



GA Environment

ENVIRONMENTAL MANAGEMENT PROGRAMME

FOR THE PROPOSED ESKOM ALOE SUBSTATION AND LOOP-IN LOOP-OUT (LILO)
POWERLINES, POLOKWANE LOCAL MUNICIPALITY, CAPRICORN DISTRICT
MUNICIPALITY, LIMPOPO PROVINCE

March 2021



**ENVIRONMENTAL MANAGEMENT PROGRAMME
FOR THE**

**PROPOSED ESKOM ALOE SUBSTATION AND LOOP-IN LOOP-OUT (LILO) POWERLINES, POLOKWANE
LOCAL MUNICIPALITY, CAPRICORN DISTRICT MUNICIPALITY, LIMPOPO PROVINCE**

Prepared for:

Eskom Holdings SOC Ltd (LOU)

92 Hans van Rensburg Street
Polokwane
0700
Limpopo
Tel. no.: 015 230 4489

Submitted to:

Department of Environment, Forestry and Fisheries

Environment House,
473 Steve Biko,
Arcadia,
Pretoria, 0083
South Africa

Prepared by:

GA Environment (Pty) Ltd

P.O. Box 6723
Halfway House
Midrand
1685
Tel. No.: (011) 312 2537
Fax. No.: (011) 805 1950
e-mail: environment@gaenvironment.com

PROJECT INFORMATION

Title:	Environmental Management Programme for The Proposed Aloe Substation and LILO Powerlines, Polokwane Local Municipality, Capricorn District Municipality, Limpopo Province
Competent Authority:	Department of Environment, Forestry and Fisheries (DEFF)
Applicant:	Eskom Holdings SOC Ltd (LOU)
Environmental Assessment Practitioner:	GA Environment (Pty) Ltd.
Compiled by:	Nyaladzi Nleya <i>Pr. Sci. Nat</i> Reviewer: Nkhensani Khandhela <i>Pr. Sci. Nat</i>
Date:	March 2021

When used as a reference this report should be cited as: GA Environment (Pty) Ltd (2021), Environmental Management Programme (EMPr): Proposed Aloe Substation and LILO Powerlines, Polokwane Local Municipality, Capricorn District Municipality, Limpopo Province


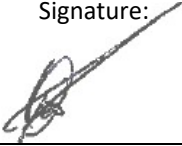

COPYRIGHT RESERVED

This technical report has been produced by GA Environment (Pty) Ltd for the Eskom Holdings SOC Ltd (LOU). No part of the report may be copied, reproduced, or used in any manner without written permission from Eskom or GA Environment (Pty) Ltd.

DOCUMENT HISTORY AND QUALITY CONTROL

Revision	Revision Date	Revision Comments	Originator	Reviewed By
0	03 March 2021	Final for Submission to Authority	Nyaladzi Nleya	Dirk Prinsloo

SIGNING OF THE ORIGINAL DOCUMENT

Original	Prepared by	Reviewed by	Approved by
Date: 03 March 2021	Name: Nyaladzi Nleya	Name: Dirk Prinsloo	Name: Nkhensani Khandhela
Version 0	Signature: 	Signature: 	Signature: 

DISTRIBUTION LIST (KEY PARTIES)

Name	Organisation	Designation
Tshifhiwa Matamela	Eskom Holdings SOC Ltd (LOU)	Environmental Manager
Ntsoaki Ramokgola	Eskom Holdings SOC Ltd (LOU)	Environmental Officer
Mulalo Nethengwe	Department of Water and Sanitation	WULA Manager
Mr Blessing Pitjapi	Polokwane Local Municipality	Environmental Officer
Phoshoko Mapula Salome	Polokwane Local Municipality	Ward Councillor; Ward 6
Jan Frans Makwela	Polokwane Local Municipality	Ward Councillor; Ward 5
Edzisani Thathana	The Department of Rural Development and Land Reform	Project Officer
Kgoshi Pogoti Patrick Mothiba	Mothiba Tribal Authority	Chief/Control of the Land
Mr Rhulani Mthobeni	Limpopo Department of Economic Development, Environment and Tourism	Environmental Officer

TABLE OF CONTENTS

TABLE OF CONTENTS.....	5
ABBREVIATIONS	7
DEFINITIONS.....	8
LEGISLATIVE REQUIREMENTS FOR AN EMPr	10
UNDERTAKING TO IMPLEMENT THE EMPr	13
1. INTRODUCTION.....	14
1.1 Project background	14
1.2 Roles and Responsibilities for EMPr Implementation.....	15
1.3 Specific Mitigation Measures and Specialist Studies	19
1.4 Key site sensitivities	20
1.5 Environmental Documentation Reporting and Compliance	21
1.5.1 Document control/Filing system.....	21
1.5.2 Documentation to be available	22
1.5.3 Environmental Checklist	22
1.5.4 Environmental site meetings	23
1.5.6 Environmental Incident Log (Diary).....	23
1.5.7 Required Method Statements	24
1.5.8 Corrective action records.....	24
1.5.9 Photographic record.....	25
1.5.10 Complaints register	25
1.5.11 Complaints register	26
1.6 Purpose and objectives the document	26
2. PREPARATION OF THIS EMPr	27
3. KEY APPLICABLE LEGISLATION	28
5. OPERATIONAL CONTROLS.....	28
5.1 Environmental-related method statements	28
5.2 Emergency preparedness.....	29
5.2.1 Emergency contact details	29
5.2.2 Spill kits and first aid	30
5.3 Environmental training and awareness	30
5.3.1 Toolbox talks.....	30
5.4 Site documentation.....	31
5.5 Communication procedures.....	31
5.6 Other general guidelines.....	31

6. PROJECT PHASES AND ASSOCIATED ACTIVITIES	32
6.1 Pre-construction phase	32
6.2 Construction phase	32
6.3 Rehabilitation and demobilisation phase	32
7. ENVIRONMENTAL CONTROLS AND MANAGEMENT PROGRAMME IMPLEMENTATION	33
7.1 General planning and administrative considerations (A)	34
7.2 Construction phase (B).....	39
7.3 Demobilising and rehabilitation phase (C).....	59
8. REPORTING, MONITORING AND REVIEWING	61
8.1 Reporting on EMPr compliance	61
8.1.1 Typical report description	61
8.1.2 Document control procedures	62
8.1.3 System for documenting environmental training.....	62
8.1.4 Frequency of audit reports	62
8.2 Monitoring of the EMPr	62
8.2.1 Environmental auditing	62
8.2.2 Corrective actions	63
8.3 Review of the EMPr.....	63
8.3.1 Amendment of the EMPr (where required)	63
8. REFERENCES	64

ABBREVIATIONS

CA	Competent Authority
CBA	Critical Biodiversity Area
cEO	Contractors Environmental Officer
DEFF	Department of Environment, Forestry and Fisheries
DEO	Developer Environmental Officer
DPM	Developer Project Manager
DSS	Developer Site Supervisor
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EAR	Environmental Audit Report
ECA	Environmental Conservation Act No. 73 of 1989
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme Report
EO	Environmental Officer
ERAP	Emergency Response Action Plan
ER	Engineer's Representative
ESR	Environmental Site Representative
FPA	Fire Protection Agency
HCS	Hazardous chemical Substance
MSDS	Material Safety Data Sheet
NEMA	National Environmental Management Act (NEMA), 1998 (Act No. 107 of 1998),
NEMA	National Environmental Management Act (Act 107 of 1998)
NEM:BA	National Environmental Management: Biodiversity Act (Act 10 of 2004)
NEM:PA	National Environmental Management: Protected Areas Act (Act 57 of 2003)
NFEPA	National Freshwater Ecosystem Protected Area
PM	Project Manager
RI&AP's	Registered Interested and affected parties
SANBI	South African National Biodiversity Institute

DEFINITIONS

Aspect - Element of an organisation's activities, products or services that can interact with the environment.

Auditing - A systematic, documented, periodic and objective evaluation of how well the Environmental Management Programme (EMPr) is being implemented and is performing with the aim of helping to safeguard the environment by facilitating management control which would include meeting regulatory requirements. Results of the audit help the organisation to improve its environmental policies and management systems, while keeping track of their compliance with the Environmental Authorization.

Clearing of vegetation - Clearing refers to the removal of vegetation through permanent eradication and in turn no likelihood of regrowth. 'Burning of vegetation (e.g. fire- breaks), mowing grass or pruning does not constitute vegetation clearance, unless such burning, mowing or pruning would result in the vegetation being permanently eliminated, removed or eradicated.

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.

Corrective (or remedial) action - Response required in addressing an environmental problem that is in conflict with the requirements of the EMPr. The need for corrective action may be determined through monitoring, audits or management review.

Degradation - The lowering of the quality of the environment through human activities, e.g. river degradation, soil degradation.

Developer - Entity which applies for environmental approval and is ultimately accountable for compliance to conditions stipulated in the EA (Environmental Authorisation) and EMPr.

Environment - The surroundings within which humans exist and that are made up of land, water and atmosphere of the earth, micro-organisms, plant and animal life: or any part or combination of the two and the interrelationships among them, the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

Environmental Impact Assessment (EIA) - An Environmental Impact Assessment (EIA) refers to the process of identifying, predicting and assessing the potential positive and negative social, economic and biophysical impacts of a proposed development. The EIA includes an evaluation of alternatives; recommendations for appropriate management actions for minimising or avoiding negative impacts and for enhancing positive impacts; as well as proposed monitoring measures.

Environmental Management System (EMS) - Environmental Management Systems (EMS) provide guidance on how to manage the environmental impacts of activities, products and services. They detail the organisational structure, responsibilities, practices, procedures, processes and resources for environmental management. The ISO14001 EMS standard has been developed by the International Organisation for Standardisation.

Environmental Policy - A statement of intent and principles in relation to overall environmental performance, providing a framework for the setting of objectives and targets.

Habitat - A habitat is an ecological or environmental area that is inhabited by a particular species of animal, plant, or other type of organism. It is the natural environment in which an organism lives, or the physical environment that surrounds a species population.

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;

Impact - A description of the potential effect or consequence of an aspect of the development on a specified component of the biophysical, social or economic environment within a defined time, space, magnitude and intensity.

Indigenous species - Flora and Fauna species that are naturally found in an area.

Infrastructure - The network of facilities and services that are needed for economic activities, e.g. roads, electricity, water, sewerage, etc.

Integrated Environmental Management- This is a philosophy used in the assessment of and management of the environment, during all actions, plans, activities, etc. that could affect the environment. Its aim is to ensure sustainability.

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.

Mitigation - Measures designed to avoid, reduce or remedy adverse impacts. Actions that limit, stop or reverse the magnitude and/or rate of long-term effect on the environment.

Natural environment - Encompasses all living and non-living things occurring naturally on Earth or some region thereof. It is an environment that encompasses the interaction of all living species. Climate, weather, and natural resources that affect human survival and economic activity.

Policy - A set of aims, guidelines and procedures to help you make decisions and manage an organisation or structure. Policies are based on people or an organisation's values and goals.

Process - Development usually happens through a process - a number of planned steps or stages.

Resources - Parts of our natural environment that we use and protect, e.g. land, forests, water, wildlife, and minerals.

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.

LEGISLATIVE REQUIREMENTS FOR AN EMPr

The table below provides the Requirements for an Environmental Management Programme (EMPr) in terms of the 2014 EIA Regulations (Appendix 4) with reference to the relevant sections of this report or where these requirements are addressed.

Section	Content	Reference in report
An EMPr must comply with section 24N of NEMA and include-		
1(a)	Details of (i) the EAP who prepared the EMPr; and (ii) the expertise of that EAP to prepare an EMPr, including a curriculum vitae;	Section 2
1(b)	A detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;	Section 6
1(c)	A map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers;	Section 1.1 & 1.4
1(d)	A description of the impact management objectives, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including- (i) planning and design; (ii) pre-construction activities; (iii) construction activities; (iv) rehabilitation of the environment after construction and where applicable post closure; and (v) where relevant, operation activities;	Section 7
1(e)	A description and identification of impact management outcomes required for the aspects contemplated in paragraph (d);	Section 7
1(f)	A description of proposed impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated in paragraphs (d) and (e) will be achieved, and must, where applicable, include actions to – (i) avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation; (ii) comply with any prescribed environmental management standards or practices; (iii) comply with any applicable provisions of the Act regarding closure, where applicable; and (iv) comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable;	Section 7
1(g)	The method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Section 7
1(h)	The frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Section 7
1(i)	An indication of the persons who will be responsible for the implementation of the impact management actions;	Section 7
1(j)	The time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	Section 7
1(k)	The mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	Section 7 and 8
1(l)	A program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;	Section 8
1(m)	An environmental awareness plan describing the manner in which-	Section 5.3

	(i) the applicant intends to inform his or her employees of any environmental risk which may result from their work; and (ii) risks must be dealt with in order to avoid pollution or the degradation of the environment; and	
1(n)	Any specific information that may be required by the competent authority.	None Required

UNDERTAKING TO IMPLEMENT THE EMPr

Undertaking by the Principal Contractor

I acting on behalf of the **Contractor**, hereby indicate that I have read through the EMPr and understand the measures required to be implemented in terms of the EMPr. I hereby undertake to implement these measures and carry out my duties as specified herein.

Signed on at

.....
Contractor’s Environmental
Representative

.....
Witness (1)

.....
Witness (2)

Undertaking by the Environmental Control Officer

I the **Environmental Control Officer** appointed by Eskom hereby indicate that I have read through the EMPr, and understand the measures required to be implemented in terms of the EMPr and hereby undertake to fulfil my duties as specified herein.

Signed on at

.....
Contractor’s Environmental
Representative

.....
Witness (1)

.....
Witness (2)

THE SIGNING OF THIS DOCUMENT IS CRUCIAL AS IT BINDS THE CONTRACTOR TO THE CONTENTS OF THE EMPr IMPLEMENTATION THEREOF

1. INTRODUCTION

1.1 Project background

Eskom Limpopo Operating Unit (LOU) are proposing the construction of the new Aloe substation and 132kV Silica-Aloe loop-in and Thabamoopo-Aloe loop-out (LILO) powerlines. The proposed substation will cover an extent of 2 hectares and will include the construction of a 6m wide and 200m long access road. Eskom has proposed an alternative area for the location of the substation that will also cover an extent of 2 hectares. The preferred and alternative sites for the substation are located about 200m adjacent from each other. Associated infrastructure that will support the new Aloe substation, will include, a communication tower, a 132/22kV transformer, a 132/11kV transformer, 2x 22kV feeder bays and 3x 11kV feeder bays". For the purpose of this Basic Assessment, a 1 km corridor has been proposed as a study area that will include the associated powerlines (Silica-Aloe loop in powerline and Thabamoopo loop out powerline). The 1km corridor is part of the development footprint area, surrounding the proposed infrastructure and was assessed in this Basic Assessment process.

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).

This EMPr has been prepared in consultation with the generic Environmental Management Programme, contemplated in Regulations 19(4), 23(4) and Appendix 4 to the Environmental Impact Assessment Regulations, 2014, as amended for substation infrastructure for electricity transmission and distribution. The activity triggers GNR 983 Listing Notice 1 of the NEMA EIA Regulations (2014).

The project area is located approximately 12km to the east of Polokwane and west of the Nobody and Thakgalang residential areas. The residential area of Orange grove along with the existing Aloe

Substation is located east of the site. The proposed infrastructure is located immediately south of the R71 roadway, with the 1km corridor extending to the South of this road. The project area is located on historical farmland in a region characterised by existing powerlines, sand mining and subsistence farming activities. The study area is also surrounded by vacant land and light Industrial activities. Prominent natural features in the vicinity of project area include various rock outcrops located on koppies to the east and west of the site and the Diep River, (a tributary of the Sand River) that transects the project area approximately 800m east of the proposed project infrastructure.

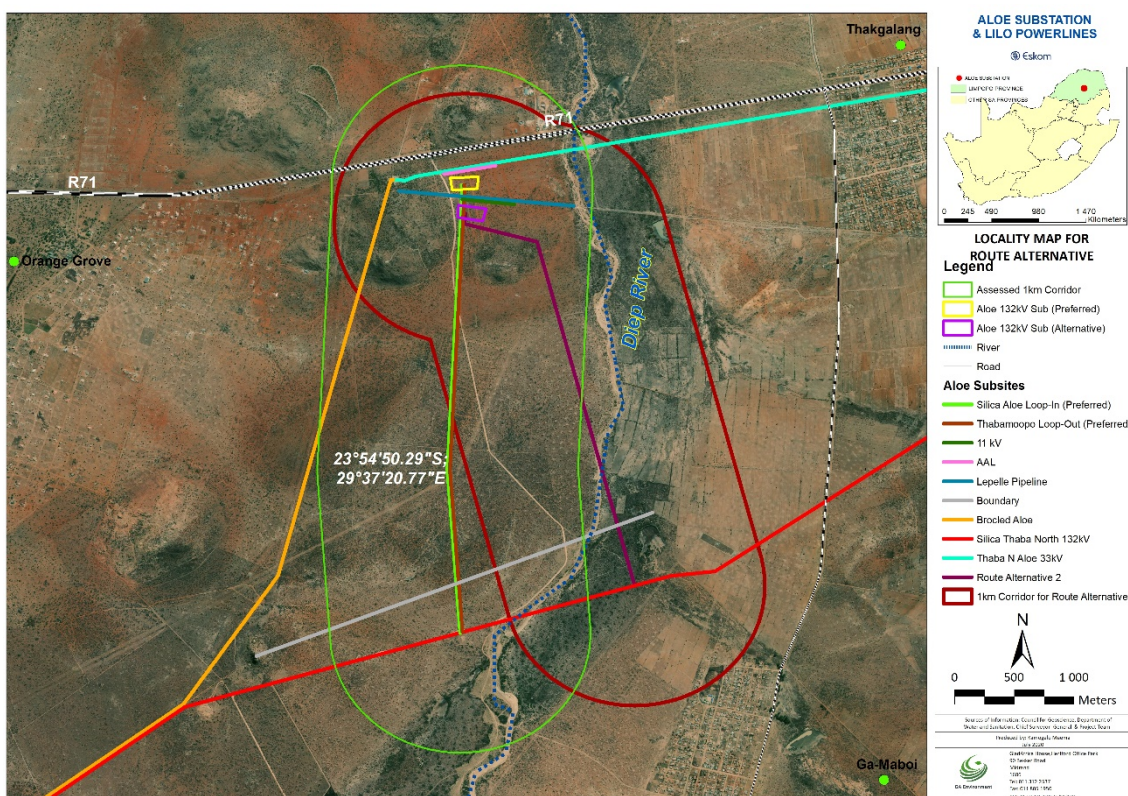


Figure 1: Project site locality

1.2 Roles and Responsibilities for EMPr Implementation

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

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

Responsible Person(s)	Role and Responsibilities
Developer's Project Manager (DPM)	<p>Role</p> <p>The Project Developer is accountable for ensuring compliance with the EMPr and any conditions of approval from the competent authority (CA). Where required, an environmental control officer (ECO) must be contracted by the Project Developer to objectively monitor the implementation of the EMPr according to relevant environmental legislation, and the conditions of the environmental authorisation (EA). The Project Developer is further responsible for providing and giving mandate to enable the ECO to perform responsibilities, and he must ensure that the ECO is integrated as part of the project team while remaining independent.</p> <p>Responsibilities</p> <ul style="list-style-type: none"> • Be fully conversant with the conditions of the EA; • Ensure that all stipulations within the EMPr are communicated and adhered to by the Developer and its Contractor(s); • Issuing of site instructions to the Contractor for corrective actions required; • Monitor the implementation of the EMPr throughout the project by means of site inspections and meetings. Overall management of the project and EMPr implementation; and • Ensure that periodic environmental performance audits are undertaken on the project implementation.
Developer Site Supervisor (DSS)	<p>Role</p> <p>The DSS reports directly to the DPM, oversees site works, liaises with the contractor(s) and the ECO. The DSS is responsible for the day to day implementation of the EMPr and for ensuring the compliance of all contractors with the conditions and requirements stipulated in the EMPr.</p> <p>Responsibilities</p> <ul style="list-style-type: none"> • Ensure that all contractors identify a contractor's Environmental Officer (cEO); • Must be fully conversant with the conditions of the EA. Oversees site works, liaison with Contractor, DPM and ECO; • Must ensure that all landowners have the relevant contact details of the site staff, ECO and cEO; • Issuing of site instructions to the Contractor for corrective actions required; • Will issue all non-compliances to contractors; and • Ratify the Monthly Environmental Report.
Environmental Control Officer	<p>Role</p> <p>The ECO should have appropriate training and experience in the implementation of environmental management specifications. The primary role of the ECO is to act as an independent quality controller and monitoring agent regarding all environmental concerns and associated environmental impacts. In this respect, the ECO is to conduct</p>

	<p>periodic site inspections, attend regular site meetings, pre-empt problems and suggest mitigation and be available to advise on incidental issues that arise. The ECO is also required to conduct compliance audits, verifying the monitoring reports submitted by the cEO. The ECO provides feedback to the DSS and Project Manager regarding all environmental matters. The Contractor, cEO and dEO are answerable to the Environmental Control Officer for non-compliance with the Performance Specifications as set out in the EA and EMPr.</p> <p>The ECO provides feedback to the DSS and Project Manager, who in turn reports back to the Contractor and potential and Registered Interested & Affected Parties' (RI&AP's), as required. Issues of non-compliance raised by the ECO must be taken up by the Project Manager, and resolved with the Contractor as per the conditions of his contract. Decisions regarding environmental procedures, specifications and requirements which have a cost implication (i.e. those that are deemed to be a variation, not allowed for in the Performance Specification) must be endorsed by the Project Manager. The ECO must also, as specified by the EA, report to the relevant CA as and when required.</p> <p>Responsibilities</p> <ul style="list-style-type: none"> • 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; • Assisting in the resolution of conflicts;
--	---

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

	<p>Responsibilities</p> <ul style="list-style-type: none"> • project delivery and quality control for the development services as per appointment; • employ a suitably qualified person to monitor and report to the Project Developer's appointed person on the daily activities on-site during the construction period; • ensure that safe, environmentally acceptable working methods and practices are implemented and that equipment is properly operated and maintained, to facilitate proper access and enable any operation to be carried out safely; • attend on site meeting(s) prior to the commencement of activities to confirm the procedure and designated activity zones; • ensure that contractors' staff repair, at their own cost, any environmental damage as a result of a contravention of the specifications contained in EMPr, to the satisfaction of the ECO.
Contractor Environmental Officer (CEO)	<p>Role</p> <p>Each Contractor affected by the EMPr should appoint a CEO, who is responsible for the on-site implementation of the EMPr (or relevant sections of the EMPr). The Contractor's representative can be the site agent; site engineer; a dedicated environmental officer; or an independent consultant. The Contractor must ensure that the Contractor's Representative is suitably qualified to perform the necessary tasks and is appointed at a level such that she/he can interact effectively with other site Contractors, labourers, the Environmental Control Officer and the public. As a minimum the CEO shall meet the following criteria:</p> <p>Responsibilities</p> <ul style="list-style-type: none"> • Be on site throughout the duration of the project and be dedicated to the project; • Ensure all their staff are aware of the environmental requirements, conditions and constraints with respect to all of their activities on site; • Implementing the environmental conditions, guidelines and requirements as stipulated within the EA, EMPr and Method Statements; • Attend the Environmental Site Meeting; • Undertaking corrective actions where non-compliances are registered within the stipulated timeframes; • Report back formally on the completion of corrective actions; • Assist the ECO in maintaining all the site documentation; • Prepare the site inspection reports and corrective action reports for submission to the ECO; • Assist the ECO with the preparing of the monthly report; and • Where more than one Contractor is undertaking work on site, each company appointed as a Contractor will appoint a CEO representing that company.

1.3 Specific Mitigation Measures and Specialist Studies

All recommendations made by the specialists and all mitigation measures proposed by the specialists in their assessments, as incorporated in the EMPr should be implemented and adhered to; and all other conditions, monitoring and mitigation measures as provided in the EMPr should be adhered to.

Some specific recommendations and mitigation measures were highlighted in the Basic Assessment Report and are included in this EMPr.

1.4 Key site sensitivities

Critical Biodiversity Area & Ecological Support Area: The majority of the site is classified as a CBA 1 with the portion to the east of the Diep River falls within a CBA2 area. ESA2, NNR and ONA areas occur in the immediate surroundings. In terms of vegetation in the area, there is a greater diversity of plants particularly within dense riparian thickets which also support larger trees. The original vegetation type is the Pietersburg false grassland, but the area is increasingly being pioneered by acacia species due to past and present farming practices. Typical of the hills and outcrops in the Polokwane area, the species *Aloe marlothii* is abundant as they thrive in the ashy soils caused by human occupation. Thornveld bush is the most prominent species in the area as it is located within the Savanna Biome (Rutherford & Westfall, 1994; Rutherford, 1997) within the Central Bushveld Bioregion of South Africa (Mucina & Rutherford, 2006). Acocks (1955) described the regional vegetation as Pietersburg Plateau False Grassveld and according to the most recent vegetation classification of South Africa (Mucina & Rutherford, 2006; NBA, 2018), the project infrastructure falls within the Polokwane Plateau Bushveld vegetation type, while the Mamabolo Mountain Bushveld vegetation type, which is typically embedded in the former, characterises the prominent rocky outcrop within the northwest of the project area.

The Heritage Impact Assessment recorded an informal cemetery at coordinates S23° 54.289' E29° 37.747', It is probably linked to stone walled settlements. Other graves have been recorded just west of the present Aloe Substation at coordinates S23° 53.950' E29° 37.031'. The stone walled settlements recorded above will all contain obscured human burials. The graves are regarded as highly significant.



Figure 2: Graves observed on site

The three graves were observed on site (**Figure 2**), however they are not at risk of being impacted by the proposed developments. In terms of section 36 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), should archaeological sites or graves be exposed during construction activities, all work must be stopped in the immediate vicinity of the finds and it should immediately be reported to a heritage practitioner so that an investigation and evaluation of it can be made.

1.5 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.

1.5.1 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.

1.5.2 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.

1.5.3 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.

1.5.4 *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.

1.5.6 *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.

1.5.7 *Required Method Statements*

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.

1.5.8 *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.

1.5.9 *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:

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

1.5.10 *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:

- Record the name and contact details of the complainant;
- Record the time and date of the complaint;
- Contain a detailed description of the complaint;

- Where relevant and appropriate, contain photographic evidence of the complaint or damage (ECOs to take relevant photographs); and
- 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.

1.5.11 Complaints register

Environmental audits of the activity and implementation of the EMPr must be undertaken. The ECO must prepare a monthly EAR. The report will be tabled as the key point on the agenda of the Environmental Site Meeting. 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:

- Environmental Checklists;
- Deviations and non-compliances with the checklists;
- Non-compliances issued;
- Completed and reported corrective actions;
- Environmental Monitoring;
- General environmental findings and actions;

1.6 Purpose and objectives the document

This EMPr is the main output of the Basic Assessment process and has been compiled in accordance with the requirements of the National Environmental Management Act (No. 107 of 1998) (NEMA) legislation and Integrated Environmental Management (IEM) philosophy which aims to achieve a desirable balance between conservation and development (DEAT, 1992).

The purpose of this EMPr is to provide a framework within which the environmental risks and liabilities identified during the Basic Assessment process are managed for the duration of the project lifecycle. This document further provides mitigation measures to ensure legal compliance and environmental best practice during the construction of the proposed project.

The EMPr has the following key objectives:

- To ensure compliance of the with applicable environmental legislation;
- To communicate environmental expectations and requirements of the project;
- To ensure that the roles and responsibilities of the various parties involved in the implementation of the EMPr are clearly outlined;
- To reduce adverse environmental impacts as a result of the project activities; and
- To ensure continuous improvement in terms of the environmental performance of the project.

2. PREPARATION OF THIS EMPr

In accordance with the Regulation 13 of the EIA Regulations (GN R982 of 2014) as amended, the proponent is required to appoint an independent registered Environmental Assessment Practitioner (EAP) to undertake the Environmental Impact Assessment (EIA) process for any activities regulated in terms of the NEMA. As such, Eskom appointed GA Environment (Pty) Ltd an independent consulting firm to undertake the Basic Assessment process. Both GA Environment and associated specialist are not subsidiaries of the proponent or have vested interested in the proposed activity. This document has been compiled in in line with the requirements *for an Environmental Management Programme (EMPr) in terms of the 2014 EIA Regulation 982 (Appendix 4) with reference to the relevant sections of this report or where these requirements are addressed.*The details of the project proponent and EAP are provided below:

Table 2 below provides the particulars of the key stakeholders associated with the project

Table 2: Application details

Applicant's representative	Environmental Impact Practitioner	Project Reviewer
Name: Tshifhiwa Matamela Designation: Environmental Manager: Limpopo OU Tel: (015) 230 1489 Cell: 079 745 4296 e-mail: matamete@eskom.co.za	Name: Nyaladzi Nleya Designation: Environmental Impact Assessment Practitioner Tel: 011 312 2537 Fax: 011 805 1950 e-mail: environment@gaenvironment.com/ nyaladzin@gaenvironment.com	Name: Nkhensani Khandlhela Designation: Principal Environmental Assessment Practitioner Tel: 011 312 2537 e-mail: nkhensanik@gaenvironment.com

This EMPr was prepared by Nyaladzi Nleya, an Environmental Assessment Practitioner (EAP) employed by GA Environment. His CV is included as Appendix I2 of the Basic Assessment report. Nyaladzi holds a B.Sc. (Hons) in Applied Environmental Science degree with 10 years of working experience in the Environmental Management Field. Nyaladzi specialises in, among various environmental management tools, Integrated Environmental Management (IEM), Environmental Impact Assessments (EIAs), Basic Assessments (BAs). Nyaladzi has working knowledge of Spatial Analyses and Mapping with the use of ArcGIS. He has been involved in various footprint and linear projects, mixed-use developments as well as Conservation Planning and Biodiversity Management.

3. KEY APPLICABLE LEGISLATION

The management and mitigation of the environmental impacts during construction is governed by environmental legislation. It is of utmost importance that this project is constructed in compliance with all relevant environmental legislation whether; National, Provincial and/or Local. This EMPr has thus been compiled as per the requirements of *Appendix 4* of the NEMA EIA Regulations 2014, as amended and in terms of Section 24N of the NEMA.

It is understood that any development during its various phases is a dynamic activity within a dynamic environment. The common list of legislative references contained herein is by no means exhaustive but is applicable to the general principles of this document:

- Constitution of the Republic of South Africa (Act No. 108 of 1996);
- National Environmental Management Act (Act No. 107 of 1998);
- National Environmental Management: Biodiversity Act (Act 10 of 2004);
- National Heritage Resources Act (Act No. 25 of 1999);
- National Water Act, 1998 (Act No. 36 of 1998); and
- Occupational Health and Safety Act (Act No. 85 of 1993);

In addition to the above, other provincial and municipal legislation by relevant to the proposed development must also be adhered to.

5. OPERATIONAL CONTROLS

The operations that are associated with the identified environmental aspects must be consistent with the objectives and conditions of the EMPr. The typical operational controls that must be put in place for a construction site are as follows:

5.1 Environmental-related method statements

Environmental-related method statements are written submissions to the Engineer by the Contractor, in collaboration with environmental personnel involved in the project. The method statements set out the plant, materials, labour and method that the Contractor proposes using to carry out an activity (identified by the Engineer) to address specific requirements and ultimately this EMPr.

All method statements, including those which may be required as ad-hoc or emergency construction method statements, must be submitted for approval prior to the commencement of any activity. Any changes to the method of works must be reflected by amendments to the original approved method statement and re-approved on the understanding that such changes are environmentally acceptable and in line with the requirements of this EMPr.

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 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.

5.2 Emergency preparedness

In the event of emergency, the following elements must present and easily accessible on site for the management of such emergency:

5.2.1 Emergency contact details

The Contractor must ensure that the numbers of the following persons are displayed at a prominent place on site at all times:

- The local Police Stations;
- The nearest Ambulance/hospital;
- Resident Engineer, project Manager and Representative of the Contractor; and
- Representative of the Developer.

These details, which must be updated should the need arise.

5.2.2 *Spill kits and first aid*

The Contractor must ensure that spill kits, first-aid and associated equipment are present onsite and easily accessible for the potential occurrence of hazardous and/or material spills. The staff should be trained in the use thereof.

5.3 Environmental training and awareness

Prior to commencement of site establishment and construction activities, all the teams involved in work on the project are to be briefed on their obligations towards environmental controls and methodologies in terms of this EMPr. The importance of the environmental awareness training is to also ensure all workers understand the risks involved as well as how to adequately implement mitigation measures. The education/awareness programme should be aimed at all levels of management and construction workers within the Contractor's team. All new employees arriving on site shall undergo environmental awareness programme.

It is recommended that the environmental awareness training be undertaken by the ESR and the programme must include:

- Induction of all personnel in a language and method most suitable; and
- Signing of an attendance register and declaration of ensuring environmental protection. Proof of the induction must be kept.

Indicative topics that may be included/ covered in the environmental induction:

- What is the environment and why must it be protected?
- What are the environmental sensitivities of the area in which activities are being undertaken?
- How construction activities can adversely impact of the environment;
- What are the mitigation measures for adverse impacts?
- What is the social responsibility of all site employees during construction?
- How should environmental incidents be recorded?

Awareness posters and pamphlets must also be provided to create environmental awareness throughout the site.

Refresher environmental awareness training must be conducted and when the need arises.

5.3.1 *Toolbox talks*

The Environmental Site Representative must also ensure daily toolbox talks include alerting the workforce to particular environmental concerns associated with the tasks for that day or the area / habitat in which they are working, etc.

It is also recommended that the toolbox talks are conducted in an interactive way as to ensure the employees understand the content and purpose of the EMPr requirements. The Contractor shall keep records of the environmental subjects discussed in the toolbox talk sessions. Signed registers documenting all employees' attendance must also be kept on record.

5.4 Site documentation

The following is a list of some examples of documentation that should be kept on site and made available to the ECO and/or any other relevant parties on request:

- This EMPr;
- The Project's Environmental Authorisation obtained from DEFF
- Water Use Authorisation obtained from the DWS
- Site daily diary;
- Site instruction book;
- A Complaints register;
- Incident register;
- Copies of environmental audit reports;
- Proof of environmental training undertaken by the Contractor and the ECO;
- Schedules for environmental audits;
- Minutes of project meetings;
- Agreements;
- Non-compliance and corrective action reports; and
- Method statements signed by the Contractor, the ECO and Engineer.

5.5 Communication procedures

- *Site instructions*: The site instruction journal entries will be used for the recording of instructions as they relate to implementation of the EMPr, and/or any work orders given by the Engineer.
- *Site Meetings*: A clear channel of communication and coordination between the Developer and the Contractor is very crucial in any construction project. One way of ensuring this is through regular site meetings. The purpose of the meetings will be to discuss general progress of construction. Some of the environmental aspects to be discussed in the meeting shall include:
 - *Efforts to lower the environmental, social and health risks involved;*
 - *Discuss and resolve non-conformance to environmental legislation / policies or the EMPr; and*
 - *Report on environmental performance of the construction works.*

5.6 Other general guidelines

The following measures provide guideline solutions to frequently anticipated issues on most development activities.

- The prevention of any site degradation due to non-compliance, administrative or financial problems, and inactivity during the construction phase, illegal activities, delays caused by archaeological finds etc. are ultimately the responsibility of the applicant / developer as per

Section 28 of NEMA, 1998 (as amended) which discusses 'Duty of Care and remediation of environmental change'.

- The study area must be clearly defined and surveyed according to the proposed activities. All workforce members and other construction personnel are not to go beyond the defined footprint.
- The Contractors must adhere to agreed and approved access points and no-go areas.
- Damage to private or public property such as fences, gates and other infrastructure may occur at any time. All damages are to be repaired as soon as practically possible.
- Landowners of the site and adjacent properties must be informed of the starting and completion dates of the construction activities.
- The Contractor must adhere to all conditions of contract including this EMPr.
- All private and public manmade structures near the project site must be protected against damage at all times and any damage must be rectified by no later than 7 days after occurrence.
- Proper documentation and record keeping of all complaints and actions taken must be kept at the site office.
- Regular site inspections and good control over the site activities should be undertaken.
- A positive attitude towards environmental management by all site personnel must be motivated through regular and effective awareness and training sessions.
- Social issues in terms of safety for human life, on employees should be encouraged. All construction areas and activities should be cordoned off.

6. PROJECT PHASES AND ASSOCIATED ACTIVITIES

6.1 Pre-construction phase

The 'pre-construction phase' refers to the period leading up to and prior to the commencement of the construction activities and is included to ensure pro-active environmental management measures with the goal of identifying avoidable environmental damage at the onset and sustain optimal environmental performance throughout the construction phase. Most impacts will occur during the construction phase and must be mitigated through the contingency plans identified in the pre-construction phase.

6.2 Construction phase

The 'construction' section refers to all construction activities associated with the construction of the substation and LILO powerlines. This phase will include the clearance of vegetation for the proposed development and support infrastructure.

6.3 Rehabilitation and demobilisation phase

A proper rehabilitation procedure must be followed, immediately after construction activities and prior to demobilisation. The objective of rehabilitating the site would be to re-instate the affected areas to a similar or better condition to the current environment. This phase will include the rehabilitation of areas disturbed by construction works and removal and disposal of all construction equipment and rubble.

7. ENVIRONMENTAL CONTROLS AND MANAGEMENT PROGRAMME IMPLEMENTATION

The point of departure for this EMPr is to ensure a pro-active rather than re-active approach to environmental performance by addressing potential problems before they occur. This will limit corrective measures needed during the construction activities.

This section describes the potential environmental impacts which may result from the identified aspects, the objectives of mitigating these impacts as well as the targets used to measure the level of environmental compliance.

The tables below present the objectives to be achieved and the management actions that need to be implemented in order to mitigate the negative impacts and enhance the benefits of the project. Associated responsibilities, criteria / targets and timeframes are specified.

7.1 General planning and administrative considerations (A)

PHASE OF DEVELOPMENT: PRE-CONSTRUCTION					
POTENTIAL IMPACTS	MITIGATION MEASURES	MANAGEMENT OBJECTIVES	MEASURABLE OUTCOME TARGETS	FREQUENCY OF ACTION	RESPONSIBLE PARTY
A1 ENVIRONMENTAL AUTHORISATIONS AND DOCUMENTATION					
<p>a. Construction commencing without all required environmental permits and authorisations</p>	<p>i. A copy of the Environmental Authorisation and this EMPr and other management plans as well as other developer environmental obligations shall be kept on site during the construction phase.</p> <p>ii. A copy of the Water Use Authorisation shall be kept on site;</p> <p>iii. Copies of all other project permits must be acquired and kept on site.</p> <p>iv. A walkdown of the development footprint and other areas of increased ecological sensitivity must be undertaken by an ecologist within the appropriate season prior to commencement of construction. Should any SCC be identified to fall within the proposed construction footprint but will not necessarily be impacted on, these SCC shall be clearly marked and the areas barricaded as a no-go zone</p>	<ul style="list-style-type: none"> Contingencies for minimising negative impacts anticipated to occur during the planning stages of the project. Obtain all required environmental authorisations/ permits prior to construction activities. 	<ul style="list-style-type: none"> No fines due to unauthorised activities or absence of authorisations. Compliance with Authorisations and Permits conditions 	Once-off	<ul style="list-style-type: none"> Developer CEO Contractor ESR ECO DEO
A2 ENVIRONMENTAL SITE DOCUMENTATION AND RECORDS					
<p>a. Inadequate environmental documentation or records on site</p>	<p>i. The following documents must be prepared and kept on site</p> <ul style="list-style-type: none"> Copy of this EMPr along with a signed declaration of understanding of the contents of the EMPr Site daily diary / instruction book / incident reports; Copies of Environmental Audit Reports A Complaints register Proof of Environmental training undertaken by the ECO Proof of Environmental training undertaken by the Contractor Schedules for environmental audits 	<ul style="list-style-type: none"> Contingencies for minimising negative impacts anticipated to occur during the planning stages of the project. Document and file all environmental related information about the project. 	<ul style="list-style-type: none"> Environmental file that is up to date, with all the relevant environmental documentation. 	Ongoing	<ul style="list-style-type: none"> Developer CEO Contractor ESR ECO DEO

PHASE OF DEVELOPMENT: PRE-CONSTRUCTION					
POTENTIAL IMPACTS	MITIGATION MEASURES	MANAGEMENT OBJECTIVES	MEASURABLE OUTCOME TARGETS	FREQUENCY OF ACTION	RESPONSIBLE PARTY
	<ul style="list-style-type: none"> Non-compliance and corrective action reports compiled by the Contractor Method statements signed by the Contractor and approved by the Eco and the Engineer 				
A3 ENVIRONMENTAL REPRESENTATIVE ON SITE					
<p>a. Inadequate implementation and monitoring of environmental requirements on site</p>	<ul style="list-style-type: none"> An independent ECO must be appointed to monitor and to provide environmental advisory services on site. Appoint a suitably qualified ESR to manage daily environmental issues on site. 	<ul style="list-style-type: none"> No construction activities must commence without an ESR on site. Official appointment of ESR on site. 	<ul style="list-style-type: none"> Monthly environmental audits. Weekly/daily environmental inspection checklists. 	Ongoing	<ul style="list-style-type: none"> CEO Contractor ESR ECO DEO
A4 SITE ESTABLISHMENT AND DEVELOPMENT					
<p>a. Unnecessary environmental degradation and removal of natural vegetation</p>	<ul style="list-style-type: none"> The applicant must apply for a permit from DEFF to cut, disturb or remove number of protected tree species (<i>S. birrea</i> subsp. <i>caffra</i>) affected must be determined as part of the DEFF permit application to cut, disturb, damage or destroy these trees; A walkdown of the development footprint must be undertaken by an ecologist within the appropriate season prior to commencement of construction. Should any SCC be identified to fall within the proposed construction footprint but will not necessarily be impacted on, these SCC shall be clearly marked and the areas barricaded as a no-go zone; All infrastructure, with specific mention of contractor laydown areas/ site camps, and other temporary infrastructure, are to be placed outside of the 	<ul style="list-style-type: none"> Ensure no unnecessary degradation of the environment adjacent to authorised project footprint 	<ul style="list-style-type: none"> No vegetation cleared or disturbed outside the working footprint 	Once off	<ul style="list-style-type: none"> CEO Contractor ESR ECO DEO

PHASE OF DEVELOPMENT: PRE-CONSTRUCTION					
POTENTIAL IMPACTS	MITIGATION MEASURES	MANAGEMENT OBJECTIVES	MEASURABLE OUTCOME TARGETS	FREQUENCY OF ACTION	RESPONSIBLE PARTY
	<p>aforementioned habitat units and associated buffer zones within areas of low ecological sensitivity;</p> <p>iii. In planning the project, connectivity between surrounding natural areas on either side of the R71 road should be considered, and it must be ensured that such spatial connectivity is not entirely lost, and by allowing as large areas of unfragmented natural habitat as possible to remain;</p> <p>iv. The contractors must provide and maintain a Site layout indicating the proposed location of all key infrastructure which are:</p> <ul style="list-style-type: none"> • Ablution facilities • Eating areas • Smoking area • Waste storage areas • Working areas • Cement storage and concrete mixing areas (where applicable) • Stockpile areas for topsoil and cleared vegetation • Parking area <p>v. The following infrastructure should not be permitted on site:</p> <ul style="list-style-type: none"> • Vehicle washing areas • Hazardous material storage areas with the exception of cement storage areas where applicable • Cooking Areas <p>vi. Working footprint and area to be cleared should be limited to the access road, vehicle turning point and working area.</p> <p>vii. Prior to the commencement of project activities, the site layout must be agreed upon by Developer, the ECO</p>				

PHASE OF DEVELOPMENT: PRE-CONSTRUCTION					
POTENTIAL IMPACTS	MITIGATION MEASURES	MANAGEMENT OBJECTIVES	MEASURABLE OUTCOME TARGETS	FREQUENCY OF ACTION	RESPONSIBLE PARTY
	and the Engineer. The locations of key infrastructure such as toilets, eating and smoking areas, bins, stockpile areas, etc.				
A5 ACCESS ROADS EXISTING SERVICES AND INFRASTRUCTURE					
<p>a. Damage to existing infrastructure</p> <p>b. Disruption in the provision of services in the vicinity of working area</p>	<ul style="list-style-type: none"> i. Permission from landowners must be obtained before site establishment; ii. The location of all services including underground services must be identified and confirmed by the Surveyor during the Design phase of the project and the services be included in the Design drawings; iii. The Contractor must ensure that design layouts of all existing services are readily available and considered prior to the commencement of construction activities; iv. The Contractor shall ensure that all existing services are not damaged or disrupted by any activities Prior to construction, v. During the set up phase of the project, the Contractor needs to make contact with those people that are interested or affected by the development (IAPs). vi. The Contractor shall be responsible for the repair and reinstatement of any existing infrastructure that is damaged or services which are interrupted. vii. Where applicable all existing services shall be protected by the Contractor; viii. The required wayleaves shall be obtained from the applicable service providers prior to the commencement of construction activities; ix. The CoT Water and Sanitation and Electricity department shall be informed of all construction activities prior to commencement; 	<ul style="list-style-type: none"> • Avoiding impact on surrounding services such as access roads, sewer lines, and bulk water lines • All services providers with services in the vicinity of the site must be notified prior to construction 	<ul style="list-style-type: none"> • No impacts of services and infrastructure within the vicinity of the site 	Ongoing	<ul style="list-style-type: none"> • Contractor • Developer • RE • ESR • ECO

PHASE OF DEVELOPMENT: PRE-CONSTRUCTION					
POTENTIAL IMPACTS	MITIGATION MEASURES	MANAGEMENT OBJECTIVES	MEASURABLE OUTCOME TARGETS	FREQUENCY OF ACTION	RESPONSIBLE PARTY
	<ul style="list-style-type: none"> x. Prior to commencement of site establishment activities, Eskom and the Contractor should ensure that formal written agreements are in place with the affected landowners with regards to dealing with damage to property caused as a result of construction activities (where applicable); xi. Any damage caused to adjacent properties or infrastructure, as a result of construction activities, should be fixed by the Contractor to the satisfaction of the landowner. All repairs or reinstatement will be to the Contractor's cost and shall receive top priority over all other activities; xii. Any planned service interruptions should be communicated to relevant service providers and affected parties prior to the interruptions. Fourteen 14 days are recommended for the notification of possible affected parties. xiii. Where infrastructure is damaged, the landowner and relevant service provider must be notified within 24 hours. 				
A6 ENVIRONMENTAL AWARENESS TRAINING AND INDUCTION					
<p>a. Inadequate training and awareness about environmental protection</p>	<ul style="list-style-type: none"> i. The ECO/EO must undertake an initial environmental induction during the site establishment for all key site staff. ii. Environmental induction/ training shall be repeated by the ESR and extended in the weekly Toolbox Talks. This should also include awareness programmes (i.e. emergency and use of spill kits etc). iii. Proof of all environmental training and awareness undertaken must be kept on site, both training material used and attendance registers. 	<ul style="list-style-type: none"> • Raise awareness about the importance of environmental protection including EMPr and authorisation condition 	<ul style="list-style-type: none"> • Records of environmental training and awareness programmes • Reduce and manage potential Environmental impacts 	Weekly	<ul style="list-style-type: none"> • Contractor • ECO • ESR • EO

PHASE OF DEVELOPMENT: PRE-CONSTRUCTION					
POTENTIAL IMPACTS	MITIGATION MEASURES	MANAGEMENT OBJECTIVES	MEASURABLE OUTCOME TARGETS	FREQUENCY OF ACTION	RESPONSIBLE PARTY
	<ul style="list-style-type: none"> iv. ECO shall review and approve training and awareness material content before material is presented to the Labourers on site. i. It is the Contractor’s responsibility to provide ongoing environmental training to ensure that all staff have sufficient understanding to pass this information onto the construction staff. ii. Use of environmental awareness posters on site where necessary, especially for the protection of the certain plant species around the working area. iii. The Contractor must ensure that all subcontractors are informed of the importance of the adherence to the EMPr and their labourers are also inducted. 				

7.2 Construction phase (B)

PHASE OF DEVELOPMENT: CONSTRUCTION					
IMPACTS	MITIGATION MEASURES	MANAGEMENT OBJECTIVES	MEASURABLE OUTCOME TARGETS	FREQUENCY OF ACTION	RESPONSIBLE PARTY
B1 WASTE MANAGEMENT					
a. Pollution and environmental degradation	<ul style="list-style-type: none"> i. Adequate refuse bins must be provided. ii. Bins must be emptied at least once a week or as and when the need arises. 	<ul style="list-style-type: none"> • Minimise unwarranted environmental damage outside the footprint 	<ul style="list-style-type: none"> • No signs of pollution 	Daily	<ul style="list-style-type: none"> • Contractor • ESR • ECO

PHASE OF DEVELOPMENT: CONSTRUCTION					
IMPACTS	MITIGATION MEASURES	MANAGEMENT OBJECTIVES	MEASURABLE OUTCOME TARGETS	FREQUENCY OF ACTION	RESPONSIBLE PARTY
<p>b. Decrease in the aesthetic quality of the environment</p>	<ul style="list-style-type: none"> iii. Overspill of the bin should not occur, and neither should waste be allowed to lie on the ground near the bin or anywhere else on site. iv. Proof of safe disposal must be obtained from the service provider and kept in the environmental file. v. Waste must be disposed by a Registered Waste Service provider i. A waste disposal management plan for the removal of vegetation must be compiled ii. The contractor must provide labourers with plastic bags or other containers to allow for the storage of litter during the clean-up of the construction site on a daily basis. These areas must then be inspected by the contractor or his / her ESR to ensure compliance with this requirement. <p><u>Ablution facilities:</u></p> <ul style="list-style-type: none"> i. Adequate chemical toilets for the staff on site must be provided. ii. Under no circumstances should pit toilets be constructed on site. iii. Under no circumstances shall indiscriminate excretion and urinating be allowed other than in supplied facilities. iv. The location of all toilets must be approved by the ECO and must not be located on areas that are already disturbed on site. v. Chemical toilets must be emptied / serviced on a regular basis to prevent them overflowing. vi. Waste from chemical toilets must be disposed of in a license disposal facility. Proof of this must be obtained from the service provider and made available during the environmental audits. 	<ul style="list-style-type: none"> • Maintain a clean and healthy working environment • Control potential influx of vermin and flies and rats • Minimise potential of diseases onsite and influence the health of the employees 	<ul style="list-style-type: none"> • No complaints received from the landowners / I&AP's 		<ul style="list-style-type: none"> • EO

PHASE OF DEVELOPMENT: CONSTRUCTION					
IMPACTS	MITIGATION MEASURES	MANAGEMENT OBJECTIVES	MEASURABLE OUTCOME TARGETS	FREQUENCY OF ACTION	RESPONSIBLE PARTY
	<p>Eating Areas:</p> <ul style="list-style-type: none"> i. The Contractor must, in conjunction with the ECO, designate restricted eating areas for eating during normal working hours. ii. Under no circumstance should informal food traders be allowed on site. iii. Open fires must not be permitted anywhere on site. iv. The feeding, or leaving of food, for stray or other animals in the area is strictly prohibited. 				
B5 DUST AND AIR QUALITY MANAGEMENT					
<p>a. Dust generation from construction activities</p>	<ul style="list-style-type: none"> i. The Contractor must provide and maintain a method statement for "dust control". The method statement must provide information on the proposed source of water to be utilised and the details of any licenses or permits required. ii. The construction site must be watered during dry and windy conditions to control dust fallout. Preferably grey water or other dust suppressant substances must be used. iii. Dust production must be controlled by regular watering of access roads and roads and working areas, should the need arise. iv. Construction vehicles must adhere to low speeds to avoid the generation of dust on the construction site v. All vehicles transporting material that can be blown off (e.g. soil, rubble, etc.) must be covered with a tarpaulin, and adhere to speed limits on public roads 	<ul style="list-style-type: none"> • Reduce dust fall out at construction site • Minimise loss of valuable soil material 	<ul style="list-style-type: none"> • No visible signs of dust around the site • No complaints from I&APs regarding dust • No incidences reported to ECO • No visible evidence of dust contamination on the surrounding environment • Method statements adhered to 	Daily	<ul style="list-style-type: none"> • Contractor • ESR • ECO • EO

PHASE OF DEVELOPMENT: CONSTRUCTION					
IMPACTS	MITIGATION MEASURES	MANAGEMENT OBJECTIVES	MEASURABLE OUTCOME TARGETS	FREQUENCY OF ACTION	RESPONSIBLE PARTY
	vi. Excessive dust conditions must be reported to the ECO. vii. A continuous dust monitoring process needs to be undertaken during construction. viii. Speed restriction of no more than 40km/h must be implemented for all construction vehicles within the construction site ix. All construction vehicles must be maintained to avoid adverse impacts on air quality as a result of a lack of maintenance				
B6 NOISE MANAGEMENT					
a. Nuisance factor to surrounding landowners, communities and fauna	i. All construction vehicles must be in a good working order to reduce possible noise pollution. ii. Contractors must endeavour to limit unnecessary noise, especially loud talking, shouting or whistling, radios, sirens or hooters, motor revving, etc. iii. The Contractor must inform all I&APs in writing 24 hours prior to any planned activities that will be unusually noisy or any other activities that could reasonably have an impact on the neighbouring residents. iv. The working hours stipulated in the Construction permit, where applicable, must be adhered to. Where this is not applicable, the following working hours must be adhered to: Monday to Friday from sunrise to sunset and where applicable on a Saturday which must be agreed upon between Eskom and the Contractor unless otherwise stated in the environmental authorization. v. Should Blasting be undertaken on site:	<ul style="list-style-type: none"> Effectively manage noisy activities emanating from construction activities. 	<ul style="list-style-type: none"> No complaints from site staff and landowners about noise from site. 	Daily	<ul style="list-style-type: none"> Contractor ESR ECO EO

PHASE OF DEVELOPMENT: CONSTRUCTION					
IMPACTS	MITIGATION MEASURES	MANAGEMENT OBJECTIVES	MEASURABLE OUTCOME TARGETS	FREQUENCY OF ACTION	RESPONSIBLE PARTY
	<ul style="list-style-type: none"> All adjacent residents must be notified of the intention to undertake the initial blasting at least 07 working days in advance The contractor shall implement a blast management plan The Contractor shall employ industry standard methods to control the impact of blasting and limit the risk of damage to buildings and structures by reducing blast vibrations induced in the rock mass, eliminating fly rock and limiting air-blast and noise to acceptable levels Method Statements for blasting shall be approved by the ECO 				
B7 CEMENT STORAGE AND CONCRETE HANDLING					
<p>a. Contamination of the soil and runoff from concrete mixing</p>	<ul style="list-style-type: none"> Mixing of concrete must only be permitted on site in designated and disturbed areas approved by the ECO Under no circumstances should concrete be mixed directly on the ground but on an adequate liner Cement bags must be stored in a designated and secure area on site. Empty cement bags must be placed in litter bins All concrete spillages must be cleaned immediately 	<ul style="list-style-type: none"> Maintain noise levels below “disturbing” as defined in the National Noise Regulations Minimise the nuisance factor of the development 	<ul style="list-style-type: none"> No complaints from surrounding landowners or I&AP’s 	Daily	<ul style="list-style-type: none"> Contractor ESR ECO EO
B8 STOCKPILE AND SOIL MANAGEMENT					
<p>a. Sedimentation and erosion</p> <p>b. Soil loss</p>	<ul style="list-style-type: none"> Stockpiles of any material only be placed within demarcated areas which will not create nuisances to adjacent landowners by blocking access roads, servitudes etc Stockpiles must not be located within 100m from the edge of the watercourse or riparian area 	<ul style="list-style-type: none"> Minimise scaring of the soil surface and land features Minimise disturbance and loss of soil 	<ul style="list-style-type: none"> No visible erosion scars once construction is completed 	Daily	<ul style="list-style-type: none"> Contractor ESR ECO EO

PHASE OF DEVELOPMENT: CONSTRUCTION					
IMPACTS	MITIGATION MEASURES	MANAGEMENT OBJECTIVES	MEASURABLE OUTCOME TARGETS	FREQUENCY OF ACTION	RESPONSIBLE PARTY
c. Stormwater Management	<ul style="list-style-type: none"> iii. Loose and uncompacted soil stockpiles must be covered to prevent wind and water erosion during seasons when wind or rainfall is prevalent i. Stormwater runoff from any stockpile sites and other related areas must be contained as far as possible ii. Stormwater must be discharged via many smaller outlets rather than few larger ones to spread out flows iii. Infiltration of all stormwater runoff generated by the proposed development should be maximised as far as practically possible iv. The central collection and concentration of stormwater must be minimised as far as practically possible v. Stockpiles are to be stabilised if signs of erosion are visible vi. Topsoil stockpile must be separated to allow for reuse of the soil for rehabilitation vii. Topsoil stockpiles must be clearly demarcated as no-go areas. Although it is noted that there is minimal topsoil on site, this must be conserved for rehabilitation purposes viii. Topsoil stockpiles should not be higher than 2.5 meters to avoid compaction, while the slopes of the stockpiles should not be steeper than 1 vertical to 1.5 meters horizontally ix. Topsoil stockpiles must be monitored for invasive vegetation growth. Contractors must remediate as and when required in consultation with the ECO x. To reduce the loss of soil by erosion, the contractor must ensure that disturbance on site is kept to a minimum and in areas agreed upon with the ECO 	<ul style="list-style-type: none"> • Minimise contamination of stormwater run-off 			

PHASE OF DEVELOPMENT: CONSTRUCTION					
IMPACTS	MITIGATION MEASURES	MANAGEMENT OBJECTIVES	MEASURABLE OUTCOME TARGETS	FREQUENCY OF ACTION	RESPONSIBLE PARTY
	<p>xi. The contractor is responsible for rehabilitating all eroded areas in such a way that the erosion potential is minimised after construction has been completed</p> <p>Stormwater Management:</p> <ul style="list-style-type: none"> i. Special care must be taken to avoid spillage of tar or bitumen products such as binders or pre-coating fluid to avoid water-soluble compounds from entering the ground or contaminating surface water. Under no circumstances will the spilling of tar or bituminous products on the site, over embankments, or any burying, be allowed. Any spillage of tar or bituminous products must be attended to immediately and affected areas are to be promptly reinstated to the satisfaction of the Engineer and ECO. ii. A specific area will be demarcated for the coating and storage of stone chippings. Coating of stone chippings with pre-coating fluid should be undertaken on an impervious surface to avoid soil contamination. The coated stone chippings should be stored on an impervious surface. iii. Stormwater must be managed such that the stormwater from the site does not erode the surrounding area iv. Stormwater runoff from any stockpile sites and other related areas must be contained as far as possible. Erosion/sediment control measures must be placed around the stockpiles to limit sediment runoff from stockpiles v. Stormwater must be discharged via many smaller outlets rather than few larger ones to spread out flows 				

PHASE OF DEVELOPMENT: CONSTRUCTION					
IMPACTS	MITIGATION MEASURES	MANAGEMENT OBJECTIVES	MEASURABLE OUTCOME TARGETS	FREQUENCY OF ACTION	RESPONSIBLE PARTY
	vi. The use of point source discharge outlets must be avoided or minimised in favour of infiltration systems vii. The central collection and concentration of stormwater must be minimised as far as practically possible.				
B9 HANDLING OF HAZARDOUS GOODS AND SUBSTANCES					
a. Potential spillage of hazardous substance into the environment	i. Should there be storage of hydrocarbons on site, the Contractor must provide method statements for the “handling & storage of oils and chemicals” (where these will be kept on site) and “accidental spills management” ii. All chemicals kept on site must be clearly labelled and stored with MSDS to prevent leakage or incidental spills iii. Leaking equipment must be repaired immediately or be removed from site to facilitate repair iv. Drip trays must be placed under all vehicles that stand for more than 24 hours. Vehicles suspected of leaking must not be left unattended. The drip trays must be large enough to catch any hydrocarbons that may leak from the vehicle while standing. v. Where possible and practical all maintenance of vehicles and equipment must not be done on site vi. Spill kits must be obtained from reputable service providers and restocked once any material within the kit has been depleted vii. Contaminated material or spilled hazardous substances must be removed by service provider or by the Contractor to a licenced facility. Proof of all removal (i.e. waste manifest) must be kept by the Contractor.	<ul style="list-style-type: none"> Prevention of pollution of the environment Ensure hazardous substances are transported, used and disposed in a responsible manner 	<ul style="list-style-type: none"> No pollution of the environment No litigation due to transgression of pollution control acts Method statements as set out by the contractor adhered to. 	Daily	<ul style="list-style-type: none"> Contractor ESR ECO

PHASE OF DEVELOPMENT: CONSTRUCTION					
IMPACTS	MITIGATION MEASURES	MANAGEMENT OBJECTIVES	MEASURABLE OUTCOME TARGETS	FREQUENCY OF ACTION	RESPONSIBLE PARTY
	<ul style="list-style-type: none"> viii. Labourer must be trained on how to use the spill kits ix. A record must be kept of all spills and the corrective action taken. x. Records of monitoring and measurement of hazardous substances must be kept. 				
B10 FIRE MANAGEMENT					
a. Accidental fires	<ul style="list-style-type: none"> i. The Contractor must provide smoking areas for construction workers ii. Fire extinguishers and an outdoor ashtray or similar suitable container must be provided in all smoking areas iii. Under no circumstances should fires be lit on site iv. Serviced fire extinguishers must be kept at the smoking area. At least one serviced fire extinguisher should be available on site at all times v. All site personnel in senior positions and who will be on site on a full-time basis must be trained on the usage of fire extinguishers vi. The Contractor to ensure that no person smokes in any place in which a flammable liquid is used or stored vii. The contractor must further affix a suitable and conspicuous no smoking sign notice at all entrances to areas prone to fire viii. No flammable material, including cotton waste, paper, cleaning rags or similar material should be stored with flammable liquids ix. Fire breaks should be clearly demarcated to prevent proliferation of fire during possible incident 	<ul style="list-style-type: none"> • Minimise risk of veld fires and loss of natural habitat • Maintain safety on site and the community in general 	<ul style="list-style-type: none"> • No veld fires started by the contractor's workforce • No claims from landowners for damages due to veld fires • Method statement adhered to 	Daily	<ul style="list-style-type: none"> • ECO • ESR • Contractor • EO
B11 FAUNA MANAGEMENT					

PHASE OF DEVELOPMENT: CONSTRUCTION					
IMPACTS	MITIGATION MEASURES	MANAGEMENT OBJECTIVES	MEASURABLE OUTCOME TARGETS	FREQUENCY OF ACTION	RESPONSIBLE PARTY
<p>a. Loss of fauna due to habitat destruction</p> <p>b. Loss of fauna migration connectivity</p> <p>c. Intentional and unintentional killing of animals on site</p>	<p>Faunal Specialist Mitigation Measures:</p> <p>i. Construction impacts associated with the proposed project must be contained within the footprint of the demarcated areas as indicated on the final approved project layout plan.</p> <p>ii. Prior to construction, the development footprint area must be demarcated on site to ensure that construction impacts are contained within this area. If necessary, these areas may be fenced or, alternatively, nearby sensitive areas are to be fenced to prevent access.</p> <p>iii. Movement of faunal species through the study area must be catered for by the provision of drainage culverts, in order to maintain regional metapopulation dynamics and to prevent local extinctions;</p> <p>iv. The construction of steel monopoles across sensitive vegetation and the Diep river must allow for ongoing movement of faunal species and disturbance of watercourse should be minimised in line with the recommendations of the wetland specialist.</p> <p>v. It is important that the spatial connectivity between the Polokwane Plateau Bushveld habitat units (forming part of the CBA), and open space areas associated with Diep river further to the east is not restricted by vegetation clearance for the powerline.</p> <p>vi. It must be ensured that natural habitat in the vicinity of the study area is kept intact – specifically those areas that are connected to other natural areas outside the study area extent.</p>	<ul style="list-style-type: none"> Minimise disturbance to animals and their habitats 	<ul style="list-style-type: none"> No complaints from any I&AP No evidence of killing or poaching of animals on site 	Daily	<ul style="list-style-type: none"> Contractor ESR ECO EO Faunal Specialist (where applicable)

PHASE OF DEVELOPMENT: CONSTRUCTION					
IMPACTS	MITIGATION MEASURES	MANAGEMENT OBJECTIVES	MEASURABLE OUTCOME TARGETS	FREQUENCY OF ACTION	RESPONSIBLE PARTY
	<p>vii. Areas used during the construction phase and not during the operational phase should be rehabilitated</p> <p>General Mitigation Measures:</p> <p>i. Ensure that all construction personnel are provided with appropriate training in ecological awareness, as appropriate to their work activities</p> <p>ii. Make use of existing access roads as much as possible to reduce the vegetation clearance</p> <p>iii. Off-road driving must be prohibited</p> <p>iv. No intentional killing or poaching of any animals may be allowed on site and it must be a condition of employment that any employee caught poaching must be disciplined accordingly.</p> <p>v. Where a snake is encountered on site and must be removed, a specialist must be called in to safely relocate the snake</p> <p>vi. All construction activities must be limited to daylight hours.</p> <p>vii. Construction activity is restricted to the immediate footprint of the infrastructure.</p>				
B12 FLORA MANAGEMENT					

PHASE OF DEVELOPMENT: CONSTRUCTION					
IMPACTS	MITIGATION MEASURES	MANAGEMENT OBJECTIVES	MEASURABLE OUTCOME TARGETS	FREQUENCY OF ACTION	RESPONSIBLE PARTY
<p>a. Loss of Floral Habitat and Species Diversity</p> <p>b. Loss of floral SCC</p> <p>c. Introduction of alien invasive plants</p> <p>d. Erosion and soil compaction</p>	<p>Flora Specialist mitigation measures:</p> <ul style="list-style-type: none"> i. The amount of vegetation, particularly indigenous vegetation cleared should be limited to only what is required; ii. Careful planning and construction of watercourse crossings should take place in order to limit the extent of vegetation disturbance; iii. Construction vehicles should be restricted to travelling only on designated roadways, to limit the ecological footprint of the proposed development activities; iv. All areas of increased ecological sensitivity outside of the development footprint, such areas close to the Diep river and rocky bushveld areas, that are at risk of being impacted by development activities should be clearly indicated on site, preferably temporarily fenced off during the construction phase and be strictly off limits for construction vehicles and workers; and v. No littering or dumping of waste and construction material within natural areas outside of the development footprint area may be allowed. All excess material must be removed from the construction areas once construction has been completed. vi. The four sensitive habitats units refer to Bushveld habitat unit in the south where anthropogenic impacts have been less significant, Modified Bushveld habitat unit in the north that has been significantly impacted by historical disturbances, Granite Outcrops which occur mainly in the north of the project area and Riparian habitat associated with the Diep River floodplain in the east. it is 	<ul style="list-style-type: none"> • Minimal disturbance to vegetation where such vegetation does not interfere with construction • Minimise scarring of the soil surface and land features • Removal of alien plant species to encourage indigenous plant growth 	<ul style="list-style-type: none"> • No litigation due to removal of vegetation without necessary permission • No visible erosion scars once construction is completed • The footprint has not exceeded the agreed boundaries 	<p>Daily</p>	<ul style="list-style-type: none"> • Contractor • ESR • ECO • EO • Ecological Specialist (where applicable)

PHASE OF DEVELOPMENT: CONSTRUCTION					
IMPACTS	MITIGATION MEASURES	MANAGEMENT OBJECTIVES	MEASURABLE OUTCOME TARGETS	FREQUENCY OF ACTION	RESPONSIBLE PARTY
	<p>recommended that minimum clearance takes place in areas that reflect little disturbance.</p> <p>vii. The upper slopes of the Ridge habitat unit should be clearly demarcated on site and preferably temporarily fenced off for the duration of the construction phase to prevent access into this area. It must be ensured that operational activities are kept strictly within the development footprint to avoid accidental destruction of known floral SCC;</p> <p>viii. Should other floral SCC be noted within the development footprint, the relevant authorities (LEDET or the DEFF should be consulted based on the conservation status of such species, and it must be determined whether relocation is possible. Relocation of such species should only be undertaken upon approval by the relevant authorities.</p> <p>ix. Implement an Alien Plant Control Plan which specifies long-term monitoring schedules.</p> <p>x. Retain vegetation and soil in position for as long as possible, removing it immediately ahead of construction / earthworks in that area and returning it where possible afterwards.</p> <p>xi. Monitor the establishment of alien invasive species within the areas affected by the construction and maintenance and take immediate corrective action where invasive species are observed to establish.</p> <p>xii. Where sedimentation has been observed, effective rehabilitation with a focus on the long term control of alien invasive plants should be done.</p> <p>xiii. Rehabilitate or revegetate disturbed areas</p> <p>Additional mitigation measures include:</p>				

PHASE OF DEVELOPMENT: CONSTRUCTION					
IMPACTS	MITIGATION MEASURES	MANAGEMENT OBJECTIVES	MEASURABLE OUTCOME TARGETS	FREQUENCY OF ACTION	RESPONSIBLE PARTY
	<ul style="list-style-type: none"> i. The development footprint area must be kept as small as possible. This can be achieved through adequate planning and demarcation of infrastructure areas and areas required for construction activities. ii. Construction workers must not remove flora or collect seed from any plants outside the areas on which vegetation clearing has not been planned. iii. Under no circumstances should chemicals be used in the removal of plant species iv. Only indigenous plants must be used in the rehabilitation of disturbed areas v. on the usage of fire extinguishers vi. All construction vehicles and equipment as well as construction material should be free of plant material vii. Prevention of erosion, and where necessary rehabilitation of eroded areas viii. Rehabilitation of disturbed vegetation as soon as undertaken as soon as construction has ended in the area that has been disturbed ix. No collection of plant material should be allowed by operational personnel 				
B13 MANAGEMENT OF HERITAGE RESOURCES AND ARTEFACTS					
a. Damage or loss of valuable heritage resources	<ul style="list-style-type: none"> i. The identified graves should be clearly marked in order that they can be avoided during construction activities. The informal cemetery should be retained and avoided. A formal buffer zone of 10m (danger tape) should be created around the graves and maintained for the duration of the construction period. 	<ul style="list-style-type: none"> • Avoid damage to heritage resources • Report all finds of human remains or other heritage resources 	<ul style="list-style-type: none"> • Limited or no damage to heritage resources 	Daily	<ul style="list-style-type: none"> • Contractor • ESR • ECO • EO

PHASE OF DEVELOPMENT: CONSTRUCTION					
IMPACTS	MITIGATION MEASURES	MANAGEMENT OBJECTIVES	MEASURABLE OUTCOME TARGETS	FREQUENCY OF ACTION	RESPONSIBLE PARTY
	<ul style="list-style-type: none"> ii. The contractors and workers should be notified that archaeological sites might be exposed during the construction activities. iii. Should any heritage artefacts be exposed during excavation, work on the area where the artefacts were discovered, shall cease immediately and the Environmental Control Officer shall be notified as soon as possible; iv. All discoveries shall be reported immediately to a heritage practitioner so that an investigation and evaluation of the finds can be made. Acting upon advice from these specialists, the Environmental Control Officer will advise the necessary actions to be taken; v. Should any graves be uncovered during the construction phase of the project, the applicant and appointed ECO must ensure in terms of section 38(6) of the Act, the responsible heritage resources authority, Provincial Heritage Resource Agency, as well as the South African Police Service (SAPS) are notified; vi. The ECO must train the Contractor to recognise any heritage features. Should there be a sign of such objects, construction must halt in that area immediately and a suitably qualified heritage specialist must be called to investigate through the ECO. vii. Should any historically significant finds (e.g. artefacts, human remains or sites of cultural or archaeological importance) be uncovered, work must cease and the Provincial Heritage Resources Agency as well as the local South African Police Service (SAPS) must be notified of the find. Work in the area can only be resumed once the site has been completely investigated by Heritage Agency as well as SAPS has 	<ul style="list-style-type: none"> • Implement chance find procedures in case where possible heritage finds area made 			<ul style="list-style-type: none"> • Heritage Specialist (If required)

PHASE OF DEVELOPMENT: CONSTRUCTION					
IMPACTS	MITIGATION MEASURES	MANAGEMENT OBJECTIVES	MEASURABLE OUTCOME TARGETS	FREQUENCY OF ACTION	RESPONSIBLE PARTY
	<p>given permission to the Developer/ Contractor to resume activities.</p> <p>viii. The Contractor must be trained to recognise any heritage features</p> <p>ix. Artefacts may not be removed under any circumstances</p>				
B14 MANAGEMENT OF PALAEOLOGICAL RESOURCES					
<p>a. Destruction of Fossil Heritage</p>	<p>i. The ECO must survey for fossils before and or after clearing, blasting, drilling or excavating;</p> <p>ii. Special care must be taken during the digging, drilling, blasting and excavating of foundations, trenches, channels and footings and removal of overburden as a site visit may have missed a fossiliferous outcrop;</p> <p>iii. Should Fossils be unearthed the Contractor shall notify the Provincial Heritage Resource Agency and specialists to further investigate;</p> <p>iv. The area must be fenced-off with a 30 m barrier and the construction workers must be informed that this is a no-go area.</p> <p>v. The Contractor must survey the areas affected by the development and indicate on plan where the construction / development will take place. Trenches have to be dug to ascertain how deep the sediments are above the bedrock (can be a few hundred metres). This will give an indication of the depth of the topsoil, subsoil, and overburden, if need be trenches should be dug deeper to expose the interburden.</p>	<ul style="list-style-type: none"> Report all finds of fossils to the ECO; Implement chance find procedures in cases where possible fossils may occur 	<ul style="list-style-type: none"> Limited or no damage to fossil heritage 	Daily	<ul style="list-style-type: none"> Contractor ESR ECO EO Heritage Specialist (If required)

PHASE OF DEVELOPMENT: CONSTRUCTION					
IMPACTS	MITIGATION MEASURES	MANAGEMENT OBJECTIVES	MEASURABLE OUTCOME TARGETS	FREQUENCY OF ACTION	RESPONSIBLE PARTY
B15 MANAGEMENT OF NO-GO / SENSITIVE AREAS					
<p>b. Environmental impacts outside working areas</p>	<p>i. All construction activities must be demarcated at the start of construction and maintained accordingly during the construction phase</p> <p>ii. The Contractor must communicate the importance of specific working methods in sensitive areas close to the site, e.g. identified endangered plant species, in close proximity to other infrastructure</p> <p>iii. Mark and/ or demarcate all sensitive sites</p>	<ul style="list-style-type: none"> Minimise unnecessary impacts outside the working footprint 	<ul style="list-style-type: none"> Containment of footprint No impacts on sensitive areas No complaints from adjacent landowners 	Daily	<ul style="list-style-type: none"> Contractor ESR ECO EO RE
B16 MANAGEMENT OF SOCIO ECONOMIC IMPACTS					
<p>a. Enhance the Positive Economic Impacts during the Construction Phase</p> <p>b. Reduce the Potential Negative Impacts on Traffic and Road Infrastructure</p> <p>c. Reduce Nuisance Impacts (Noise, Dust, Littering) Related to Construction Activities</p>	<p>i. A Community Liaison Officer (CLO) Must be appointed on the project</p> <p>ii. As far as possible and based on the Developers' required skills for the construction of the proposed infrastructure, locals must be employed in line with ESKOM's 14-point plan that stipulates the principles concerning project liaison, sub-contracting and labour sourcing that shall be implemented</p> <p>iii. Access roads and entrances to the site should be carefully planned to limit any intrusion impacts, noise and dust pollution, as well as to limit any risks of accidents.</p> <p>iv. Construction vehicles should adhere to the speed levels.</p> <p>v. Construction vehicles and those transporting materials and goods should be inspected to ensure that these are in good working order and not overloaded.</p> <p>vi. Source material and goods locally as far as possible to limit transportation of these over long distances</p>	<ul style="list-style-type: none"> To ensure that communities in the vicinity of the facility are involved in the project and are able to improve their economic conditions through the acquisition of employment 	<ul style="list-style-type: none"> The local community benefits from the employment opportunities created during the construction phase 	Ongoing	<ul style="list-style-type: none"> Developer Contractor ESR ECO EO

PHASE OF DEVELOPMENT: CONSTRUCTION					
IMPACTS	MITIGATION MEASURES	MANAGEMENT OBJECTIVES	MEASURABLE OUTCOME TARGETS	FREQUENCY OF ACTION	RESPONSIBLE PARTY
<p>d. Reduce Negative Impacts on Community Safety</p> <p>e. Reduce Potential Negative Impacts on Local Infrastructure</p> <p>f. Reduce impact on Social Cohesion and Sense of Place</p>	<p>vii. Adjacent land owners must be informed timeously, at least 14 days of any planned service stoppages in their areas.</p> <p>viii. Construction workers should be confined to the construction area as far as possible and should be easily identified.</p> <p>ix. Construction activities should keep to normal working hours e.g. sunrise to sunset</p> <p>x. Noise should be kept to the minimum.</p> <p>xi. The construction area should be fenced to avoid unauthorised entry by animals or children.</p> <p>xii. Dust suppression methods should be implemented on-</p>				
B17 WATER SUPPLY, STORM WATER AND WASTE WATER MANAGEMENT					
<p>a. Changes in water quality due to foreign materials and increased nutrients</p> <p>b. Changes in water flow regime</p>	<p>i. A review of stormwater structures associated with the road should be done to ensure that culverts are suitable and contribute to the control of erosion along the road, rather than increases it.</p> <p>ii. Energy dissipaters should be included in the design of all culverts.</p> <p>iii. Construction affecting watercourses must be restricted to the dryer winter months.</p> <p>iv. A temporary fence or demarcation must be erected around No-Go Areas outside the proposed works area prior to any construction taking place as part of the contractor planning phase when compiling work method statements to prevent access to the adjacent portions of the watercourse.</p>	<ul style="list-style-type: none"> To ensure that water resources are not impacted negatively. 	<p>The focus of mitigation measures should be to reduce the significance of potential impacts associated with the residential development and thereby to:</p> <ul style="list-style-type: none"> Prevent the unnecessary destruction of, and fragmentation, of the watercourses (including the riparian area); and 	Daily	<ul style="list-style-type: none"> Contractor ESR ECO EO

PHASE OF DEVELOPMENT: CONSTRUCTION					
IMPACTS	MITIGATION MEASURES	MANAGEMENT OBJECTIVES	MEASURABLE OUTCOME TARGETS	FREQUENCY OF ACTION	RESPONSIBLE PARTY
	<p>v. Effective stormwater management should be a priority during the construction phase. This should be monitored as part of the EMP. High energy stormwater input into the watercourses should be prevented at all cost. Changes to natural flow of water (surface water as well as water flowing within the soil profile) should be taken into account.</p> <p>vi. Topsoil's should be excavated and stockpiled separately from the subsoils to be used during the rehabilitation. Drip trays shall be provided in construction areas for stationary plant and for "parked" plant; Drip trays, sumps and bunds must be emptied regularly, especially before a known rain event and after a rain event, and the contents disposed of at a licensed disposal facility;</p> <p>vii. All vehicles and equipment shall be kept in good working order and serviced regularly; Leaking equipment shall be repaired immediately or removed from the Site;</p> <p>viii. A stormwater management plan, must be compiled and implemented by the Contractor to take the increased surface water run-off rates and volumes and their erosion potential into consideration;</p> <p>ix. Should cement be mixed on site, mixing will take place within a demarcated fenced off concrete batching area at the Contractors Camp. Cement must be mixed on an impervious surface</p>		<ul style="list-style-type: none"> Prevent the loss water resources and associated ecosystem services. 		
B18 TRAFFIC MANAGEMENT					
<p>a. Disruption of access routes and daily</p>	<p>i. There must be an erection of signage warning motorists about the presence of construction vehicles</p> <p>ii. Construction activities must be limited to daytime hours</p>	<ul style="list-style-type: none"> To ensure that public roads around the site are safe and the flow of traffic is not disrupted 	<ul style="list-style-type: none"> No incidents of reported vehicle/ pedestrian accidents 	Daily	<ul style="list-style-type: none"> Contractor ECO EO

PHASE OF DEVELOPMENT: CONSTRUCTION					
IMPACTS	MITIGATION MEASURES	MANAGEMENT OBJECTIVES	MEASURABLE OUTCOME TARGETS	FREQUENCY OF ACTION	RESPONSIBLE PARTY
<p>movement patterns</p>	<ul style="list-style-type: none"> iii. Construction vehicles travelling on public roads must adhere to speed limits iv. Construction vehicles must not dispose of soil or other material on roads. Where this occurs, the material must immediately be removed before the end of the working day 		<ul style="list-style-type: none"> • Adequate signage and alternative routes for traffic to flow 		<ul style="list-style-type: none"> • ESR
<p>B19 MANAGEMENT OF HEALTH AND SAFETY IMPACTS</p>					
<p>a. Impacts associated with loss of human lives and risk of injuries</p>	<p><i>Detailed Health and Safety issues will be addressed in reports compiled by the Health and Safety Officer</i></p> <ul style="list-style-type: none"> i. Contractor must appoint an independent Health and Safety Officer for the construction phase of the project ii. Suitable Personal Protective Equipment (PPE) must be worn at all times by all employees on site during the construction and maintenance phases of the project iii. With the exception of the project team members, no persons should be allowed to enter the construction site area iv. The site and crew are to be managed in strict accordance with the OHS Act v. The contractor must ensure that all emergency procedures are in place prior to commencing work. Emergency procedures must include (but not be limited to) fire, spills, contamination of soil, accidents to employees and limiting casual access to the construction site for workers, use of hazardous substances and materials, etc. 	<ul style="list-style-type: none"> • To ensure safety of employees, site visitors as well as surrounding landowners • Minimise the potential for impacts associated with loss of human lives and risk of injuries • Reduce the likelihood of the occurrence of traffic accidents as result of the presence of construction vehicles 	<ul style="list-style-type: none"> • No complaints from surrounding landowners and communities 	<p>Daily</p>	<ul style="list-style-type: none"> • Contractor • Health and Safety personnel • ESR

PHASE OF DEVELOPMENT: CONSTRUCTION					
IMPACTS	MITIGATION MEASURES	MANAGEMENT OBJECTIVES	MEASURABLE OUTCOME TARGETS	FREQUENCY OF ACTION	RESPONSIBLE PARTY
	<ul style="list-style-type: none"> vi. The Contractor must ensure that lists of all emergency telephone numbers / contact persons are kept up to date and that all numbers and names are posted at relevant locations throughout the construction site vii. The nearest emergency service provider must be identified during all phases of the project as well as its capacity and the magnitude of accidents it will be able to handle. The contact details of this emergency centre, including police and ambulance services must be available at prominent locations around the construction site viii. A Health and Safety Officer as well as an independent firm must be appointed to audit the site's compliance with the OHS Act during construction 				

Where applicable, the mitigation measures for the construction phase will be carried forward to other phases. In addition, the following specific measures presented in the table below will also apply.

7.3 Demobilising and rehabilitation phase (C)

ENVIRONMENTAL IMPACTS	MITIGATION MEASURES	FREQUENCY OF ACTION	OBJECTIVES	RESPONSIBLE PARTY
1. Proliferation of exotic vegetation and weeds in disturbed areas	<ul style="list-style-type: none"> All exotic flora and weeds to be eradicated in an environmentally friendly manner 	<ul style="list-style-type: none"> Monthly for the first year after rehabilitation. 	To ensure that indigenous plants are well established	Developer & EO
2. Damage to plants established as part of rehabilitation	<ul style="list-style-type: none"> All areas under rehabilitation must be cordoned off as no-go areas. If necessary, these areas should be fenced off The survival rate of plant species established as part of rehabilitation must be monitored and replanted where necessary 	<ul style="list-style-type: none"> Weekly for the first two months after establishment and after that, monthly for the first year after construction 	To ensure that indigenous plants are well established	Developer & EO
3. Soil erosion	<ul style="list-style-type: none"> All areas that have been eroded by construction activities must be rehabilitated accordingly 	<ul style="list-style-type: none"> Monthly for the first year after construction. Frequency must be increased during the rainy season 	To ensure there are no visible erosion scars	Developer & EO

8. REPORTING, MONITORING AND REVIEWING

To ensure continuous improvement in terms of the environmental performance of the project, the site must be audited and monitored against the EMPr requirements. The EMPr must also be reviewed to ensure its applicability. This is detailed in subsequent sections.

8.1 Reporting on EMPr compliance

In order to ensure sufficient levels of compliance with the EMPr, regular environmental monitoring has to be undertaken and the results of the monitoring be reported on a regular basis. In order to control the reporting on the EMPr Compliance, it is imperative that the following be borne in mind:

- Typical report description;
- Document control procedures;
- System for documenting environmental training; and
- Frequency of reports.

Each of these are briefly discussed below:

8.1.1 Typical report description

A typical report used to indicate the level of environmental compliance on the project must adhere to **Appendix 7** of NEMA EIA Regulations, 2014, as amended, which must include the following

(a) details of the—

- (i) independent person who prepared the environmental audit report; and
- (ii) expertise of the independent person that compiled the environmental audit report;

(b) a declaration that the independent auditor is independent in a form as may be specified by the competent authority;

(c) an indication of the scope of, and the purpose for which, the environmental audit report was prepared;

(d) a description of the methodology adopted in preparing the environmental audit report;

(e) an indication of the ability of the EMPr, and where applicable, to—

- (i) sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity on an on-going basis;*
- (ii) sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the closure of the facility; and*
- (iii) ensure compliance with the provisions of environmental authorisation, EMPr, and where applicable, the closure plan;*

(f) a description of any assumptions made, and any uncertainties or gaps in knowledge;

(g) a description of any consultation process that was undertaken during the course of carrying out the environmental audit report;

(h) a summary and copies of any comments that were received during any consultation process; and

(i) any other information requested by the competent authority.

In addition to the above, the **Environmental Audit Report** must include the following

- Project Background Information;

-
- Terms of Reference of various project team members;
 - Scope of audit and the audit period;
 - Objectives of the Environmental Audit;
 - Methods used for undertaking of Compliance Audits;
 - Roles and Responsibilities of different parties involved in ensuring the compliance of the EMPr;
 - Summary of main findings;
 - Checklist used for checking compliance;
 - Photographs of observations of audit; and
 - Any other documents deemed important to support the audit findings.

8.1.2 Document control procedures

To ensure the Environmental Auditing Reports are of good quality, these must undergo an internal review prior to submission to relevant parties. An indication of the document history indicating as a minimum the revision number and date as well as the names and signatures of the compiler, reviewer and approver must be provided.

8.1.3 System for documenting environmental training

The Developer, Project Manager, Contractors and subcontractors must develop a system for documenting environmental monitoring, training and reporting. This system must as a minimum include the following:

- Plans on relevant parties to train and the frequency of training to ensure that all parties; working on the site/providing services are aware of the necessity to adhere to the EMPr;
- An indication of items to be discussed in typical training sessions; and
- Typical documents/material to be used for training and proof of the undertaking of training.

8.1.4 Frequency of audit reports

The reports compiled to record the findings of the audit must be provided at frequencies required by the Department of Environment Forestry and Fisheries (DEFF), where stated, or by ESKOM.

8.2 Monitoring of the EMPr

In order to ensure that the EMPr is being correctly implemented and remains relevant to site activities, the following must be undertaken:

8.2.1 Environmental auditing

Internal Audits as well as External Audits (where required by the DEFF- Competent Authority) of the EMPr must be undertaken at the periods and according to procedures outlined below unless otherwise stated in the Authorisation conditions:

- *Internal Audits* - these must be undertaken at periods and according to procedures prescribed by the Developer/Project Manager (if applicable). Records associated with this auditing must be kept. The Contractor shall undertake their own Internal Audits and must communicate their procedure to the ECO. All Internal Audits must also be aligned to the ESKOM's audit process in terms of internal environmental policy requirements. Where required, the DEFF will also be provided with copies of all audit reports.

- **External Audits** – if required by the DEFF, these must be undertaken by a suitably qualified and experienced Environmental Control Officer (ECO). Similar to the Internal Audits, these must entail the checking of Environmental Compliance based on the EMPr and the Environmental Authorisations as well as any other requirements including environmental best practice. All External Audits must also be aligned to the ESKOM audit process in terms of internal environmental policy requirements. In order to undertake the external audits, the ECO must adopt the following methods and approaches as a minimum:
 - Review of background information to acquaint the ECO with various aspects of the project;
 - Document review;
 - Observations during site walkabout. Photographs must be undertaken during the walkabout;
 - Interviews and Questioning (open-ended questions will be asked); and
 - Completion of checklists to report and discuss the findings of each of the areas within the construction site.

Audit reports will be compiled and submitted to the relevant parties within the project. These must include the ESKOM as the Project Developer, the Project Manager and the Contractor.

8.2.2 Corrective actions

The Contractor must compile an Environmental Action Plan to ensure that the non-compliances are addressed and ensure that the issues are addressed within a certain target date set by the ECO. The Contractor must ensure that corrective actions arising as a result of non-compliances are undertaken and recorded accordingly. These records must be kept for review by the ECO and/or any other party with authority to undertake this exercise.

8.3 Review of the EMPr

The EMPr must be reviewed by and with the Project Team, should the need arise. The discussion of this item must preferably be led by the ECO. The frequency of the review of the EMPr must be decided between the ECO and ESKOM. All records of this review must be kept by the ECO on behalf of the Project Manager and ESKOM.

Any amendments to the EMPr must be communicated to the Project Team by the ECO. Proof of the communication must be kept.

8.3.1 Amendment of the EMPr (where required)

The NEMA EIA Regulations, December 2014, as amended regulate the procedures and criteria for the submission and consideration of the EMPr including its content. It must be noted that the EMPr is a living document that can be amended should the need for this arise. The amendment must however be undertaken according to the EIA Regulations that will be relevant at the time of the required amendment. It must be noted that the NEMA EIA Regulations 2014 (Sections 34-37) (which were applicable during the compilation of this EMPr) introduce a defined process with regard the amendment of the EMPr as outlined below:

- **First amendment** applies to the amendment of the EMPr as a result of audit findings.

- **Second amendment** pertains to an amendment of a specific impact management action of an EMPr.
- **Third amendment** gives opportunity to the holder of the EA to amend the EMPr, and also requires the involvement of the Competent Authority (CA) and the undertaking of Public Participation (PP).

It is important that the Developer and the Contractor follow these defined processes during the implementation phase as deviating from this process is regarded as a non-conformance.

In terms of the NEMA EIA Regulations 34, Government Notice No 982, of Government Gazette No 40772, Developers must ensure compliance with the conditions of the EMPr by undertaking an Environmental Audit in a structured and systematic manner. This audit must provide for recommendations regarding the need to amend the EMPr, and where applicable the Closure Plan. It is a requirement of the environmental compliance audit process that risks to the environment are identified and these possible risks should be taken into account during the planning and construction phase of the development. These risks are presented in this EMPr. The implementation of this EMPr, through the appointed Contractor, remains the responsibility of the Developer, i.e. Eskom.

8. REFERENCES

- DEA GN 435, 2019 . Generic Environmental Management Programme relevant to an application for substation and overhead electricity transmission, Department of Environmental Affairs, Pretoria.
- DEAT (Department of Environmental Affairs and Tourism), 1992. Integrated Environmental Management Guideline Series, Volumes 1-6, Department of Environmental Affairs, Pretoria.
- DEAT (Department of Environmental Affairs and Tourism), 2004. Environmental Management Plans, Integrated Environmental Management, Information Series 12, Department of Environmental Affairs and Tourism (DEAT), Pretoria.