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## **DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME FOR THE PROPOSED DECOMMISSIONING OF VERWOEDSBURG 275kV SUBSTATION AND 2X 275kV VERWOEDSBURG APOLLO POWER LINES**

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DOCUMENT CONTROL

**ENVIRONMENTAL MANAGEMENT PROGRAMME FOR THE PROPOSED DECOMMISSIONING OF VERWOEDSBURG 275KV SUBSTATION AND 2X 275KV VERWOEDBURG APOLLO POWER LINES**

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**ACRONYMS**

APPA	Atmospheric Pollution Prevention Act, 1965 (Act 45 of 1965)
EMPr	Environmental Management Programme Report
EMP	Environmental Management Programme
DEA	Department of Environmental Affairs
EA	Environmental Authorisation
ECO	Environmental Control Officer
MSDS	Material Safety Data Sheet
NEMA	National Environmental Management Act, 1998 (Act 107 of 1998)
MEMBA	National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004)
SAHRA	South African Heritage Resources Agency

## 1 INTRODUCTION

The proposed decommissioning and demolishing of Verwoedburg Substation and 2 x 275kV Apollo Verwoedburg lines is in accordance with the requirements of the National Environmental Management Act, 1998 (Act 107 of 1998) an activity that requires environmental authorization prior to commencement. Consequently, Nsovo has compiled an Environmental Management Programme (EMP) which will be a guideline for the mitigation and management measures to be implemented to avoid, reduce and/or eliminate potential environmental impacts during the decommissioning and rehabilitation phases of the proposed project.

This EMP has been compiled in accordance with the recommendation from the National Department of Environment Affairs (DEA), requirements for Eskom Holding SOC Limited (Eskom) and in compliance with section 28 of the National Environmental Management Act, 1998 (Act 107 of 1998) which imposes a *duty of care* and remediation of environmental damage. The purpose of this EMP 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.

This EMP is a blue print that guides the day to day activities throughout the lifecycle of the project; it may from time to time require revisions as may be dictated by the course of the decommissioning activities.

### 1.1 PROJECT BACKGROUND

The proposed activity is a listed activity under GN R. 544 of the EIA Regulations, 2010, Activity No.27 which dictates that a Basic Assessment is undertaken, with full consultation with the stakeholders, commenting authorities and Interested and Affected Parties (I&APs).

The Verwoedburg substation consists of 2 x 275/132kV, 125MVA transformers. The existing 275kV transformers and their respective feeders will be decommissioned once the new substation is commissioned on the 400kV supply. The scope covers the decommissioning and demolition of the existing Verwoedburg 275/132kV Substation and 2x275kV Verwoedburg Apollo lines, which includes:

- Removal of all above-ground structures and components.
- Removal of some below-ground structures and components.
- Covering of excavations.

The decommissioning and demolishing activities will take place at the

- 132kV yard
- 275kV yard;
- Common yard; and

- The 2x 275kV Verwoedburg Apollo lines.

The activities will entail the dismantling of conductors, steelworks support and demolishing of foundations

## 1.2 DESCRIPTION OF LOCALITY

The aforementioned project is located on the Farm Doomkloof 391 JR within the jurisdiction of the City of Tshwane Metropolitan Municipality (CTMM) in the Gauteng Province, South Africa. The site is along the M57 and is zoned and used as industrial.

The surrounding environment is characterised by the following:

Aspect	Description
Topography	The topography is undulating.
Land Use	The proposed site is currently zoned and used as industrial.
Heritage	No obvious heritage sites were noted in close proximity to the substation site and power lines.
Access Roads	Access to the site will be through the existing road to the substation, which branches off the M57.
Flora	The substation site is fully developed therefore; no sensitive flora was noted around the substation. However, some alien species were noted along the lines.
Surface Water	No surface water was noted within a 32m distance from within the substation boundary. However a non-perennial was noted approximately 1500m from the substation boundary.

The EMP will address mitigation measures for the identified aspects during the proposed project.

## 2 PURPOSE AND SCOPE OF THE EMP

The EMP sets out general environmental specifications, which are applicable to the activities associated with the proposed project. This Environmental Management Programme Report (EMPr) 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 EMP in throughout the project, or in those instances where specific instructions are provided.

The objectives of the EMP are to:

- Ensure that the activity is undertaken in compliance with National and Provincial Environmental Legislation, Local by-laws and Eskom's Policy and Guidelines.
- Determine environmental conditions and sensitivities of the site and areas outside that may be impacted by the activity.
- Detail mitigation measures, time-frames and criteria for assessing the success or failure of each measure.
- Provide detailed monitoring programme to ensure compliance.
- Provide input and strategies for environmental quality control and risk management.
- Minimise the extent of impact during the decommissioning and demolishing activities.
- Ensure appropriate restoration of areas affected by the proposed activities.
- Prevent long term environmental degradation.

### **3 GENERAL ENVIRONMENTAL GUIDELINES FOR THE CONSTRUCTION PHASE**

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

The main contractor shall receive a copy of the EMP from the client (Eskom) on which he / she will be given the opportunity to clear any misconceptions and uncertainties. The EMP 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.

### **4 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 1 Legislation pertaining to the proposed project**

Aspect	Relevant Legislation	Brief Description
Environment	National Environmental Management: Act 1998, (Act No. 107 of 1998)	The overarching principles of sound environmental responsibility are reflected in the National Environmental Management Act, 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	Atmospheric Pollution Prevention Act, 1965 (Act 45 of 1965) (APPA)	The object of the Act is to protect the environment by providing reasonable measures for the protection and enhancement of the quality of air and to prevent pollution of air and ecological degradation.



Aspect	Relevant Legislation	Brief Description
	National Environmental Management: Air Quality Act, 2004( Act 39 of 2004)	<p>Part 6 of the Act makes provision for measures to control dust, noise and offensive odours. This provision must be read together with the statutory requirements the National Environmental Management: Air Quality Act. The Proposed Area has not been declared as a dust control area in terms of section 27 of the APPA.</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 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.</p>
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

<sup>1</sup> Long title of the Act.

Aspect	Relevant Legislation	Brief Description
		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> <p>b) To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that -</p> <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>

The Acts read with the Eskom policies and environmental guidelines.

## 5 DESCRIPTION OF MITIGATION MEASURES

This section of the EMP serves to prescribe mitigation measures to reduce, limit, eliminate or compensate for impacts, to acceptable/insignificant levels. In setting mitigation measures, the practical implications of executing these measures must be borne in mind. With early planning, both the cost and the impacts can be minimised. The stipulations of this report should be conveyed to contractors prior to the commencement of any activities.

## 6 PLANNING AND DESIGN MANAGEMENT PROGRAMME

The management programme is to be used as a guide during the planning phase of the proposed activities. This part of the programme is to be referenced by all involved in decision making during the planning phase, prior commencement of the decommissioning and demolition activities.

### 6.1 EMPR TRAINING

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>• To ensure that all site personnel have basic level environmental awareness training. Topics covered should include:                             <ul style="list-style-type: none"> <li>-What is meant by environment</li> <li>-Why the environment need to be conserved</li> <li>-How decommissioning and demolition activities can impact on the environment</li> <li>-What can be done to mitigate against impact</li> <li>-Awareness of emergency and spill</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• The ECO shall arrange for Environmental Awareness Training programs for the personnel on site and the team with the contents of this EMP, either in written format or verbally.</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>	ECO & Contractor	Monthly

response Social responsibility				
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## 6.2 CONTRACT AREAS

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Frequency
<ul style="list-style-type: none"> <li>To ensure that the total decommissioning and demolition activities footprint is minimised.</li> </ul>	<ul style="list-style-type: none"> <li>The ECO must indicate/point out to contractors, the areas that they will have in their possession for the duration of the contract (this shall include access roads to be used, construction lay-down areas, materials storage and delivery requirements, contractors' offices, operational demarcation etc.).</li> <li>A material delivery and storage area should be demarcated. The facility must be planned and laid out in such a way that the total footprint area is minimised.</li> </ul>	Site Plan and observation	ECO & Contractor	Weekly

## 6.3 SENSITIVE ECOLOGY

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>To ensure minimal or if all possible no disturbance to the vegetation on and around the site.</li> <li>To ensure the control of</li> </ul>	<p><b>No sensitive ecology was noted on site, however, if any sensitive ecology is noted on site during the course of the project, the following must be done:</b></p> <ul style="list-style-type: none"> <li>Relocate, demarcate or recommend conservation / preservation measures for any identified</li> </ul>	<ul style="list-style-type: none"> <li>Observation</li> <li>ECO to monitor</li> </ul>	Client	Continuous throughout the decommissioning and demolition activities

<p>alien invasive species and to ensure that the rehabilitation of indigenous vegetation is as close to the original state as possible.</p>	<p>ecologically “sensitive” and/or protected species and areas.</p> <ul style="list-style-type: none"> <li>Point out and/or demarcate all ecologically “sensitive” areas to the contractors (e.g. red data habitats &amp; species, rivers, streams, wetlands, sensitive soils, steep slopes and areas susceptible to erosion).</li> </ul>	<ul style="list-style-type: none"> <li>Site plan</li> </ul>		
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**6.4 ROADS**

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>To ensure minimal and or no additional disturbance of the environment as roads already exist.</li> </ul>	<p>Accessible route to the site already exists and therefore there is no need for excavating the area for road construction.</p> <ul style="list-style-type: none"> <li>The client must point out the access road to be used.</li> <li>Existing access roads must be used.</li> <li>Eskom will have to rehabilitate the road after decommissioning and demolition activities to its original condition or better.</li> </ul>	<ul style="list-style-type: none"> <li>Observation</li> </ul>	<p>Client</p>	<p>Continuous throughout decommissioning and demolition activities</p>

## 6.5 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 will be established in appropriate locations prior to the commencement of decommissioning and demolition activities, preferably within already disturbed areas. After completion of the contract, these areas will be rehabilitated.</p> <p><b>6.5.1 Site Plan:</b></p> <p>Before decommissioning and demolition activities commences, the Contractor shall submit a site layout plan to the ECO for approval, including:</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 such as fuel and chemicals).</li> <li>• Construction offices and other structures.</li> <li>• Security requirements (including temporary and permanent fencing, and lighting)</li> <li>• Solid waste collection facilities and waste treatment facilities for litter, kitchen refuse, sewage and workshop-derived effluents.</li> <li>• Storm water control measures.</li> <li>• Provision of potable water and temporary ablution facilities.</li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Site Plan</li> </ul>	<p>ECO &amp; Contractor</p>	<p>Prior to site establishment</p>

	<ul style="list-style-type: none"> <li>• Only designated areas must be used for the storage of materials, machinery, equipment and site offices. The site offices should not be in close proximity to steep areas, as this will increase potential soil erosion. Offices (and in particular the ablution facilities, spoil areas and hazardous material stockpiles) must be located as far away as possible from any watercourse.</li> <li>• Regardless of the chosen site, the Contractor’s intended mitigation measures shall be indicated on the plan.</li> <li>• 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 prior to implementation.</li> </ul> <p><b>6.5.2 Site Camps:</b></p> <p>The following restrictions or constraints shall be placed on the site camp, and construction staff in general:</p> <ul style="list-style-type: none"> <li>• The use of rivers and streams for washing of clothes.</li> <li>• The use of welding equipment, oxy-acetylene torches and other bare flames where veld fires constitute a hazard.</li> <li>• Indiscriminate disposal of rubbish or construction</li> </ul>			
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	<p>wastes or rubble littering of the site.</p> <ul style="list-style-type: none"> <li>• Spillage of potential pollutants, such as petroleum products.</li> <li>• Collection of firewood.</li> <li>• Poaching of any form.</li> <li>• Use of surrounding veld as toilets.</li> <li>• Burning of wastes and cleared vegetation.</li> </ul> <p><b>6.5.3 Vegetation clearing:</b></p> <ul style="list-style-type: none"> <li>• The natural vegetation encountered on the site is to be conserved and left as intact as much as possible.</li> <li>• Only trees and shrubs directly affected by the works, and such others as may be approved by the ECO in writing, may be felled or cleared.</li> </ul> <p><b>6.5.4 Water for human consumption:</b></p> <ul style="list-style-type: none"> <li>• Water for human consumption should be available at the site offices and at other convenient locations on site.</li> </ul> <p><b>6.5.5 Sewage Treatment:</b></p> <ul style="list-style-type: none"> <li>• Sanitary arrangements should be to the satisfaction of the ECO. Should there be no other ablution facilities available, chemical toilets must be supplied (1 per 15 persons) and must be regularly (at least once a week) cleaned and maintained by the Contractor.</li> </ul>			
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	<ul style="list-style-type: none"> <li>• The positioning of the chemical toilets is to be done in consultation with the ECO. The Contractor shall arrange for regular emptying of toilets and will be entirely responsible for enforcing their use and for maintaining such latrines in a clean, orderly and sanitary condition to the satisfaction of the ECO.</li> <li>• If necessary, the ablution facilities must be screened from the public view. In remote areas where chemical toilets may not be a viable option, agreement must be reached on alternatives before construction starts.</li> </ul>			
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**6.6 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, regardless of whether it is serviced on the site (i.e. at the place of construction activity or at a formalised workshop) or not.</p> <p><b>6.6.1 Safety:</b></p> <ul style="list-style-type: none"> <li>• All the necessary handling and safety equipment required for the safe use of petrochemicals and oils shall be provided by the Contractor to be used and/or worn by the staff whose duty is to manage and maintain the Contractor’s and his</li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Incident Report</li> </ul>	<p>ECO &amp; Contractor</p>	<p>Continuous throughout the construction phase</p>

	<p>subcontractor's as well as supply plant machinery and equipment.</p> <ul style="list-style-type: none"> <li>• Contractor must comply with the Occupational Health and Safety Act, 1993 (Act 85 of 1993) and Construction Regulations, 2003 as this governs what the contractor has to do/provide for his staff.</li> </ul> <p><b>6.6.2 Hazardous Material Storage:</b></p> <ul style="list-style-type: none"> <li>• Petrochemicals, oils and identified hazardous substances shall only be stored under controlled conditions.</li> <li>• All hazardous materials will be stored in a secured, appointed area that is fenced and has restricted entry. Storage of hazardous products shall only take place using suitable containers approved by the ECO. The containers must be roofed. In addition, hazard signs indicating the nature of the stored materials shall be displayed on the storage facility or containment structure.</li> </ul> <p><b>6.6.3 Fuels and Gas Storage:</b></p> <ul style="list-style-type: none"> <li>• Fuel should be stored in a secure area in a steel tank supplied and maintained by the contractor according to safety procedures.</li> <li>• Gas welding cylinders and LPG cylinders should be stored in a secure, well-ventilated area. The Contractor must supply sufficient firefighting</li> </ul>			
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	equipment in event of an accident and strictly no smoking will be allowed where fuel is stored and used.			
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### 6.7 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 minimized</li> <li>To conserve water resources at all times</li> </ul>	<ul style="list-style-type: none"> <li>The source of water will be the current supply to the existing substation.</li> <li>The client/ECO shall point out to Contractors where they can obtain water for construction purposes (e.g. water for dust suppression as well as for drinking).</li> <li>Contractors shall not make use of/collect water from any other source than those pointed out to them as suitable for use by them.</li> </ul>	Observation	ECO & Contractor	Ongoing during the construction phase

### 7 ENVIRONMENTAL MANAGEMENT PLAN (DECOMMISSIONING PHASE)

The Management Plan forms part of the contract documentation. The plan must be read in conjunction with Eskom’s environmental policies during the decommissioning phase.

## 7.1 VEHICULAR ACCESS AND MOVEMENT OF CONSTRUCTION VEHICLES

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>To prevent ecological damage</li> </ul>	<ul style="list-style-type: none"> <li>During decommissioning, use should be made of existing access routes to the site where possible.</li> <li>Temporary access roads must be rehabilitated after use if any.</li> </ul>	Observation	ECO & Contractor	Continuous during the construction phase

## 7.2 MOVEMENT OF CONSTRUCTION PERSONNEL AND EQUIPMENT

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>To ensure controlled and manageable movement of personnel and equipment.</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 and/or equipment wish to move outside the boundaries of the site, the Contractor/labourers must obtain permission from the ECO.</li> <li>All equipment moved onto site or off site during a project is subject to the legal requirements as well as Eskom specifications for the transport of such equipment. Oil filled equipment such as</li> </ul>	Observation to verify the labels on equipment.	ECO & Contractor	Continuous throughout the construction phase

	<p>Transformer, CT's, VT's and capacitor cans have specific safety requirements regarding their handling, transport and storage. The Contractor shall meet these safety requirements under all circumstances.</p> <ul style="list-style-type: none"> <li>• All equipment transported shall be clearly labeled as to their potential hazards according to specifications.</li> <li>• All the required safety labeling 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 supply a method statement to that effect.</li> </ul>			
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**7.3 VEGETATION CLEARING**

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>• To conserve flora</li> </ul>	<ul style="list-style-type: none"> <li>• The natural vegetation encountered on the site is to be conserved and left intact as much as possible.</li> <li>• Only trees and shrubs directly affected by the works, and such others as may be approved by the ECO in writing, may be felled or cleared. A firebreak shall be cleared and maintained around the perimeter of the site camp/s and office sites where necessary.</li> <li>• The areas that need to be cleared and the degree of</li> </ul>	<p>Observation</p>	<p>ECO &amp; Contractor</p>	<p>Ongoing during the construction phase</p>

	<p>clearing required will be determined and demarcated in consultation with the ECO before clearing begins.</p> <ul style="list-style-type: none"> <li>• The Contractor may not deface, paint or otherwise mark and / or damage natural features / vegetation on the site, unless agreed beforehand with the ECO. Any features / vegetation defaced by the Contractor will be restored to the satisfaction of the ECO.</li> <li>• The ECO must be present during vegetation clearing.</li> <li>• The Contractor shall be held responsible for rehabilitation of all areas disturbed during construction.</li> <li>• Bush clearing in the servitude or around the substation must be in accordance to Transmission Vegetation Management Guideline (Reference – TGL41-334); and</li> <li>• No bush clearing to be undertaken without the knowledge thereof by the property owner. The property owner must be informed of bush clearing in writing, prior to clearing the site.</li> </ul>			
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## 7.4 PROTECTION OF FAUNA

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>To conserve animal life.</li> </ul>	<ul style="list-style-type: none"> <li>Under no circumstances shall any animals be handled, removed, killed or be interfered with by the Contractor, his employees, his subcontractors or his subcontractors' employees.</li> <li>Prior to commencement of the project, the Contractor must identify a specialist who will assist in handling dangerous fauna (e.g. snakes) whenever they are found and are interfering with the project activities on site.</li> <li>No hunting of fauna and flora shall be tolerated by the Contractor or his personnel on the Site.</li> <li>The Contractor and his employees shall not bring any domesticated animals onto the site.</li> <li>The contractor shall keep the site clean and tidy from rubbish that can attract animals.</li> </ul>	Observation	ECO & Contractor	Ongoing during the decommissioning and demolition activities

## 7.5 HERITAGE AND/OR ARCHAEOLOGICAL SITES

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>To preserve any heritage, cultural or archaeological sites that may be encountered during the construction phase.</li> </ul>	<p>No heritage sites were noted in close proximity to the substation site and lines, however,</p> <ul style="list-style-type: none"> <li>If any archaeological material (e.g. fossils, bones, artefacts etc.) is found during excavation the Contractor shall stop work immediately and inform the ECO.</li> <li>The ECO shall inform South African Heritage Resources Agency (SAHRA) and arrange for an archaeologist to inspect, and if necessary excavate the material, subject to acquiring the requisite approval from SAHRA.</li> <li>The Contractor shall not re-commence work in that area until written permission has been received from the Environmental Advisor.</li> </ul>	Observation	ECO & Contractor	Ongoing during operational phase

## 7.6 ACCESS ROADS

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>To ensure minimal disturbance of vegetation and protection of soils.</li> </ul>	<ul style="list-style-type: none"> <li>Construction staff must only use authorised paths and roads. The proclaimed speed limit must be strictly adhered to.</li> <li>ECO will monitor the conduct of drivers and report any misconduct to the Contactor immediately.</li> </ul>	Observation	Contractor	Ongoing during the decommissioning and demolition activities



	<ul style="list-style-type: none"> <li>• Construction roads must follow existing roads and tracks</li> <li>• If two-way traffic movement is to take place, passing bays are to be used where specified by the ECO to prevent access / detours into the surrounding areas. The drivers delivering construction materials to site are to be made aware of this. They may not drive off the road in order to allow another vehicle to pass.</li> <li>• Upon completion of the decommissioning and demolition activities the contractor will ensure that the access roads are returned to a state no worse than prior to activities commencing.</li> </ul>			
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**7.7 SERVICING AND RE-FUELLING OF CONSTRUCTION EQUIPMENT**

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>• To conserve soils, surface and ground water.</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>• The ground under the servicing and refueling areas must be protected against pollution caused by spills and / or tank overfills (bunded / lined).                             <ul style="list-style-type: none"> <li>• The Contractor may only change oil or lubricant at agreed and designated locations, except if there is a breakdown or emergency repair,</li> </ul> </li> </ul>	Observation	ECO & Contractor	Ongoing during the decommissioning and demolition activities

	<p>following which any accidental spillages will be cleaned up / removed immediately.</p> <ul style="list-style-type: none"> <li>• In such instances the Contractor will ensure that he has drip trays available to collect any oil or pollutants.</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 to operate at any of the construction sites.</li> <li>• These will be sent immediately back to the maintenance yard for repair.</li> <li>• All equipment that leaks must be repaired immediately or must be removed from site.</li> <li>• Fuels required during construction must be stored in a central depot at the construction camp.</li> <li>• This storage area should be located on a slab and be contained within a bund capable of containing at least the volume of one of the containers.</li> <li>• Temporary fuel storage tanks and transfer areas also need to be located on an adequately banded surface to contain accidental spillages.</li> <li>• Appropriate run-off containment measures must be put in place.</li> </ul>			
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## 7.8 SOLID WASTE MANAGEMENT

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>To ensure safe disposal of general waste.</li> </ul>	<ul style="list-style-type: none"> <li>An adequate number of 'scavenger proof' refuse bins must be provided at the site.</li> <li>These bins must be provided with lids and an external closing mechanism to prevent their contents from blowing out and must be scavenger-proof to prevent animals that may be attracted to the waste.</li> <li>The Contractor will ensure that all personnel deposit waste in the waste bins provided.</li> <li>All refuse and solid waste generated at all work sites will be stored in appropriate scavenger proof containment vessels at the relevant site and removed to the main construction camp, where waste will be sorted and stored within a fenced waste storage area.</li> <li>All waste must be transported in an appropriate manner (e.g. plastic rubbish bags) and disposed of at a registered waste disposal site.</li> <li>The Contractor may not dispose of any waste and / or debris by burning, or burying.</li> <li>Discard all waste at a registered waste management facility / landfill site, particularly waste or products that could impact on surface or groundwater quality by leaching into or coming into contact with water.</li> </ul>	Observation	ECO & Contractor	Daily

	<ul style="list-style-type: none"> <li>• The contractor will maintain ‘good housekeeping’ practices and ensure that all work sites and construction camp are kept tidy and litter free.</li> <li>• Temporary ablution facilities (i.e. Chemical toilets) must be made available and used at all times.</li> <li>• Servicing and cleaning of vehicles is strictly prohibited in the access road, working area and in the veld.</li> </ul>			
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**7.9 LIQUID WASTE MANAGEMENT**

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>• To conserve and reduce any potential negative impact on all natural water resources.</li> </ul>	<ul style="list-style-type: none"> <li>• The Contractor must take reasonable precautions to prevent the pollution of the ground and water resources on and adjacent to the site as a result of his activities.</li> <li>• No natural watercourse is to be used for the cleaning of tools or any other apparatus. This includes for purposes of bathing, or washing of clothes etc.</li> <li>• All washing operations will take place off-site at a location where wastewater can be disposed of in an acceptable manner.</li> <li>• No spills may be hosed down into a storm water drain or sewer, or into the surrounding natural environment.</li> </ul>	<p>Observation</p>	<p>Contractor</p>	<p>Continuous through the decommissioning and demolition activities.</p>

**7.10 HAZARDOUS MATERIALS**

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<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>The Contractor must comply with all national, and regional legislation, and with all the applicable municipal by-laws with regard to the storage, transport, use and disposal of petroleum, chemical, harmful and hazardous substances and materials.</li> <li>The Contractor will furthermore be responsible for the training and education of staff, on use, handling and disposal of material.</li> <li>Storage of all hazardous material is to be safe, tamper proof and under strict control.</li> <li>Petroleum, chemical, harmful and hazardous waste throughout the site must be stored in appropriate, well maintained containers.</li> <li>Exercise extreme care with the handling of diesel and other toxic solvents to ensure that spillage is minimised.</li> <li>Any accidental chemical / fuel spills have to be corrected immediately.</li> </ul>	Hazardous material data sheet Incident reports	ECO & Contractor	Continuous throughout the decommissioning and demolition activities

**7.11 OIL SPILL MANAGEMENT**

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
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<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> <li>• To reduce as far as practically possible, the oil spillages and the impact thereof.</li> </ul>	<ul style="list-style-type: none"> <li>• Transformers and voltage transformers as well as other tools and equipment contain oil and care should be taken when decommissioning, and dismantling them.</li> <li>• The Contractor must prevent potential oil spills during the decommissioning activities.</li> <li>• Fuels, oils, hydraulic fluids, cement etc. must be stored in properly contained areas so as to minimize accidental spillage.</li> <li>• No hazardous or toxic chemicals or substances should be stored where there could be accidental leakage into subterranean water supplies.</li> <li>• All soil contaminated, for example, by leaking machines, refueling spills etc. is to be excavated to the depth of contaminant penetration, placed in 200ℓ drums and removed to an appropriate landfill site. The Contractor must ensure that spill kits are readily available on site and must be used in case of spillages.</li> <li>• Accommodation must be made for oil leaks that may occur from vehicle sumps. This can be achieved by providing a sump tray for each vehicle or sand that is later removed from site. The contaminated sand will have to be disposed of at a licensed hazardous disposal site.</li> <li>• All spills must be reported to the environmental advisor within 24 hours of the spill via a flash report.</li> </ul>	<p>Observation</p>	<p>ECO/Contractor</p>	<p>Ongoing during the decommissioning and demolition activities.</p>
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	<ul style="list-style-type: none"> <li>The oil spill cleanup and rehabilitation standard need to be implemented.</li> </ul>			
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**7.12 RUN-OFF FROM WORKING AREA**

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<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>The Contractor must ensure that rainwater containing pollutants does not run-off into natural areas and thus result in a pollution threat.</li> <li>The client must ensure that the drainage diversion system is fully operational to divert runoff from areas of potential pollution, e.g. batching area, vehicle maintenance area, workshops, chemical and fuel stores, etc.</li> </ul>	Site Plan Observation	ECO/Contract  Client	Continuous during the decommissioning and demolition activities

**7.13 FIRE**

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>To prevent fires</li> </ul>	<ul style="list-style-type: none"> <li>The Contractor must take all the necessary precautions to ensure that fires are not started as a result of activities on site.</li> <li>Fuels or chemicals must be stored at the designated storage area.</li> <li>Gas and liquid fuels may not be stored in the same storage area.</li> </ul>	Observation	ECO/Contractor	Ongoing during the decommissioning and demolition activities

	<ul style="list-style-type: none"> <li>• The Contractor must ensure that there is adequate fire-fighting equipment (e.g. fire extinguishers, fire beaters etc.) at the fuel stores in case of emergency.</li> <li>• No open fires for heating or cooking will be permitted on site, unless otherwise agreed with the ECO, and then only on designated areas.</li> <li>•</li> </ul>			
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**7.14 AIR POLLUTION**

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>• To ensure proper mitigation of air pollution</li> </ul>	<p>The only potential air pollutant would be dust emanating from excavation activities. In the event that excessive dust arises from any construction activities:</p> <ul style="list-style-type: none"> <li>• Dust suppression techniques must be implemented. These techniques will include spraying of the site with a water bowser, adhering to site speed limits etc. all construction staff must wear their dust masks whenever necessary.</li> <li>• No burning of waste material from the decommissioning or general activities is allowed;</li> <li>• Drive at moderate speeds on the access road in order to minimise or avoid dust pollution.</li> </ul>	<p>Observation</p>	<p>ECO/Contractor</p>	<p>Ongoing throughout the decommissioning and demolition activities</p>



**7.15 NOISE**

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>• To ensure minimal noise disturbances</li> <li>• To ensure proper mitigation of noise.</li> </ul>	<ul style="list-style-type: none"> <li>• Machinery and vehicle silencer units 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>• Noise levels must be kept within acceptable limits and must not be of such nature as to detract adjacent land users.</li> <li>• The project team should endeavor to keep noise generating activities associated with decommissioning and demolition activities to a minimum and within working hours.</li> <li>• Where possible the contractor must use equipment which falls within the allowable noise limits.</li> <li>• All noise generating activities must be scheduled between 8am – 17pm Mondays to Fridays and weekends as required and with the permission of the ECO.</li> <li>• Construction staff must wear ear plugs whenever necessary.</li> <li>• Any complaints pertaining to noise must be recorded and reported to the ECO and addressed accordingly.</li> </ul>	<p>Listening</p>	<p>Contractor ECO</p>	<p>Ongoing during the decommissioning and demolition activities</p>

## 7.16 VISUAL

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>To ensure proper mitigation of potential visual impacts.</li> <li>To maintain the site's and surrounding aesthetics.</li> </ul>	<ul style="list-style-type: none"> <li>The Contractor shall not establish any activities which, in the opinion of the ECO, are likely to adversely affect the scenic quality of the area.</li> <li>The ECO may direct the Contractor to refrain from such activities or to take ameliorative actions to reduce the adverse effects of such activities.</li> </ul>	Observation	ECO & Contractor	Ongoing during the decommissioning phase.

## 7.17 EXCAVATION, BACKFILLING AND TRENCHING

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>To prevent erosion</li> <li>To ensure safety for both human and animals.</li> </ul>	<p>During excavation of foundation the following must be adhered to:</p> <ul style="list-style-type: none"> <li>Excavations must not be left open for longer than 5 days where at all possible</li> <li>Excavations must be properly barricaded/ fenced of at all times.</li> </ul>	Observation	Contractor / ECO	Ongoing during excavation of foundations.

## 7.18 EROSION CONTROL

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>To prevent erosion</li> </ul>	<p>To prevent any form of erosion the following must be adhered to:</p> <ul style="list-style-type: none"> <li>Vehicles must use the existing access route</li> <li>Excavations must not be left open for longer than 5 days where at all possible</li> <li>The Contractor shall not allow erosion to develop on a large scale before effecting repairs and all erosion damage shall be repaired as soon as possible</li> </ul> <p>The specifics of erosion protection work will vary from situation to situation. These specifics should be cleared with the Project Manager and/or ECO and comply with the contract specifications.</p>	Observation	Contractor / ECO	Ongoing particularly during excavations

## 7.19 SITE CLEAN-UP AND REHABILITATION

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>To ensure that the site is fully rehabilitated to its original state</li> </ul>	<ul style="list-style-type: none"> <li>All waste must be removed from site and disposed of appropriately at registered waste sites.</li> <li>Fully rehabilitate (e.g. clear and clean area, rake, pack branches etc.) all disturbed areas and protect them from erosion.</li> </ul>	Rehabilitation Plan Observation	Contractor / ECO	On completion of decommissioning and demolition activities

	<ul style="list-style-type: none"> <li>No discarded materials of any nature shall be buried on the site or on any other land within the site.</li> </ul>			
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**7.20 MONITORING OF EMPR COMPLIANCE**

Objective	Mitigation / Management Action	Monitoring Criteria	Responsible Agent	Monitoring Frequency
<ul style="list-style-type: none"> <li>To implement ongoing monitoring and performance audit programme.</li> </ul>	<ul style="list-style-type: none"> <li>The correct and successful implementation of impact mitigation measures in order to reduce adverse impacts on environmental conditions 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>The ECO shall conduct fortnightly audits and submit the Audit Reports to Eskom.</li> </ul>	EMP observation	ECO & Contractor	Ongoing during the site establishment and decommissioning and demolition activities.

## 7.21 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 EMP and EA.</li> </ul>	<ul style="list-style-type: none"> <li>A copy of the EMP and the Environmental Authorisation (EA) will be made available on site at all times. The EMP as well as the EA will be used for referral as the project progresses. The EA will also be presented to the authorities at any random time that they might visit the site.</li> </ul>	<ul style="list-style-type: none"> <li>Availability of EMP and EA copy on site</li> </ul>	ECO & Contractor	Ongoing during the decommissioning and demolition activities.

## 8 ENVIRONMENTAL CONTROL OFFICER

An independent Environmental Control Officer (ECO) must be appointed to assist the Contractor(s) on site regarding environmental matters on an *ad hoc* (at least weekly) basis. The Contractor shall direct all his queries regarding any environmental issues or aspects to the ECO. The ECO will discuss the matter with Eskom and give feedback to the Contractor. The ECO shall be responsible for evaluating compliance of all aspects of the EMPr. Fortnightly site audits must be undertaken by the ECO and a detailed report submitted to the contractor and Eskom EO for review and correction of non-compliances, where appropriate. If queries or problems arise for issues that cannot be proficiently addressed by the ECO, he/she must seek advice from a person or persons that are suitable and experienced in the relevant field.

Any problems or areas of non-compliance with regard to the EMPr shall immediately be communicated in writing to the Contractor by the ECO. Outstanding non-compliance issues will additionally be conveyed in writing the Eskom who will decide on appropriate action.

## 9 GENERIC CONDITIONS

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

### 9.1 SOCIO-CULTURAL ISSUES

- A plan of action should be drawn up in the case of an emergency (veld fire, damaged power line, vegetation problems etc.). Eskom contact names and telephone numbers must be available on site;
- 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;
- Environmental clauses (as referred to in this 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 as and when identified.
- I&AP register containing all complaints or queries received as well as action taken must be maintained.

## 10 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 any unacceptable damage to the environment is caused by not adhering to the specifications set in this EMP. The suspension will be enforced until such time as the offending parties' actions, procedures and/or equipment are corrected and adequate mitigation measures implemented.

## 11 GENERAL MONITORING

The appointed ECO, as well as the Contractors on site, are responsible for ensuring compliance with the EMP.

Interested and Affected Parties must be allowed access to the EMP document should they so wish. They have the right to monitor specific aspects of the EMP in conjunction with the Contractor in a reasonable and informal manner, without unreasonably disrupting construction activities. No member of the public may, however, enter the construction site without prior approval from the Contractor.

The Contractor shall keep a record of all complaints received from the community and communicate them to the ECO. These complaints must be addressed and mitigated, within reason. Records relating to the compliance/non-compliance with the conditions of the EMP as well as audits reports shall be kept in good order and shall be made available to DEAT within seven days after a written request has been received. It is suggested that all records be kept for at least two years following construction activities for reference purposes.

Material Safety Data Sheets (MSDS) for all hazardous substances stored on site must be obtained saved in the site environmental monitoring file. These will be referred to at all times when hazardous substances are used. All construction staff must be trained on use of MSDS.

## 12 SPECIFIC ROLES AND RESPONSIBILITIES

The roles of the responsible people on site are included below:

- **The Client i.e. Eskom Holding SOC Limited** is the ultimate responsible party for the development and all aspects and phases thereof. The client representative must communicate all issues raised in this EMPR with all personnel undertaking any work on the site. Should any non-compliance with this EMPr take place, the Client will ultimately be held liable. The Client should include the EMPR as a specific condition within any contract that is to be signed between him/her and any other party involved in the construction of the development. The Client is responsible for identifying which local / provincial environmental authority has jurisdiction over the project.

- **The Contractor** is responsible for complying with the EMPr during the construction phase of the development. The contractor is responsible for ensuring that his/her contractors, employees and sub-contractors appointed by him/her are familiar with the EMPr and that they abide by it. The contractor will be responsible for any non-compliance with the EMP and will pay for any remedial work that may result from non-compliance resulting directly from his/her negligence.
- **The ECO** is responsible for communicating environmental issues associated with the site to the contractor. Should any non-compliance with the EMP take place, the ECO must communicate this with the party responsible for the non-compliance as well as the Contractor. If the non-compliance continues after written request by the ECO to rectify the situation. The ECO is responsible for the explanation of environmental issues contained in this EMPr to anyone working on the site. Should any issues arise on the site of an environmental nature or concern, the ECO will be responsible for taking the appropriate action.
- **Eskom Environmental Advisor** has to advise and audit during the construction phase and furthermore has to implement and integrate environmental management systems by ensuring compliance to ISO 14000 and monitoring performance, report environmental incidents, provides environmental training and to ensures compliance to legislations and other legally binding documents.
- **The national and or local/provincial environmental authority** is responsible for taking action against any non-compliance with the EMPr by the client or any of his/her subcontractors through their enforcement unit. The local/provincial authority can request a compliance audit to be undertaken on the site at any time during the development phase of the project.

### 13 AMENDMENT OF EMPR

Any issue that may arise during the construction or operational phase of the development and that is not provided for in this EMPr may be addressed as an addendum to this EMPr. An addendum will be submitted to the DEA for approval prior to the implementation of the provisions contained.