

# 2016

**DRAFT ENVIRONMENTAL MANAGEMENT  
PROGRAMME FOR THE PROPOSED DEVIATION OF  
THE ESKOM JUNO-GROMIS 400kV TRANSMISSION  
LINE, IN THE NORTHERN AND WESTERN CAPE  
PROVINCES**

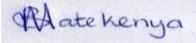

**OCTOBER 2016**



## DOCUMENT CONTROL

**DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME FOR THE PROPOSED DEVIATION OF THE ESKOM JUNO-GROMIS 400kV TRANSMISSION LINE, IN THE NORTHERN AND WESTERN CAPE PROVINCES**

## Quality Control

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## ACRONYMS

CARA	Conservation of Agricultural Resources Act (Act 43 of 1983)
CEO	Contractor Environmental Officer
DAFF	Department of Agriculture, Fisheries and Forestry
DEA	Department of Environmental Affairs
DWS	Department of Water and Sanitation
EAP	Environmental Assessment Practitioner
EA	Environmental Authorisation
ECA	Environment Conservation Act
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
HSA	Hazardous Substance Act (Act 15 OF 1973)
HIA	Heritage Impact Assessment
KM	Kilometres
NEMA	National Environmental Management Act (Act 107 of 1998)
NEMWA	National Environmental Management Waste Act (Act 36 of 2008)
NEMAQA	National Environmental Air Quality Act (Act 39 of 2004)
NEMBA	National Environmental Management Biodiversity Act (Act 10 of 2004)
NHRA	National Heritage Resources Act (Act 25 of 1999)
NWA	National Water Act (Act 36 of 1998)
OHSA	Occupational Health and Safety Act (Act of 85 of 1993)
SACNASP	South African Council of Natural Scientist Profession
SAHRA	South African Heritage Resources Agency
TLB	Tractor Loader Backhoe
Tx	Transmission
WULA	Water Use Licence Application

## 1 INTRODUCTION

The construction of power lines can have a major impact on the environment. It is therefore imperative that precautions are taken to ensure that environmental degradation is minimised while the project is undertaken. This will take a concerted effort from the project team and proper planning is of the utmost importance.

Nsovo Environmental Consulting (hereafter Nsovo) has been appointed by Eskom Holdings SOC Ltd (hereafter Eskom) to compile an Environmental Management Programme (EMPr) which will be a guideline for the mitigation and management measures to be implemented during the construction phase of the project. This EMPr is a living document that guides the day to day activities throughout the lifecycle of the project; it may from time to time, require revisions as be dictated by the course of construction.

This EMPr has been compiled as part of the Basic Assessment Application. The purpose of this EMPr is to give effect to precautionary measures, which are to be put in place for controlling the activities that take place on site. It has been developed to ensure compliance with National legislative and regulatory requirements.

## 2 DETAILS AND EXPERTISE OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

Nsovo is conversant with the definition and general requirements of an Environmental Assessment Practitioner (EAP) as defined in Section 1 of the National Environmental Management Act, 1998 (No 107 of 1998) (NEMA) and Regulation 13 of the Environmental Impact Assessment Regulations promulgated in December 2014. Nsovo is:

- Independent and Objective;
- Has expertise in conducting EIA's;
- Takes into account all relevant factors relating to the application; and
- Provides full disclosure to the applicant and the relevant environmental authority.

**Table 1: Details of the EAP**

Name of Company	Nsovo Environmental Consulting
Person Responsible	Beatrice Matekenya Cert.Sci.Nat.
Professional Registration	Registered with the South African Council for Natural Scientific Professions (SACNASP).
Postal Address	Postnet Suite 697 Private Bag X29

	Gallo Manor 2052
Telephone Number	011 0413689
Fax Number	086 602 8821
Email	<a href="mailto:beatrice@nsovo.co.za">beatrice@nsovo.co.za</a>
Qualifications & Experience	<ul style="list-style-type: none"> <li>• M.Sc. Environment and Society</li> <li>• B.Sc. Honors Geography and Environmental Studies</li> <li>• <b>9 years of experience</b></li> </ul>
Project Related Expertise	<p>In terms of project related expertise the EAP has completed the following projects:</p> <ul style="list-style-type: none"> <li>• Basic Assessment for the proposed Decommissioning and Demolition of Verwoedberg Substation and 275kV power.</li> <li>• Construction Environmental Management Plan for the proposed upgrade of Eskom Aries substation and construction of approximately 5km 50kV power line from Aries to the proposed new Transnet Aries Traction feeder substation.</li> <li>• EIA for the proposed Tubatse strengthening phase 1 – Senakangwedi B integration within the jurisdiction of Greater Tubatse Local Municipality in Limpopo Province.</li> <li>• Basic Environmental Assessment for the Vaal River water pipeline for AngloGold Ashanti Mine's Vaal River Operations (North West Province, South Africa).</li> <li>• Basic Environmental Assessment for the West Wits Tau Tona pipeline in Carletonville (Gauteng Province, South Africa). Environmental Impact Assessment (EIA) for the realignment of the Sasol Gas pipeline in Tembisa (Gauteng Province, South Africa).</li> <li>• Environmental Impact Assessment (EIA) for the deviation of the Sasol Gas pipelines in Dalview, Elspark, Verword Park, Burton Park and Mindalore (Gauteng Province, South Africa).</li> </ul>

CV attached as Appendix E.



### 3 PROJECT DESCRIPTION

Eskom proposes to integrate the power from the Kudu CCGT power station into the South African grid via Transmission power-lines from the Namibian border. A number of alternative integration options and routes have been proposed to connect to the Western Grid of Eskom and supply the increasing demand in the Cape. This Transmission powerline will boost the supply to the Western Cape, which has been plagued by outages. This specific project forms part of the Kudu Integration project and relates specifically to the proposed 230km 400kV Juno-Gromis Transmission line and the proposed deviation along same.

Subsequently, an Environmental Impact Assessment was commissioned for the proposed construction of the Eskom 400kV transmission powerline, Kudu integration project in terms of the Environment Conservation Act 1989 (Act No. 73 of 1989). The study presented various alternatives and included a number of specialist studies, as a result and RoD was issued on 6 November 2007. Further an extension for the Environmental Authorisation issued was applied for and granted in 20 March 2014.

Subsequent to the Authorisation, the negotiation process with the affected landowners along the approved corridor commenced and was concluded with recommendation from the affected landowners. The landowners raised concerns and several issues regarding the approved corridor and the proposed alignment within the corridor; following which they recommended deviations along specific portions of the line.

In an effort to address the issues raised by the landowners, Eskom proposes the deviation of portions of the authorised corridor as follows:

- Landing strip in Lutzville which will result in a deviation length of approximately 4.1km;
- Tronox Mine Namakwa Sands which will result in a deviation length of approximately 3km; and
- New mine in Kamiesberg which will result in a deviation length of 7.2km approximately 7.2km.

Further, Eskom's proposes the development of two optic Fibre Repeater Stations (FRS) that will be located along the proposed powerline. These will be 5m long, 3m wide and 4m high and its exact location is not yet determined. The proposed FRS will not trigger any additional listed activities.

#### 3.1 DESCRIPTION OF LOCALITY

The proposed development will traverse various farms within the jurisdiction of Richtersveld, Nama Khoi and Kamiesberg Local Municipalities in the Northern Cape and Matzikama Local Municipality in the Western Cape Province of South Africa. The closest towns to the proposed deviation are Springbok, Kleinsee, Kamieskroon, Koiingnaas, Garies, Hondeklipbaai, Bitterfontein, Nuwerus and Lutzville.

Sections of the proposed deviations will encroach on identified Critical Biodiversity Areas and will traverse various farm portions as indicated on the map below.

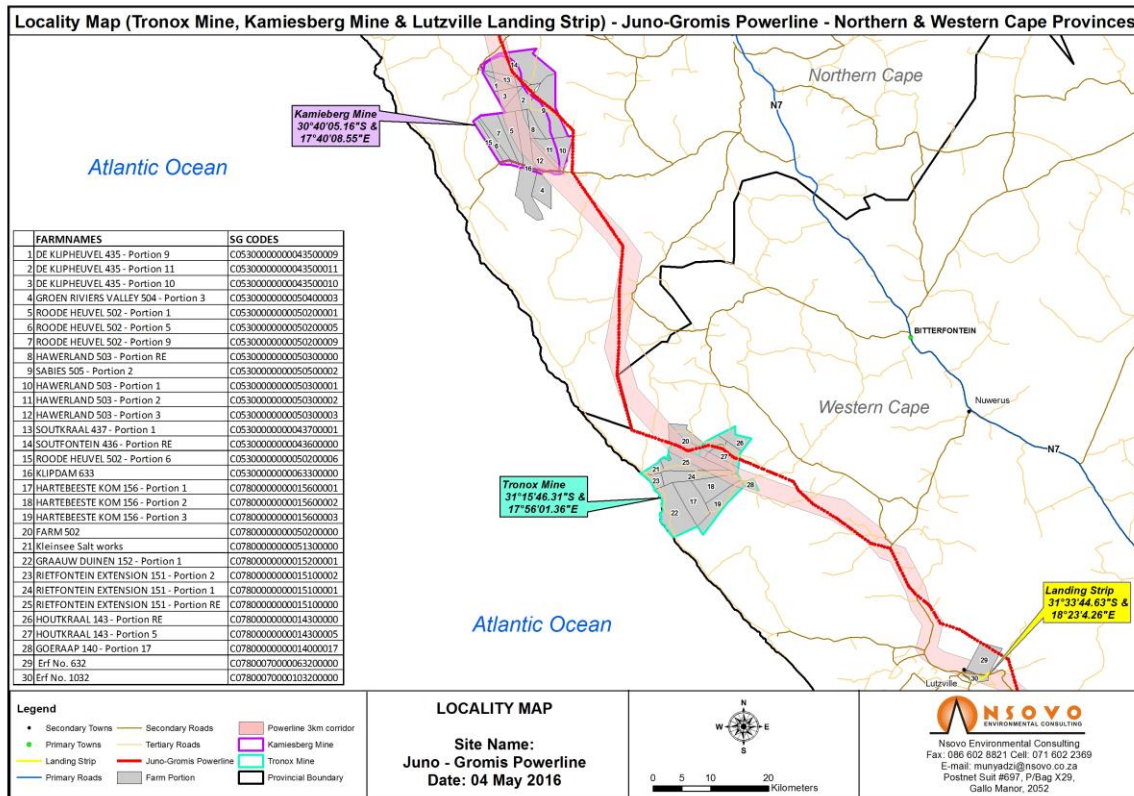


Figure 1: Locality Map - Juno-Gromis 400kV Transmission Line

Locality and sensitivity maps have been attached as Appendix A.

#### 4 PURPOSE AND SCOPE OF THE EMPR

The EMPr sets out general environmental specifications, which are applicable to the construction activities associated with the proposed project. This document serves as a guideline for the management of the site and provides specifications and regulations that must in all instances be adhered to. It is the responsibility of all parties, including Contractors and sub-contractors, involved in the project to commit themselves to the implementation of the EMPr in all phases of the project.

The objectives of the EMPr are to:

- Ensure that the activity is undertaken in compliance with all statutory and regulatory requirements
- Ensure that Eskom Transmission’s Environmental Policy, TRMPBAAX3 Rev 3, is underwritten at all times;

- All Landowner special conditions are identified and taken into consideration as the proposed project is located within private properties;
- Ensure that all environmental conditions stipulated in the EA are implemented;
- Detail mitigation measures, time-frames and criteria for assessing the success or failure of each measure;
- Provide detailed monitoring programmes to ensure compliance;
- Provide input and strategies for environmental quality control and risk management;
- To preserve the natural environment by limiting destructive actions on site;
- Ensure appropriate restoration of areas affected by construction; and
- Prevent long term environmental degradation.

## 5 GENERAL ENVIRONMENTAL GUIDELINES FOR THE CONSTRUCTION PHASE

This EMPr has been compiled in fulfillment with the requirements of the National Environmental Management Act, 1998 (Act 107 of 1998). This document serves as a guideline for the management of the site by the Eskom and his/her Contractor and subcontractors, in order to minimise adverse environmental impacts. Eskom will be responsible for ensuring compliance of the Contractor with the EMPr and will rely on the Environmental Control Officer (ECO) to monitor compliance. The Contractor must in turn monitor his/her employees to ensure compliance with the provisions of the EMPr.

The main Contractor shall receive a copy of the EMPr from Eskom on which he/she will be given the opportunity to clear any misconceptions and uncertainties. The EMPr will form part of the contract and will therefore be a legally binding document. In the event of discrepancy with regard to environmental matters or environmental specifications this document shall take precedence.

## 6 APPLICABLE LEGISLATION

This list is not intended as an exhaustive analysis of the applicable environmental legislations but provides a guideline to the relevant aspects of each Act.

**Table 2: Legislation pertaining to the proposed project**

Aspect	Relevant Legislation	Brief Description
Environment	National Environmental Management: Act 1998,	The overarching principles of sound environmental responsibility are reflected in the National Environmental Management Act,

Aspect	Relevant Legislation	Brief Description
	(Act No. 107 of 1998)	1998 (Act No. 107 of 1998) (NEMA), The principles set out in the National Environmental Management Act, 1998 (Act No. 107 of 1998), hereafter, referred to as NEMA, apply to all listed projects. Construction and operation have to be conducted in line with the generally accepted principles of sustainable development, integrating social, economic and environmental factors.
Biodiversity	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)	The purpose of the National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004) (NEMBA) is to provide for the management and conservation of South Africa's biodiversity within the framework of the NEMA and the protection of species and ecosystems that warrant national protection. As part of its implementation strategy, the National Spatial Biodiversity Assessment was developed.
Protected Areas	National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003)	The purpose of this Act is to provide for the protection, conservation and management of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes.
Heritage Resources	National Heritage Resources Act, 1999 (Act No. 25 of 1999)	The National Heritage Resources Act, 1999 (Act No. 25 of 1999) legislates the necessity for cultural and heritage impact assessment in areas earmarked for development, which exceed 0.5 ha. The Act makes provision for the potential destruction to existing sites, pending the archaeologist's recommendations through permitting procedures. Permits are administered by the South African Heritage Resources Agency (SAHRA).
Air quality management and control	National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004)	<p>The object of the Act is to protect the environment by providing reasonable measures for the protection and enhancement of the air quality and to prevent air pollution.</p> <p>Section 32 of The National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004) deals with dust control measures in respect of dust control. Whilst none are promulgated at present, it provides that the Minister or MEC may prescribe measures for the control of dust in specified places or</p>

Aspect	Relevant Legislation	Brief Description
		areas, either in general or by specified machinery or in specified instances, the steps to be taken to prevent nuisance by dust or other measures aimed at the control of dust.
Noise Management and Control	Noise Control Regulations in terms of the Environmental Conservation, 1989 ( Act 73 of 1989)	The assessment of impacts relating to noise pollution management and control, where appropriate, must form part of the EMP. Applicable laws regarding noise management and control refer to the National Noise Control Regulations issued in terms of the Environment Conservation , 1989 ( Act 73 of 1989).
Water	National Water Act, 1998 (Act 36 of 1998)	This Act provides for fundamental reform of law relating to water resources and use <sup>1</sup> . The preamble to the Act recognizes that the ultimate aim of water resource management is to achieve sustainable use of water for the benefit of all users and that the protection of the quality of water resources is necessary to ensure sustainability of the nation's water resources in the interests of all water users.
Agricultural Resources	Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)	The Act aims to provide for control over the utilization of natural agricultural resources in order to promote the conservation of the soil, water resources and vegetation and to combat weeds and invader plants. Section 6 of the Act makes provision for control measures to be applied in order to achieve the objectives of the Act.
Human	The Constitution of South Africa, 1996 (Act No. 108 of 1996)	<p>The Constitution of South Africa, 1996 (Act No. 108 of 1996) provides for an environmental right (contained in the Bill of Rights, Chapter 2). In terms of Section 7, the state is obliged to respect, promote and fulfill the rights in the Bill of Rights. The environmental right states that:</p> <p>“Everyone has the right -</p> <p>a) To an environment that is not harmful to their health or well-being; and</p>

Aspect	Relevant Legislation	Brief Description
		b) To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that - <ul style="list-style-type: none"> <li>-Prevent pollution and ecological degradation;</li> <li>-Promote conservation; and</li> <li>-Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.”</li> </ul>

## 6.1 STANDARD ESKOM POLICIES TO BE COMPLIED WITH

In addition to the approved EMP, the EA and other permits and licenses, the construction activities must also comply with the standard Eskom documents listed below. It is the responsibility of all parties involved in the implementation of the EMP to ensure that the **most recent updated** Eskom policies/documents are used.

- Standard for bush clearance and the maintenance of overhead power lines (ESKASABG3);
- Eskom Procedure for Vegetation Clearance and Maintenance within overhead Power line Servitude and on Eskom owned Land (EPC 32-247);
- Oil spill clean-up and rehabilitation (ESKAGAAD7);
- Eskom Environmental Waste Management Procedure (EPC 32 – 245);
- Eskom Environmental Liaison Committee (ELC) Performance Indicator Reporting Procedure (EPC 32 -249)
- Transmission Environmental Management System Manual (TMN 41 – 417);
- Transmission Emergency Preparedness and response procedure. In accordance with ISO 14001:2004 clause 4.4.7 (TPC 41 – 460):
- Transmission Environmental Aspects and Management Programmes / Plans requirements procedure (TPC 41 – 213);
- Transmission Environmental Legal, other requirements and evaluation of compliance procedure (TPC 41 -505);
- The Standard for the construction of overhead power lines (TRMSCAAC5);
- Transmission Environmental monitoring and measurement procedure (TPC 41 – 118); and
- Transmission Vegetation Management Guideline (TGL 41 – 334).

## 6.2 METHOD STATEMENTS FOR THE ACTIVITIES TO BE CARRIED OUT

The following Method Statements (MS) must be prepared and signed by Eskom's construction team, ECO and the Contractor prior to commencement of activities on site:

- Vegetation clearing;
- Fauna and flora management;
- Excavations for construction of substation and installation of pylons;
- Chemical/hazardous substance storage;
- Cement/concrete use;
- Logistics of the environmental awareness training;
- Fire management;
- Emergency Response;
- Storm water and soil erosion management;
- Waste management;
- Access road(s);
- Contaminated water management;
- Site establishment and site layout plan;
- Use of herbicides/pesticides;
- Temporary site closure;
- Site Rehabilitation;
- Blasting;
- Alien plants removal and use of herbicides and pesticides; and
- Dust suppression.

This list has not exhausted all the activities/aspects that may require MS prior to commencement of the work. The ECO may require more MSs to be submitted as the project progresses.

## **7 PROJECT TEAM**

### **7.1 ROLES AND RESPONSIBILITIES OF THE PROJECT TEAM**

#### **7.1.1 Environmental Control Officer**

An independent Environmental Control Officer (ECO) must be appointed to assist the Contractor(s) on site regarding environmental matters. The primary role of the ECO is as follows:

- To provide an on-site environmental management service to Eskom to ensure effective implementation of EA, EMPr and landowner conditions.
- To ensure implementation and compliance with any Eskom site procedures and requirements.
- Be responsible for the planning and management of all environmental activities for this position, but more specifically the following:

#### 7.1.1.1 Communication Services

- To liaise closely with the Eskom and Contractor's Environmental Officer (CEO)
- To ensure that the landowners agreed General and Special Conditions are implemented.
- To negotiate the Access Plan between landowners and Contractor and to ensure its implementation, so as to provide timeous servitude access to the Contractor to carry out its duties with as little interference/objections as possible.
- ECO must identify if any large turning circles are required for large machinery, before this access is negotiated.
- To agree with landowners where gates are to be installed at fence crossings, before the Contractor gains entry to the properties for construction activities.
- To agree with landowners on the bush clearing method.
- To assist the CEO in conflict resolution.
- Measuring and evaluating crop damage and other related claims, resulting from the construction activities, in conjunction with the landowner and submitting the relevant forms to the Project Manager for payment to the landowner (but not where the Contractor was negligent). This to be done equitably and timeously.
- To ensure that the Contractor rehabilitates any damage caused during construction.
- To indicate where bird guards, bird diverters, bird lights and aviation warning spheres are to be installed as specified in the EMPr, EA conditions and or the line profile.
- After the final rehabilitation has been completed on a property, to obtain the immediate release from the landowner.

#### 7.1.1.2 Environmental Management

- Monitoring of site environmental progress in respect of time, deliverables and quality.
- Liaison between Project Manager, SHEQ/SHE/Environmental Manager, Senior Environmental Advisor, Site Supervisor, CEO, affected and interested parties, authorities and stakeholders on environmental matters.
- Recommending EMPr modifications to the Project/SHEQ/SHE/Environmental Manager as and when the particular site conditions warrant it.
- Communicating changes of the EMPr to all relevant parties.
- Maintaining climatic data on an ECO register using Eskom/Contractor EO readings.
- Issuing Contractors Communications and Site Instructions via the Site Supervisor or delegated person as delegated by the Project Manager.



- Monitoring performance of Contractor and sub-contractors to ensure compliance with environmental and statutory requirements.
- Validating the regular site inspection reports prepared by the CEO.
- Checking the CEO's record of environmental incidents (spills, impacts, legal transgressions, etc.) as well as corrective and preventive actions taken.
- Checking the CEO's complaints register in which all complaints are recorded, as well as actions taken.
- Assisting in the resolution of environmental related conflicts.
- Compiling and completing the environmental management related component of the handing-over documentation and any other related documents.
- Timeously identifying any sensitive site issues which may affect environmental aspects and the reporting of this to the Project/SHEQ/SHE/Environmental Manager.
- Monitoring that good housekeeping practices are followed and maintained by the Contractor.
- Monitoring that the ground rehabilitation is initiated on time, complying with the EA, EMPr and to the satisfaction of the landowner.
- Assisting the Contractor and Eskom EO with the environmental awareness training course to all site staff, targeted at the level of the workers so that they have a basic understanding of the environment that they are working in. The Contractor will provide an interpreter if needed.
- Monitoring that sensitive areas are demarcated within or alongside the construction areas i.e. sites identified in the EMPr, EA. All personnel are to be informed of such sites and the reason the site is demarcated.

#### **7.1.1.3 Monitoring**

- Validating the site environmental monitoring plan.
- Validating the "Punch List/daily pre-warning" and reporting all defects and non-conformances as per the Control of Nonconformity Procedure.
- Carrying out environmental surveillances.
- Validating and recording of certificates proving the legal disposal of waste streams.

#### **7.1.1.4 Reporting**

- To complete a daily diary, bi-weekly and monthly (completed by the 24th of each month) reporting to Land and Rights and the Project/SHEQ/SHE/Environmental.
- To prepare monthly monitoring reports to be submitted to the DEA, Environmental Compliance Section.

- Manager on the compliance of the Contractor according to the environmental authorization, environmental management plan and landowner conditions. The reports are to include photographic images of special occurrences taking place during the reporting period.
- To attend site meetings as required.
- To inform Land Development and Management and the Project/SHEQ/SHE/Environmental Manager of any activity that is not in accordance with the EA and respective Conditions, the EMPr and Landowners' agreed general and special conditions or detrimental to the environment.

#### **7.1.1.5 Administration**

- To assure a proper site ECO administration function to cater for all environmental site related correspondence.
- To execute your environmental responsibilities as per Eskom's Risk Management System.
- To promote and maintain sound relationships with landowners, community, contractors and suppliers.

#### **7.1.2 Contractor**

- To provide all necessary supervision during the execution of the project. He/ She must be available on site at all times.
- To appoint a competent Contractor Environmental Officer (CEO).
- To implement the projects as per the approved project plan.
- To ensure that implementation is conducted in an environmentally acceptable manner.
- To fulfil all obligations as per the agreed contract.
- To comply with special conditions as stipulated by Landowners during the negotiation process.
- To inform and educate all employees about the environmental risks associated with the different construction activities and lessen significant impacts to the environment.
- Eskom Environmental Representative to implement and integrate environmental management systems by ensuring compliance to ISO 14001 & monitoring performance.
- Report environmental incidents.
- Provides environmental training.
- Ensures compliance with pertinent environmental legislations and other legally binding documents.

#### **7.1.3 Authorising Department**

The role of the Authority is to enforce compliance with the EA and the EMPr.

## **8 DESCRIPTION OF MITIGATION MEASURES**

This section of the EMPr serves to prescribe mitigation measures to prevent, reduce, eliminate or compensate for impacts, to acceptable/insignificant levels.

## 9 PRE- CONSTRUCTION MANAGEMENT PROGRAMME

The pre-construction management programme is to be used as a guide during the planning, design and detailing of the development components. This part of the programme is to be referenced by all involved in decision making during the planning and design phases.

### 9.1 NEGOTIATIONS WITH AFFECTED LANDOWNERS

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
To ensure that landowners are aware of activities taking place within their properties.	<ul style="list-style-type: none"> <li>Ensure that all affected landowners are negotiated with prior to construction.</li> <li>Ensure that landowner special conditions are recorded and implemented.</li> </ul>	<ul style="list-style-type: none"> <li>Signed landowner consent forms.</li> </ul>	Eskom	Prior commencement of construction activities

### 9.2 COMMISSIONING OF TENDER

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
Ensure that proper environmental conditions are established prior to commencing with construction by informing all parties of appropriate environmental protection measures.	<ul style="list-style-type: none"> <li>The successful tendering Contractors will be made aware of the contents of this EMPr and any penalties arising from noncompliance prior to the commencement of work.</li> <li>All tendering Contractors will be made aware of the audit and monitoring requirements as stipulated in this EMPr.</li> <li>Appoint an Environmental Control Officer (ECO) who will be responsible to monitor compliance to the EMPr.</li> <li>Inform the department of the appointment of the ECO and provide the candidate's contact details.</li> </ul>	<ul style="list-style-type: none"> <li>Signed Declaration by contractor.</li> <li>Appointment Letter</li> <li>Proof of submission to DEA.</li> </ul>	<ul style="list-style-type: none"> <li>Eskom</li> <li>Contractor</li> </ul>	Prior commencement of construction activities

## 10 CONSTRUCTION MANAGEMENT PROGRAMME

### 10.1 SITE ESTABLISHMENT

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<p>To ensure minimal disturbance of the environment during the site establishment.</p>	<p>Construction camps on the site must be established on least sensitive locations preferably within already disturbed areas. After completion of the contract, these areas have to be rehabilitated.</p> <p><b>10.1.1 Site Plan:</b></p> <p>Documentation for the proposed camp site must be prepared by the Contractor prior to the commencement of construction activities, and must be submitted to Eskom for approval. This documentation must include, but not limited to the following:</p> <ul style="list-style-type: none"> <li>• Site access (including entry and exit points).</li> <li>• All material and equipment storage areas including storage areas for hazardous substances.</li> <li>• Construction offices and other structures.</li> <li>• Security requirements including temporary and permanent fencing, and lighting.</li> <li>• Solid waste management facilities.</li> <li>• Storm water control measures.</li> <li>• Provision of potable water and mobile chemical ablution facilities.</li> </ul> <p>Throughout the period of construction, the Contractor shall restrict all activities to within the designated areas as per the construction layout plan. Any relaxation or modification of the construction layout plan is to be approved by the ECO.</p>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Site Plan</li> <li>• Landowner agreements</li> </ul>	<ul style="list-style-type: none"> <li>• ECO</li> <li>• Contractor</li> <li>• CEO</li> </ul>	<p>Prior to site establishment</p>

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	<p><b>10.1.2 Site Camps:</b></p> <p>The following restrictions shall be placed on the site camp for the construction staff in general:</p> <ul style="list-style-type: none"> <li>• The use of water courses for washing of clothes.</li> <li>• The use of welding equipment, oxy-acetylene torches and other bare flames where veld fires can be a hazard.</li> <li>• Collection of firewood.</li> <li>• Poaching of any form.</li> <li>• Use of surrounding veld as toilets.</li> </ul> <p><b>10.1.3 Vegetation clearing:</b></p> <ul style="list-style-type: none"> <li>• The natural vegetation encountered on site is to be conserved and left intact as much as possible.</li> <li>• Only flora within the construction footprint must be cleared. Clearance must be as per the approved Method statement in line with Eskom policies.</li> <li>• Search and rescue should be done by a Specialist in consultation with the ECO.</li> <li>• No person shall: <ul style="list-style-type: none"> <li>○ uproot the plant in the process of picking the flower or any flora;</li> <li>○ without a permit pick any endangered or protected flora, or pick any flora on a public road or on the land on either side of such road within a distance of ninety metres from the centre of the road;</li> <li>○ pick any protected or indigenous unprotected flora on land of which he or she is not the owner, without the permission of the owner of such land or of any</li> </ul> </li> </ul>			

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	<p>person authorised by such owner to grant permission.</p> <ul style="list-style-type: none"> <li>○ If the above-mentioned activities will be involved in project, an application for permit must be lodged with CapeNature.</li> </ul> <p><b>10.1.4 Water for human consumption:</b></p> <p>Water for human consumption must be available at all times.</p> <p><b>10.1.5 Sewage Treatment:</b></p> <ul style="list-style-type: none"> <li>● Given the remoteness of the site, chemical toilets must be supplied (1 per 15 persons) and must be regularly cleaned and maintained by the Contractor.</li> <li>● The Contractor must arrange for regular emptying of toilets and will be entirely responsible for enforcing their use and for maintenance.</li> <li>● The ablution facilities must be at least 100m distance from the watercourses and associated buffers.</li> <li>● All ablution facilities must be anchored to prevent them from being toppled by the wind.</li> </ul>			

## 10.2 SENSITIVE ECOLOGY

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>● To ensure that the sensitive area is not disturbed.</li> <li>● To ensure minimal or if all possible no disturbance to</li> </ul>	The broad area along the proposed deviations has a high level of plant diversity and includes more than 50 species of high conservation concern. As a result, an impact on such species is a potential concern. Although some listed species were	<ul style="list-style-type: none"> <li>● Observation</li> <li>● ECO to monitor</li> </ul>	Eskom Contractor	Prior to construction

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<p>the vegetation on and around the site.</p>	<p>observed along the deviations, these were relatively widespread species, especially within the Namaqualand Strandveld and a significant impact on any populations of such species is highly unlikely.</p> <p>However, the following species were noted in each deviation:</p> <p><b>Deviation 1</b>, dominated by large tussocks of <i>Cladoraphis spinosa</i>, with other woody and succulent shrubs present such as <i>Stoberia</i>, <i>Zygophyllum morgsana</i>, <i>Galenia africana</i>, <i>Hermannia scordifolia</i>, <i>Hermannia trifurca</i>, <i>Lebeckia halenbergensis</i>, <i>Asparagus juniperoides</i>, <i>Tetragonia fruticosa</i>, <i>Conicosia elongata</i>, <i>Dorotheanthus rourkei</i> and <i>Lycium</i> with a forb layer of annuals and geophytes.</p> <p><b>Deviation 2</b> near the Grootp Goerap River. The dominant species include <i>Othonna cylindrica</i>, <i>Zygophyllum morgsana</i>, <i>Zygophyllum cordifolium</i>, <i>Eriocephalus africanus var paniculatus</i>, <i>Galenia fruticosa</i>, <i>Salsola namibica</i>, <i>Drosanthemum deciduum</i>, <i>Ruschia bipapillata</i>, <i>Drosanthemum latipetalum</i>, <i>Delosperma crassum</i>, <i>Lampranthus uniflorus</i> and <i>Lycium ferocissimum</i>. Annuals are common and consist of species such as <i>Osteospermum pinnatum var. pinnatum</i>, <i>Arctotis hirsuta</i>, <i>Cotula bipinnata</i>, <i>Foveolina tenella</i>, <i>Rhynchosidium pumilum</i>, <i>Oncosiphon suffruticosum</i> and <i>Senecio arenarius</i>.</p> <p><b>Deviation 3</b> and the dominant species include <i>Othonna cylindrica</i>, <i>Pteronia onobromoides</i>, <i>Helichrysum stellatum</i> and <i>Euphorbia burmanii</i>.</p> <p>The following mitigation measures are recommended:</p> <ul style="list-style-type: none"> <li>• Individuals of protected species which cannot be avoided should be translocated to safe sites nearby.</li> <li>• A permit from CapeNature and Northern Cape DENC is</li> </ul>	<ul style="list-style-type: none"> <li>• Site plan</li> </ul>		



Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	<p>required for any vegetation clearing, destruction or translocation of listed or protected plant species.</p> <ul style="list-style-type: none"> <li>• Existing tracks should be used for access wherever possible and wholesale clearing for a permanent road beneath the new power line is not recommended.</li> <li>• Follow-up checks should be conducted on an annual basis to ensure that alien species have not invaded the disturbed areas and no other forms of degradation have occurred.</li> <li>• The development footprint should be kept to a minimum, especially with regards to access roads created during construction.</li> <li>• The natural vegetation encountered on the site is to be conserved and left intact as much as possible.</li> <li>• Only vegetation directly affected by the works may be felled or cleared.</li> <li>• No open fires are permitted within naturally vegetated areas.</li> <li>• Formalise access roads and make use of existing roads and tracks where feasible, rather than creating new routes through naturally vegetated areas.</li> <li>• Bush clearing in the servitude or around the transmission power line must be in accordance to Eskom Vegetation Management Guideline (Reference – TGL41-334); and</li> <li>• No bush clearing is to be undertaken without the knowledge of the property owner. It is recommended that the owner is informed of the basic construction process during initial interaction so that they are aware of the vegetation clearing that will occur.</li> <li>• Only manual removal of weed will be permitted on site. Chemical and mechanical (TLB, bulldozer) control is not allowed on site.</li> <li>• Implement an alien invasive plant monitoring and</li> </ul>			

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	<p>management plan whereby the spread of alien and invasive plant species into the areas disturbed by the construction of the power line are regularly removed and re-infestation monitored</p> <ul style="list-style-type: none"> <li>• Any active faunal burrows within the development footprint should be located and marked before construction and avoided until the occupant animals can be excluded or have moved away due to the nearby construction activities.</li> <li>• Any fauna threatened by construction activities should be removed to safety by the ECO or other suitably qualified person.</li> <li>• Existing roads and access routes should be used wherever possible.</li> <li>• During construction all vehicles should adhere to demarcated tracks or roads and the speed limit should not exceed 40km/h on larger roads and should be 20-30km/h on smaller access tracks.</li> <li>• Where necessary, dust suppression should be used to reduce dust impacts on surrounding areas.</li> <li>• All construction staff should undergo environmental induction before construction commences in order to raise awareness and reduce potential faunal impacts.</li> <li>• All spills of hazardous material should be cleared in the appropriate manner according</li> <li>• Point out and/or demarcate all ecologically “sensitive” areas to the contractors (e.g. red data habitats &amp; species, water courses, sensitive soils, sand dunes, steep slopes and areas susceptible to erosion).</li> <li>• Demarcate and create a DWS approved buffer for the area near the wetlands and consider it a no-go area.</li> <li>• Ensure that ‘No-Go’ areas are clearly demarcated and/or fenced before construction starts. Barriers are to be</li> </ul>			

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	maintained in good order throughout the course of the construction.			

### 10.3 MATERIALS HANDLING, USE AND STORAGE

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>To ensure safe handling, storage use and disposal of hazardous substances.</li> <li>To ensure full compliance with the requirements of the applicable legislation.</li> </ul>	<p>The Contractor's management and maintenance of plant and machinery will be strictly monitored according to the criteria given below:</p> <p><b>10.3.1 Safety:</b></p> <ul style="list-style-type: none"> <li>All the necessary handling and safety equipment required for the safe use of hydrocarbons shall be provided by the Contractor to be used and/or worn by the staff.</li> <li>The Contractor must comply with the Occupational Health and Safety Act (Act 85 of 1993) and Construction Regulations, 2003 as this governs what the Contractor must do and provide for his staff.</li> </ul> <p><b>10.3.2 Hazardous Material Storage:</b></p> <ul style="list-style-type: none"> <li>Hydrocarbons and hazardous substances will only be stored under controlled conditions.</li> <li>All hazardous materials will be stored in a secured, designated area with restricted entry.</li> <li>Storage of hazardous products will only be in suitable containers. The containers must indicate the nature of the stored materials and Material Safety Data Sheets (MSDS).</li> </ul>	<ul style="list-style-type: none"> <li>Observation</li> <li>Incident Report</li> </ul>	ECO & Contractor CEO	Continuous throughout the construction phase

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	<p><b>10.3.3 Fuels and Gas Storage:</b></p> <ul style="list-style-type: none"> <li>Fuel must be stored in a steel tank supplied and maintained by the Contractor according to safety procedures.</li> <li>The tanks/ bowsers shall be situated on a smooth impermeable surface (concrete) with a permanent bund. The impermeable lining shall extend to the crest of the bund and the volume inside the bund shall be 110% of the total capacity of all the storage tanks/ bowsers.</li> <li>Gas welding cylinders and LPG cylinders must be stored in a secure, well-ventilated area. The Contractor must supply sufficient fire fighting equipment in the event of an accident and strictly no smoking will be allowed where fuel is stored and used.</li> </ul>			

#### 10.4 EMPR TRAINING

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
To ensure that all site personnel have basic level of environmental awareness training.	<ul style="list-style-type: none"> <li>The CEO shall arrange for Environmental Awareness Training programs for all personnel on site.</li> <li>The training must include the content of the EMPr and the CEO must sensitise the team on the importance of compliance.</li> <li>Weekly toolbox talks must be undertaken by the CEO.</li> </ul>	<ul style="list-style-type: none"> <li>Signed training attendance Register</li> <li>Declaration of good conduct signed by all site personnel</li> </ul>	<ul style="list-style-type: none"> <li>CEO</li> </ul>	Prior construction and to continue throughout construction through toolbox talks.

## 10.5 WATER SUPPLY

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>To ensure availability of water for various uses as and when required.</li> <li>To ensure that water usage is minimised.</li> <li>To conserve water resources at all times.</li> <li>To encourage a 3R (Reduce, Reuse, Recycle)</li> </ul>	<ul style="list-style-type: none"> <li>The Contractor must ensure that all water sources are authorised and proof of such must be presented to the ECO.</li> <li>Contractor must ensure absolute conservation of water throughout construction.</li> <li>If possible grey water must be used for dust suppression.</li> <li>Contractor must supply portable water for human consumption at all times.</li> </ul>	Water consumption record	ECO Contractor	Ongoing during the construction phase

## 10.6 VEHICULAR ACCESS AND MOVEMENT OF CONSTRUCTION VEHICLES

Possible Impact	Objective	Applicable Legislation /Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>Damage to protected /endangered vegetation.</li> <li>Damage to sensitive areas.</li> </ul>	<ul style="list-style-type: none"> <li>To prevent ecological damage.</li> <li>Minimise damage to the identified</li> </ul>	<ul style="list-style-type: none"> <li>CARA</li> <li>NEMBA</li> <li>NWA</li> </ul>	<ul style="list-style-type: none"> <li>A physical access Method Statement along the servitude shall be compiled by the Contractor and approved by the ECO.</li> <li>Access roads will be maintained by the Contractor. The Contractor will erect and maintain marker pegs along the</li> </ul>	<ul style="list-style-type: none"> <li>Access plan approved by the ECO</li> <li>No complaints from landowners.</li> <li>No access</li> </ul>	<ul style="list-style-type: none"> <li>Photographic record of private roads prior to the Contractor using the roads. Site</li> </ul>	ECO & Contractor CEO	Continuous during the construction phase

<ul style="list-style-type: none"> <li>Erosion and loss of topsoil.</li> </ul>	<p>watercourses.</p> <ul style="list-style-type: none"> <li>Minimise erosion of embankments and subsequent siltation of watercourses.</li> </ul>		<p>boundaries of the working areas, access roads, haul roads or paths before commencing any other work. If proved insufficient for control, these will be replaced. Ensure that access roads to the site are of a suitable quality to eliminate soil erosion and channel storm water.</p> <ul style="list-style-type: none"> <li>No illegal use of private roads during construction.</li> <li>The Contractor shall sign post the access roads to the tower positions, immediately after the access has been negotiated.</li> <li>No roads shall cut through water courses as this may lead to erosion causing siltation of streams.</li> <li>All negotiated existing private access roads used for construction purposes shall be maintained at all times to ensure that the land owners have free and easy access to and from their properties.</li> <li>Where new roads are required, the disturbance area should be kept minimal (A two track dirt road will be the most preferred option).</li> </ul>	<p>roads through wetlands</p> <ul style="list-style-type: none"> <li>No visible erosion scars once construction is completed</li> <li>Erosion is not evident on slopes.</li> <li>Use of designated access roads</li> <li>No complaints from the landowners</li> <li>No destruction of or</li> <li>damage to known</li> <li>archaeological sites</li> </ul>	<p>plan</p> <ul style="list-style-type: none"> <li>Regular monitoring of access roads conditions</li> <li>Monitoring of impacts into the surrounding areas</li> </ul>		
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			<ul style="list-style-type: none"> <li>The Contractor must not construct a road with a reserve wider than 13, 5 metres, or where no reserve exists where the road is wider than 8 metres as this triggers a listed activity as per 2014 EIA Regulation.</li> <li>Upon completion of the project all roads shall be repaired to their original state.</li> <li>All existing farm roads (private roads) damaged during the construction phase, should at the end of construction be repaired to the satisfaction of the landowner, as per the conditions of the written contractual agreement between the landowner and the Contractor.</li> </ul>				
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### 10.7 MOVEMENT OF CONSTRUCTION PERSONNEL AND EQUIPMENT

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>Impact on sensitive environs.</li> <li>Trespassing</li> <li>Safety and security.</li> </ul>	<ul style="list-style-type: none"> <li>To ensure controlled and manageable movement of personnel</li> </ul>	<ul style="list-style-type: none"> <li>TRMPV ACV2 REV1</li> </ul>	<ul style="list-style-type: none"> <li>The Contractor must ensure that all construction personnel, labourers and equipment remain within the demarcated construction sites at all times.</li> <li>Where construction personnel move</li> </ul>	<ul style="list-style-type: none"> <li>No trespassing of contractor's workforce.</li> <li>No complaints</li> </ul>	<ul style="list-style-type: none"> <li>Observation</li> <li>Security registers.</li> <li>Complaints register</li> </ul>	ECO & Contractor	Continuous throughout the construction phase.

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	and equipment		<p>outside the boundaries of the site, the Contractor/ labourers must obtain permission from the CEO.</p> <ul style="list-style-type: none"> <li>All equipment moved onto site or off site is subject to the legal requirements as well as Eskom specifications for the transport of such equipment. The Contractor shall meet these safety requirements under all circumstances.</li> <li>All equipment transported shall be clearly labelled as to their potential hazards according to specifications.</li> <li>All the required safety labelling on the containers and trucks used shall be in place.</li> <li>The Contractor shall ensure that all the necessary precautions against damage to the environment and injury to persons are taken in the event of an accident and shall provide a Method statement to that effect.</li> <li>The Contractor is to ensure that no machinery, personnel, material, or equipment enters 'No-Go' areas during the course of the project.</li> </ul>	from landowners			



## 10.8 PROTECTION OF FAUNA AND AVIFAUNA

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>• Damage to habitat</li> <li>• Negative impact on bird due to electrocution and faulting</li> <li>• Negative impact on animal life.</li> </ul>	<ul style="list-style-type: none"> <li>• To conserve animal life.</li> <li>• To ensure that impact on natural vegetation is kept to the minimum in order to conserve suitable habitats as much as possible.</li> <li>• To prevent degradation of suitable sensitive fauna habitats.</li> </ul>	<ul style="list-style-type: none"> <li>• NEMBA</li> </ul>	<p>Considering the loss of natural habitat in the area and the fragmentation of the remaining areas the following measures must be implemented:</p> <ul style="list-style-type: none"> <li>• Avoid unnecessary disturbance of faunal habitats.</li> <li>• Any bird nests that are found must be left intact/undisturbed.</li> <li>• The movement of vehicles and heavy machinery around sensitive fauna habitats (river crossings, pan systems and thickets) must be limited.</li> <li>• During construction, if any of the Red Data species as indicated in the Avifauna report (Appendix D2) are noted to be roosting and/or breeding in the vicinity, the ECO must be notified.</li> <li>• An Eskom approved bird friendly</li> </ul>	<ul style="list-style-type: none"> <li>• No reported faunal injuries</li> <li>• No complaints from landowners</li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Complaints register that records complaints from landowners</li> <li>• Daily inspection</li> </ul>	<ul style="list-style-type: none"> <li>• ECO</li> <li>• CEO</li> </ul>	On-going during the construction phase.

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	<ul style="list-style-type: none"> <li>To prevent contamination of water within the nearby watercourse thereby preserving several amphibian species.</li> <li>To ensure that impact on sensitive fauna species is kept to a minimum</li> <li>To ensure that ecological linkages are maintained along the power line</li> </ul>		<ul style="list-style-type: none"> <li>pole design must be used.</li> <li>Anti-collision devices must be installed as soon as the wires are strung.</li> <li>Under no circumstances shall any animals (livestock or game) be hunted, handled, killed or be interfered with by the construction team.</li> <li>Domesticated animals are not allowed on site.</li> <li>The Contractor shall keep the site clean and tidy from waste material that can attract animals.</li> <li>Fauna rescue and relocation programme must be implemented.</li> <li>Any open excavations must be regularly inspected to rescue any fauna that may have fallen in.</li> <li>Records of any injured or deaths of fauna within the construction servitude must be kept by the CEO and ECO.</li> <li>Construction must be restricted to</li> </ul>				

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	<p>route.</p> <ul style="list-style-type: none"> <li>To prevent injury or death of fauna species as a result of falling into open excavations</li> <li>To prevent collision of birds with power lines</li> <li>To prevent electrical faulting</li> </ul>		<p>daylight hours to prevent any disturbance such as floodlights.</p> <ul style="list-style-type: none"> <li>To mitigate for collision, it is recommended that the earth wires be fitted with Eskom approved anti bird collision line marking device.</li> <li>All towers close to water must be fitted with the standard Eskom Bird Guards as per Eskom Transmission guidelines.</li> </ul>				

### 10.9 HERITAGE AND/OR ARCHAEOLOGICAL SITES

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>Destruction of sites of archaeological and</li> </ul>	<ul style="list-style-type: none"> <li>To preserve any heritage, cultural or archaeological</li> </ul>	<ul style="list-style-type: none"> <li>NHRA</li> </ul>	In compliance with the National Heritage Legislature, there was no observable development activities	<ul style="list-style-type: none"> <li>Detailed record of chance finds.</li> <li>No destruction</li> </ul>	<ul style="list-style-type: none"> <li>Intermittent observation.</li> </ul>	<ul style="list-style-type: none"> <li>ECO &amp;</li> <li>Contractor</li> <li>CEO</li> <li>Archaeologist</li> </ul>	On-going during all excavations

<p>heritage significance.</p> <ul style="list-style-type: none"> <li>• Loss of historic cultural landscape.</li> <li>• Loss of intangible heritage value due to change in land use.</li> </ul>	<p>al sites that might be encountered during the construction phase.</p> <ul style="list-style-type: none"> <li>• Protection of known sites against destruction, vandalism and theft.</li> <li>• Preservation and appropriate management of any new archaeological sites should this be discovered during construction.</li> </ul>		<p>associated with the proposed project. The developer is reminded that archaeological material (e.g. pottery, remains of stone-walling, graves, etc) and fossils are often located underground. Thus, unavailability of archaeological material does not mean absenteeism as material might be hidden underground.</p> <p>The following mitigations measures must be implemented:</p> <ul style="list-style-type: none"> <li>• That should any archaic material be unearthed, activities should be halted immediately and SAHRA be consulted.</li> <li>• The need for Pre-construction education and awareness training on how to identify and protect archaeological remains that may be discovered during the project. The pre-construction training should include some limited site recognition training for the types of archaeological sites that may occur in the construction areas.</li> </ul>	<p>of or damage to known archaeological sites</p> <ul style="list-style-type: none"> <li>• Management of existing sites and new discoveries in accordance with the recommendations of the Archaeologist</li> <li>• No litigation due to destruction of sites.</li> </ul>			
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**10.10 SERVICING AND RE-FUELLING OF CONSTRUCTION EQUIPMENT**

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>Impact on soil and water resources due to accidental spillages.</li> </ul>	<ul style="list-style-type: none"> <li>To conserve soils, surface and ground water.</li> <li>To prevent spillages of hazardous substances</li> </ul>	<ul style="list-style-type: none"> <li>NEMWA</li> <li>NWA</li> <li>OHSA</li> </ul>	<ul style="list-style-type: none"> <li>All maintenance and repair work will be carried out within an area designated for this purpose, equipped with necessary pollution containment measures.</li> <li>Refuelling, greasing or oiling of vehicle and construction machinery must be done on a drip tray or bunded surface.</li> <li>Drip trays must be placed under stationary vehicles and machinery at all times.</li> <li>Construction vehicles are to be maintained in an acceptable state of repair. No vehicles or equipment with leaks or causing spills will be permitted on site.</li> <li>Fuels required during construction must be stored at a central depot that must be located on a slab and be contained within a bund capable of containing at least 110% of the total volume in the containers.</li> </ul>	<ul style="list-style-type: none"> <li>No evidence of hazardous substances polluting the site.</li> </ul>	<ul style="list-style-type: none"> <li>On-going monitoring with regular inspections; and</li> <li>Service Records.</li> </ul>	<ul style="list-style-type: none"> <li>ECO &amp;</li> <li>Contractor</li> <li>CEO</li> </ul>	On-going during the construction phase

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
			<ul style="list-style-type: none"> <li>Temporary fuel storage tanks and transfer areas also need to be located on an adequately bunded surface to contain accidental spillages.</li> </ul>				

#### 10.11 WASTE MANAGEMENT

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
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Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>• Visual Impact</li> <li>• Water resources</li> <li>• Land pollution</li> </ul>	<ul style="list-style-type: none"> <li>• To ensure the efficient management of waste on site</li> <li>• To ensure minimal impact on the surrounding environment</li> <li>• Minimise waste material being strewn in the environment</li> </ul>	<ul style="list-style-type: none"> <li>• NEMWA</li> </ul>	<p><b>10.11.1 SOLID WASTE MANAGEMENT</b></p> <ul style="list-style-type: none"> <li>• Waste must be separated at source (e.g. containers for glass, paper, metals, plastic, organic waste and hazardous waste).</li> <li>• An adequate number of scavenger proof refuse bins must be provided at the construction site and must be clearly labelled (general or hazardous) according to waste streams.</li> <li>• All waste must be transported in an appropriate manner (e.g. plastic rubbish bags) and disposed of at a licensed waste disposal facility. Proof of safe disposal must be kept on site.</li> <li>• The Contractor may not dispose of any waste and / or construction debris by burning, or burying.</li> <li>• Waste bins must be emptied regularly (minimum weekly) such that they do not overfill.</li> <li>• The Contractor shall maintain 'good housekeeping' practices and ensure that all work sites and the construction camp is kept tidy and litter free.</li> </ul>	<ul style="list-style-type: none"> <li>• Presence of proper storage facilities that are properly labelled.</li> <li>• Post-construction work areas are clear of all waste materials.</li> </ul>	<ul style="list-style-type: none"> <li>• Intermittent Observation</li> <li>• Waste Disposal Records</li> </ul>	<ul style="list-style-type: none"> <li>• ECO &amp;</li> <li>• Contractor</li> <li>• CEO</li> </ul>	Daily

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
			<p><b>10.11.2 LIQUID WASTE MANAGEMENT</b></p> <ul style="list-style-type: none"> <li>An adequate number of suitable containers with lids must be provided at the construction site.</li> <li>The Contractor will ensure that waste water is discharged in the drums provided.</li> <li>All waste must be transported in an appropriate manner and disposed of at a licensed waste disposal site.</li> </ul>				

## 10.12 SURFACE AND GROUND WATER MANAGEMENT

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>Possible contamination of water resources.</li> </ul>	<ul style="list-style-type: none"> <li>To conserve all natural water resources</li> <li>To avoid illegal</li> </ul>	NWA	<ul style="list-style-type: none"> <li>The Contractor must take reasonable precautions to prevent the pollution of ground and surface water</li> </ul>	<ul style="list-style-type: none"> <li>Unpolluted water course</li> </ul>	<ul style="list-style-type: none"> <li>Observation</li> <li>Design Plans</li> </ul>	<ul style="list-style-type: none"> <li>Contractor</li> <li>ECO</li> <li>CEO</li> </ul>	Continuous through the construction phase.



Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	<p>diversion and destruction of water resources.</p> <ul style="list-style-type: none"> <li>To ensure proper management of storm water run-off that causes erosion and siltation/sedimentation</li> <li>To ensure that the rivers and streams are protected and incur minimal negative impact from the development.</li> <li>To ensure compliance with the requirements of the Act.</li> </ul>		<p>resources as a result of construction activities.</p> <ul style="list-style-type: none"> <li>No natural watercourse is to be used for the cleaning of tools. This includes for purposes of bathing, or washing of clothes etc.</li> <li>No spills may be hosed into the surrounding natural environment.</li> <li>All soil contaminated must be excavated to the depth of contaminant penetration, placed in suitable drums/containers and removed to a hazardous waste facility.</li> <li>No extraction of water from any natural resources without the relevant authorisation.</li> <li>Erosion control measure must be put in place to control storm water runoff.</li> <li>Storm water management measures must be as per the</li> </ul>				

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
			<p>Method Statement prepared by the Contractor for ECO approval.</p> <ul style="list-style-type: none"> <li>Erosion control on all access roads must be undertaken.</li> <li>Any physical damage to any aspect of a watercourse must be prohibited.</li> <li>Minimise the extent of damage to flood plains that is necessary to complete the works, and will not pollute any water course as a result of construction.</li> </ul>				

### 10.13 SENSITIVE AREAS (WATER COURSES AND BUFFERS)

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>Changing the quantity and fluctuation properties of the</li> </ul>	<ul style="list-style-type: none"> <li>To preserve and conserve the sensitive</li> </ul>	NWA	Wetlands, numerous channels and non-perennial rivers were identified. There are numerous towers that are affected by these water courses.	<ul style="list-style-type: none"> <li>Undisturbed sensitive environment and/or</li> </ul>	<ul style="list-style-type: none"> <li>Observation</li> <li>WUL</li> </ul>	<ul style="list-style-type: none"> <li>CEO</li> <li>ECO</li> <li>Contractor</li> </ul>	Throughout the construction and post construction to ensure proper rehabilitation.

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<p>watercourse.</p> <ul style="list-style-type: none"> <li>Changing the amount of sediment entering water resource and associated change in turbidity (increasing or decreasing the amount)</li> <li>Alteration of water quality toxic contaminants (including toxic metal ions (e.g. copper, lead, zinc) and hydrocarbons.</li> <li>Changing the physical structure within a</li> </ul>	environment		<ul style="list-style-type: none"> <li>Construction in and around watercourses must be restricted to the dryer months (November to February) in the West Coast of South Africa.</li> <li>Vehicular access through watercourses must be prohibited (unless a GA/WUL is in place). If inevitable access must be managed and limited to only one access.</li> <li>Cordon-off areas that are under rehabilitation as no-go areas. If necessary, these areas should be cordoned off to prevent vehicular, pedestrian and livestock access.</li> <li>Runoff from roads must be managed to avoid erosion and pollution problems.</li> <li>Demarcate the watercourses and buffer zones to limit disturbance and clearly mark these areas as no-go areas.</li> <li>No stockpiling of any materials may take place within a 100m to any of the wetlands or drainage channels.</li> <li>Erosion control measures must be implemented in areas sensitive to</li> </ul>	<p>properly rehabilitated.</p> <ul style="list-style-type: none"> <li>Compliance with the WUL conditions</li> </ul>			

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
water resource.			<p>erosion, particularly in areas prone to wind erosion and where erosion has already occurred such as edges of slopes, exposed soil etc.</p> <ul style="list-style-type: none"> <li>Recommendation from Department of Water and Sanitation as part of the licencing process must be taken into consideration throughout the construction phase.</li> </ul>				

#### 10.14 HAZARDOUS MATERIALS

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>Impact on soils and water resources</li> </ul>	<ul style="list-style-type: none"> <li>To ensure safe and proper handling of hazardous material</li> </ul>	<ul style="list-style-type: none"> <li>HSA</li> </ul>	<ul style="list-style-type: none"> <li>The Contractor must comply with all National, Regional and Local legislation with regard to the storage, transport, use and disposal of petroleum, chemical, harmful and hazardous substances and materials.</li> <li>Spill kits must be made available on site at all times.</li> <li>The CEO will furthermore be</li> </ul>	<ul style="list-style-type: none"> <li>No incidents reported</li> </ul>	<ul style="list-style-type: none"> <li>Hazardous material data sheet</li> <li>Incident reports</li> <li>Observation of spillages and leakages</li> </ul>	<ul style="list-style-type: none"> <li>ECO &amp;</li> <li>Contractor</li> <li>CEO</li> </ul>	<p>Continuous throughout the construction phase</p>

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
			<p>responsible for the training and education of all personnel on site who will be handling the material about its proper use, handling and disposal.</p> <ul style="list-style-type: none"> <li>Storage of all hazardous material is to be safe, tamper proof and under strict control.</li> <li>Exercise extreme care with the handling of diesel and other toxic solvents to ensure that spillage is avoided.</li> <li>Any accidental chemical / fuel spills must be remediated immediately.</li> </ul>				

### 10.15 OIL SPILL MANAGEMENT

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>Impact on soils and water resources</li> </ul>	<ul style="list-style-type: none"> <li>To avoid ground and surface water contamination</li> <li>To ensure proper and safe handling of oil spillages.</li> </ul>	<ul style="list-style-type: none"> <li>HSA</li> </ul>	<ul style="list-style-type: none"> <li>The Contractor must prevent potential hydrocarbon spills during construction.</li> <li>Hydrocarbon must be stored in properly contained areas so as to minimise accidental spillage.</li> <li>Use of drip trays under stationary</li> </ul>	<ul style="list-style-type: none"> <li>No incident reported</li> <li>Proper use of drip trays</li> <li>Presence of oil spill kit</li> </ul>	<ul style="list-style-type: none"> <li>Observation</li> <li>Incident report</li> </ul>	<ul style="list-style-type: none"> <li>ECO</li> <li>Contractor</li> <li>CEO</li> </ul>	On-going during the construction phase.

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
			<p>vehicles. All spills must be reported to the ECO within 24 hours of the spill via a flash report.</p> <ul style="list-style-type: none"> <li>The Contractor must be in possession of a mobile oil spill kit at all times.</li> <li>The oil spill clean-up and rehabilitation standards need to be implemented.</li> </ul>				

#### 10.16 STORM WATER MANAGEMENT

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>Possible negative impact on water resources</li> </ul>	<ul style="list-style-type: none"> <li>To reduce the potential impact from runoff on sensitive areas.</li> </ul>	<ul style="list-style-type: none"> <li>NWA</li> </ul>	<ul style="list-style-type: none"> <li>The Contractor must ensure that rainwater pollutants from construction activities does not run-off into natural areas and thus result in a pollution threat.</li> <li>Storm water shall be diverted from the construction works.</li> <li>Storm water management measures must be as per the Storm water Management Method Statement prepared by the Contractor for ECO approval.</li> </ul>	<ul style="list-style-type: none"> <li>No evidence of erosion</li> <li>No evidence of increased siltation</li> <li>No evidence of contaminated water courses.</li> </ul>	<ul style="list-style-type: none"> <li>Site Plan</li> <li>Observation</li> </ul>	<ul style="list-style-type: none"> <li>ECO</li> <li>Contractor</li> <li>CEO</li> </ul>	<p>Continuous during the construction</p>

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
			<ul style="list-style-type: none"> <li>Increased runoff due to vegetation clearance and/or soil compaction must be managed and steps must be taken to ensure that storm water does not lead to excessive levels of silt entering the watercourses.</li> <li>Necessary storm water control mechanisms shall be employed to ensure the sustainability of all the structures.</li> <li>Effort shall be made to ensure that storm water leaving the construction site is not contaminated by any substance, whether solid, liquid or gas.</li> </ul>				

#### 10.17 FIRE

Possible Impact	Objective	Applicable Legislation /Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>Destruction of property</li> <li>Loss of life</li> <li>Destruction of</li> </ul>	<ul style="list-style-type: none"> <li>To prevent open fires.</li> <li>To ensure that the workforce is</li> </ul>	<ul style="list-style-type: none"> <li>NEMA</li> </ul>	<ul style="list-style-type: none"> <li>A fire Management Method Statement must be put in place by the Contractor Landowners must be consulted in order to incorporate their specific firefighting measures. The Method Statement must be approved by the ECO.</li> <li>All the necessary precautions to ensure</li> </ul>	<ul style="list-style-type: none"> <li>No reported fire incidents</li> <li>No loss of life</li> <li>No traces of cigarettes butts outside the</li> </ul>	<ul style="list-style-type: none"> <li>Fire Management Plan</li> <li>Daily checks</li> </ul>	<ul style="list-style-type: none"> <li>ECO</li> <li>Contractor</li> <li>CEO</li> </ul>	On-going during the construction phase

Possible Impact	Objective	Applicable Legislation /Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
crops and livestock	aware of emergency procedures should an incident occur		<p>that fires are not started as a result of activities on site must be implemented.</p> <ul style="list-style-type: none"> <li>• Fuels or chemicals must be stored at the designated storage area.</li> <li>• Gas and liquid fuels must not be stored in the same storage area.</li> <li>• All fire control mechanisms (fire fighting equipment) will be made available and accessible at all times and routinely inspected.</li> <li>• No open fires for heating or cooking will be permitted on site, unless agreed and then only on designated areas.</li> <li>• Designated smoking areas must be provided, with special bins for discarding of cigarette stump.</li> <li>• Fire must be reported immediately.</li> <li>• Where applicable, the location of fire beaks should be indicated and these fire breaks may be considered part of the development footprint.</li> <li>• Fire-breaks must be brush-cut and vegetation must not be completely removed.</li> <li>• Brush cutting under power lines must occur as infrequently as possible as brush cutting will lead to loss of species diversity over time.</li> <li>• A fire risk can help inform an appropriate layout for developments adjacent to fire-</li> </ul>	designated smoking area.			



Possible Impact	Objective	Applicable Legislation /Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
			prone vegetation.				

### 10.18 AIR POLLUTION

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>Dust nuisance from excavations, vegetation clearing and dirt roads.</li> <li>Exhaust fumes from construction vehicles.</li> </ul>	<ul style="list-style-type: none"> <li>To ensure proper mitigation of air pollution</li> <li>To avoid dust nuisance from excavation activities and vehicles on dirt roads</li> </ul>	<ul style="list-style-type: none"> <li>NEMAQA</li> </ul>	<p>The potential air pollutants would be dust emanating from excavation activities and access roads; emissions or exhaust fumes from faulty plant or equipment. The following measures must be put in place:</p> <ul style="list-style-type: none"> <li>Appropriate dust suppression measures or temporary stabilising mechanisms (e.g. adherence to speed limit, chemical soil binders, straw, brush packs chipping) must be put in place throughout construction, particularly during prolonged periods of dry weather.</li> <li>Removal of vegetation must be avoided until such time as soil stripping is required.</li> <li>No burning of waste material is allowed;</li> <li>A maximum speed of 40km/hr. on the access road must be adhered to in order to minimise or avoid dust pollution.</li> <li>Construction vehicles and equipment must be in good working order and serviced regularly.</li> </ul>	<ul style="list-style-type: none"> <li>No complaints from surrounding land owners recorded.</li> <li>No evidence of dust pollution plumes on site.</li> </ul>	<ul style="list-style-type: none"> <li>Observation</li> <li>Complaints register</li> </ul>	<ul style="list-style-type: none"> <li>ECO</li> <li>Contractor</li> <li>CEO</li> </ul>	On-going throughout the construction phase

## 10.19 NOISE

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>Noise during excavation/ drilling of foundations and associated activities</li> </ul>	<ul style="list-style-type: none"> <li>To ensure minimal noise disturbance</li> <li>To ensure proper mitigation of noise.</li> <li>To avoid noise nuisance from operating construction equipment.</li> </ul>	<ul style="list-style-type: none"> <li>ECA</li> </ul>	<ul style="list-style-type: none"> <li>Machinery and vehicles are to be maintained in good working order.</li> <li>Offending machinery and vehicles will be banned from use on site until they have been repaired.</li> <li>The project team must endeavour to keep noise generating activities associated with construction to a minimum and within working hours.</li> <li>Any complaints pertaining to noise must be recorded and reported to the ECO and addressed accordingly.</li> <li>Labourers to be provided with hearing protection as and when required.</li> </ul>	<ul style="list-style-type: none"> <li>No complaints from surrounding land owners recorded.</li> </ul>	<ul style="list-style-type: none"> <li>Noise monitoring</li> <li>A register of complaints to be kept on site at all times and kept up to date.</li> </ul>	<ul style="list-style-type: none"> <li>Contractor</li> <li>ECO</li> <li>CEO</li> </ul>	On-going during the construction phase

## 10.20 VISUAL

Possible Impact	Objective	Applicable Legislation/ Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>Loss of sense of place.</li> </ul>	<ul style="list-style-type: none"> <li>To ensure proper mitigation of</li> </ul>	<ul style="list-style-type: none"> <li>NEMA</li> </ul>	<ul style="list-style-type: none"> <li>Storage facilities and other temporary structures on site must be located such</li> </ul>	<ul style="list-style-type: none"> <li>Clean and tidy site.</li> </ul>	<ul style="list-style-type: none"> <li>Observation</li> <li>Complaints register</li> </ul>	<ul style="list-style-type: none"> <li>ECO &amp; Contractor</li> <li>CEO</li> </ul>	On-going during the construction phase.

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
	<p>potential visual impacts.</p> <ul style="list-style-type: none"> <li>To maintain the site's aesthetics.</li> </ul>		<p>that they have as little visual impact on local residents as possible.</p> <ul style="list-style-type: none"> <li>Soil excavated (if any) must not be stockpiled above 2m.</li> <li>All temporary structures erected on site for the purposes of the project's construction phase will be removed from site upon completion of the project.</li> <li>Lighting will be sufficient to ensure security but will not constitute 'light pollution' to the surrounding areas.</li> <li>The site must be clean and tidy at all times.</li> </ul>	<ul style="list-style-type: none"> <li>No complaints from the landowners and affected parties.</li> </ul>			

### 10.21 EXCAVATION, BACKFILLING AND TRENCHING

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>Possible erosion</li> <li>Injury of animal life</li> </ul>	<ul style="list-style-type: none"> <li>To prevent erosion.</li> <li>To ensure safety for both human and animals.</li> </ul>	<ul style="list-style-type: none"> <li>OHSA</li> </ul>	<p>While working at areas prone to erosion the following must be adhered to:</p> <ul style="list-style-type: none"> <li>Excavations must not be left open for longer than 7 days.</li> <li>Excavations must be barricaded/ fenced off at all times.</li> </ul>	<ul style="list-style-type: none"> <li>No incidence of animals trapped in trenches reported</li> </ul>	<ul style="list-style-type: none"> <li>Observation</li> <li>Incident report</li> </ul>	<ul style="list-style-type: none"> <li>Contractor /</li> <li>ECO</li> <li>CEO</li> </ul>	On-going excavations

### 10.22 AGRICULTURAL ACTIVITIES

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>Negative impacts on agricultural activities.</li> </ul>	<ul style="list-style-type: none"> <li>To limit the impact on agricultural activities.</li> <li>To avoid undue loss of livestock and crops.</li> </ul>	CARA	<ul style="list-style-type: none"> <li>Maintain good relations with landowners.</li> <li>Consult farmers prior to any clearing activities.</li> <li>Avoid unnecessary destruction of crops by remaining within the servitude at all times.</li> <li>No form of disturbance of agricultural stock will be permitted for whatever reason.</li> </ul>	<ul style="list-style-type: none"> <li>No encroachment into agricultural crops</li> <li>No negative feedback from landowners</li> </ul>	<ul style="list-style-type: none"> <li>Observation</li> <li>Complaints register</li> </ul>	<ul style="list-style-type: none"> <li>ECO</li> <li>CEO</li> <li>Contractor</li> </ul>	During and after maintenance procedures

### 10.23 EROSION AND CONTROL

Possible Impact	Objective	Applicable Legislation /Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>Impact on soils and habitats and sensitive environs.</li> </ul>	<ul style="list-style-type: none"> <li>To prevent erosion and sedimentation.</li> </ul>	<ul style="list-style-type: none"> <li>NWA</li> </ul>	<p>To prevent any form of erosion the following must be adhered to:</p> <ul style="list-style-type: none"> <li>During construction, the Contractor will protect areas susceptible to erosion by installing necessary temporary and / or permanent drainage and by taking</li> </ul>	<ul style="list-style-type: none"> <li>No visible signs of erosion.</li> </ul>	<ul style="list-style-type: none"> <li>Observation</li> <li>Complaints register</li> </ul>	<ul style="list-style-type: none"> <li>Contractor</li> <li>ECO</li> <li>CEO</li> </ul>	On-going particularly during excavations

Possible Impact	Objective	Applicable Legislation /Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
			<p>suitable measures to prevent surface water concentration into nearby roadways.</p> <ul style="list-style-type: none"> <li>• Prior to construction, all topsoil must be stripped and stockpiled separately from subsoil and rocky material. Soil must be stripped in a phased manner so as to retain vegetation cover for as long as possible.</li> <li>• Stockpiled topsoil must not be compacted and must be replaced as the final soil layer.</li> <li>• Stockpiled soil must be protected by erosion-control berms if exposed for a period of greater than 14 days during the wet/windy season.</li> <li>• Topsoil stockpiles must not be contaminated with oil, diesel, petrol, waste or any other foreign matter, which may inhibit the later growth of vegetation and micro-organisms in the soil.</li> <li>• Soil must not be stockpiled on drainage lines or near watercourses</li> <li>• The timing of clearing and grubbing</li> </ul>				

Possible Impact	Objective	Applicable Legislation /Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
			<p>must be co-ordinated as much as possible to avoid prolonged exposure of soils to wind and water erosion.</p> <ul style="list-style-type: none"> <li>• If topsoil will be stockpiled for a longer period, it must be either vegetated with indigenous grasses or covered with a suitable material to prevent erosion and invasion by weeds.</li> <li>• To limit the introduction of alien species into the area, no soil may be imported onto site.</li> <li>• Where required, cut-off trenches can be installed to divert substantial run-off and prevent erosion as and when necessary.</li> <li>• Where new roads are constructed, water diversion berms should be constructed to prevent erosion.</li> <li>• Sensitive areas such as watercourses (wetlands, pans, and riparian areas) must be cordoned off to control vehicles and construction personnel access.</li> </ul>				

## 10.24 USE OF CEMENT AND CONCRETE

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>Soil, surface and ground water pollution.</li> </ul>	<ul style="list-style-type: none"> <li>To conserve soils, surface and groundwater.</li> <li>To minimise waste concrete from polluting the environment</li> </ul>	<ul style="list-style-type: none"> <li>NEMA</li> <li>NEMWA</li> <li>HSA</li> </ul>	<p>Cement and concrete are regarded as highly hazardous to the natural environment due to their high pH and the chemicals contained therein. To avoid ground pollution the following must be implemented:</p> <ul style="list-style-type: none"> <li>Pre-mix concrete shall be the preferred option where possible.</li> </ul> <p>If concrete mixing is undertaken on site, the following measures must be put in place:</p> <ul style="list-style-type: none"> <li>The batching / mixing area must be properly designated, indicated on the site plan and kept neat and tidy at all times.</li> <li>No batching / mixing activities will occur on a permeable surface.</li> <li>Unused cement bags will be stored and disposed of appropriately.</li> <li>The visible remains of the batch plant and concrete, either solid, or from washings shall be physically removed and disposed of appropriately at a licensed landfill site if not reused.</li> </ul>	<ul style="list-style-type: none"> <li>Areas of construction are clear of all concrete residue/waste following construction.</li> </ul>	<ul style="list-style-type: none"> <li>Observation</li> <li>Site Plan</li> </ul>	<ul style="list-style-type: none"> <li>Contractor</li> <li>ECO</li> <li>CEO</li> </ul>	Throughout the construction phase

## 10.25 SITE CLEAN-UP AND REHABILITATION

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>Erosion</li> <li>Spread of alien invasive plant species</li> </ul>	<ul style="list-style-type: none"> <li>Minimise damage to topsoil and environment at tower positions</li> <li>Successful rehabilitation of all damaged areas</li> <li>Prevention of erosion.</li> <li>To ensure that the site is fully rehabilitated to its original state.</li> <li>To ensure that the site is clean and neat.</li> <li>Minimize claims and litigation from landowners</li> </ul>	<ul style="list-style-type: none"> <li>NEMBA</li> <li>NEMA</li> </ul>	<ul style="list-style-type: none"> <li>The Contractor must ensure that all temporary structures, materials, waste and facilities used for construction activities are removed upon completion of the project.</li> <li>Fully rehabilitate (e.g. clear and clean area, rake, pack branches etc.) all disturbed areas and protect them from erosion.</li> <li>All replaced equipment and excess gravel, stone, concrete, bricks, temporary fencing and the like shall be removed from the site upon completion of the work.</li> <li>No discarded materials of any nature shall be buried on the site or on any other land within the site.</li> <li>Re-seeding shall be done on disturbed areas as per the rehabilitation Method Statement and as directed by the CEO and ECO.</li> <li>Slopes in excess of 2% must be contoured and slopes in excess of 12% must be terraced.</li> <li>The Contractor shall dispose of all excess material from site at a registered disposal facility.</li> <li>Reusable material will be taken off site and reused elsewhere.</li> </ul>	<ul style="list-style-type: none"> <li>No loss of topsoil due to construction activities</li> <li>No loss of topsoil due to construction activities</li> <li>All disturbed areas successfully rehabilitated within three months of completion of the contract</li> <li>No visible erosion scars three months after completion of the contract</li> </ul>	<ul style="list-style-type: none"> <li>Rehabilitation Plan</li> <li>Observation</li> </ul>	ECO CEO Contractor	<ul style="list-style-type: none"> <li>On completion of construction</li> <li>Random surveys by landowner</li> </ul>



Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
				<ul style="list-style-type: none"> <li>• No open fires shall be allowed on site under any circumstance</li> <li>• No evidence of rubble or litter left on site.</li> <li>• Successful completion of the contract with all landowners signing the release form six months after completion of the project.</li> </ul>			

## 10.26 GEOLOGY

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>Loss of aesthetic value</li> <li>Habitat destruction</li> <li>Geological fragmentation</li> <li>Loss of livestock</li> </ul>	<ul style="list-style-type: none"> <li>To conserve the natural geology on site.</li> <li>To ensure the structural integrity of pylons.</li> <li>To limit undue disturbance on the sand dunes.</li> </ul>	NEMA	<p>The geology of the area varies from highly rock to extremely sandy.</p> <ul style="list-style-type: none"> <li>Sand dunes have been noted on site and towers must not be placed on them.</li> <li>Foundations must be tower specific as the geology varies.</li> <li>Geological sensitive areas (sand dunes) must be marked as no go areas.</li> <li>Blasting Method Statement must be prepared, signed by the engineer and approved by the ECO.</li> </ul> <p>Where blasting is required the following must be implemented:</p> <ul style="list-style-type: none"> <li>Land owners must be notified prior to blasting.</li> <li>Construction team must be made aware of the planned blasting activities.</li> <li>Proper PPE must be worn at all times.</li> <li>Blasting activities must be supervised by qualified personnel.</li> </ul>	<ul style="list-style-type: none"> <li>No loss of life due to blasting activities.</li> <li>Stable pylons</li> <li>Intact geological structure</li> </ul>	<ul style="list-style-type: none"> <li>Signed off by foundations engineers.</li> <li>Blasting Certificate</li> </ul>	<ul style="list-style-type: none"> <li>Engineers</li> <li>ECO</li> <li>CEO</li> </ul>	Throughout construction.

## 10.27 INFRASTRUCTURE

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>• Damage to fence, gates and telephone lines</li> <li>• Loss of livestock</li> </ul>	<ul style="list-style-type: none"> <li>• Minimise damage to infrastructure such as fence, gates and telephone lines.</li> <li>• Prevent loss of livestock</li> <li>• Minimize claims and litigation from landowners</li> </ul>	Fencing Act (Act 31 of 1963)	<ul style="list-style-type: none"> <li>• The Contractor must ensure that all gates are left in the state the landowner intended.</li> <li>• The Contractor must not interfere with landowner's locks.</li> <li>• No gates must be left open as this can lead to livestock loss.</li> <li>• The climbing/crawling over/through fences without the permission of the landowner must be prohibited.</li> <li>• Damage to fences during stringing must be avoided.</li> <li>• No infrastructure along the authorised route must be tampered with e.g. telephone lines.</li> </ul>	<ul style="list-style-type: none"> <li>• No complaints from the landowners with regards to broken fences and gates.</li> <li>• All gates closed during the construction phase.</li> <li>• No damage to the existing telephone lines along the proposed route.</li> </ul>	<ul style="list-style-type: none"> <li>• Complaints register</li> <li>• Observation</li> </ul>	<ul style="list-style-type: none"> <li>• ECO</li> <li>• CEO</li> <li>• Contractor</li> </ul>	<ul style="list-style-type: none"> <li>• During construction and completion of construction</li> <li>• Random surveys landowner</li> </ul>

**10.28 OPERATION PHASE**

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>• Access roads used for maintenance might impact on vegetation and water courses.</li> <li>• Bird collisions with power lines and possible bird electrocutions.</li> <li>• Waste generation during the operation phase will have a negative impact on the environment, if not controlled adequately</li> </ul>	<ul style="list-style-type: none"> <li>• To prevent ecological damage.</li> <li>• Minimise damage to the identified watercourses.</li> <li>• Reduce the deaths of birds caused by collision and electrocution.</li> <li>• To prevent littering on site by storing waste appropriately.</li> <li>• Prevent loss of life of people and livestock due to electrocution.</li> </ul>	<p>NEMA NWA NEMWA NEMBA OHSA</p>	<p><b>10.28.1 Access road</b></p> <ul style="list-style-type: none"> <li>• Existing access roads should be used as far as possible, ensuring proper maintenance and upgrade.</li> <li>• No vehicles should be allowed to cross rivers or streams in any area other than an approved crossing.</li> <li>• Appropriate erosion measures must be in place to prevent any impact in surrounding habitat.</li> </ul> <p><b>10.28.2 Avifauna</b></p> <p>The pylons must be fitted with bird perches on top to draw birds from the potentially risky insulators.</p> <p><b>10.28.3 Waste</b></p> <ul style="list-style-type: none"> <li>• Where possible, construction waste on site must be reused or recycled.</li> <li>• Disposal of waste must be in accordance with relevant</li> </ul>	<p>No complaints from the land owners.</p>	<ul style="list-style-type: none"> <li>• Complaints register</li> <li>• Observation</li> </ul>	<ul style="list-style-type: none"> <li>• Project Manager</li> <li>• ECO</li> </ul>	<p>Weekly</p>

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<p>y.</p> <ul style="list-style-type: none"> <li>Waste generation during the operational phase will have a negative impact on the environment if not controlled adequately.</li> <li>Waste will include general and hazardous wastes.</li> <li>There is the potential risk of electrocution (people and livestock) if access to the site</li> </ul>			<p>legislative requirements.</p> <ul style="list-style-type: none"> <li>The Contractor must familiarize themselves with the definitions of waste and the handling, storage and transport of it as prescribed in the applicable environmental legislation.</li> <li>Burning of waste material will not be permitted.</li> </ul> <p><b>10.29.4 Safety</b></p> <ul style="list-style-type: none"> <li>Safety and security issues should be addressed as a priority. It is recommended that the landowners and affected community members are contacted in advance to ensure that they are forewarned of the construction and maintenance activities planned in the area.</li> <li>The local community must be educated about the dangers of high voltage electricity.</li> </ul>				

Possible Impact	Objective	Applicable Legislation/Policy	Mitigation / Management Action	Performance Indicator	Monitoring Criteria	Responsible Agent	Monitoring Frequency
is not controlled.							

### 10.29 MONITORING OF EMPR COMPLIANCE

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
To implement an on-going monitoring and performance audit programme.	<ul style="list-style-type: none"> <li>The correct and successful implementation of impact mitigation measures in order to reduce adverse impacts on environmental aspects needs to be ensured by a proper monitoring program.</li> <li>Monitoring of the general implementation of/adherence to the EMPr shall be the responsibility of the ECO.</li> <li>Reporting on adherence/compliance to stipulations as communicated to Contractors, shall take place during scheduled site meetings.</li> <li>Regular site Meetings by the project team.</li> <li>Continuous induction of staff and visitors on the EMPr conditions and requirements.</li> <li>Put in place non-conformance, prevention and corrective procedures.</li> </ul>	<ul style="list-style-type: none"> <li>Observation</li> <li>Checklist</li> <li>Daily Register</li> <li>Attendance Registers</li> <li>Photographic evidence</li> <li>Audit and Monitoring Reports</li> </ul>	<ul style="list-style-type: none"> <li>ECO &amp;</li> <li>Contractor</li> <li>CEO</li> </ul>	On-going post rehabilitation.

### 10.30 DOCUMENT CONTROL

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>• To ensure compliance with the requirements of the regulatory authority</li> <li>• To assign roles and responsibilities to ensure compliance</li> <li>• To implement and comply with the requirements of the EMPr.</li> </ul>	<ul style="list-style-type: none"> <li>• A copy of the EMPr and the EA will be made available on site at all times.</li> <li>• The EMPr as well as the EA will be used for referral as the project progresses. The EA will also be presented on request to I&amp;APs and stakeholders who may visit the site.</li> <li>• Monitoring and Audit Reports must be submitted to DEA and copies filed.</li> </ul>	<ul style="list-style-type: none"> <li>• Availability of an EMPr copy on site</li> <li>• Report submission Transmittal</li> </ul>	<ul style="list-style-type: none"> <li>• ECO &amp;</li> <li>• Contractor</li> <li>• CEO</li> </ul>	<p>On-going during the construction phase.</p>

## 11 SUMMARY OF LAND OWNER DETAILS AND CONDITIONS

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 on the works undertaken on private property. Eskom shall ensure that all agreements reached with the Landowner are fulfilled, and that such areas be rehabilitated once construction is completed.

## 12 GENERIC CONDITIONS

In order to ensure compliance with Eskom's environmental policy as well as environmental legislation requirements, the following generic conditions are applicable:

### 12.1 SITE DOCUMENTATION/MONITORING

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.

Monthly reports shall be forwarded to the appointed Land Development Environmental Advisor with all information relating to environmental matters. The following Key Performance Indicators must be reported on a two-weekly basis:

- Complaints received from Landowners and actions taken.
- Environmental incidents, such as oil spills, concrete spills, etc. and actions taken (litigation excluded).
- Incidents possibly leading to litigation and legal contraventions.
- Environmental damage that needs rehabilitation measures to be taken.

The following documentation shall be kept on site:

- Access negotiations and physical access plan.
- Complaints register.
- Site daily diary.
- Records of all remediation / rehabilitation activities.
- Copies of monthly reports to the Tx Environmental Advisor.
- Copy of the EMP.



## 12.2 AUDITS

During the construction period at least monthly Environmental Audits shall be conducted by the ECO to determine compliance with the recommendations of the EMPr and conditions of the EA.

The appointed ECO, as well as the contractors on site, are responsible for ensuring compliance with the EMPr. It is recommended that periodic EMPr compliance reports (audits) are compiled by the ECO and submitted to CEO for correction of non-compliance issues. It is the responsibility of the ECO to report any non-compliance, which is not correctly rectified to the DEA.

## 12.3 ACCESS TO DOCUMENTS

Interested and Affected Parties (Landowners) must be allowed access to the EMPr document should they so wish. They have the right to monitor specific aspects of the Construction and Operation EMPr in conjunction with the ECO and Contractor in a reasonable and informal manner, without unreasonably disrupting construction activities.

## 12.4 SOCIO-CULTURAL ISSUES

- A plan of action must be drawn up in the case of an emergency (veld fire, damaged power line, vegetation problems etc.)
- Property owners or occupiers must be treated with respect and courtesy at all times;
- The culture and lifestyles of the communities living in close proximity to the substation must be respected;
- Removal of agricultural products is prohibited. Receipts must be obtained for any merchandise purchased or received from landowners;
- Vehicles must be driven carefully in hazardous road conditions (sharp bends, narrow roads, bad weather, children playing on or near the road, domestic animals on or near the road etc.). Vehicle movement must be kept to a minimum during rain to avoid damage to the access road;
- Environmental clauses (as referred to in this Construction and Operation EMPr) must be included into contract documents for all contractors;
- Tribal graves, archaeological sites and sites of historical interest are to be treated with respect and protected.
- No firewood is to be collected except with the written consent of the landowner; and
- A register must be maintained of all complaints or queries received as well as action taken.

### **13 FAILURE TO COMPLY WITH THE ENVIRONMENTAL CONSIDERATIONS**

The ECO will, acting reasonably, have the authority to order the Contractor to suspend part or all of the works if the he causes unacceptable damage to the environment by not adhering to the specifications set out below. The suspension will be enforced until such time as the offending parties' actions, procedures and/or equipment are corrected and adequate mitigation measures implemented.