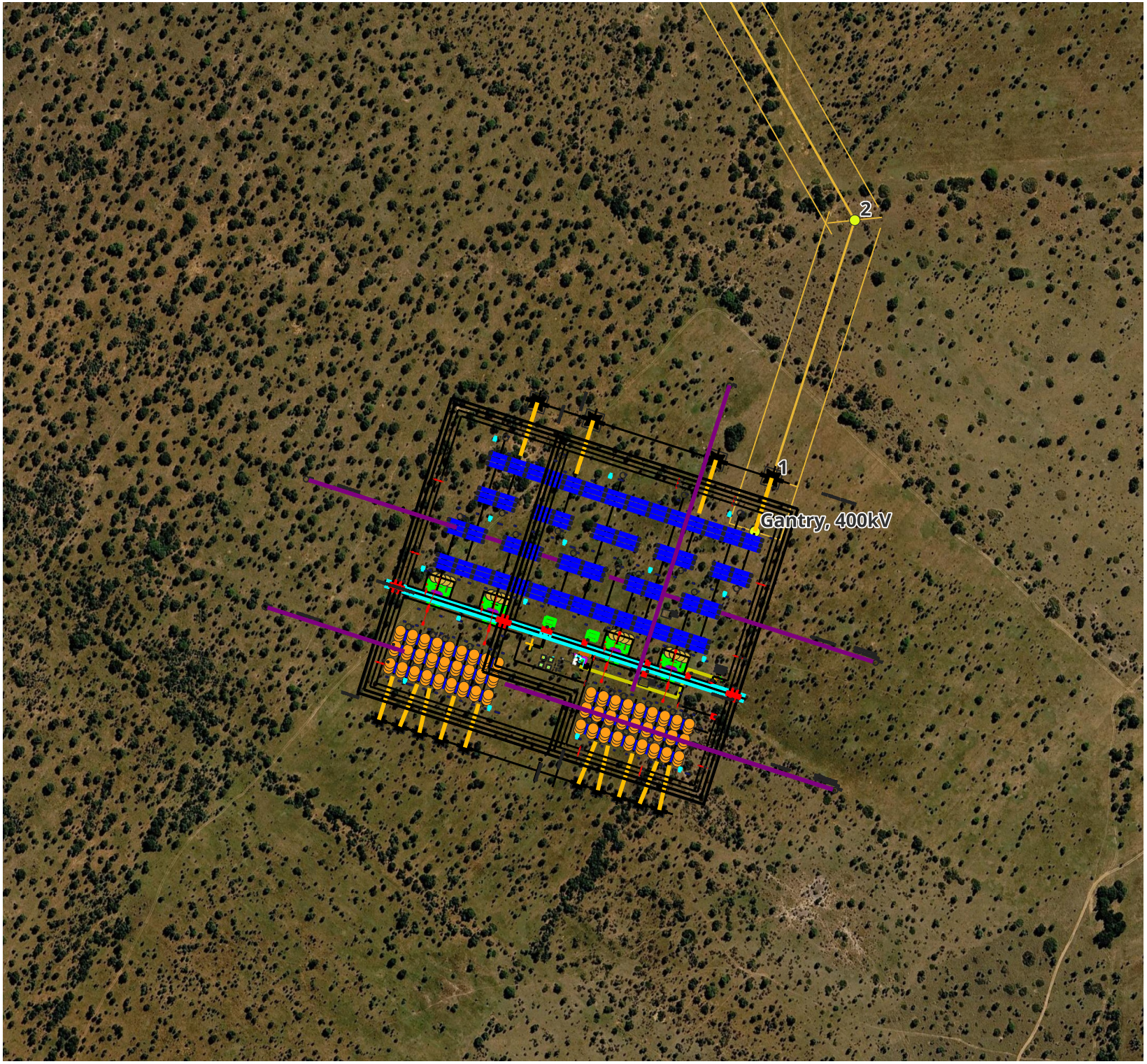
OTHER RELEVANT PROJECTS

Some of the projects I have undertaken during my years' experience in the field of Environmental Management are listed below:

- Proposed demarcation of 200 sites at the village of Jimmy Jones on farm Malamulele 234 LT within Thulamela Local Municipality of Vhembe District, Limpopo Province.
- Proposed formalisation of residential sites, and demarcations of new sites in the village of Malale on Reminder of Portion 1 of the Farm Feskaal No. 85 – MT within Musina Local Municipality of Vhembe District, Limpopo Province.
- Proposed demolition of a structure for labour centre establishment on Erf 346 Bochum Extention 3 at Senwabarwana town within Blouberg Local Municipality of Capricorn District. Limpopo Province.
- Proposed demarcation of residential sites at Thohoyandou Block J, which is located within the territory of Thulamela Local Municipality of Vhembe District in Limpopo Province.
- Proposed residential sites demarcation at Lwamondo-Tshivhale Village which is located within the territory of Thulamela Local Municipality in the Vhembe District of Limpopo Province.
- 220km Medupi-Witkop powerline protected tree species walk-down, Limpopo Province
- 24 ha Biodiversity Assessment for South 32 Khutala Mine (formerly BHP Bilton)
- Biodiversity Assessment & Offset Assessment for the proposed Mpumalanga International Fresh Produce Market (MIFPM), Mbombela Municipality, Mpumalanga Province
- 120km biodiversity walk-down, Barberton , Mpumalanga Province
- Flora Assessment for the proposed 132kV powerlines in Nkomazi, Nkomazi Municipality, Mpumalanga Province
- 88km powerline protected species assessment walk down, Tzaneen, Limpopo Province
- Flora Assessment ,Wetland Delineation & Assessment for the proposed upgrading of an 88KV powerlines in Klipgat, Mabopane, Gauteng Province
- Biodiversity Assessment & Wetland Delineation for the proposed Agrihub in Mkhondo Local Municipality, Mpumalanga Province.
- Water Use Licence Application for the proposed construction of Segakwaneng bridge under the Moses Kotane Local Municipality ,North West Province

- Water Use Licence Application for the proposed construction of Mabodisa bridge under the Moses Kotane Local Municipality ,North West Province

APPENDIX 3: SUBSTATION LAYOUT



Legend

- Pluto-Mahikeng 400 kV Towers
- Pluto-Mahikeng 400kV Powerline
- Mahikeng MTS

MAHIKENG MTS

Coordinate System:

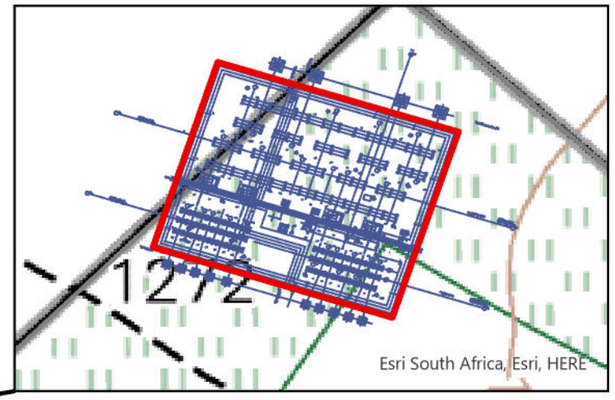
WGS 84 / Pseudo-Mercator

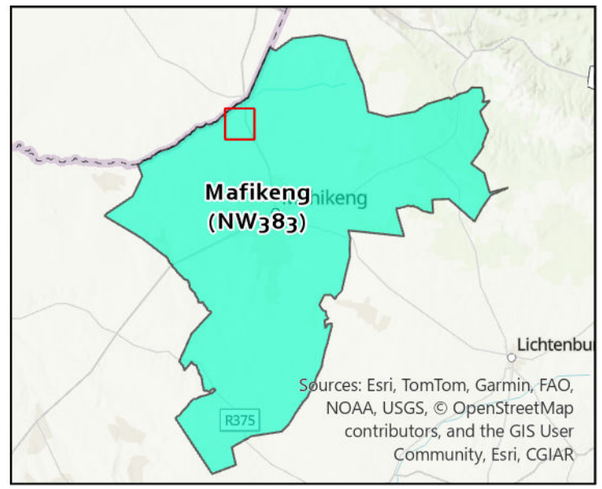
Map Scale:

0 100 200 m

APPENDIX 4: LOCALITY AND SENSITIVITY MAPS

Eskom
National Transmission Company South Africa ™





WATERSHED STRENGTHENING MAHIKENG MTS

0 0.6 1.1 2.3
km

Project Ref: Mahikeng MTS	Locality	
Drawn By: BM	Date: May 2026	Scale on A3 1:24,000
Coordinate System GCS WGS 1984 Units: Degree	Source: NTCSA, NGI MDB	

Building 2, Constantia Park
546, 16th Road
Midrand
1685

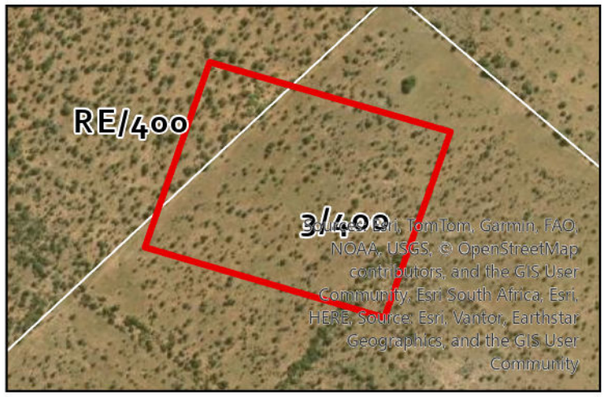
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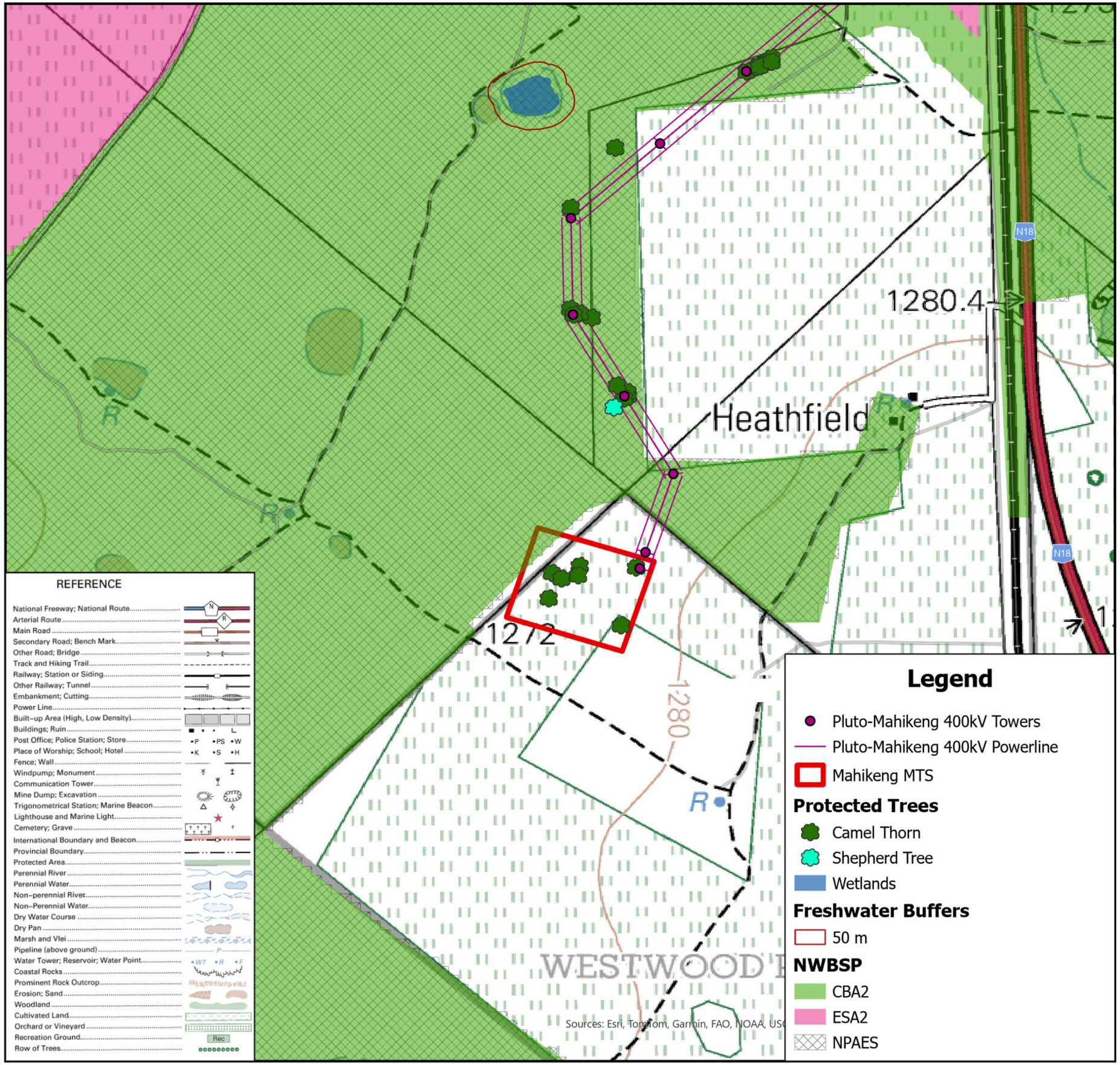
- Mahikeng MTS
- Farm Portions
- Parent Farm

REFERENCE

- National Freeway; National Route
- Arterial Route
- Main Road
- Secondary Road; Bench Mark
- Other Road; Bridge
- Track and Hiking Trail
- Railway; Station or Siding
- Other Railway; Tunnel
- Embankment; Cutting
- Power Line
- Built-up Area (High, Low Density)
- Buildings; Ruin
- Post Office; Police Station; Store
- Place of Worship; School; Hotel
- Fence; Wall
- Windpump; Monument
- Communication Tower
- Mine Dump; Excavation
- Trigonometrical Station; Marine Beacon
- Lighthouse and Marine Light
- Cemetery; Grave
- International Boundary and Beacon
- Provincial Boundary
- Protected Area
- Perennial River
- Perennial Water
- Non-perennial River
- Non-Perennial Water
- Dry Water Course
- Dry Pan
- Marsh and Vlei
- Pipeline (above ground)
- Water Tower; Reservoir; Water Point
- Coastal Rocks
- Prominent Rock Outcrop
- Erosion; Sand
- Woodland
- Cultivated Land
- Orchard or Vineyard
- Recreation Ground
- Row of Trees

Eskom
National Transmission Company South Africa ™





REFERENCE

- National Freeway; National Route
- Arterial Route
- Main Road
- Secondary Road; Bench Mark
- Other Road; Bridge
- Track and Hiking Trail
- Railway; Station or Siding
- Other Railway; Tunnel
- Embankment; Cutting
- Power Line
- Built-up Area (High, Low Density)
- Buildings; Ruin
- Post Office; Police Station; Store (P, PS, W)
- Place of Worship; School; Hotel (K, S, H)
- Fence; Wall
- Windpump; Monument
- Communication Tower
- Mine Dump; Excavation
- Trigonometrical Station; Marine Beacon
- Lighthouse and Marine Light
- Cemetery; Grave
- International Boundary and Beacon
- Provincial Boundary
- Protected Area
- Perennial River
- Perennial Water
- Non-perennial River
- Non-Perennial Water
- Dry Water Course
- Dry Pan
- Marsh and Vlei
- Pipeline (above ground)
- Water Tower; Reservoir; Water Point (WT, R, F)
- Coastal Rocks
- Prominent Rock Outcrop
- Erosion; Sand
- Woodland
- Cultivated Land
- Orchard or Vineyard
- Recreation Ground (Rec)
- Row of Trees

Legend

- Pluto-Mahikeng 400kV Towers
- Pluto-Mahikeng 400kV Powerline
- Mahikeng MTS

Protected Trees

- Camel Thorn
- Shepherd Tree
- Wetlands

Freshwater Buffers

- 50 m

NWBSP

- CBA2
- ESA2
- NPAES

WATERSHED STRENGTHENING MAHIKENG MTS

0 0.3 0.6 1.2
km

Project Ref: Mahikeng MTS	Sensitivity	
Drawn By: BM	Date: May 2026	Scale on A3 1:12,500
Coordinate System GCS WGS 1984 Units: Degree	Source: NTCSA, NGI MDB	



Building 2, Constantia Park
546, 16th Road
Midrand
1685