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**TYPE OF DOCUMENT:  
FINAL ENVIRONMENTAL MANAGEMENT PLAN FOR  
THE EXTENSION OF PAULPUTS SUBSTATION IN  
SCHUITKLIP 92 PORTION 4 FARMS.**

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## TABLE OF CONTENTS

TABLE OF CONTENTS.....	3
1. Introduction.....	5
1.1 The purpose of the Environmental Management Plan.....	5
1.2 Objectives of the EMP.....	6
1.3 Implementation of the Environmental management Plan.....	7
1.4 Eskom and Contractor Commitment.....	7
2. Implementation of Environmental Management Plan.....	7
2.1 Reporting Structure.....	7
2.2 Responsibility Matrix.....	8
2.3 Responsibility.....	8
2.3.1 Environmental Control Officer.....	8
2.3.2 Project Manager.....	9
2.3.3 Construction Contractor.....	10
2.3.4 Inspection.....	11
2.3.5 Record Keeping.....	11
2.4 Particulars of applicant.....	12
3. Project description.....	13
3.1 Locality Project description.....	13
3.2 Construction Area.....	13
3.3 Water Sources.....	13
3.4 Construction.....	14
3.5 Site establishment.....	14
3.6 Waste Management.....	14
3.7 Workshop Area.....	14
3.8 Storage of Hazardous Material.....	15
3.8 Hazardous Substance Spills.....	15
The following shall apply to hazardous substance spills:.....	15
3.9 Motivation for the Proposed Project.....	15
3.10 Benefits of the Proposed Project.....	15
4. Environmental management and mitigation measures.....	16
4.1 Pre-construction phase.....	16
4.1.1 Establishment of environmental governing bodies.....	16
4.1.2 Establishment of baseline information.....	17
4.1.3 Establishment of complaints register.....	17
4.1.4 Responsibilities and time timeframes for the pre-construction phase.....	17
4.1.5 EMP updates.....	18
4.2 Assessment Approach to Environmental Issues during Construction phase.....	18
4.2.1 Identified Impacts.....	20
4.2.2 Proposed mitigation and management.....	28
4.3 Management objectives and measurable targets.....	41
4.3.1 Physical issues: Management objectives and Measurable targets.....	41
4.3.2 Social issues: Management objectives and Measurable targets.....	46
4.3.3 Cultural issues: Management objectives and Measurable targets.....	48

4.3.4	Biological issues: Management objectives and Measurable targets.....	49
5.	Rehabilitation.....	50
6.	Monitoring.....	51
7.	Environmental audit.....	51
8.	Responsible Parties.....	51
8.1	Requirement during construction.....	52
8.2	Legal content.....	53
9.	General.....	55
10.	Definition of the terms used in the assessment.....	56
Appendix A:	Locality Map.....	60
Appendix B:	Site documentation / Monitoring/ Reporting.....	61
Appendix C:	Contact s.....	63

# **1. Introduction**

## **1.1 The purpose of the Environmental Management Plan**

This document constitutes the Environmental Management Plan (EMP) for the extension of Paulputs substation which is part of the Namaqualand CLN. Paulputs substation is located in the Northern Cape Province within the Khaima Municipality. The detailed scope of work for the proposed project is outlined below:

- A second 250 MVA transformer will be installed
- Installation of double busbars for 220 and 132kV yards will need to be reconfigured to conform to a double busbars philosophy. The 220 kV busbar system will have two normal running busbars(No. 1 and No. 2)
- A new bus couple bay will be installed creating a total of two zones of busbar.
- Extension of the 220 kV yard by 73m from the existing Eskom boundary to the south of the substation and
- Extension of the eastern part of the substation by 41.5m but this falls within the Eskom boundary fence.

This Environmental Management Plan (EMP) has been compiled in order to address the potential environmental impacts that the deviation of the above mentioned line could have on the surrounding environment (within the substation site). This document serves as the environmental specification to Eskom staff and outside contractors with regards to addressing environmental issues identified prior to the upgrading of this substation. It is the overall responsibility of the Project Manager and Contractor to ensure compliance with all the environmental specifications in the document as well as all relevant legislation.

The purpose of compiling an Environmental Management Plan (EMP) for the proposed extension of Paulputs Substation situated in Farm Schuitklip 92 Portion 4 in the Northern Cape Province is to describe the methodology for the managing, rehabilitation and monitoring of potential negative environmental impacts and how positive impacts will be maximized.

This Environmental Management plan aims to:

- Provide the necessary protection of potentially sensitive areas and
- Provide environmental responsibility and a management framework, within which all future construction and operation will occur.

During site visit conducted, various impacts were identified and mitigation management measures designed and proposed for these impacts. These mitigation measures have been organised and co-ordinate into the Environmental Management Plan, which will remain

in force during the implementation of the project and will be a subject of regular audits and updates.

The following are the objectives of the Environmental Management Plan:

Describe the implementation of the project proposal in its three phases namely:

- Phase 1 –Pre-construction,
- Phase 2 – Construction
- Phase 3 – Operational
- Record the control measures that will exist for the three phases of the project.
- Outline the mandatory mitigation measures.
- Show the methodology for implementation of environmental restoration/ rehabilitation, where applicable.

The Environmental Management Plan will guide the pre-construction, construction, operation and maintenance phases of the proposed project. It is a dynamic guideline document that will be updated regularly as the project proceeds, once approval has been granted.

The mitigation and management measures described in the Environmental Management Plan will be incorporated into the contract agreements with the contractors to ensure their environmental compliance.

## **1.2 Objectives of the EMP**

The primary objectives of the EMP are as follows:

- To describe action plans for achieving the mitigation measures.
- To indicate responsibilities, schedules and staff resources regarding the Implementation of these action plans.
- To describe a monitoring programme, this will enable review of the success of the EMP and the provision of such information to the relevant decision-makers.
- Appropriate Environmental Management measures and requirements are implemented from the start of the project
- Precautions against damage and claims arising from damage are taken timeously, and
- The completion date of the contract is not delayed due to problems with landowners arising during the course of construction.

### 1.3 Implementation of the Environmental management Plan

A hard copy of the Environmental Management Plan will be kept on site during construction. Two hard copies will be kept at the Local Community Councils when the development is occupied, operational and in the maintenance phase. Electronic copies will be available at the Eskom's office. All copies of the EMP will contain the latest version of the document together with all amendments.

The Environmental Management Plan is a dynamic document that will be updated when necessary and used to guide decisions regarding the potential impacts. Regular audits will be carried out to ensure that the mitigatory and management measures are being implemented as recommended or as required by the legislation.

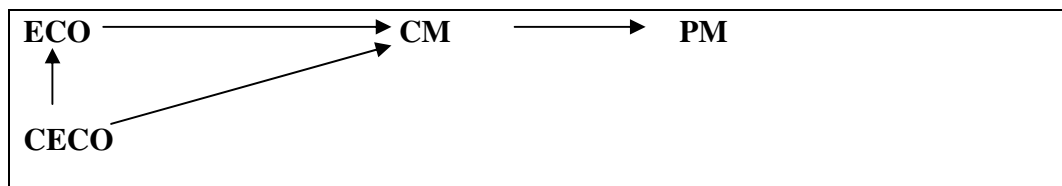
### 1.4 Eskom and Contractor Commitment

Eskom requires a commitment from the Eskom Project Manager and the Contractor on the following issues:

- To underwrite Eskom Transmission's Environmental Policy TPL41-435 (Appendix D) at all times.
- Resolve problems and claims arising from damage immediately to ensure a smooth flow of operations.
- To implement this Environmental Management Plan for the benefit of all involved.
- To preserve the natural environment by limiting destructive actions on site.

## 2. Implementation of Environmental Management Plan

### 2.1 Reporting Structure



- ECO:** Environmental Control Officer (Can be the Eskom Site Supervisor depending on the size of the project)
- CM:** Contract Manager (Eskom)
- CECO:** Contractor Environmental Control Officer (Dedicated person)
- PM:** Project Manager (Eskom)

## 2.2 Responsibility Matrix

Function	Name / Cell Number	Responsibility
Project Manager (PM) Eskom		Overall management of project and EMP implementation
Site Supervisor/ Contract Manager (CM) Eskom		Oversees site works, liaison with Contractor, PM and ECO
Environmental Control Officer (ECO) Eskom		Implementation of EMP and liaison between Eskom, Contractor and Landowners/stakeholders
Contractor (C)		Implementation and compliance with recommendations and conditions of the EMP, Appoints dedicated person (CECO) to work with ECO
Contractor Environmental Control Officer (CECO)		Implementation of EMP, landowner interaction, environmental control of site actions, remediation and rehabilitation work.
Tx Services Environmental Advisor (Eskom)		Environmental advice and auditing

(Table to be completed upon Contract award)

## 2.3 Responsibility

### 2.3.1 Environmental Control Officer

A suitable qualified Environmental Control Office will be responsible to undertake site evaluation, monitoring and monitoring the implementation of the EMP. The Environmental Site Officer will conduct regular site visits to ensure the success of the EMP.

The Environmental Control Officer will:

- Know the contents and implications of the environmental report, and monitor the implementation of the findings using the EMP.
- Act as a guide, advisor and consultant to the contractor and client on environment issues during construction. This will be achieved by continuous auditing of the project, identification of problem areas and provisioning of action plans to avoid costly stoppages and /or environmental damage.
- Compile regular site inspection reports for the inclusion in the EMP as an addendum if necessary.



- Ensure that a 'hotline' exists for reporting incidents and resolving any problems rapidly.
- Upgrade the EMP as necessary, and inform the relevant parties of the changes.

Feedback of the findings, changes to this document as well as all reported incidents will be reported at the monthly progress meetings between the Engineer, Contractor and Client Representative. A summary of these reports will also be forwarded to the Department of Environmental Affairs and Tourism.

Any findings or non-compliance will be highlighted, and the measures to rectify the issue stated. Any previous findings must be audited to confirm the successful implementation thereof. At the end of the project a summary document will be prepared and presented to the Department of Environmental Affairs and Tourism.

The ECO's will oversee that the work carried out by the contractor is compliant with the conditions set out in the Environmental Management Plan for this project and will conduct environmental audits for the duration of the project, which will include:

- Inspection of working sites and activities to ensure compliance with the Provisions of this EMP,
- Updating the EMP if it is necessary,
- Remaining current with regulatory and legal requirements,
- Monitoring and auditing the project at the end of the activity in terms of the set Provisions,
- Compiling the monthly and six monthly compliance reports.

### **2.3.2 Project Manager**

The primary responsibility of the Project Manager is to ensure that the Contractor complies with the environmental specifications in this document. In addition the Project Manager shall:

- Assume overall responsibility for the effective implementation and administration of the EMP;
- Ensure that the EMP is included in the Contractor's contract;
- Ensure that the EMP is given to the applicable Construction Supervisor and the contractors;
- In conjunction with the Construction Supervisor; undertake regular inspections of the Contractor's site as well as the installation works in order to check for compliance

with the EMP in terms of the specifications outlined in this document. Inspections shall take place at least once a week and copies of the monitoring checklist contained in the file;

- Keep a register of all incidents (spills, injuries, complaints, legal transgressions, etc) and other documentation related to the EMP;
- Report to the Senior Environmental Advisor (Lucia Chauke) any problems (or complaints) which cannot first be resolved in co-operation with the Contractor(s);
- Implement recommendations of possible audits; and
- Ensure that construction staff is trained in accordance with requirements of the EMP.

### **2.3.3 Construction Contractor**

The Contractor shall:

- Ensure that the environmental specifications of this document (including any revisions, additions or amendments) are effectively implemented. This includes the on-site implementation of steps to mitigate environmental impacts;
- Discuss implementation of and compliance with this document with staff at routine site meetings;
- Preserve the natural environment by limiting any destructive actions on site;
- Monitor environmental performance and conformance with the specifications contained in this document during site inspections;
- Report progress towards implementation of and non-conformances with this document at site meetings with the Project Manager;
- Ensure that suitable records are kept and that the appropriate documentation is available to the Project Manager;
- Advise the Project Manager of any incidents or emergencies on site, together with a record of action taken;
- Report and record all accidents and incidents resulting in injury or death
- Take into consideration the legal rights of the individual Landowner, Communities and Eskom Regional staff.
- Ensure quality in all work done, technical and environmental;
- Resolve problems and claims arising from damage immediately to ensure a smooth flow of operations;
- Underwrite Eskom's Environmental Policy at all times; and
- Use this Environmental Management Plan for the benefit of all involved.

### **2.3.4 Inspection**

Periodic inspections will be performed by the ECO. These will consist of formal Reviews of conformance against policies and procedures stated in this document. Inspections will occur on a monthly basis (or as required). Supervisors in all work areas will conduct performance and compliance reviews, using the EMP as guideline to ensure compliance.

### **2.3.5 Record Keeping**

Documents to be maintained by the designated representative/ site agent and are to Include:

- Training records
- Inspection records
- Records of non-conformance and corrective action
- Records of all complaints, concerns or issues and corrective action
- Environmental Management Plan
- All incidents reports

All records will be kept for up to a year after the completion of the project or in accordance with other legal requirements as they apply.

## 2.4 Particulars of applicant

Table 1. Contact details of applicant.

<b>Name of applicant:</b>	Eskom Holdings Limited
<b>Contact Person:</b>	Ms Lucia Chauke
<b>Physical Address:</b>	1 Maxwell drive, Sunninghill, Johannesburg 2157
<b>Postal Address:</b>	P O Box 1091 Johannesburg 2001
<b>Telephone number:</b>	(011) 800 4427
<b>Fax Number:</b>	(011) 800 3917

Table 2. Particulars of site for development

<b>Full name of property to be developed:</b>	Schuitklip 92, Portion 4 farm.
<b>Magisterial district:</b>	Namakwa District Municipality
<b>Current use of surrounding areas:</b>	Private farms.
<b>Land Owner:</b>	Mr. Gerald Visser
<b>Contacts of the Land owner:</b>	084 645 8971 / 054 933 0475
<b>Name of closest town:</b>	Pofadder

### **3. Project description**

#### **3.1 Locality Project description**

Paulputs substation is situated in the farm Schuitklip 92 Portion 4 along the Onseepkans road in the Northern Cape Province ± 50 kilometer north east of Pofadder town within the boundaries of Khiami Local Municipality.

The purpose of Environmental Management Plan is to provide practical measures to either avoid or minimize impacts, using recommended mitigation measures that are specific, measurable and defined in terms of timing, duration and responsibility. Management is required to ensure that all these measures are properly implemented and effective.

#### **3.2 Construction Area**

The extension of Paulputs substation will occupy an area of approximately 73m x 41.5m. Construction will take place within the existing Paulputs substation and activities will be limited only to the area as demarcated by Eskom. Any area outside the construction area, required to facilitate access, construction activities, construction camps or material storage areas, where necessary, shall be negotiated with the affected stakeholders and written agreements shall be obtained. All construction areas shall be cleared in accordance with the Eskom Standard for Bush clearing ESKASABG3 (Appendix E). Any extra space to be cleared outside the construction area shall be negotiated and approved by Eskom. All areas marked as no go areas inside the substation parameters shall be treated with the utmost care and responsibility.

The Contractor shall ensure that the correct equipment for construction purposes is available at all times to ensure construction proceeds without unnecessary damage to the environment. Should alternative methods be used, it requires approval from site staff and the ECO must be informed to ensure environmental issues are addressed.

#### **3.3 Water Sources.**

Should water be required from sources other than Eskom supply, a written agreement shall be reached between the Contractor and the stakeholder involved. Should the Contractor be required to use water from a natural source, the Contractor shall supply a method statement to that effect and obtain the required permits. Strict control shall be maintained and the ECO shall regularly inspect the abstraction point and methods used.

### **3.4 Construction.**

No work shall commence until permission is granted from the Environmental Advisor from Transmission Services. The Project Manager shall ensure that all mitigation measures suggested in this EMP are fulfilled before the Contractor occupies the site. The Grid shall be kept informed of all developments on construction at all times. All the requirements from the Grid must be considered during the construction phase to ensure smooth transition.

### **3.5 Site establishment.**

Site establishment shall take place in an orderly manner and all amenities shall be installed at Camp sites before the main workforce move onto site. The Contractor camp shall have the necessary ablution facilities with chemical toilets where such facilities are not available at commencement of construction. The Contractor shall supply a wastewater management system that will comply with legal requirements and be acceptable to Eskom.

Where Eskom facilities are available the Contractor shall make use of such facilities where it is viable and negotiated with the Grid. The Contractor shall inform all site staff to make use of supplied ablution facilities and under no circumstances shall indiscriminate excretion and urinating be allowed other than in supplied facilities.

### **3.6 Waste Management.**

The Contractor shall supply waste collection bins where such is not available, as approved by the Environmental Control Officer, and all solid waste collected shall be disposed of at a registered waste dump. A certificate of disposal shall be obtained by the Contractor and kept on file. Where a registered waste site is not available close to the construction site, the Contractor shall provide a method statement with regard to waste management. The disposal of waste shall be in accordance with all relevant legislation. Under no circumstances may solid waste be burned on site.

### **3.7 Workshop Area.**

Where possible and practical all maintenance of vehicles and equipment shall take place in the workshop area. During servicing of vehicles or equipment, a suitable drip tray shall be used to prevent spills onto the soil, especially where emergency repairs are conducted outside the workshop area. Leaking equipment shall be repaired immediately or be removed from site to facilitate repair. All potentially hazardous and non-degradable waste shall be collected and removed to a registered waste site. A certificate of disposal shall be obtained by the Contractor and kept on file.

Workshop areas shall be monitored for oil and fuel spills and such spills shall be cleaned and remediated to the satisfaction of the ECO. The Contractor shall be in possession of an emergency spill kit that must be complete and available at all times on site.

### **3.8 Storage of Hazardous Material.**

All hazardous substances shall be stored in suitable containers and storage areas shall be bunded. This includes all carbon substances like fuel and oil as well as herbicides and battery acid. A register of all substances shall be kept on site and be available for inspection at all times. Areas shall be monitored for spills and any spills shall be contained, cleaned and rehabilitated immediately. Any leaking containers shall be repaired or removed from site.

### **3.8 Hazardous Substance Spills.**

The following shall apply to hazardous substance spills:

- All contaminated soil / yard stone shall be removed and be placed in containers. Contaminated material can be taken to one central point where bio-remediation can be done.
- Smaller spills can be treated on site, ESKASABTO (Appendix F)
- A specialist Contractor shall be used for the bio-remediation of contaminated soil where the required remediation material and expertise is not available on site.
- All spills of hazardous substances must be reported to the ECO and appointed Transmission Engineering Environmental Advisor (Tx Key Performance Indicator requirement).

### **3.9 Motivation for the Proposed Project**

Due to the country's electricity demand Eskom countrywide is expected to increase the capacity of the production which will also require upgrading and in some cases an establishment of new distribution and electrical generation points. Therefore Paulputs substation needs to be upgraded in order to avoid future electricity cut offs to the receiving ends as a result of scheduled substation maintenance.

### **3.10 Benefits of the Proposed Project**

- There will be continuity of supply during breaker maintenance as a result of the expansion.
- A firm transformer capacity will be created in the substation.

## **4. Environmental management and mitigation measures**

These guidelines will form the basis for environmental management on site. The Environmental Control Officer will ensure that any modifications are communicated, explained to and discussed with all affected parties (i.e. the authorities, contractor, the proponent and any directly affected party who requests this information).

- ❖ Mitigation of the potential impact in regard to the
  - Potential to mitigate any negative impacts
  - Potential to optimize any positive impacts
  - The likelihood of successful mitigation
  
- ❖ Overall assessment and general comments as to the predicted impacts of the development after mitigation in terms of such criteria as may be relevant to a particular impact, and which may include the following aspects :
  - The severity and permanence of the impact on either local biota or surrounding human communities
  - The size of the affected communities and their relative significance
  - The general ecological and socio – economic context within which a particular impact would occur
  - The final balance of between positive and negative impacts, and related costs and benefits to society.

### **4.1 Pre-construction phase**

#### **4.1.1 Establishment of environmental governing bodies**

- Appointment of Environmental Control Officer (ECO)

An Environmental Control Officer will fulfil the responsibility of assuring that environmental performance is achieved by Eskom and its contractors during all phases of the project. It is the responsibilities of the ECO's to audit compliance with the commitments set out in this EMP, and assist with the implementation of mitigation measures. The contractor and / the clients representative (ECO) will inspect all the construction activities on a monthly basis. All issues highlighted in this Environmental Management Programme will be investigated and compliance with the mitigation measures audited. Preceding complaints, concerns or incidents reported in the logbook will also be monitored.



#### 4.1.2 Establishment of baseline information

- Baseline water monitoring

As there are no natural water courses in the proximity or along the length of the proposed project, there is no need for the establishment of a baseline water quality status as well as maintenance of this quality as close to the baseline as possible.

#### 4.1.3 Establishment of complaints register

- Complaints Register

A complaints register is to be established and kept onsite to address complaints in a timorous fashion, which will be reported to the EMC.

#### 4.1.4 Responsibilities and time timeframes for the pre-construction phase

Number	Establishment of environmental governing bodies	Responsibility	Timeframe
1.	<b>Establishment of Environmental Monitoring Committee(EMC):</b> <ul style="list-style-type: none"> <li>• Establish an Environmental Monitoring Committee with Representatives of I&amp;APs, authorities and an Environmental Authorisation holder.</li> <li>• Formal agreement regarding the frequency of meetings, agenda, etc., to be reached between the parties represented in the EMC.</li> </ul>	Environmental consultant to set up the EMC and arrange initial meeting.  Environmental consultant to draft agreement and distribute to the different parties.  Appointed representatives of the different parties.	During the lifetime of the project (from pre-construction through operation and maintenance phases).
2.	<b>Appointment of Environmental Control Officer (ECO)</b> -Developer to appoint an ECO for the project.		Pre-construction, construction and operation and maintenance phases.

Number	Establishment of rainfall information	Responsibility	Timeframe
3.	<b>Rainfall monitoring</b> -rainfall monitoring at site office of the proposed roads development.	Site Engineer & Environmental control officer to undertake rainfall records.	Pre-construction, construction and operation and maintenance phases.
Number	Establishment of complaints register	Responsibility	Time frame
4.	<b>Environmental complaint register to be maintained:</b> <ul style="list-style-type: none"> <li>• All complaints with regards to environmental non-compliance</li> </ul>	The Site Engineer (Contracts Manager) will	During construction, operation and maintenance

	<p>on the construction site need to be recorded and addressed accordingly.</p> <ul style="list-style-type: none"> <li>• Establish an Environmental complaints register.</li> <li>• Address complaints timorously and report back to EMC meetings.</li> <li>• Open liaison channels should be identified and developed to ensure that all queries, complaints from affected individuals/ parties may be addressed with the shortest possible delay.</li> </ul>	<p>be responsible for maintaining the register and reporting any complaints received to the ECO.</p>	<p>phases.</p>
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#### 4.1.5 EMP updates

The EMP will be subject to ongoing review throughout the course of the project to ensure its continued suitability, adequacy and effectiveness. This review may include, but will not be limited to monitoring and measuring information, performance data, assessment and audit results and other relevant information and data. Any revisions to the EMP will be submitted to the Department of Environment Affairs and Tourism.

#### 4.2 Assessment Approach to Environmental Issues during Construction phase

The assessment and description of identified environmental issues were conducted according to the structure and approach detailed below. The following is a brief description of how these impacts were identified and rated. The approach may be tailored and altered where required to deal adequately with the description and assessment of a specific impact. The definition or of terms used in this section are in the pages **55-59**

- ❖ A description of the nature of the potential issues as to its :
  - General background and context within this application
  - Causes and effect
  - Who or what will be affected
  - How it will be affected
  
- ❖ Assessment of the impact as to
  - Probability
  - Extent
  - Duration
  - Magnitude
  - Reversibility

The table below shows how each impact was assessed and is an elaboration of the approach used in identifying rate these impacts.

Potential issue	Criteria	Description of elements that are central to each issue
Description	Nature	What causes the effect?
		Who will be affected?
		What will be affected?
		How will it be affected?
Assessment	Probability	Certain / may not occur with mitigation
	Status	Positive, negative or neutral.
Assessment	Extent	Is the impact site specific
		Does the impact extend locally, i.e. to the site and its nearby surroundings?
		Does the impact extend regionally, i.e. have an impact on the region.
		Does the impact extend nationally, i.e. have an impact on a national scale.
Assessment	Duration	Short term, i.e. 0-5 years.
		Medium term i.e. 5-11 years
		Long term, i.e. impact ceases after the construction or operational life cycle.
Assessment	Magnitude	Permanent, i.e. mitigation either by natural process or by human intervention will not occur in such a way or in such a time span that the impact can be considered transient.
		Low, i.e. natural and social functions and processes are not affected or minimally affected.
		Medium, i.e. affected environment is notably altered. Natural and social functions and processes continue albeit in a modified way.
Assessment	Reversibility	High, i.e. natural or social functions or processes could be substantially affected or altered to the extent that they could temporarily or permanently cease.
		Impact is reversible or irreversible.
Assessment	Cumulative or non-cumulative	Potential of two or more impacts to combine to form cumulative or synergistic impacts.

## 4.2.1 Identified Impacts

No.	Impact	Description		Assessment					
		Nature	Probability	Status	Extent	Duration	Magnitude	Reversibility	Cumulative / non cumulative
1.	<b>Noise:</b> It is expected that the construction activities will create noise pollution in the area during working hours.	The site is currently an existing Paulputs substation situated in a private land/farm used for animal farming.	The probability of change is certain with regard to the potential sources of noise pollution during construction, if the development was to go ahead.	An increase in noise pollution would be a negative impact to the surrounding environment.	Impacts would be site specific and in the local environment.	Medium, however an increase in noise will only be during the construction phase due to construction vehicles or activity.	The noise level during construction phase Due to site nature, the effects are likely to be low.	Reversible. When the construction is completed the noise level would return to the initial state	Non cumulative
2.	<b>Dust:</b> Due to the clearance of vegetation covering the soil and stockpiling of soil to be used during construction dust could result in the area when there is a windy weather condition	The current state of the site in Paulputs substation is less affected by dust as a result of grass and plants covering the area.	During construction period dust level may increase due to the construction operation and movement of heavy construction vehicles in dry weather conditions. The impact is not certain.	An increase in dust would be a negative impact to the surrounding environment.	Impact would be site specific and in the local environment.	The impact would only result during construction phase.	Medium.	When the construction is completed the dust level will be lower than the initial state. Reversible.	Dust will result only during construction
3.	<b>Soil erosion:</b> The clearance of vegetation could result into soil erosion if no proper mechanisms are put in place in ensuring that management of the area is not in place	The site is currently less affected by soil erosion due to the grass covering the entire land	The probability of change is uncertain during construction.	If the new development does not address storm water management the situation could be worsen. The impact would be negative	The impact would be site specific.	Might occur only during construction phase. Short term	Medium The surrounding might be negatively affected	The impact is reversible	Non-cumulative
4.	<b>Waste disposal:</b> Inappropriate waste disposal (both construction and domestic waste) could lead into wide array of environmental problems such as soil, surface and	The current site and the surrounding is free from any kind of waste	The probability of change is uncertain.	The impact will be negative to the environment.	Impacts would be site specific and in the local environment.	Permanent, if not managed	Medium	If well managed can be reversed or even avoided.	Cumulative

	ground water contamination, among others. E.g. burying waste on the ground could affect the ground soil negatively and in some cases contamination of underground water could result.								
5.	<b>Mixing of concrete:</b> Concrete residue when left to harden could create slabs affecting the ground soil negatively, in some cases even changing the natural characteristics of the soil which will impact negatively to the local vegetation depending on the soil for growth.	The Paulputs substation surrounding area still possesses a natural origination (natural vegetation growth is evident) even though it is an environmentally disturbed area.	The probability of change is uncertain which may result because of concrete residue.	If concrete mixing is not well managed and left to dry it may result into concrete slab formation or negatively impact to the surrounding affecting the growth of the remaining vegetation on site.	Impacts would be site specific and in the local environment.	This might permanently affect the soil.	High. The soil character might be changed	The area affected by dry concrete might be rehabilitated	The effect might be cumulative
6.	<b>Storage of equipment and materials:</b> Equipment and materials if not stored in an appropriate manner could be a source of pollution.	The current site is well looked after.	The probability of change is uncertain.	Equipment and materials if not stored in an appropriate manner could be sources of pollution to the environment	Impacts would be site specific and in the local environment.	Short term	Low	If well managed can be reversible.	Non cumulative.
7.	<b>Waste generation:</b> If waste generated during construction and operation phase is not well managed a series of negative environmental issues could result affecting the environment negatively	The current site is free from any waste	The probability of change is uncertain.	If generated waste is not regularly removed to the nearest registered waste disposal facility, it will accumulate and result into a negative environmental impact.	Impacts would be site specific and in the local environment.	Short term	Low	If well managed can be reversible	Cumulative
8.	<b>Hazardous waste:</b> Various hazardous materials, oil used during construction (especially transformer installation) and operation and by-products as thinners	The current site free from hazardous waste	The probability of change is uncertain, depends on the management.	Hazardous substances if not managed or stored in an appropriate manner could be a source of pollution. The impact would be	Impacts would be site specific and/or in the region environment.	Short term if early managed.	Low if managed	Can be reversible	Cumulative

	can become a major sources of pollution to the environment if there is no proper measures in place to manage these materials.			negative					
9.	<b>Vehicle Maintenance and Refuelling:</b> Spillages of hazardous liquids such as fuel, engine oil and other liquids used during vehicle maintenance and equipment handling, on the ground surface could result into contamination of soil, surface water and ground water.	The current site in Paulputs substation is not affected by hazardous liquid spillages	The probability of change is uncertain.	An increase in oil spillages would be a negative impact to the environment	Impacts would be site specific and in the local environment.	Short term.	Medium.	When the construction is completed could be reversed.	Soil characteristic could change
10.	<b>Fire hazard:</b> Employees on site camp tend to use fire for cooking food or sometime for warmth which put the site in a fire risk (especially during windy weather conditions). The surrounding farms, animals and plants could be at risk should a veld fire start as a result of a fire started by employees.	The current site is less exposed to fire risk other than the natural occurrence	The probability of change is uncertain.	The impact will be negative	Impacts would be site specific and in the local environment.	Long term	Medium.	Not reversible	Non-cumulative.
11.	<b>Visual impacts:</b> Random storage of construction material and littering of waste around the Paulputs substation surrounding could affect the current view of the area negatively. The proposed activities in the Paulputs substation will not result in a negative visual impact during operational phase.	To some extent the site has already been visually impacted by the presence of the substation in the environment	The probability of change is certain	The presence of construction activities could worsen the current existing impact. The impact would be negative	Impacts would be site specific	Permanent	Low	Not applicable	Cumulative

12.	<b>Endemic flora and fauna:</b> Clearance of vegetation on site prior to the construction activities will negatively impact the little fauna and flora remaining in the current environment.	The site has less or little flora and fauna remaining on site	The probability of change is certain	The little flora remaining on site could be negatively affected	Impacts would be site specific and in the local environment.	Permanent	High	It can be reversible	Non Cumulative
13.	<b>Labour force:</b> Environmentally unfriendly actions and a lack of good social behaviour of the labour force can create various problems such as crime, pollution, to some extent lead to a spreading of diseases such as HIV. etc.	The site is accessed by the land owner and the Eskom team responsible of Maintenance and Managing work of Paulputs substation	The probability of change is uncertain.	The impact will be negative to the environment	Impacts would be site specific and in the local community however could extend to regionally if not managed	To some extent permanent	High	Not reversible	To some extent cumulative.
14.	<b>Temporary job:</b> The presence of such construction development programmes in areas with communities that are highly affected by unemployment rate tends to attract criminal activities. This could also invite criminal elements putting materials and resources in a risk.	The area is highly affected by unemployment, job seekers are always moving around the area looking for something to help them put food in their tables.	The probability of change is uncertain.	Un-employment is a problem in and around the local community and is a national crisis.	Impacts would be site specific and in the local community however could extend to regionally and nation wide if no mitigation measures in place.	Permanent	High	Not applicable	Not applicable
15.	<b>Security:</b> The presence of construction workers in the farm Schuiklip 92 portion 4 could compromise the current existing safety in the substation and the surrounding	Paulputs substation is situated in a privately owned farm and the current site is well secured.	The probability of change is uncertain.	Crime is currently a problem, escalated by many issues including un-employment	Impacts would be site specific and in the local community	Permanent	High	Not applicable	Not applicable
16.	<b>Accessibly of the site:</b> There could be a need to create access roads for the easy transportation of heavy	There is access road to the site however this is mainly a normal transport infrastructure	The probability of change is uncertain.	Construction activities could affect the properties along the access roads negatively	Impacts could be site specific and in the local	Short term	Medium	Reversible through proper mitigation	Cumulative

	construction vehicles required during construction. This would affect the surrounding properties along those routes.				environment.				
17.	<b>Environmental complaint register:</b> It is expected that there could be complaints with regards to environmental non-compliance during the construction phase of the project. The environmental compliant register should be made accessible to the public for comments	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
18.	<b>Open trenches:</b> Any open manhole left without proper barricading could affect the animals and humans moving around the site. Animals could be trapped/injured/even killed as a result of these non-barricaded open manholes in the area.	There is no open manhole within the vicinity of the site.	The probability of change is certain.	Negatively impacted if not proper barricading measure in place.	Impacts would be site specific and in the local environment.	Short term	Medium	Reversible	Non cumulative
19.	<b>Spoil areas:</b> Any spoil areas on site would have a negative impact on the existing environment. E.g. trial holes dug during ground soil investigation studies or site camp fence installation, move etc. Such activities affect the ground negatively soil in some cases it disturbs the natural water channelling existing in the area which would either divert water to the	The site is in good condition and is less affected by spoil areas	The probability of change is certain	If the borrow pit material and spoil material is not properly managed, it could negatively impact the environment. Storm water channeling could be affected and injuries could result when there is poor visibility in the area	Impacts would be site specific and in the local environment.	Short term	Low	Reversible	Non- cumulative



	wrong site or course water stagnation (stagnant water could result into series of negative environmental issues such as bacteria habitant which would affect animals and humans)								
20.	<b>Equipment and construction material storage:</b> If equipment and construction material is not properly stored in a good manner (good housekeeping) on site, employees handling the material and equipment on site could be in a risk of sustaining injuries when trying to access the material.	The current Paulputs substation is well looked after	The probability of change is certain during construction period	The impact would be negative	Impacts would be site specific and in the local environment.	Short term	Low	If well managed can be reversible	Non cumulative
21.	<b>Storm water Runoff:</b> Uncontrolled storm water runoff could create various problems such as soil erosion and in some cases a disturbance of wetland areas catchments could occur.	The current site does have a storm water management system in the area even though is not entirely effective	The probability of change is certain.	If storm water is not addressed in the construction phase, during rainy season water would either not flow or cause soil erosion and that will be a negative impact to the environment	Impacts would be site specific and in the local environment.	Short term	Low	Reversible	Non-cumulative
22.	<b>Survey Points:</b> The surrounding environment must be taken into consideration when survey operations are to be performed.	The site boundaries are given and need to be clearly pegged.	The probability of change is certain.	If boundaries are not clearly demarcated, construction activity could have negative affect on land owner.	Impacts would be site specific and in the local environment.	Short term	Low	Reversible	Non-cumulative
23.	<b>Construction Camps:</b> Construction camps are associated with environmental impacts, if not properly selected and managed it could impact the environment negatively.	The environment has been impacted already due to the current existing substation	The probability of change is uncertain.	Construction camps are associated with environmental impacts, if not properly selected and managed.	Impacts would be site specific and in the local environment.	Medium term	Medium	Irreversible	Non-Cumulative

	<p>Poisoning of construction camp for employees if not properly placed could result into a negative environmental impact (e.g. visual/further clearance of vegetation/promotion of soil erosion/could be a source of pollution etc.) on the surrounding. The choice of site for the contractors' camp requires the Environmental Control Officer and Engineers permission should take into account location of local residents and or ecological sensitive areas.</p>								
24.	<p><b>Workers' conduct on site:</b> A general regard for the social and ecological well-being of the site and adjacent areas is expected of the site. Employees conduct on site could affect the environment negatively e.g. making fire in non-designated</p>	<p>Paulputs substation surrounding is well looked after</p>	<p>The probability of change is uncertain depending on the workers behavior.</p>	<p>Workers conduct could have a negative impact on the surrounding neighbors and town.</p>	<p>Impacts would be site specific and in the local environment.</p>	<p>Short term</p>	<p>It could be medium to high</p>	<p>Reversible</p>	<p>Non-cumulative</p>
25.	<p><b>Ablution facility:</b> If ablution facilities are not provided on site employees would use the open spaces to relieve themselves and that would impact the environment negatively</p>	<p>The current substation has ablution facility how ever this will not be enough during construction phase</p>	<p>The probability of change is certain.</p>	<p>Negative impact to the surrounding</p>	<p>Impacts would be site specific and in the local environment.</p>	<p>Short term</p>	<p>Low</p>	<p>Reversible</p>	<p>Non-cumulative</p>

26.	<b>Lighting:</b> Lighting on site is to be set out to provide maximum security and to enable easier policing of the site, without creating a visual nuisance to the surrounding	The current existing Lighting on site does not pose visual nuisance	The probability of change is uncertain	Negative impact	Impacts would be site specific and in the local environment	Short term	Low	Reversible	Non-cumulative
27.	<b>Rubble and Refuse Disposal:</b> As a result of waste material and or access material not used on the site can be negatively impacted affected	The current site is free from any kind of waste.	The probability of change is uncertain.	Negative impact	Impacts would be site specific and in the local environment	Short term	Low	Reversible	Non cumulative
28	<b>Access roads:</b> During transportation of heavy construction vehicle access roads might be created where necessary or the current existing access roads might be impacted by construction works.	There is an existing road to the site which is in good conditions.	The probability of change is uncertain	Negative impact	Impact would be site and in the local environment.	Short term if managed.	High	Reversible	Non comulative

## 4.2.2 Proposed mitigation and management

The table below is an illustration of the criteria utilised to identify proposed mitigation and the management of the mitigation. The table below further illustrate the period of mitigation and the responsible party.

No	Mitigation	Impact and proposed mitigation and management actions	Responsibility	Timeframe
	Potential to mitigate negative impact	Description of mitigation measures. Extent to which mitigation measures could influence the significance and status of impact.  Where ever possible a description of the optimization measures. Extent to which they could influence the significance of impact.	The responsible person to ensure that the mitigation measures are taken.	Implementation period for the mitigation
	Potential to enhance positive impacts			
	Significant rating of impact after mitigation	Low, i.e. natural and social functions and processes are not affected or minimally affected.		
Medium, i.e. affected environment is notably altered. Natural and social functions and processes continue albeit in a modified way.				
High, i.e. natural or social functions or processes could be substantially affected or altered to the extent that they could temporarily or permanently cease.				
	Comment on the overall assessment and conclusion.	Overall Assessment and concluding comments as to the predicted impacts after mitigation and their : <ul style="list-style-type: none"> <li>○ Severity and permanence</li> <li>○ Size and relative significance</li> <li>○ Ecological and socio – economic context</li> <li>○ Balance between positive and negative aspect</li> <li>○ Cost and benefits</li> <li>○ Acceptability / Unacceptability</li> </ul>		

No.	Impact	Mitigation		Responsibility	Time frame	Significant rating of impact after mitigation	Comment on the overall assessment and conclusion
		Potential to mitigate negative impacts	Potential to enhance positive impacts				
1.	<b>Noise:</b>	<ul style="list-style-type: none"> <li>Construction and other noise generating activities should be restricted to between 06h00 and 18h00 Monday to Friday, unless otherwise approved by the appropriate competent person in consultation with adjacent landowners/affected persons and ECO.</li> <li>During the operational phase all activities must take place in a manner that will allow as little noise as possible.</li> <li>Activities, which are deemed to generate high levels of noise, will be restricted to normal working hours.</li> </ul>	It is not applicable.	Contractor	During construction	Low	If construction activities that are potential sources of noise are conducted during working hours, the impact would be minimal to the surrounding.
2.	<b>Dust:</b>	<ul style="list-style-type: none"> <li>The liberation of dust into the surrounding environment shall be effectively controlled by water spraying</li> <li>The speed of haul trucks and other vehicles must be strictly controlled to avoid dangerous conditions, excessive dust or deterioration of the road being used.</li> <li>Site clearance to be done only when needed in phases.</li> </ul>	Not applicable	Contractor  Supervisors  ECO	During construction	Low	The level of dust should be reduced to minimal as the result of water spraying during working hours and pilling of soil should be avoided where ever possible.
3.	<b>Soil:</b>	<ul style="list-style-type: none"> <li>Submission of an operational plan for the construction phase indicating technical and management measures to prevent soil erosion.</li> <li>Stock piled topsoil should not be</li> </ul>	Not applicable	Contractor.  Supervisors	During construction phase.	Low	The design lay out plan should address all issues relating to storm water management and soil erosion. This could be a complete mitigation of the soil erosion.

		<p>compacted and should be replaced as final soil layer during site rehabilitation.</p> <ul style="list-style-type: none"> <li>• Soil should be exposed for the minimum time possible once cleared of vegetation, i.e. the timing of clearing and grubbing should be co-ordinated as much as possible to avoid prolonged exposure of soils to wind and water erosion.</li> <li>• The A-horizon will be removed and used for rehabilitation purposes. The lower soil horizons will be used for construction activities. The A-horizon will be stockpiled in a responsible manner and replaced during rehabilitation.</li> </ul>		<p>Contractor</p> <p>Contractor</p>			
4.	<b>Disposal of sewage waste:</b>	<ul style="list-style-type: none"> <li>• The contractor is to install adequate portable chemical toilets to meet the sanitation needs on the construction site (14 people per toilet).</li> <li>• The installed toilets should be regularly serviced</li> </ul>	Not applicable	Contractor	During construction	Low	Ablution facilities should be made available during construction phase for the employees to able to use this facility. All types of waste should be classified and disposed in an appropriate registered waste disposal site.
5.	<b>Mixing of concrete:</b>	<ul style="list-style-type: none"> <li>• Where concrete has been mixed, especially in the natural environment, all residues must be removed and disposed of in an environmentally responsible manner approved by the ECO.</li> </ul>	Not applicable	Contractor	During construction	Low	Unused cement should not be left to dry on the ground. If proper housekeeping rules are complied with, most impacts should not affect the environment.
6	<b>Storage of Equipment and Materials:</b>	<ul style="list-style-type: none"> <li>• Choice of location for storage areas must take into account prevailing winds, exposure to sun, distance to water bodies and general onsite topology.</li> <li>• All equipment and materials must be stored in a designated area in an appropriate manner in</li> </ul>	Not applicable	<p>Contractor</p> <p>Contractor</p>	Through-out the life cycle of a project.	Low	If employees on site practise good house keeping behavior, the work environment will be free of injuries and every thing would be in its place and there will be space for every thing.

		<ul style="list-style-type: none"> <li>order to prevent pollution.</li> <li>Storage areas must be designated, demarcated and fenced as effective as possible.</li> <li>Fire prevention facilities must be present and accessible at all times.</li> </ul>		Contractor			
		<ul style="list-style-type: none"> <li>Storage areas must be designated, demarcated and fenced as effective as possible.</li> <li>Fire prevention facilities must be present and accessible at all times.</li> </ul>		Contractor			
7.	<b>Waste generation and disposal:</b>	<ul style="list-style-type: none"> <li>A waste management plan to be developed for the construction site.</li> <li>Plan to ensure that all waste is contained in suitable containers to prevent waste being washed into water bodies.</li> <li>Containers for waste to ensure that any fluids generated by waste are trapped and can be disposed of in a suitable manner.</li> </ul>	Not applicable	Contractor	During construction	Low	Waste removal should be done regularly as this could make the environment free from any hazards. This could completely mitigate this impact.
		<ul style="list-style-type: none"> <li>A waste management plan to be developed for the construction site.</li> <li>Plan to ensure that all waste is contained in suitable containers to prevent waste being washed into water bodies.</li> <li>Containers for waste to ensure that any fluids generated by waste are trapped and can be disposed of in a suitable manner.</li> </ul>		Contractor			
8.	<b>Hazardous Substances:</b>	<ul style="list-style-type: none"> <li>Hazardous materials to be stored correctly, marked, labelled, without the risk of contamination and hazardous waste to be disposed of correctly with the necessary certificates issued.</li> <li>All oils, hydraulic fluids and other hazardous materials will be stored in suitable containers in a structure or facility designated for this purpose.</li> <li>Material Safety Data Sheets (MSDSs) shall be readily available on site for all chemicals and hazardous substances to be used on site.</li> <li>Storage areas containing hazardous substances must be clearly signed and the designated person contact and names should be displayed.</li> </ul>	Not applicable	Contractor in co-operation with ECO.	During construction	Low or completely mitigated	Employees dealing with hazardous substances should be trained and be competent to do so. This could completely mitigate/reduce the risk posed by this impact.
		<ul style="list-style-type: none"> <li>Hazardous materials to be stored correctly, marked, labelled, without the risk of contamination and hazardous waste to be disposed of correctly with the necessary certificates issued.</li> <li>All oils, hydraulic fluids and other hazardous materials will be stored in suitable containers in a structure or facility designated for this purpose.</li> <li>Material Safety Data Sheets (MSDSs) shall be readily available on site for all chemicals and hazardous substances to be used on site.</li> <li>Storage areas containing hazardous substances must be clearly signed and the designated person contact and names should be displayed.</li> </ul>		Contractor			
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		<ul style="list-style-type: none"> <li>Hazardous materials to be stored correctly, marked, labelled, without the risk of contamination and hazardous waste to be disposed of correctly with the necessary certificates issued.</li> <li>All oils, hydraulic fluids and other hazardous materials will be stored in suitable containers in a structure or facility designated for this purpose.</li> <li>Material Safety Data Sheets (MSDSs) shall be readily available on site for all chemicals and hazardous substances to be used on site.</li> <li>Storage areas containing hazardous substances must be clearly signed and the designated person contact and names should be displayed.</li> </ul>		Contractor			
		<ul style="list-style-type: none"> <li>Hazardous materials to be stored correctly, marked, labelled, without the risk of contamination and hazardous waste to be disposed of correctly with the necessary certificates issued.</li> <li>All oils, hydraulic fluids and other hazardous materials will be stored in suitable containers in a structure or facility designated for this purpose.</li> <li>Material Safety Data Sheets (MSDSs) shall be readily available on site for all chemicals and hazardous substances to be used on site.</li> <li>Storage areas containing hazardous substances must be clearly signed and the designated person contact and names should be displayed.</li> </ul>		Contractor			

		<ul style="list-style-type: none"> <li>Residents living adjacent to the construction site must be notified of the existence of the hazardous storage area.</li> <li>Staff dealing with these materials/substances must be aware of their potential impacts and follow the appropriate safety measures.</li> </ul>		Contractor			
9.	<b>Vehicle Maintenance &amp; Refueling:</b>	<ul style="list-style-type: none"> <li>Vehicle maintenance and equipment handling to be carried out in areas especially equipped for this purpose in order to prevent spillage and contamination.</li> <li>All oil changes, lubrication and maintenance will take place only at the designated areas.</li> <li>Refueling of vehicles will and must take place at the designated refueling area. This area will have a sufficiently impermeable surface to prevent seepage into ground water. The refueling area will be bounded to prevent any surface water from running over this area.</li> </ul>	Not applicable	Contractor  Contractor  Contractor	During construction	Low	
10.	<b>Visual impacts:</b>	<ul style="list-style-type: none"> <li>Waste (construction and domestic) must be disposed of in a proper manner and not allowed to be strewn around on site and surrounding areas.</li> <li>Storage facilities elevated tanks and other temporary structures on site should be located such that they have as little visual impact on local residents as possible.</li> <li>Special attention should be given to the screening of highly reflective materials on site.</li> </ul>	Not applicable	Contractor.  Contractor  Contractor	During construction	Low	The impact should be completely mitigated or reduced from posing danger to the environment.



		<ul style="list-style-type: none"> <li>The soil extracted from the furrows should be dumped in a designated area.</li> </ul>		Contractor			
11.	<b>Endemic flora and fauna:</b>	<ul style="list-style-type: none"> <li>No endemic flora and fauna species will be deliberately destroyed or permanent alienated from their natural habitat during construction.</li> <li>Excavations left open during construction should be checked periodically such that animals falling in can be safely removed and released away from construction activities. All excavations should be filled as soon as possible.</li> <li>Construction staff should be advised not to chase, kill or catch animals found or encountered during construction.</li> <li>Only vegetation falling in directly in demarcated in operational area should be removed where necessary.</li> <li>No exotic/invasive plants are to be planted on common ground of the site.</li> <li>No vegetation will be removed without prior permission from ECO.</li> <li>Trees that are not to be cleared should be marked beforehand with danger tape. The ECO must be given a chance to mark vegetation that is to be conserved before the contractor begins clearing the site.</li> </ul>	Not applicable	<p>Contractor and ECO.</p> <p>Contractor</p> <p>Contractor and ECO</p> <p>Contractor</p> <p>Contractor and ECO.</p> <p>Contractor</p> <p>ECO</p>	During construction	Low	Measures should be taken that protected plant and species remaining on site are not destroyed but transported to a safer environment.
12.	<b>Maintenance of access roads:</b>	<ul style="list-style-type: none"> <li>Access roads to be maintained with an acceptable surface, free of erosion and no surface water</li> </ul>	The roads will be in a better condition than the current state that will benefit the	Contractor maintains roads. ECO to audit status	During construction & maintenance	Low	It is important for the public to be informed about the roads that will be affected during the

		<p>ponding.</p> <ul style="list-style-type: none"> <li>Precautions and measures should be taken to inform road users if specific roads that will be affected during the transportation of construction vehicles.</li> </ul>	road users	<p>of roads. Contractor</p> <p>Contractor</p>	phase.		transportation of construction vehicle.
13.	<b>Ablution facilities and lighting on site</b>	<ul style="list-style-type: none"> <li>Mobile chemical toilets should be available on site for employees to be able to use</li> <li>It should be ensured that the provided toilets are regularly cleaned to ensure that they are hygienic.</li> <li>The provided toilets should be regularly emptied by the relevant contractor on regular basis.</li> <li>Temporary ablution facilities to be provided at appropriate sites (one toilet for 14 laborers).</li> <li>Lighting provided on site should be ensured that is adequate and not contributing to the visual impact to the surrounding. This could negatively affect or scare animals residing in the surrounding (especially at night).</li> </ul>	Not applicable	<p>Contractor to identify suitable areas for the said facilities. Contractor to maintain the above facilities.</p>	During construction	Low	The impact could be reduced or completely mitigated
14.	<b>Construction Workers:</b>	<p>The following restriction will be placed on the construction workers:</p> <ul style="list-style-type: none"> <li>No use of wetland areas, rivers or dams for washing;</li> <li>No collection of sand for construction purposes;</li> <li>No indiscriminate disposal of rubbish, construction waste;</li> <li>No collection of firewood;</li> <li>No damage to vegetation;</li> </ul>	Not applicable	Contractor	During construction	Not applicable	If construction workers could be well managed and given induction that will include HIV awareness that should assist in alleviating the impact that could result from the workers

		<ul style="list-style-type: none"> <li>• No use of open field as toilet facility;</li> <li>• No burning of waste and cleared vegetation.</li> <li>• Laborers to be restricted to construction area.</li> <li>• Access to the site should be restricted to employees of the contractor.</li> <li>• Ablution facilities to be kept away from natural water bodies.</li> <li>• Cooking facilities to be provided in demarcated areas.</li> <li>• All informal traders to be discouraged.</li> <li>• All labor will undergo basic induction, where safety, health and environmental issues will be discussed.</li> <li>• Construction staff should be educated, prior to commencement of construction, as to the need to refrain from destruction or killing of animals and plants, as well as from indiscriminate defecation, waste disposal and / or pollution of local soil and water sources.</li> <li>• The contractor should ensure proper supervision of employees at all times</li> </ul>					
15.	<b>Security and crime:</b>	<ul style="list-style-type: none"> <li>• Allowance must be made for the EMC to have access to the site as well as for relevant stakeholders. The access of unauthorized individuals must be prohibited</li> </ul>	Not applicable	Contractor	During construction	Not applicable	Crime can be reduced or completely eradicated by the improvement of security system.
16.	<b>Fire protection:</b>	<ul style="list-style-type: none"> <li>• Contractor must make sure that there is supervision for all fires</li> </ul>	Not applicable	Contractor	During construction	Low	Every public structure has to have fire prevention measures

		<p>that are used in the construction camp.</p> <ul style="list-style-type: none"> <li>• Smoking should be prohibited in the vicinity of flammable substances.</li> <li>• The contractor should ensure that fire-fighting equipment is available on site, in particular where flammable substances are stored.</li> <li>• Fires started for comfort(warmth) should be discouraged by the contractor, due to the risk of vegetation fires and risk to adjacent property</li> <li>• Fire-fighting equipment and emergency plans must be in place prior to the construction phase.</li> <li>• The contractor will plan and implement a fire prevention programs and develop a contingency plan in the event of any fire.</li> <li>• No refuse or waste may be burnt on site.</li> <li>• The contractor will be responsible for all damages caused by the outbreak of a fire originating from a site where work is undertaken. Damage to adjacent properties will be to his account.</li> </ul>					in place the presence of this facility is a necessity.
17.	<b>Environmental complaint register to be maintained:</b>	<ul style="list-style-type: none"> <li>• All complaints with regards to environmental non-compliance on the construction site need to be recorded and addressed accordingly.</li> <li>• Address complaints timorously and report back to the ECO.</li> </ul>	Not applicable	The Site Manager (Contacts Manager) Will be responsible for maintaining the register and reporting any complaints received to the ECO.	During construction phase	Not applicable	In order to keep trace of any compliance or non compliance acts on the site register is required.

18.	<b>Safety and Access Control:</b>	<ul style="list-style-type: none"> <li>• Safety equipment must be provided to all employees to prevent personal injury during construction activities. This includes equipment such as protective eye and ear wear and protective clothing where necessary.</li> <li>• Staff should be appropriately trained in all assigned activities.</li> <li>• Access to dangerous excavations and materials, must be controlled by the site manager.</li> <li>• All personnel and vehicles used for transportation and/or construction purposes should remain within these demarcated areas.</li> <li>• Excavations should only remain open of a minimum period of time and during this time the must be clearly demarcated so as to prevent accidental ingress of people and animals.</li> <li>• Work identification cards/permits should be produced when entering site.</li> <li>• Safety and Health Plan for the site should be availed on site camp.</li> </ul>	Not applicable	Contractor  Site Manager  Contractor  Contractor  Contractor	During construction	Not applicable	Safety and Access control will be managed according to the requirement.
19.	<b>Spoil areas:</b>	<ul style="list-style-type: none"> <li>• Any spoil areas established must be rehabilitated to the satisfaction of the environmental officer.</li> <li>• Any spoil generated during the construction process, which cannot be re-used elsewhere should be discarded in a site identified by the Environmental Control Officer and then shaped, trimmed and re-vegetated once</li> </ul>	Not applicable	Contractor  Contractor	During construction	Low or completely mitigated	Rehabilitation of spoiled areas should be an immediate act. An environmental practitioner should be consulted for an appropriate rehabilitation measures.

		<p>construction is completed.</p> <ul style="list-style-type: none"> <li>Any excavations on site are to be backfilled as soon as possible, where appropriate.</li> </ul>		Contractor			
20.	<b>Equipment and construction material storage:</b>	<ul style="list-style-type: none"> <li>Re-fuelling and maintenance of vehicles must take place off site where ever possible (an area should be demarcated for machinery and vehicle maintenance).</li> <li>A proper designated area should be dedicated for storage of equipment and construction material</li> <li>The storage facility should be accessible to employees.</li> <li>The storage facility should be managed and a person dedicated to ensure that access is controlled</li> <li>The storage of equipment should be made in a manner that promotes good house keeping habit.</li> <li>Training should be provided for employees handling materials that require special care.</li> </ul>	Not applicable	Contractor.  Contractor	During construction	Not applicable	If employees are adequately trained to handle material this impact could be prevented from creating risk on employees.
21.	<b>Storm water runoff:</b>	<ul style="list-style-type: none"> <li>To prevent storm water damage, the increase in storm water runoff resulting from construction activities must be estimated and the drainage systems assessed accordingly.</li> <li>A drainage plan must be submitted to the Engineer for approval and must include the location and design criteria of any temporary stream crossing.</li> <li>All storm water runoff from compacted materials must be</li> </ul>	Not applicable	Contractor  Contractor  Contractor	During construction	Low	This should be able to address soil erosion as well as the design of the extension portion of Paulputs substation and should have appropriate storm water management as well as drainage system that should have oil trap/ filters if necessary

		monitored if signs of erosion become apparent.					
22.	<b>Survey Points:</b>	<ul style="list-style-type: none"> <li>Roads or trails that are cut to provide temporary access for survey work must be minimized.</li> <li>Vegetation clearing must be kept to a minimum during survey operations.</li> </ul>	Not applicable	Contractor	During construction		Construction will only take place on the proposed or demarcated area.
23.	<b>Construction Camp:</b>	<ul style="list-style-type: none"> <li>The choice of the site for the contractors' camp requires the Engineers permission and must take into account location of villagers and or ecological sensitive areas, including flood zones and unstable zones.</li> <li>The size of the construction camp should be kept to a minimum.</li> <li>The contractor must attend to the drainage of the camp to avoid standing water and or sheet erosion.</li> </ul>	Not applicable	Contractor and Engineers  Contractor  Contractor	During construction	Low	The site will be accessible and pose less impact on the environment if chosen in a correct place. The engineers should be responsible to ensure that the chosen place does not impact the environment negatively.
24.	<b>Worker Conduct on Site:</b>	<ul style="list-style-type: none"> <li>A general regard for the social and ecological well-being of the site and adjacent areas is expected of the site staff.</li> <li>Workers need to be aware of the following general rules:</li> <li>No alcohol / drugs to be present on site.</li> <li>No firearms are allowed on site or in vehicles transporting staff to or from the site (Unless used by the security personnel).</li> <li>Prevent excessive noise.</li> <li>No harvesting of firewood from the site or from the areas adjacent to it.</li> <li>Other than per-approved security</li> </ul>	Not applicable	Contractor  Contractor	During construction	Low	Workers will be provided sufficient SHERQ awareness training.

		staff, no workers shall be permitted to live on site.					
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### **4.3 Management objectives and measurable targets.**

The below management of identified impacts and measurable targets are similar to those identified during construction therefore the information below is a summary of management of these impacts which is in essence mitigation measures. The method used is the same and the information will not vary.

#### **4.3.1 Physical issues: Management objectives and Measurable targets.**

##### **4.3.1.1. Access roads**

###### 4.3.1.1.1 Management objectives

- Minimise damage to existing access roads
- Minimise damage to environment due to construction and rehabilitation of new access roads
- Minimise loss of topsoil and enhancement of erosion

###### 4.3.1.1.2 Measurable Targets

- No claims due to damage on existing access roads
- No visible erosion on access roads six months after completion of construction
- No loss of topsoil due to runoff water on access roads

##### **4.3.1.2. Rubble and Refuse Disposal**

###### 4.3.1.2.1 Management objectives

- To keep the substation site servitude neat and clean
- Disposal of rubble and refuse in an appropriate manner
- Minimise litigation
- Minimise Landowner complaints

###### 4.3.1.2.2 Measurable targets

- No rubble or refuse lying around on site
- No incidents of litigation
- No complaints from Landowners
- No visible concrete spillage on the servitude

### **4.3.1.3. Fire prevention**

#### 4.3.1.3.1 Management objectives

- Minimise risk of veld fires
- Prevent runaway fires

#### 4.3.1.3.1 Measurable targets

- No veld fires started by the Contractor's work force
- No claims from Landowners for damages due to veld fires
- No litigation

### **4.3.1.4. Servicing of Vehicles**

#### 4.3.1.4.1 Management objectives

- Prevention of pollution of the environment
- Minimise chances of transgression of the acts controlling pollution

#### 4.3.1.4.2 Measurable targets

- No pollution of the environment
- No litigation due to transgression of pollution control acts
- No complaints from Landowners

### **4.3.1.5. Claims for damages**

#### 4.3.1.5.1 Management objectives

- Minimise complaints from Landowners
- Prevent litigation due to outstanding claims
- Successful completion of the contract and all Landowners signing release forms

#### 4.3.1.5.2 Measurable targets

- All claims investigated and settled within one month
- No litigation due to unsettled claims
- All Landowners signing release forms within six months after completion of the contract

#### **4.3.1.6. Gate installation and Gate control**

##### 4.3.1.6.1 Management objectives

- To keep the substation site servitude neat and clean
- Disposal of rubble and refuse in an appropriate manner
- Minimise litigation
- Minimise Landowner complaints

##### 4.3.1.6.2 Measurable targets

- No transgressions of the fencing act and therefore no litigation
- No damage to fences and subsequent complaints from Landowners
- All gates equipped with locks and kept locked at all times to limit access to key holders
- All fences properly tied off to the gate posts
- All gates properly and neatly installed according to specifications
- No complaints or claims due to open gates

#### **4.3.1.7. Batching plants**

##### 4.3.1.7.1 Management objectives

- To ensure all agreements with Landowners are adhered to
- Prevention of complaints from stakeholders
- Successful rehabilitation of disturbed areas

##### 4.3.1.7.2 Measurable targets

- No complaints from stakeholders
- All disturbed areas successfully rehabilitated three months after completion of the contract

#### **4.3.1.8. Wet areas**

##### 4.3.1.8.1 Management objectives

- Avoid wet areas to prevent damage

##### 4.3.1.8.2 Measurable targets

- No damage to wet areas
- No complaints from landowners and litigation

#### **4.3.1.9. River crossing sites**

##### 4.3.1.9.1 Management objectives

- Minimise damage to river and stream embankments
- Minimise erosion of embankments and subsequent siltation of rivers, streams and dams

##### 4.3.1.9.2 Measurable targets

- No access roads through river and stream banks
- No visible erosion scars on embankments once construction is completed

#### **4.3.1.10. Clearance of vegetation**

The object of vegetation clearing is to trim, cut or clear the minimum number of trees and vegetation necessary for the safe mechanical construction and electrical operation of the substation and associated infrastructure. Vegetation clearing shall be done in accordance with ESKASABG3 REV 0 (Standard for bush clearance and maintenance within overhead power line servitudes) and the Vegetation Management Guideline. Only an 8m strip may be cleared flush with the ground to allow vehicular passage during construction.

No scalping shall be allowed on any part of the servitude road unless absolutely necessary. The removal of all economically valuable trees or vegetation shall be negotiated with the Landowner before such vegetation is removed. All trees and vegetation cleared from the site shall be cut into manageable lengths and neatly stacked at regular intervals along the line. No vegetation shall be pushed into heaps or left lying all over the servitude.

Vegetation clearing on tower sites must be kept to a minimum. Big trees with large root systems shall be cut manually and removed, as the use of a bulldozer will cause major damage to the soil when the root systems are removed. Stumps shall be treated with herbicide. Smaller vegetation can be flattened with a machine, but the blade should be kept above ground level to prevent scalping. Any vegetation cleared on around the substation site shall be removed or flattened and not be pushed to form an embankment around the substation.

Protected or endangered species of plants shall not be removed unless they are interfering with a structure. Where such species have to be removed due to interference with a structure, the necessary permission and permits shall be obtained from Provincial Nature Conservation. All protected species not to be removed must be clearly marked and such areas fenced off if required.

The use of herbicides shall only be allowed after a proper investigation into the necessity, the type to be used, the long-term effects and the effectiveness of the agent. Eskom's approval for the use of herbicides is mandatory (Contact Eskom's Vegetation Management). Application shall be under the direct supervision of a qualified technician. All surplus herbicide shall be disposed of in accordance with the supplier's specifications.

It is recommended that a contractor for vegetation clearing should comply with the following parameters:

- The contractor must have the necessary knowledge to be able to identify protected species as well as species not to be interfering with;
- The operation of the line due to their height and growth rate;
- The contractor must also be able to identify declared weeds and alien species that can be totally eradicated; and
- The contractor must be in possession of a valid herbicide applicators license.

#### 4.3.1.10.1 Management objectives

- Minimise damage to vegetation
- Keep servitude as natural looking as possible
- Minimise interference by vegetation to flow of electricity
- Minimise possibility of erosion due to removal of vegetation
- Minimise removal of plant material on river and stream embankments
- Eradication of alien invader and densifier species that cause a fire hazard

#### 4.3.1.10.2 Measurable targets

- No vegetation interfering with structures and statutory safety requirements upon completion of the contract
- No de-stumping of vegetation on river and stream embankments
- All alien invaders and densifiers removed to limit the fire hazard
- No visible herbicide damage to the vegetation along the servitude one year after completion of the contract due to incorrect herbicide use
- No litigation due to unauthorised removal of vegetation

### **4.3.2 Social issues: Management objectives and Measurable targets.**

#### **4.3.4.1. Sanitation**

The Contractor shall install mobile chemical toilets on site (TRMSCAAC1 REV 3). Staff shall be sensitised to the fact that they should use these toilets at all times. No use of the veld shall be allowed, as this always creates problems with the landowners and may lead to claims for problems with stock diseases. Toilet paper is also a source of littering, and the Contractor shall be forced to clean up any litter.

##### 4.3.2.1.1 Management objectives

- Ensure that proper sanitation is achieved

##### 4.3.2.1.2 Management objectives

- No complaints received from Landowners regarding sanitation

#### **4.3.4.2. Interaction with adjacent landowners**

The successful completion of the project depends a lot on the good relations with the adjacent landowners. It is therefore required that the Contractor will supply one person to be the liaison officer (CECO) for the entire contract, and that this person shall be available to investigate all problems arising on the work sites concerning adjacent landowners (TRMSCAAC1 REV 3). The construction process will use the services of the Power Station EMC for communication with the land owners.

All negotiations for any reason shall be between Eskom, the landowners and the Contractor. No verbal agreements shall be made. All agreements shall be recorded properly and all parties shall co-sign the documentation. It is proposed that a photographic record of access roads be kept. This will then be available should any claims be instituted by any Landowners. Any claims instituted by the Landowners shall be investigated and treated promptly. Unnecessary delays should be avoided at all costs. The Landowners shall always be kept informed about any changes to the construction program should they be involved. If Eskom's Environmental Control Officer is not on site the Contractor's Environmental Control Officer should keep the Landowners informed. The contact numbers of the Contractor's ECO officer and the Eskom ECO shall be made available to the Landowners. This will ensure open channels of communication and prompt response to queries and claims.

All contact with the Landowners shall be courteous at all times. The rights of the Landowners shall be respected at all times and all staff shall be sensitised to the effect that we are working on private property.

#### 4.3.2.2.1 Management objectives

- Maintain good relations with Landowners

#### 4.3.2.2.2 Management objectives

- No delays in the project due to Landowner interference
- Landowner signs final release form

### **4.3.4.3. Littering**

#### 4.3.2.2.1 Management objectives

- Neat workplace and site

#### 4.3.2.2.2 Management objectives

- No complaints regarding littering

### **4.3.4.4. Noise**

In order to prevent noise impacts resulting from construction activities, working hours are to be limited to weekdays between 7h00 to 17h00. If certain construction requires work outside of these hours, all adjacent landowners have to be informed prior to any construction outside of the specified hours commencing.

### **4.3.3 Cultural issues: Management objectives and Measurable targets.**

#### **4.3.4.1. Residential Property**

The Contractor shall under no circumstances interfere with the property of adjacent landowners. If water is required, the Contractor shall negotiate with the relevant Landowner and a written agreement shall be drawn up (TRMSCAAC1 REV 3) section 4.8).

##### 4.3.3.1.1 Management objectives

- Control over actions and activities in close proximity to inhabited areas

##### 4.3.3.1.2 Management objectives

- No complaints from Landowners
- No damage to private property

#### **4.3.4.2. Archaeology**

Should any archaeological sites be uncovered during construction, all work should stop and their existence be reported to Eskom immediately. An archaeologist will then take the necessary action so that construction can continue.

##### 4.3.3.2.1 Management objectives

- Protection of archaeological sites and land considered to be of cultural value
- Protection of known sites against vandalism, destruction and theft
- The preservation and appropriate management of new archaeological finds should these be discovered during construction

##### 4.3.3.2.2 Management objectives

- No destruction of or damage to archaeological sites
- Management of existing sites and new discoveries in accordance with the recommendations of the Archaeologist



#### **4.3.4 Biological issues: Management objectives and Measurable targets.**

##### **4.3.4.1. Fuana**

Construction activities must be planned carefully so as not to interfere with the calving and lambing season for most animal species. The Contractor's workforce will have to be very careful not to disturb the animals as this may lead to fatalities which will give rise to claims from the Landowners.

The Contractor shall under no circumstances interfere with livestock without the Landowner being present. This includes the moving of livestock where they interfere with construction activities. Should the Contractor's workforce obtain any livestock for eating purposes, they must be in possession of a written note from the Landowner. Should any new sites or nests be found, during the construction process, that was not known or have been noted before, each site shall be assessed for merit and the necessary precautions be taken to ensure the least disturbance.

##### 4.3.4.1.1 Management objectives

- Minimise disruption of farming activities
- Minimise disturbance of animals
- Minimise interruption of breeding patterns of birds

##### 4.3.4.1.2 Management objectives

- No stock losses where construction is underway
- No complaints from Landowners or Nature Conservation
- No litigation concerning stock losses and animal deaths

##### **4.3.4.2. Flora**

##### 4.3.4.2.1 Management objectives

- Minimal disturbance to vegetation where such vegetation does not interfere with construction and operation of the line
- Prevention of litigation concerning removal of vegetation

#### 4.3.4.2.2 Measurable targets

- No litigation due to removal of vegetation without the necessary permits

#### 4.3.4.3. Herbicide use

##### 4.3.4.3.1 Management objectives

- Control over the use of herbicides

##### 4.3.4.3.2 Measurable targets

- No signs of vegetation dying due to leaching of herbicides one year after completion of the bush clearing
- No Landowner complaints and litigation

## 5. Rehabilitation

- Once construction is completed, all redundant infrastructure, waste and construction materials should be removed immediately from site by the contractor and disposed of in an appropriate manner, i.e. at a registered site. This includes any wastes that may have been left at the site from previous activities on the site.
- Disturbed areas, which are to remain free of development, should be rehabilitated to a state comparable to the surroundings area. A need for this will be identified by the Environmental Control Officer.
- Stockpiled topsoil should be used as the final cover for all disturbed areas where revegetation is required. This is to take place as soon as possible after the civil work is complete.
- Stockpiles of material and waste will be removed after construction with the area fully rehabilitated.
- Rehabilitation and re-vegetation only to make use of indigenous and endemic species.

## **6. Monitoring**

- Regular monitoring of all the environmental management measures and components shall be carried out by the ECO.
- Inspections and monitoring shall be carried out on both the implantation of the EMP and the impact on plant and animal life.
- Visual inspections on erosion and physical pollution shall be carried out on a regular basis.
- During the extension of Paulputs substation in Schuitklip 92 Portion 4 Farms massive dust will be produced in the construction phase as a result dust suppressing systems should be done.
- Continuous dust suppressing systems shall be monitored on a monthly basis to determine the impact on the proposed development.

## **7. Environmental audit**

An environmental audit will be conducted during the extension of Paulputs substation in farm Schuitklip 92 Portion 4. This environmental audit will ensure that:

- The conditions stipulated in an Environmental Authorisation are adhered to;
- Mitigation measures are implemented as prescribed in the Environmental Management Plan;
- The relevant authorities are kept informed about progress with the project and that they are given assurance that the project is implemented as prescribed by them, and
- The ECO will undertake monthly environmental audits during construction and operation of the upgrading of the internal roads. The ECO will be responsible for monthly environmental audits verifying compliance to the approval EMP. Every eight months a summary report will be completed by the ECO, which will summarise compliance and non-compliance to the regulations set out in the approved EMP.

## **8. Responsible Parties**

- Responsibility for the implementation of the EMP lies with Eskom Holdings.
- This responsibility will be delegated to the contractor for practical purposes, but Eskom Holdings will retain legal responsibility.
- On-site assistance, monitoring of construction (to ensure compliance with this EMP)zz environmental reporting will be the responsibility of the site manager.
- The ECO will be responsible for monthly environmental audits verifying compliance to the approved EMP. In every month, site meeting and a summary report will be given by the ECO, which will summarise compliance and non-compliance to the regulations set out in the approved EMP.

- The Department of Environmental Affairs and Tourism (DEAT), is responsible for approving this document and any amendments to it.

## **8.1 Requirement during construction**

- Proper and continuous liaison between Eskom, the Contractor and Landowners to ensure everyone is informed at all times.
- A physical access plan shall be compiled and the Contractor shall adhere to this plan at all times. Proper planning when the physical access plan is drawn up by the Environmental Control Officer in conjunction with the Contractor shall be necessary to ensure access to all construction areas within the substation parameter.
- The adjacent landowners shall be informed of the starting date of construction as well as the phases in which the construction shall take place.
- The Contractor must adhere to all conditions of contract, including the Environmental Management Plan.
- Proper planning of the construction process to allow for disruptions due to rain and very wet conditions.
- Where existing private roads are in a bad state of repair, such roads' condition shall be documented before they are used for construction purposes. If necessary, some repairs should be done to prevent damage to equipment and plant.
- All manmade structures shall be protected against damage at all times and any damage shall be rectified immediately.
- Proper site management and regular monitoring of site works.
- Proper documentation and record keeping of all complaints and actions taken.
- Regular site inspections and good control over the construction process throughout the construction period.
- Appointment of an Environmental Control Officer on behalf of the Contractor to implement this EMP as well as deal with all Landowner related matters.

- Environmental Audits to be carried out during and upon completion of construction (at least three for the project).
- The Contractor shall not be released from site until all Landowners have signed off the release documentation to the satisfaction of the Eskom Environmental Control Officer.

## 8.2 Legal content

A growing awareness of the environment and an increase in the number of environmental laws and regulations, present company management with a daunting task of monitoring, interpreting and implementing systems to produce a workable plan to comply with legal requirements.

The list below was compiled to ensure that the people responsible for the installation of the Paulputs substation are aware of their legal responsibilities and liabilities. Complying with these laws and regulations will minimise the risks in terms of legal, financial (claims) and rehabilitation costs.

Non compliance to environmental laws is a criminal offence and if prosecuted Eskom will be liable for any environmental damage incurred.

ACT NAME	ACT NO	NOTES/REMARKS
<b>NATIONAL ENVIRONMENTAL MANAGEMENT ACT</b>  Atmospheric Pollution Prevention Act	107 of 1998  45 of 1965	<b>LIST OF ACTIVITIES AND COMPETENT AUTHORITIES IDENTIFIED IN TERMS OF SECTIONS 24 AND 24D</b>  <b>Control all forms of air pollution.</b> <i>Φ Smoke control zones</i> <i>Φ Dust control during construction</i> <i>Φ Fumes emitted by vehicles</i> <i>Φ Air pollution from waste</i>
Conservation of Agricultural Resources Act	43 of 1983	<b>Control of utilisation and protection of wetlands; soil conservation; control and prevention of veld fires; control of weeds and invader plants.</b>

Environment Conservation Act	73 of 1989	<p><b>Controls for the effective protection and utilisation of the environment, littering, waste disposal, noise and various other activities, which may have a detrimental effect on the environment.</b></p> <p><i>Φ Waste management</i></p> <p><i>Φ Application of waste disposal permit</i></p> <p><i>Φ Noise control regulations</i></p>
Fencing Act	31 of 1963	<p><b>Prohibition of damage to a property owner's gates and fences</b></p> <p><i>Φ Climbing or crawling over or through fences without permission</i></p> <p><i>Φ Closing gates</i></p>
Forest Act	122 of 1984	<p><b>Control of veld, forest and mountain fires and the protection of biota ecosystems.</b></p> <p><i>Φ Protected trees</i></p> <p><i>Φ Fire control areas</i></p> <p><i>Φ Fire belts and maintenance</i></p>
Hazardous Substance Act	15 of 1973	<p><b>Sale of Group I,II,III and letting, use, operation, application and installation of Group III hazardous substances.</b></p>
Health Act	63 of 1977	<p><b>Control of health aspects of waste disposal and water treatment.</b></p> <p><i>Φ Regulates, rubbish, night soil, sewage, or other waste</i></p> <p><i>Φ Regulations relating to nuisances</i></p>
Game Theft Act	105 of 1991	<p><b>Regulates ownership of game, combat theft and unlawful hunting, catching and taking into possession of game.</b></p>
National Monuments Act	28 of 1969	<p><b>Control for the protection of natural and historical monuments, relics and antiques.</b></p> <p><i>Φ Notifying of authorities in discovering of above</i></p>
National Water Act	36 of 1998	<p><b>All aspects relating to pollution of surface and ground water.</b></p>

## **9. General**

This EMP will be accepted by the applicant and its appointed representatives such as engineers, contractors, architects and project managers will be represented by their signatures herein under. All conditions and recommendations will be implemented and the necessary records kept for referral.

## 10. Definition of the terms used in the assessment

Where relevant, the following terms will be used in the assessment of the various issues and alternatives that have been identified in the scoping process.

### LEVEL OF CERTAINTY

This criterion applies to the confidence of the assessor in making the assessment.

**Low** : The present degree of confidence in the making the assessment is lower than about 40%.

**Moderate** : The present degree of confidence in making the assessment is between approximately 40% and 80%.

**High** : The present degree of confidence in the relevant statement is greater than 80%.

### IMPACT

This criterion refers to the impact in relation to its effect on a stipulated feature or environmental quality.

**No impact** : There will be no discernible impact on the feature under consideration.

**Low** : The impact on the feature under consideration will be limited in terms of its effect or duration.

**Moderate** : The impact on the feature is such that there will be some damage done, but the feature will not be totally destroyed or degraded, and that it will recover, or will retain an moderate amount of the relevant environmental quality concerned with it.

**High** : The impact on the feature is such that the damage done will be considerable and enduring. Recovery of the feature could, at best be only partial.

**Very High** : The impact on the feature is such that the feature will be totally destroyed and that no recovery is possible.

**Unknown** : The nature of the impact on the feature is not understood or cannot be predicted in any reliable fashion.

### SIGNIFICANCE

This criterion refers to the effect of the impact “in the larger scheme of things”. For example, if a proposed dam will inundate a particular patch of vegetation, then the impact on that patch of vegetation is very high as it will be totally destroyed. But, if the vegetation is of a common type which has a low conservation priority, then the significance of the impact is low.



**No significance** : The impact is so inconsequential that it is of no significance at all.

**Low** : The impact is of low intensity of consequence. It is probably local in effect on a feature that is common and / or widespread.

**Moderate** : The impact is of sufficient intensity to warrant concern. There will be considerable disturbance / lowering of environmental quality for natural biota and / or to humans. Ecological processes will only be slightly affected. The impact will also have a moderate length of duration.

**High** : The impact is of considerable intensity. There will be severe degradation of the environment and localized losses of entire plant and animal assemblages may occur. Ecological processes are strongly disrupted. Social impacts may be severe. Recovery will only be possible in the long term.

**Very high** : The impact is of potentially devastating intensity to both the natural environment and / or to the human residents of an area. There will be total or near total failure of ecological processes. It is unlikely that mitigation is possible in any reasonable human time scale and hence the full recovery from the impact may not be possible in any reasonable human time scale. This the impact may be regarded as irreversible / permanent.

**Unknown** : The consequences of the impact are not understood or cannot be predicted in any reliable fashion.

#### **LEVELS OF SIGNIFICANCE**

**Site level** : The physical impacts of the activity being assessed will not extend beyond the immediate site. If relevant, visual impacts will only be apparent to viewers on or close to the site.

**Local level:** The impacts of the development may be felt or be significant at the site of the activity or within a short distance from it (defined within the context of the feature being assessed), or restricted to a narrow viewscape in the case of visual impacts.

**Regional level:** The impacts of the development may be felt or significant at a distance which is well – removed from the site. In the case of visual impacts, the views cape may e increased to landscape width and breadth.

**Provincial level:** The impacts of the activity are sufficient so as to significant within the context of the whole province.

**National level** : The impacts of the activity are sufficient so as to be significant throughout the whole country.

**International level** : The impacts of the development are sufficient so as to be significant beyond the borders of the country.

## **TIME PERIODS**

**Construction Phase** : The time period during which preliminary surveys and or construction and or other work is done. It will extend to the end of the construction period and includes any associated rehabilitation work and / or landscaping that may be prescribed.

**Operational Phase** : The time period for which the operation of the activity continues to function. This of particular relevance for developments which have a very large footprint, such as timber plantations or urban expansion, or opencast mines which keep expanding as they operate.

**Short Term** : A period of time including the Construction Phase and up to two years further. Note : This time period is defined as it is considered that it covers the period in which the footprint of the construction operation will be sustainable regenerated and wildlife will return to the disturbed areas.

**Medium Term** : A period of up to five years from the end of the Construction Phase. Note : This time period includes the criteria described for the Short Term, but includes the time necessary for certain processes, for example the establishment of woody vegetation, to become established on the development area.

**Long Term** : A period of at least ten years, possibly more, from the end of the Construction Phase or the Operational Phase. Note : This time period includes the criteria described for the Medium Term but includes the time necessary for trees to reach sufficient size to soften and screen the appearance of a low rise development.

**Permanent** : The change which would be brought about by the development cannot in any way be reversed *in situ*. The only mitigation options which may be available will be those which are conducted off the site.

## **EFFECT**

**Positive** : The impact will have, on balance, predominantly beneficial effects.

**Negative** : The impact will have, on balance, predominantly detrimental effects.

**Neutral** : There will be a change, but it cannot be described as being of either a particular positive or negative nature.

## **NEED FOR MITIGATION**

**Low** : The need for mitigation is slight but the conditions / effects require that some effort is made.

**Moderate:** The need for mitigation is definite, but there is no requirement for major and / or costly works. Any proposed mitigatory measure must have good potential to reduce the impact.

**High :** The need for mitigation is such that major and costly works are justifiable. Any proposed mitigatory measures must have definite and demonstrable potential for reduction of the impact before the proposed development may be given authorization to proceed.

**Obligatory :** The nature of the impact is such that, unless mitigation can very largely nullify the consequences, it must be regarded as a potential fatal flaw which will halt the proposed development. If such mitigation cannot be achieved, it will be necessary to modify the development so that the impact will be reduced or even obviated.

### **LOCALITY OF MITIGATION**

**On site :** the necessary mitigation must be undertaken at the site of the impact.

**Off site :** The necessary mitigation need not necessarily be at the site of the impact. Compensatory action may be undertaken at another, preferably similar, site on the property. For example, loss of a wetland due to construction or a dam may be mitigated by rehabilitation of a similar wetland in the vicinity.

## **Appendix A: Locality Map**

## **Appendix B: Site documentation / Monitoring/ Reporting**

The standard Eskom site documentation shall be used to keep records on site. All documents shall be kept on site and be available for monitoring and auditing purposes. Site inspections by an Environmental Audit Team may require access to this documentation for auditing purposes. The documentation shall be signed by all parties to ensure that such documents are legitimate. Regular monitoring of all site works by the Environmental Control Officer is imperative to ensure that all problems encountered are solved punctually and amicably. When the Environmental Control Officer is not available, the Contract Manager/Site Supervisor shall keep abreast of all works to ensure no problems arise. The following checklist shall be used as an environmental performance monitoring tool.

<b>Person responsible for the feeder bays installation is:</b>
Name:
Designation:

<b>Reporting of environmental performance, problems and priorities is as follows:</b>

<b>7.3 Environmental monitoring of the feeder bays installation is according to the following schedule:</b>
<b>The following negative environmental impacts have been identified at the site:</b>



