



## **ENVIRONMENTAL MANAGEMENT PLAN FOR THE OPERATION OF OKOMBAHE SUBSTATION, ERONGO REGION**



**AUGUST 2020**

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## 1. INTRODUCTION

The purpose of this document is, to provide an indication of the anticipated impacts of the operation of the Okombahe Substation on the receiving environment. This EMP document will ensure sound environmental performance by all contractors and NamPower employees during the operation of the Okombahe Substation.

Okombahe substation is an existing substation that was constructed in the 1980s. The substation is situated approximately about 1.4 kilometre from Martin Luther High school and about 5 kilometres from Okombahe settlement. Okombahe Settlement was proclaimed as a settlement by the Ministry of Ministry of Urban and Rural Development in 2015. The Substation is within the boundaries of the Dâures Constituency, Erongo region. NamPower upgraded the substation from the capacity of 2.5 Mega Volt Amps (MVA) to the capacity of 5 MVA in 2019 in order to reliably meet the population growth and demand forecasts in the area for Erongo Red extensions in future.

**Table 1 :** Location details

Location (coordinates)	Lat : -21.339429 Lon : 15.434023
Area	Okombahe
Foot print area of the substation	1 Hectares
Powerlines connected to the Substation include:	<ul style="list-style-type: none"><li>- Omatjete</li><li>- Okombahe</li><li>- Tubisis,</li><li>- Kudusberg</li></ul>



**Figure 1:** Location of Okombahe Substation.

## **2. OBJECTIVES OF THE OPERATIONAL EMP**

The aim of this operational EMP is to detail the management actions required to implement the mitigation measures identified thereby ensuring that any operational phase activity is carried out in a manner that takes cognisance of environmental protection and is in line with National legislation. This EMP has the following objectives:

- To ensure that the operational activities associated with the operation of the substation do not result in undue or reasonably avoidable adverse environmental impacts.
- Minimise negative impacts and enhance positive impacts associated with the operations.
- Stipulate specific actions to assist in mitigating the environmental impact of the project
- To identify key personnel who will be responsible for the implementation of the measures and outline functions and responsibilities
- Create management structures that address the concerns and complaints of Interested and Affected Parties (I&APs) with regards to the operation of the substation.

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- To propose mechanisms for monitoring compliance, and preventing long term or permanent environmental degradation.

### 3. APPROACH TO IMPACT MANAGEMENT

<b>Avoidance</b>	Avoiding activities that could result in adverse impacts and/or resources or areas considered sensitive.
<b>Prevention</b>	Preventing the occurrence of negative environmental impacts and/or preventing such an occurrence having negative impacts.
<b>Preservation</b>	The process of working to protect something valuable so that it is not damaged or destroyed (i.e. environmental resources)
<b>Minimization</b>	Limiting or reducing the degree, extent, magnitude or duration of adverse impacts through scaling down, relocating, redesigning and/or realigning elements of the project.
<b>Mitigation</b>	Measures taken to minimise adverse impacts on the environmental and social aspects.
<b>Enhancement</b>	Magnifying and/or improving the positive effects or benefits of a project.
<b>Rehabilitation</b>	Repairing affected resources to their original state.
<b>Restoration</b>	Restoring affected resources to an earlier (possibly more stable and productive) state, typically 'background' condition, where identified to be appropriate and reasonable. These resources may include soils and biodiversity.

## 4. POLICY AND LEGISLATIVE FRAMEWORK

Table 1 below outlines the legislative requirements which are applicable to the operation of this substation.

<b>Legislation:</b>	<b>Section (s) applicable:</b>	<b>Implications:</b>
<b>Environmental Management Act no 7 of 2007</b>	<p>Section 3</p> <p>Section 27</p> <p>Section 33 onwards</p>	<ul style="list-style-type: none"> <li>- All activities performed should be in line with the following principles: <ul style="list-style-type: none"> <li>o Interested and affected parties should have an opportunity to participate in decision making</li> <li>o Listed activities should be subject to an EIA</li> <li>o Polluter should pay for rehabilitation</li> <li>o Pollution should be minimized</li> </ul> </li> <li>- Environmental assessments should be carried out for listed activities. The proposed activity can be classified under the following range of activities: <ul style="list-style-type: none"> <li>o Generation of electricity</li> <li>o Transmission of electricity</li> </ul> </li> <li>- These sections details the process to be followed in order to obtain a clearance certificate.</li> <li>- All existing listed activities must obtain a clearance certificate within one year of the law coming into effect (February 2013). Therefore, all existing activities which can be considered a listed activity should apply for clearance.</li> </ul>
<b>EMA Regulations GN 28-30 (GG 4878) (February 2012)</b>	<p>Listed activity:</p> <p>5.1</p> <p>6. – 9; 13; 15; 21 -24</p>	<ul style="list-style-type: none"> <li>- This activity can be considered as electricity generation and transmission.</li> <li>- These sections details the process to be followed in terms of producing an Environmental Assessment and this process should be adhered to during the generation of information for this document.</li> </ul>
<b>Petroleum Products and</b>		<ul style="list-style-type: none"> <li>- Regulations relating to the purchase,sale,supply,acquisition, possession, disposal, storage, transportation, recovery and refinement of used mineral oil.</li> </ul>

<b>Energy Act-1990</b>		
<b>Labour Act no 11 of 2007</b>	Section 3 Section 4 Section 9 Section 39 - 42	<ul style="list-style-type: none"> <li>- Children under the age of 16 may not be employed Forced labour may not be used during any construction activities.</li> <li>- Basic conditions of employment as stipulated by the law must be met.</li> <li>- The employer shall ensure the health and safety of all employees and non-employees on site. Employees must fulfil their duties in order to ensure their own health and safety and that of other employees and persons. Employees may leave the work site if reasonable measures to protect their health are not taken.</li> </ul>
<b>Electricity Act no 4 of 2007</b>	Section 33	<ul style="list-style-type: none"> <li>- Installations used for the provision of electricity should be operated with due compliance with the requirements of laws relating to health, safety and environmental standards. Therefore – any company involved within the Electricity Supply Industry must adhere to the laws covering the previously stated aspects or stand to lose their licenses to operate.</li> </ul>
<b>Water Act no 54 of 1956</b>	Section 21 and 22 Section 23	<ul style="list-style-type: none"> <li>- Conditions in terms of the disposal and management of effluent are to be adhered to.</li> <li>- Any person causing pollution to a water source shall be guilty of an Offence.</li> </ul>
<b>Public Health Act no 36 of 1919</b>	Section 122	<ul style="list-style-type: none"> <li>- It is an offence to cause any form of a nuisance which includes water pollution.</li> </ul>
<b>Water Resources Management Act no 24 of 2004</b>	Section 56	<ul style="list-style-type: none"> <li>- No discharge of effluent may take place without a permit.</li> <li>- Effluent is defined under this Act as any liquid discharge that occurs as a result of domestic, commercial, industrial or agricultural activities.</li> </ul>
<b>Hazardous Substances Ordinance 14 of 1974</b>	Section 27	<ul style="list-style-type: none"> <li>- To provide for the control of substances which may cause injury or ill-health to or death of human beings, by reason of their toxic, corrosive, irritant, strongly sensitizing or flammable nature or the generation of pressure thereby in certain circumstances;</li> </ul>

		<ul style="list-style-type: none"> <li>- to provide for the division of such substances into groups in relation to the degree of danger;</li> <li>- to provide for the prohibition and control of the importation, manufacture, sale, use, operation, application, modification, disposal or dumping of such substances; and to provide for matters connected therewith.</li> </ul>
<b>Forest Act no 12 of 2001</b>	Section 22 Section 41	<ul style="list-style-type: none"> <li>- Vegetation may not be removed within 100 m of a river, stream or water course</li> <li>- A person shall be liable for damage caused by any fire which arises as a result of activities carried out on site without having taken reasonable measures to prevent a fire.</li> </ul>
<b>Fertilizers, farm feeds, agricultural remedies and stock remedies Act no 36 of 1947</b>	Definitions  Section 7  Section 10	<ul style="list-style-type: none"> <li>- Arborocide application is defined as an agricultural remedy under this Act</li> <li>- Only registered herbicides may be used.</li> <li>- May only buy herbicides in a container that complies with the prescribed requirements and is sealed and labelled.</li> <li>- Only allowed to use herbicides in the prescribed manner.</li> <li>- Land owners must be notified about applications, and the following information must be supplied: <ul style="list-style-type: none"> <li>o Purpose of administration</li> <li>o Registered name and number of the product</li> </ul> </li> <li>- Precautions to be taken before, during and after each administration.</li> </ul>
<b>Nature Conservation Ordinance no 4 of 1975</b>	Section 74	<ul style="list-style-type: none"> <li>- Protected plants may not be removed or damaged without a permit.</li> </ul>
<b>Soil Conservation Act no 76 of 1969</b>	Section 4 Section 13  Section 21	<ul style="list-style-type: none"> <li>- Institutions may be ordered by the relevant Minister to construct soil conservation works when and where necessary.</li> <li>- Fire protection schemes may be implemented to regulate the prohibition of veld burning as well as the prevention, control and extinguishing of veld and forest fires.</li> <li>- It is illegal to damage, destroy / fail to maintain any soil conservation works; fire belts; works constructed in terms of a fire protection scheme</li> </ul>

<b>National Heritage Act No 27 of 2004</b>	Section: 46, 48, 55	<ul style="list-style-type: none"> <li>- All heritage resources are to be identified and either protected or removed/mitigated with a permit from the National Monuments Council, before any development may take place</li> <li>- A chance find procedure should be followed in case of discovery of a heritage resource.</li> </ul>
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## 5. DESCRIPTION OF ACTIVITIES TO BE UNDERTAKEN

The following activities are associated with the operation of this substation and their associated potential impacts:

Activity	Activity description	Associated environmental aspects and impacts
<b>General functioning</b>	Physical presence and functional characteristics of the substation	<ul style="list-style-type: none"> <li>• Visual impact</li> <li>• Community impacts in a form fatalities or injuries caused by electrocution.</li> </ul>
<b>Maintenance of the substation</b>	<p>The maintenance of the substation entails:</p> <ul style="list-style-type: none"> <li>• General equipment repairs</li> <li>• Replacement of batteries</li> <li>• Servicing batteries</li> <li>• Replacing electrical equipment such as transformers, relays and capacitors</li> <li>• Maintenance of electrical equipment such as transformers, relays and capacitors</li> <li>• Construction or repairing of access roads</li> </ul>	<p>Soil and water contamination</p> <p>Waste generation</p> <p>Loss of biodiversity</p> <p>Social issues related to the introduction of new workers in the area, e.g. HIV/AIDS spreading</p>

<b>General inspection</b>	<b>site</b> Site inspection conducted by the technical and SHEW teams	Waste generation  Improve compliance  Enables identification of non – conformances and stakeholder complaints
<b>Construction</b>	Construction include the following activities: <ul style="list-style-type: none"> <li>• Construction of temporary or permanent buildings (digging and setting of foundations, digging of cable trenches)</li> <li>• Extension of boundary fences</li> <li>• Construction of additional feeder bays</li> <li>• Upgrade of electrical equipment (either in size, capacity or technology)</li> <li>• Connection of new lines to Substations</li> <li>• Refurbishment of buildings</li> <li>• Personnel conduct</li> </ul>	Noise emissions  Dust emissions  Introduction of new people in the area leading to the spread of diseases such as HIV/AIDS  Soil and water contamination  Waste generation  Employment of casual workers  Loss of biodiversity  Loss of productive land
<b>Hazardous Substances</b>	<ul style="list-style-type: none"> <li>• Storage of hazardous material;</li> </ul>	<ul style="list-style-type: none"> <li>• Possible oil spills and soil contamination due to transformer blow out.</li> </ul>
<b>Vegetation Management</b>	Vegetation management methods include: <ul style="list-style-type: none"> <li>• Manually</li> <li>• Mechanically</li> <li>• Herbicide application</li> </ul>	<ul style="list-style-type: none"> <li>• Loss of biodiversity</li> <li>• Soil and water contamination</li> <li>• Employment opportunities</li> </ul>

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	<ul style="list-style-type: none"> <li>Combination of one or two methods</li> </ul>	<ul style="list-style-type: none"> <li>ill-health as a result of incorrect handling of herbicides</li> </ul>
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## 6. ROLES AND RESPONSIBILITIES

It is the responsibility of NamPower to ensure that all management actions are carried out. The successful implementation of the EMP is, however dependant on clearly defined roles and responsibilities by several stakeholders, each fulfilling a different but vital role to ensure sound environmental management during each phase of the project.

**The following roles and responsibilities have been identified as it pertains to this project:**

Responsible person	Responsibilities	Phase/Activity
The Area Superintendent	<p>Is responsible for the enforcement of the EMP</p> <p>To ensure that environmental requirements are adequately covered in any external service providers contracts.</p> <p>To ensure that SHE requirements are included in the tender documents sent to the contractors. A copy of this EMP should also form part of the tender documents.</p> <p>To ensure that corrective actions are implemented for non-compliances</p> <p>To ensure that appropriate records and information regarding compliance with environmental requirements are maintained.</p>	Operation of the substation

	<p>To ensure that the substation remains in compliance with the requirements of this EMP, through regular communication and monitoring.</p> <ul style="list-style-type: none"> <li>To ensure that all incidents, accidents and complaints are reported the project manager. The contractor to ensure that incidents and accidents are investigated to prevent re-occurrence.</li> </ul>	
Project Manager	<ul style="list-style-type: none"> <li>Is responsible for the enforcement of the EMP</li> <li>To ensure that SHE requirements are included in the tender documents sent to the contractors</li> <li>Must ensure that the contractor remains in compliance with the requirements of this EMP, through regular communication and monitoring.</li> </ul>	During substation upgrades and extensions
NamPower SHEW	<p>To ensure that all requirements with regards to this EMP are fulfilled.</p> <ul style="list-style-type: none"> <li>To assist the Project Manager in ensuring that the contractor remains in compliance with this EMP.</li> <li>Provides SHEW inductions to NamPower and contractor employees as well other stakeholders working or visiting the substation.</li> <li>Organize and implement monitoring and audit</li> </ul>	All phases of the project

	<p>functions, in consultation with the Project Manager.</p> <ul style="list-style-type: none"> <li>• Document and communicate monitoring, audit and inspection findings to project manager and area superintendent.</li> <li>• Communicate the final inspection report to the Project manager on contractor compliance to the EMP before the project close-off and final payment is made to the contractor.</li> </ul>	
Contractor	<ul style="list-style-type: none"> <li>• Is responsible for the implementation of the EMP</li> <li>• To appoint as SHE officer responsible for the implementation of this EMP.</li> <li>• To ensure that all tasks undertaken under the scope of work, are in accordance both with NamPower's SHEW policies and procedures as well as to the requirements of this EMP.</li> <li>• Ensure staff members are regularly trained and awareness built relating to environmental and social management.</li> <li>• To ensure that all incidents, accidents and complaints are reported the project manager. The contractor to ensure that incidents and accidents are investigated to prevent re-occurrence.</li> <li>• Ensuring that all employees receive a SHEW induction before the start of the project.</li> </ul>	

	<ul style="list-style-type: none"> <li>Ensuring that the work being done does not create a nuisance to any being working, residing or living on adjacent properties or within the immediate surroundings of the site.</li> </ul>	
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## 7. OPERATIONAL ENVIRONMENTAL MANAGEMENT PLAN (EMP)

ASPECT	MANAGEMENT AND MITIGATION MEASURES/COMMITMENTS	Phase/ Activity	RSEPNOSIBLE PERSON
<b>Personnel and Environmental awareness</b>	<ul style="list-style-type: none"> <li>All employees both internal and external to receive environmental awareness training and refresher environmental awareness training to be available when required.</li> <li>All contractor employees to receive induction before any work is commenced on the power line.</li> <li>All employees are to be made aware of their individual roles and responsibilities in achieving compliance with the EMP.</li> <li>Environmental toolbox talks to be conducted by the contractors and records to kept onsite.</li> <li>The Contractor shall take all necessary precautions against trespassing on private properties;</li> <li>Warning signs must be placed on and around the site as per the Occupational, Health and Safety requirements;</li> <li>Adequate first aid services must be provided by the contractor at the contractor's camp;</li> </ul>	All phases	Area superintendent  Project manager  Contractor

ASPECT	MANAGEMENT AND MITIGATION MEASURES/COMMITMENTS	Phase/ Activity	RESPONSIBLE PERSON
	<ul style="list-style-type: none"> <li>• The contractor will be responsible for his own security arrangements and shall comply with all site security instructions;</li> <li>• Basic firefighting equipment must be available on site;</li> <li>• PPE to be provided and well maintained at contractor's camp; and</li> <li>• All incidents should be reported to ECO, investigated, documented and kept in safety file.</li> </ul>		
<b>Safety Management</b>	<ul style="list-style-type: none"> <li>• All staff should undergo a general health and safety induction</li> <li>• Enforce general health and safety rules onsite</li> <li>• Develop and implement an occupational health and safety system that comprises key elements such as risk assessment and safe working procedure.</li> <li>• All work activities to be done under the supervision of a competent person.</li> <li>• Personal protective equipment must be worn by all employees and contractors.</li> <li>• Employees must receive proper training before receiving PPE.</li> <li>• Erect physical barriers to ensure there is no unauthorised access to site.</li> <li>• All gates are to be fitted with locks and kept locked.</li> <li>• Identify fire hazards, demarcate and restrict public access to the site.</li> </ul>	All phases	Area superintendent  Project manager  Contractor

ASPECT	MANAGEMENT AND MITIGATION MEASURES/COMMITMENTS	Phase/ Activity	RESPONSIBLE PERSON
	<ul style="list-style-type: none"> <li>Warning signage to be posted on the fence in order keep away the general public .</li> <li>Maintain an incident and complaint register.</li> <li>The Contractor shall recognise that the Site is situated close to inhabited and agricultural areas and shall therefore take all reasonable measures to ensure the safety of people in the surrounding area;</li> <li>Where the public could be exposed to danger by any of the Works or Site activities, the Contractor shall as appropriate provide suitable flagmen, barriers and/ or warning signs in English and Afrikaans.</li> <li>All unattended open excavations shall be adequately demarcated (fencing shall consist of a minimum of three strands of wire and made clearly visible).</li> <li>Adequate protective measures must be implemented to prevent unauthorised access to and climbing of partly constructed towers and protective scaffolding.</li> <li>No firearms shall be permitted on Site without the prior approval of the Project Manager.</li> </ul>		
<b>Fire Management</b>	<ul style="list-style-type: none"> <li>Eliminating the presence of potential sources of ignition and providing appropriate equipment to minimize static electricity hazards.</li> </ul>	All phases	Area superintendent  Project manager

ASPECT	MANAGEMENT AND MITIGATION MEASURES/COMMITMENTS	Phase/ Activity	RSEPONSIBLE PERSON
	<ul style="list-style-type: none"> <li>• Fire extinguishers to be readily available onsite, especially when hot works are conducted.</li> <li>• Regular servicing of fire extinguishers.</li> </ul>		Contractor
<b>Dust Management</b>	<ul style="list-style-type: none"> <li>• Control dust in the during substation upgrades or maintenance.</li> <li>• Excavation, handling and transport of erodible materials shall be avoided under high wind conditions or when a visible dust plume is present.</li> <li>• Dust generation from all activities will be minimised wherever possible.</li> <li>• A maximum speed limit of 20 km/h will be enforced to control dust emissions, and minimize incidents onsite.</li> <li>• Transport of construction material will ensure measures to prevent fugitive dust emissions.</li> <li>• Dust suppression measures shall be implemented if necessary. Dust may be controlled by damping of the road with water when necessary to minimise nuisance dust.</li> <li>• Construction machinery and equipment will be maintained in good working order in order to minimise exhaust fumes</li> </ul>	All phases	Area superintendent  Project manager  Contractor
<b>Resources Efficiency</b>	<ul style="list-style-type: none"> <li>• Minimise water use</li> <li>• Avoid wasteful use of materials</li> </ul>	All phases	Area superintendent Project manager

ASPECT	MANAGEMENT AND MITIGATION MEASURES/COMMITMENTS	Phase/ Activity	RESPONSIBLE PERSON
	<ul style="list-style-type: none"> <li>• Source goods and services locally where possible</li> <li>• Minimise the generation of waste by applying the waste hierarchy.</li> </ul>		Contractor
<b>Waste Management</b>	<ul style="list-style-type: none"> <li>• Substation to be kept free of waste.</li> <li>• No burning, burying or dumping of any waste materials, vegetation, litter or refuse shall be permitted onsite.</li> <li>• Labelled waste bins with lids must be provided onsite for all waste streams and ensure that waste is disposed at nearest approved waste disposal site.</li> <li>• Ensure that waste segregation is done at source.</li> <li>• Hazardous waste shall be disposed of at a registered waste disposal site.</li> <li>• Safe disposal certificates for hazardous waste must be kept in the SHE file.</li> <li>• No material shall be left on site that could be of harm to humans and animals.</li> <li>• Broken, damaged and unused nuts, bolts and washers shall be picked up and removed from site.</li> <li>• Surplus concrete may not be dumped indiscriminately on site, but shall be removed from site when nearing completion of the different stages of work.</li> <li>• Concrete trucks shall not be washed on site unless adequate washing and</li> </ul>	All phases	Area superintendent Project manager Contractor

ASPECT	MANAGEMENT AND MITIGATION MEASURES/COMMITMENTS	Phase/ Activity	RSEPONSIBLE PERSON
	<p>concrete collection facilities be introduced to site.</p> <ul style="list-style-type: none"> <li>• Bins and containers must be made available by the contractor for the storage of construction waste.</li> <li>• No burning of cleared vegetation shall be allowed on site.</li> </ul>		
<b>Wastewater management</b>	<ul style="list-style-type: none"> <li>• Water containing environmental pollutants shall be collected and removed from site.</li> <li>• No waste water runoff or uncontrolled discharges from the site/working areas shall be permitted.</li> <li>• Mobile toilets or septic tanks should be used and be regularly emptied.</li> </ul>	During substation upgrades and extensions	Project manager Contractor
<b>Hazardous Substances</b>	<ul style="list-style-type: none"> <li>• All hazardous substance will be stored in suitable containers as defined in the method statement or Material safety data sheet (MSDS).</li> <li>• Containers will be clearly marked to indicate contents, quantities and safety requirements.</li> <li>• All storage areas will be bunded. The bund ate will be of sufficient capacity to contain a spill/leak from stored containers.</li> <li>• The contractor shall ensure that diesel and other liquid fuel, oil and hydraulic fluid is stored in appropriate storage tanks or in bowsers.</li> <li>• The tanks /bowsers shall be situated on a smooth impermeable surface(concrete) bund.</li> </ul>	All phases	Area superintendent Project manager Contractor

ASPECT	MANAGEMENT AND MITIGATION MEASURES/COMMITMENTS	Phase/ Activity	RESPONSIBLE PERSON
	<p>The impermeable lining shall extend to the crest of the bund and volume inside the bund shall be 110%.</p> <ul style="list-style-type: none"> <li>• Inspect and maintenance of bunded and fenced area for storage of hazardous materials, with required safety equipment.</li> <li>• Clean up any accidental chemical, fuel and oil spills that occur at the site in an appropriate manner by using a corrective action method.</li> <li>• Keep a record of hazardous substances stored on site.</li> <li>• Storage areas shall display the required safety signs depicting “No smoking”, “No naked lights” and “Danger”. Containers shall be clearly marked to indicate contents as well as safety requirements; and</li> <li>• Hazardous materials – such as paint, cement, fuels, bitumen, fuel, oil, herbicides, battery acid or detergents – must be stored in sealed, lockable containers when not in use</li> <li>• All spills (minor and major) must be cleaned and remediated to the satisfaction of the SHEW within 24 hours of occurrence.</li> <li>•</li> </ul>		

ASPECT	MANAGEMENT AND MITIGATION MEASURES/COMMITMENTS	Phase/Activity	RESPONSIBLE PERSON
<b>Herbicide use</b>	<ul style="list-style-type: none"> <li>• Triple rinse containers before disposal.</li> <li>• Empty containers shall be returned to the suppliers and if this is not possible the containers must be punctured and disposed at a registered hazardous waste disposal site.</li> <li>• Manual vegetation removal encouraged.</li> <li>• Invasive vegetation management programme to be in place for areas disturbed by the substation development.</li> <li>• Herbicide will be handled in accordance with the requirements outlined in the NamPower Herbicide procedure and the NamPower herbicide application at substations EMP.</li> <li>• Herbicide application is to be conducted by a trained herbicide applicator and under the supervision of a Qualified Pest Control officer.</li> <li>• Invasive vegetation management programme to be in place for areas disturbed by the substation development.</li> </ul>	Operational phase	Area superintendent  SHEW  Contractor
<b>Cultural resource</b>	<ul style="list-style-type: none"> <li>• Any chance finds must be reported to NamPower environmental section.</li> <li>• In an event of discovery of human remains or other artefacts the work shall cease. A professional archaeologist is to be consulted and carry out investigation.</li> </ul>	All phases	Area superintendent  Project Manager  SHEW Contractor

ASPECT	MANAGEMENT AND MITIGATION MEASURES/COMMITMENTS	Phase/ Activity	RSEPONSIBLE PERSON
Protection and handling of fauna on site.	<ul style="list-style-type: none"> <li>The contractor must ensure that the site is kept clean and free of rubbish that could potentially attract animal pests, and that rubbish bins are scavenger proof.</li> <li>The contractor must report problem animals or vermin to the SHEW.</li> <li>Ensure that domesticated and livestock animals belonging to the local community are kept away from the construction works.</li> <li>The contractor may under no circumstances make use of pesticide or poison to control unwanted animals.</li> <li>Workers should be educated so as not to kill any fauna found onsite.</li> <li>The footprint of disturbance should be kept to a minimum</li> <li>No hunting or trapping is permitted along the alignment.</li> <li>Excavations must be checked on a regular basis for any signs of wildlife which may have fallen in.</li> </ul>	All phases	Area superintendent  Project Manager  SHEW  Contractor
<b>Site Rehabilitation</b>	<ul style="list-style-type: none"> <li>A post construction audit within 1 week after the Contractor has moved off site.</li> <li>SHEW to sign site close off or take over certificate once remedial corrective action is implemented.</li> </ul>	During substation upgrades and extensions	Area superintendent  Project Manager  SHEW  Contractor

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## **8. ENVIRONMENTAL MONITORING AND AUDITING**

Environmental monitoring, audits and inspections must be conducted by SHEW personnel and SHE representatives during construction and operational phases. The environmental monitoring and audits conducted at the substation will cover all management procedures and the requirements of this plan.

## **9. NON-CONFORMANCE PROCEDURES DURING OPERATIONS**

In the event of non-compliance the following recommended process shall be followed:

- Non-compliances will be identified during inspections or audits carried out by the SHEW Section and reported to the Area superintendent or project manager for corrective actions.
- Area superintendent or project manager shall notify the both internal and external employees about the non-compliance
- Corrective and preventative actions must be implemented on an agreed timeframes
- Follow – up inspections shall be conducted to assess whether the corrective and preventative actions were implemented effectively.

NamPower has the right to ban any employee from the site, which have not attended a SHEW induction, until the time that they receive induction. NamPower also has the right to stop all construction activities if it is found that a gross violation of the EMP is taking place.

## **10. SUB-CONTRACTOR MANAGEMENT**

The contractor shall in writing inform its sub-contractors and issue them a copy of this EMP and SHE Plan. Sub-contractors shall indicate in writing their commitment to comply with these plans. The Contractor has the overall responsibility of ensuring that all its sub-contractors comply with both plans.

## **11. DOCUMENTATION, RECORD KEEPING AND REPORTING PROCEDURES**

The following documents must be kept on site in an accessible place, and maintained by the Contractor and district personnel:

- Copy of the Environmental Clearance Certificate
- SHE file
- Induction records;
- Environmental monitoring and inspection reports
- Site Locality Plan
- Site instructions
- Substation register

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- Records of the quantities of general and hazardous waste generated on site and disposal certificates or details of volumes of waste recycled
  - Water consumption
  - Incidents and accidents (spills, impacts, complaints, legal transgressions)
  - Corrective and preventive actions taken to rectify incidents and accidents.

## **12. CONCLUSIONS AND RECOMMENDATIONS**

The purpose of this document is to provide guidelines for environmental best practice during the operation of the substation. This document shall be seen as part of the all contracts related to the substation.