

JULY 2018

**DRAFT ENVIRONMENTAL MANAGEMENT
PROGRAMME FOR THE PROPOSED MULALO
400/132KV MAIN TRANSMISSION SUBSTATION
(MTS) AND ASSOCIATED INTEGRATION OF
TRANSMISSION AND DISTRIBUTION POWER
LINES**

DEA REF NO.: 14/12/16/3/3/2/1059



Prepared and submitted by:

Prepared For:	Eskom Holdings SOC Limited Contact Person: Mrs. Anna Kawadza Eskom Environmental Manager Environmental Management Department Megawatt Park C2U42, Maxwell Drive, Sunninghill, PO Box 1091, Johannesburg, SA E-mail: @eskom.co.za Tel: +2711 800 3501 Fax:086 660 6092
Prepared By:	Contact Person: S. Zulu Senkosi Environmental 45 B Annie Botha Avenue Riviera 0084 Tel: (012) 329 7569 Mobile: 071 297 3830 Email: info@senkosi.com/sipho@senkosi.com
Date: July 2018	Version: 1
Report Title:	Environmental Management Programme For Mulalo 400/132kv Main Transmission Substation (MTS) And Associated Integration of Transmission and Distribution Power Lines

Contents

1. INTRODUCTION AND BACKGROUND.....	5
1.1 Location of Project.....	4
1.2 Description of Proposed Activity.....	8
1.3 Details of Environmental Assessment Practitioners	9
1.4 Environmental Legislation.....	9
1.5 Objectives and Scope Of EMPR.....	20
1.5.1 Pre-Construction.....	20
1.5.2 Construction.....	20
1.5.3 Operational Phase.....	20
1.5.4 Closure and Post Operation Phase.....	11
2. ADMINISTRATION AND IMPLEMENTATION OF EMPr	11
2.1 Key Role Players.....	11
2.1.1 Applicant/Developer	11
2.1.2 Contractor	11
2.1.3 Environmental Control Officer	12
2.1.4 Environmental Site Officer	13
2.1.5 Consulting Engineer	14
2.1.6 Engineers Representative	14
2.1.7 Project Manager.....	14
2.2 Compliance Monitoring and Enforcement.....	14
2.3 Reporting and Review.....	15
2.4 Environmental Method Statement	15
2.5 Documents Held on Site	16
2.6 Environmental Awareness	16
3. ENVIRONMENTAL MANAGEMENT PROGRAMME	16
4. CONCLUSION.....	45

LIST OF TABLES

Table 1: Environmental Management Programme: Pre-Construction Phase.....	18
Table 2: Environmental Management Programme: Construction Phase	21
Table 3: Environmental Management Programme: Operational Phase	38
Table 4: Environmental Management Programme: Decommissioning Phase.....	43

LIST OF FIGURES

Figure 1: Location of Mulalo Power Station Relative to Secunda.....	7
---	---

LIST OF ABBREVIATIONS

CE	Consulting Engineer
MTS	Main Transmission Substation
DEA	Department of Environmental Affairs
EA	Environmental Authorization
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
ESO	Environmental Site Officer
GN	Government Notice
LTPH	Long Term Plant Health
NEMA	National Environmental Management Act
PM	Project Manager
WUL	Water Use License

1. INTRODUCTION AND BACKGROUND

Eskom Holdings Ltd has identified an increase in the electricity demand in the area around Secunda in Mpumalanga Province. This increase in electricity demand has been caused by the growth of Sasol's asset base and by the need for the new 132kv source of electricity for Eskom distributions network in the area. In addition, the existing Sol Main Transmission Substation (MTS) is running at maximum capacity and additional capacity is urgently required.

Eskom decided that in order to address the above requirements, a new 400/132kv MTS would have to be built that would be integrated with the existing power network through loop-in-loop-out connections on existing transmission power lines. The proposed 400/132kv Sol B MTS will also be connected to the existing Sasol 2 and Sasol 3 substations in the area. Additionally, Eskom proposes to construct power lines to join the proposed new Open Cycle Gas Turbine in Sasol Refinery the existing Sasol 3 Substation.

Eskom is the sole supplier of electricity to the major industries in the Secunda area. Given the growth of Sasol's asset base and the resultant increase in power needs, Sasol approached Eskom in 2011 to address the following needs of Sasol:

- Re-obtaining Sol MTS N-2 (N-2 is the ability of the existing Sol MTS to continue supplying the load demand after the loss of two transformers) firm supply,
- Integrating the Sasol OCGT into the Eskom 132kV network,
- Securing a supply to Sasol Synfuels' future maximum demand, and
- Improving the poor quality of supply to Sasol Synfuels by relocating the non-Sasol Synfuels load to a new substation.

1.1 Location of Project

The study area is located within the Gert Sibande District Municipality (GSDM) which comprises the GMLM and other local municipalities in the Mpumalanga province. Figure 2 below shows the study area (with substation sites) which is located within the GMLM. Therefore, the GMLM will be primarily affected by the proposed development of the substation and associated activities.

The study area is situated south of the town of Secunda with the potential substation sites situated south east of eMbalenhle and south of the Sasol refinery. The study area also includes the existing Kriel-Tutuka 400kV transmission line and the Kriel-Zeus 400kV transmission lines and existing Sasol 2 and Sasol 3 distribution lines.

The study area is characterized by mining operations, industrial operations related to the Sasol Refinery, and farming activities. The R546 road, a major arterial road between Secunda and Standerton south runs through the western side of the study area.

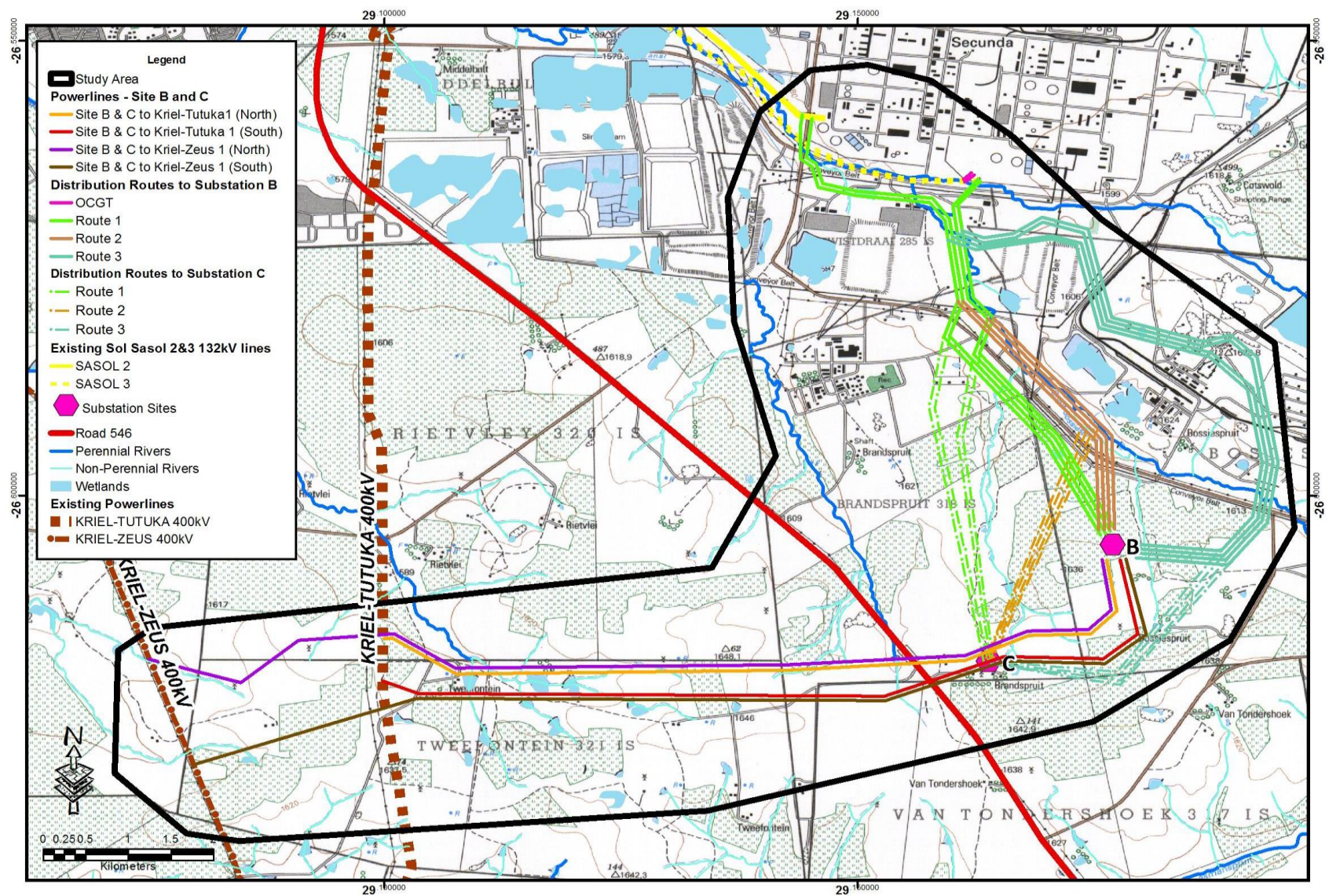


Figure 1: Location of Mulalo Power Station Relative to Secunda

1.2 Description of Proposed Activity

Sasol applied to Eskom Holdings for the integration of its new Open Cycle Gas Turbine (OCGT) plant to the North-East Transmission and Distribution electricity network as well as requesting that their notified maximum demand (NMD) be increased from 1100MVA to 1600MVA. In addition, the existing Sol Main Transmission Substation (MTS) is running at maximum capacity and additional capacity is needed in the area as a matter of urgency.

Though this project is considered to be Eskom transmission project, it is, however, composed of Eskom Transmission infrastructure and Eskom Distribution infrastructure as follows:

Eskom Transmission Infrastructure

- New 400/132kv Sol B MTS with a footprint of 64 ha.
- 2 × 400kv power lines (loop-in-loop-out) from the existing Kriel-Tutuka power lines to the Sol B MTS; and
- 2 × 400kv power line from the existing Kriel-Zeus 400kv power lines to the Sol B MTS.

Eskom Distribution Infrastructure

- 2 × 132kv power lines from the proposed Sol B MTS to loop into the existing power lines between the existing Sol MTS to Sasol substation. These new 132kv power lines will be built as 400kv power lines.
- 2 × 132kv power lines from the proposed Sol B substation to loop into the existing power lines between the existing Sol MTS and Sasol 3 substation. The new power lines will also be built as 400kv power lines.
- The construction of 2 × 132kv power lines joining the proposed new Open Cycle Gas Turbine (OCTG) in the Sasol Refinery to the existing Sasol 3 power lines.
- Decommissioning on the section of power lines from existing Sol MTS to where the lines from Sol B MTS integrate with the Sasol power lines. The decommissioning process will take place once the new power lines are connected.

This Environmental Management Programme (EMPr) will address the construction of Mulalo Sol B MTS and its operation and forms part of the Environmental Impact Assessment (EIA) process. The potential impacts or risks (and associated mitigation measures) to the environment identified in the EIA process are addressed in this document.

1.3 Details of Environmental Assessment Practitioners

Senkosi Environmental cc was appointed by Eskom to undertake the environmental impact assessment (EIA) for the proposed Mulalo MTS. Senkosi Environmental is a wholly black owned closed corporation, registered in 2007.

The company has conducted several studies and obtained authorizations in the environmental field. In 2010, the company was appointed by Eskom to conduct a Scoping and EIA for the Lethabo East Cooling Water Treatment Plant situated within the Metsimaholo Local Municipality which forms part of the Fezile Dabi District Municipality. The company also developed several Environmental Management Programmes (EMPrs) for Eskom substations including Olien, Ferrum, Snowdon and Mercury. In 2013, Senkosi was appointed to conduct the specialist walk down and compile the associated EMPr for the first 120km of the Masa-Ngwedi 765kV and 400kV power lines in Limpopo. During the same year, Senkosi was appointed by Eskom Distribution to undertake the Water Use License Application (WULA) and EMPr for the Glen Austin and President Park 11kV power line feeder upgrade in Gauteng.

1.4 Environmental Legislation

The Applicant and Contractor must ensure that all South African legislation concerning the natural environment, pollution and the built environment is strictly enforced. Such legislation must include, but is not limited to the:

- The Constitution of the Republic of South Africa Act No. 108 of 1996.
- National Environmental Management Act No. 107 of 1998 as amended.
- National Environmental Management: Biodiversity Act 10 of 2004
- National Environmental Management: Waste Management Act 59 of 2008
- National Heritage Resources Act, No 25 of 1999.
- National Water Act, No 36 of 1998
- Health Act, No. 63 of 1977
- Occupational Health and Safety Act, No. 85 of 1993
- Hazardous Substances Act, No. 15 of 1973.
- National Building Regulations and Standards Act, No. 103 of 1977.

This EMPr has been compiled as per the requirements of Appendix 4 of the 2014 EIA Regulations and in terms of Section 24N of the National Environmental Management Act (NEMA).

1.5 Objectives and Scope of EMPR

The EMPR proposes to ensure that:

- All mitigation measures are carried out correctly and adverse impacts on the environment are minimized or avoided;
- Site activities are well-managed with functions and responsibilities and responsible persons clearly outlined;
- All relevant legislation is complied with, and
- The project is monitored for environmental impact.

The EMPR serves to provide corrective measures to address any risk to the environment during the pre-construction, construction and operation of the Mulalo Sol B MTS. These phases of the project are briefly discussed below.

1.5.1 Pre-Construction

Activities that will form part of these phase including the planning and design of the project as well as the preparation of the site prior to the construction of the Mulalo Sol B MTS.

1.5.2 Construction

The bulk of the impacts occur during this phase and will have immediate effects such as noise, dust, water, waste and vegetation clearing. If construction activities are monitored on a continual basis, it is possible to deal with these impacts as they occur. This phase includes, but is not limited to:

- Building of the Mulalo Sol B MTS including excavation for the foundations of the Mulalo Sol B MTS;
- Construction of associated infrastructure such as the laying of pipelines, etc.
- The construction of storm water management infrastructure;
- Upgrade of service / maintenance roads (if necessary).

1.5.3 Operational Phase

Impacts during the operational phase should be less in number and lower in intensity in contrast to the construction phase. By taking pro-active measures during the construction phase, potential environmental impacts emanating during the operational phase will be minimized. Some of the activities during this phase are:

- Monitoring vegetation re-establishment and rectifying this where necessary
- Monitoring erosion control
- Waste management

- Water quality monitoring
- Air quality monitoring

1.5.4 Closure and Post Operation Phase

This phase entails the closure and dismantling of the Mulalo Sol B MTS and associated infrastructure and ultimately the rehabilitation of the area where the Mulalo Sol B MTS was located. It is understood that this will only occur when the Mulalo power station closes.

2. ADMINISTRATION AND IMPLEMENTATION OF EMPr

2.1 Key Role Players

In order to ensure the development and effective implementation of the EMPr, it is necessary to identify and define the responsibilities and authority of the various persons that will be involved in the project. The following key role players will be involved in the administration and implementation of the EMPr:

- Applicant/Developer
- Contractor (C)
- Environmental Site Officer (ESO);
- Environmental Control Officer (ECO);
- Consulting Engineers (CE);
- Engineers Representative (ER);
- Project Manager (PM)

2.1.1 Applicant/Developer

The Applicant is the responsible entity for monitoring the implementation of the EMPr and compliance with the authorization. However, if the applicant appoints a contractor to implement the project, the implementation of the proposed mitigation measures documented in this EMPr on their behalf and responsibilities will then fall under the successful contractor's responsibilities, including the outlined responsibilities in the section that follows.

2.1.2 Contractor

The successful contractor shall:

- Be responsible for the finalization of the EMPr in terms of methodologies / method statements which are required to be implemented to achieve the environmental specifications contained in this EMPr and the relevant requirements contained in the environmental authorization (EA);

- Be responsible for the overall implementation of the EMPr in accordance with the requirements of the developer and the EA; and
- Ensure that all third parties who carry out all or part of the contractor's obligations under the contract comply with the requirements of this EMPr.

2.1.3 Environmental Control Officer

For the purposes of implementing the conditions contained in this document, the applicant shall appoint a suitably qualified ECO for the contract. The ECO shall be the responsible person for ensuring that the provisions of the EMPr as well as the environmental authorization are complied with during the construction period.

The ECO will be responsible for issuing instructions to the contractor where environmental considerations call for action to be taken. The ECO shall submit regular written reports to the applicant and the environmental authority (DEA) as required. The ECO's duties will include the following:

- Confirming that all the environmental authorizations and permits required in terms of the applicable legislation has been obtained prior to construction commencing;
- Monitoring and verifying that the EMPr, EA and any other license conditions are adhered to at all times and taking action if such conditions are not followed;
- Monitoring and verifying that environmental impacts are kept to a minimum;
- Reviewing and approving construction method statements with input from the ESO and engineer, where necessary, in order to ensure that the environmental conditions contained within this EMPr and EA are adhered to;
- Inspecting the site and surrounding areas on a regular basis regarding compliance with the EMPr and EA;
- Monitoring the undertaking by the contractor of environmental awareness training for all new personnel on site;
- Ensuring that activities on site comply with all relevant environmental legislation;
- Ordering the removal of, or issuing Non-Conformance Reports (NCR) to person/s and/or equipment not complying with the specifications of the EMPr and/or environmental authorization;
- Checking the register of complaints kept on site and maintained by the ESO and ensuring that the correct actions were taken in response to these complaints;
- Checking that the required actions were undertaken to mitigate the impacts resulting from non-compliance;
- Reporting all incidents of non-compliance;

- Conducting annual environmental performance audits in respect of the activities undertaken relating to the project. The ECO shall also submit compliance audit reports to DEA, in accordance with the requirements of the environmental authorization. Such reports shall be reviewed by the applicant, prior to submission;
- Keeping a photographic record of progress on site from an environmental perspective. This can be conducted in conjunction with the ESO as the ESO will be the person that will be onsite at all times and can therefore take photographic records weekly. The ECO would need to check and ensure that the ESO understands the task at hand;
- Recommending additional environmental protection measures, should this be necessary; and
- Providing report back on any environmental issues at site meetings. The ECO must be suitably experienced with the relevant environmental management qualifications and preferably competent in construction related methods and practices.

2.1.4 Environmental Site Officer

The contractor shall appoint a nominated representative of the contractor as the ESO for the duration of the contract. The ESO will be site-based and shall be the responsible person for implementing the environmental provisions of the construction contract. The ESO must be on the site at all times with the duties to:

- Ensure that the EA and any permits required in terms of the applicable legislation have been obtained prior to construction commencing;
- Review and approve construction method statements with input from the ECO and engineer, where necessary, in order to ensure that the environmental specifications contained within the construction contract are adhered to;
- Assist the contractor in finding environmentally responsible solutions to problems;
- Provide environmental training to contractor employees and provide evidence to ECO of this, and keep such evidence as their records;
- Keep accurate and detailed records of all activities on site;
- Undertake daily toolbox talks alerting the workforce to particular environmental concerns associated with the work of the day
- Keep a register of complaints on site and recording community comments and issues, and the actions taken in response to these complaints;
- Ensure that required actions are undertaken to mitigate the impacts resulting from non-compliance to any of the requirements of the EMPr, EA and any other permits;
- Report all incidences of non-compliance to the ECO and contractor, and

- Submit regular written reports to the ECO, but not less frequently than once a month.

2.1.5 Consulting Engineer

The consulting engineer (CE) would be appointed by the applicant to design and specify the project engineering aspects of the proposed Mulalo Sol B MTS. Generally, the CE runs the works contract and may also fulfil the role of project manager (PM) on the applicant's behalf. The CE must be familiar with the requirements of the EMPr and EA, and sign-off on all method statements

2.1.6 Engineers Representative

The engineer's representative (ER) is the consulting engineer's representative on site. The ER has the power or mandate to issue site instructions and variation orders to the contractor following requests from the ECO, for example. The ER also oversees site work and is the liaison with the contractor and ECO. The ER must be familiar with the requirements of the EMPr and EA, and sign off on all method statements if mandated to do so by the CE.

2.17 Project Manager

The PM has overall responsibility for managing the project, contractor/s and sub-contractors and ensuring that the environmental requirements are met.

- All decisions regarding environmental procedures must be approved by the PM.
- The PM has the authority to stop construction activities if there is contravention of the EMPr in with an agreed warning procedure.

2.2 Compliance Monitoring and Enforcement

Non-compliance with the conditions of the EMPr and EA must be viewed as a breach of appointment contract for which the construction contractor/s will be held liable. The latter is deemed not to have complied with the EMPr if:

- There is evidence of contravention of the EMPr, its environmental specifications or the Method Statements developed by the contractor within the boundaries of the construction site or areas of contractor responsibility;
- Construction related activities take place outside the defined boundaries of the site;
- Environmental damage occurs due to non-compliance;
- The contractor fails to comply with corrective or other instructions issued by the ECO within specified time periods; or
- The contractor fails to respond adequately to complaints from the community and/or authorities.

- The proponent and the construction contractors are liable for any construction rehabilitation costs associated with their non-compliance with the EMPr. This rehabilitation will be undertaken to the satisfaction of the ECO.

2.3 Reporting and Review

The EMPr reporting and documentation requirements must be based on best practice principles, e.g. ISO 14001 that must take the following requirements into account:

- The EMPr must be regularly reviewed and updated by all environmental management parties. The EMPr is not a static document but one that can be amended if the need to do this arises.
- Audits of the environmental performance of the construction phase of the project will be undertaken on a quarterly basis by accredited auditors in fulfilment of possible conditions of environmental authorization in this regard.
- The findings of external, internal and informal environmental reviews will be recorded and items requiring action will be identified from the recommendations made.
- The contractors will be contractually obliged to fulfil any reasonable recommendations, and implementation of these actions will be assessed in the above audit.
- Weekly and monthly reporting meetings will take place on site.
- Internal auditing and reporting will be subject to external review by the ECO during the quarterly compliance audits.

2.4 Environmental Method Statement

Method statements are written submissions by the contractor, in collaboration with his or her ESO, in response to a request by the CE or his/her representative. Method statements will outline in detail how various activities will be undertaken so as not to cause environmental damage. Method statements should contain appropriate detail such that the ESO and CE are able to assess whether the Contractor's proposal is in accordance with the requirements of the EMPr. The contractor must sign each Method Statement along with the ESO and CE to formalize approved Method Statements. Any changes to the method statements must be reflected by amendments to the original approved method statement and must be approved by the ESO and CE and must be in accordance with the requirements of this EMPr. Method statements must be kept on site as part of the official environmental documentation.

Method statements for the following activities must be submitted to the CE, ESO and ECO for approval before construction starts:

- Solid waste management;
- Storm water management;

- Construction lay-down areas;
- Workshop and maintenance areas;

2.5 Documents Held on Site

The following is a list of documents that should be held on-site and made available to the Competent Authority (DEA) on request:

- Site daily diary / instruction book / incident reports;
- Records of all remediation / rehabilitation activities;
- Copies of ESO reports (management and monitoring);
- This EMPr;
- The EA and all applicable permits (if any);
- A Complaints register; and
- Method statements signed by the contractor and CE or his representative (the ER).

2.6 Environmental Awareness

The ESO is responsible for ensuring everyone on-site is given an environmental awareness induction session which clearly defines what the environment is and outlines the requirements of the EMPr as a management tool for the protection of the environment. Refresher courses must be conducted as and when required and always when new staff join the workforce.

The ESO must ensure daily toolbox talks including alerting the workforce to particular environmental concerns associated with the tasks for that day. The training must deal specifically with triggers that would require the implementation of mitigation measures contained in the EMPr. These include, but are not limited to:

- Identification of potential heritage resources
- Identification and avoidance of demarcated no-go areas

3. ENVIRONMENTAL MANAGEMENT PROGRAMME

The purpose of this EMPr is to provide management measures that must be implemented by applicant/developer, engineers and contractors alike to ensure that the potential impacts of the construction and operation of the Mulalo MTS project are minimized. It must also be ensured that the EMPr is maintained and upheld as a dynamic document i.e. a living document, in order for the project team to add or improve on issues that might be considered left out or not relevant to the project. The EMPr should be

used for all phases of the project. The tables below consist of the mitigation measures appropriate to the pre-construction, construction, operation and decommissioning phases of the Mulalo MTS project. The tables present the objectives to be achieved and the management actions that need to be implemented to mitigate the negative impacts and enhance the benefits of the project.

Table 1: Environmental Management Programme: Pre-Construction Phase

Development phase	Pre-construction				
Impacts / Issues	Mitigation measures	Management objectives	Management targets	Frequency	Responsible party
Planning	<ul style="list-style-type: none"> • Appointment of ECO and other role players including the ESO • All role-players must understand their part in the implementation of the EMPr • Required method statements are compiled and approved • Any licences and/or permits required have been obtained 	<ul style="list-style-type: none"> • Minimise negative impacts through the implementation of EMPr • Formalise environmental responsibilities • Legislative compliance 	<ul style="list-style-type: none"> • Contracts in place • Site documentation including EMPr, EA and method statements are in place 	Once-off	Contractor CE
Site preparation:	<ul style="list-style-type: none"> • Soil and vegetation to be stripped only from project footprint area • No-go areas (if any) to be clearly fenced off • Construction camp to be clearly demarcated including all Contractor's buildings, lay down areas, etc. 	<ul style="list-style-type: none"> • Clear indication of construction footprint • Avoid/reduce impacts on surrounding environment, infrastructure and services 	<ul style="list-style-type: none"> • Method statement detailing location and management of all access points and roads. • Method statement regarding establishment and management of construction camp 	Once-off	Contractor ESO
Method statements	<ul style="list-style-type: none"> • Contractor to supply method statements in line with Mulalo Power Station's Environmental 	<ul style="list-style-type: none"> • Protocols to minimise negative impacts on Mulalo 	<ul style="list-style-type: none"> • Approved method statements in place 	Once off	Contractor ESO ECO

Development phase	Pre-construction				
Impacts / Issues	Mitigation measures	Management objectives	Management targets	Frequency	Responsible party
	Management System (EMS) and as required by the Engineer including procedures to be followed for incidents such as oil spills, storm water management, emergencies, safety, etc.	power station and surrounding environment			CE
Employment opportunities for local communities	<ul style="list-style-type: none"> Identify opportunities for the employment and training of people and contractors from the surrounding towns. Opportunities for local employment may include activities related to site clearance, digging of trenches and building of the Mulalo MTS. Based on these opportunities, develop a recruitment and training strategy that the main construction contractors will have to adhere to. Monitor implementation of local recruitment and training strategies, including monitoring of corruption and nepotism. Focus on the employment and training of the youth and females 	<ul style="list-style-type: none"> Job creation Upskill local people Benefit local SMMEs 	<ul style="list-style-type: none"> Provide employment locally Improve lives of local people where possible Benefits to local economy through increased spending power of those employed 	Once-off	Applicant Contractor

Development phase	Pre-construction				
Impacts / Issues	Mitigation measures	Management objectives	Management targets	Frequency	Responsible party
	<ul style="list-style-type: none"> Develop a register of relevant local Small Medium and Micro Enterprises (SMME) in the surrounding towns. Ensure that SMMEs on the register are made aware of Eskom's supplier requirements and standards. Empower SMME to meet Eskom's requirements and standards 				

Table 2: Environmental Management Programme: Construction Phase

Development phase	Construction				
Impacts / Issues	Mitigation measures	Management objectives	Management targets	Frequency	Responsible party
Topsoil and associated stockpiles	<ul style="list-style-type: none"> The topsoil should be stripped off so that material can be re-used during the rehabilitation phase. Areas chosen for the topsoil stockpiles should be kept to a minimum and should involve the least disturbance to vegetation. Translocation of topsoil stockpiles from one place to another or importing topsoil from other sources that may contain alien plant material should be avoided. 	<ul style="list-style-type: none"> Minimise disturbance and loss of soil Remain within construction footprint Removal of alien species 	<ul style="list-style-type: none"> Erosion is avoided or kept to a minimum Re-use of topsoil during rehabilitation process Alien species management plan 	Daily monitoring	ESO ECO Contractor ER
Pollution of groundwater through rainwater infiltrating stockpiles	<ul style="list-style-type: none"> Compact footprint area of stockpiles to minimize groundwater infiltration Stormwater run-off from stockpiles must be diverted into stormwater systems with silt traps to avoid contamination 	<ul style="list-style-type: none"> Minimise stormwater runoff Minimise groundwater contamination 	<ul style="list-style-type: none"> Stormwater is controlled Groundwater tests reveal no contamination 	Daily monitoring	Contractor ECO ESO
Loss of plant communities, natural habitats and fragmentation thereof	<ul style="list-style-type: none"> Ensure that workers do not unnecessarily trample vegetation. All infrastructures should be confined to the areas demarcated for 	<ul style="list-style-type: none"> Minimise impacts on vegetation during construction process 	<ul style="list-style-type: none"> Impacts to vegetation and soil beyond what is 	Daily monitoring	ESO ECO Contractor

Development phase	Construction				
Impacts / Issues	Mitigation measures	Management objectives	Management targets	Frequency	Responsible party
	<p>such and no infrastructure should be permitted in areas not correctly prepared.</p> <ul style="list-style-type: none"> The project should retain as small footprint as possible to minimize impacts to surrounding vegetation and soil. All areas not within the footprint of the project area where soil has been compacted or vegetation disturbed, should be immediately ripped and re-vegetated immediately. 	<ul style="list-style-type: none"> Keep within construction footprint 	<p>necessary are avoided.</p>		
Loss of vegetation and seed banks due to oil and diesel spillages	<ul style="list-style-type: none"> Ensure that proper measures are in place to contain any oil and diesel leakages or spills. Proper handling and storage practices, as well as readily available oil-spill kits should minimise the risks associated with such spills. Spills should be cleaned up immediately by removing the polluted soil and disposing thereof at an appropriate registered waste facility Drip trays to be placed under vehicles moving equipment 	<ul style="list-style-type: none"> Prevent pollution of environment Minimising occurrence of such impacts 	<ul style="list-style-type: none"> Zero uncontained spillages. Comprehensive method statement addressing handling and storage of oil and emergency spills procedure No complaints from Applicant or DEA 	Daily monitoring	ESO ECO Contractor ER

Development phase	Construction				
Impacts / Issues	Mitigation measures	Management objectives	Management targets	Frequency	Responsible party
	<p>containing oil and that are standing for more than 12 hours. Size of drip trays must be sufficient (110% capacity)</p> <ul style="list-style-type: none"> Oil disposal from activities shall be done in accordance to the Mulalo Power Station waste management procedure. 				
Dust	<ul style="list-style-type: none"> Keep vegetation clearance to a minimum. Regular dust suppression of access roads to reduce dust generated by vehicles Dust suppression of project site to reduce fugitive emissions generated by construction activities Fugitive emissions to be monitored 	<ul style="list-style-type: none"> Minimise nuisance factor of construction activities on power station & surrounding communities and landowners Construction activities to not impact on the Atmospheric Emission License of the station in terms of fugitive emissions 	<ul style="list-style-type: none"> No complaints from power station management No complaints from surrounding communities and landowners Method statement regarding dust control in place Zero exceedance of dust regulations pertaining to fugitive emissions related to the site activities. 	Daily monitoring	ESO ECO Contractor
Increased potential of invasion by alien invasive species	<ul style="list-style-type: none"> Early detection and eradication of alien vegetation species through on- 	<ul style="list-style-type: none"> Avoid legal infringements by 	<ul style="list-style-type: none"> No noticeable spread of alien vegetation on site 	Ongoing monitoring	ESO ECO Contractor

Development phase	Construction				
Impacts / Issues	Mitigation measures	Management objectives	Management targets	Frequency	Responsible party
	<p>going monitoring and eradication programme</p> <ul style="list-style-type: none"> Control and manage the removal of vegetation Vegetation removal to be undertaken in consultation with the ECO 	<p>preventing spread of alien vegetation</p>			
Fauna	<ul style="list-style-type: none"> Workforce to be instructed that no animals or birds may be caught, killed or domesticated Workforce to be informed that poaching is illegal and if they are caught poaching they will be dismissed Construction vehicles to keep to speed limits to limit killing animals and birds on site Construction activities to take place during daylight hours to reduce risks to fauna 	<ul style="list-style-type: none"> Minimise disturbance and mortality to animals and birds 	<ul style="list-style-type: none"> No complaints from power station management and surrounding landowners and communities 	Daily monitoring	ESO ECO Contractor
Erosion	<ul style="list-style-type: none"> Monitoring for presence of rills and gullies in the soil. Limit disturbance to the construction footprint 	<ul style="list-style-type: none"> Minimise disturbance and loss of topsoil 	<ul style="list-style-type: none"> No erosion scars No loss of topsoil 	As and when required but especially towards end	ESO ECO Contractor ER

Development phase	Construction				
Impacts / Issues	Mitigation measures	Management objectives	Management targets	Frequency	Responsible party
	<ul style="list-style-type: none"> Prevent uncontrolled water flow through diverting water into run-off paths and stormwater systems with silt traps 	<ul style="list-style-type: none"> Minimise scarring of earth Reduce sedimentation of stormwater 	<ul style="list-style-type: none"> Construction footprint is not exceeded All damaged areas successfully rehabilitated 	of construction	
Lowering of groundwater levels	<ul style="list-style-type: none"> Foundations of Mulalo MTS to be less than 5 m to avoid going below water table if possible If excavation goes below 5m, then drains and cut-off trenches must be built around the proposed construction area to prevent run-off water from entering pit 	<ul style="list-style-type: none"> Avoid impacting on water table 	<ul style="list-style-type: none"> No complaints from surrounding landowners re lowering groundwater levels Zero legal contraventions 	During excavation and construction of foundations	Engineer Contractor ER
Fire	<ul style="list-style-type: none"> No open fires are to be permitted on-site. Method statement by Contractor that indicates how wild fires will be dealt with from adjacent properties. Fire breaks should be done in accordance with the station's fire breaks procedure. 	<ul style="list-style-type: none"> Maintain safety on site and in surrounding community Reduce risk of veld fires and destruction of natural habitat 	<ul style="list-style-type: none"> Zero veld fires started by the workforce No claims from landowners for damages due to veld fires Method statement in place and adhered to 	Daily monitoring	ECO ESO Contractor

Development phase	Construction				
Impacts / Issues	Mitigation measures	Management objectives	Management targets	Frequency	Responsible party
	<ul style="list-style-type: none"> Sufficient fire extinguishers and other fire-fighting equipment to be supplied in construction area 				
Noise	<ul style="list-style-type: none"> All construction vehicles must be in good working order The use of construction machinery should be limited between 06h00 and 18h00 on weekdays only. Work hours must be strictly enforced unless permission is given to work beyond these hours No construction should occur during weekends, unless the adjacent residents have been notified in writing at least three days in advance. Noise reduction is essential and the Contractor must endeavour to limit unnecessary noise, especially loud talking, shouting or whistling, radios, sirens or hooters, motor revving, etc. The contractor must ensure that noise levels remain within acceptable limits and that labourers have safety equipment such as ear plugs when 	<ul style="list-style-type: none"> Minimise nuisance factor of construction of Mulalo MTS 	<ul style="list-style-type: none"> No complaints from surrounding landowners and residents 	As and when required	ECO ESO Contractor

Development phase	Construction				
Impacts / Issues	Mitigation measures	Management objectives	Management targets	Frequency	Responsible party
	undertaking of activities with high levels of noise				
Impacts on heritage resources	<ul style="list-style-type: none"> • Workforce must be informed what heritage resources are and what must occur if such resources are found; <p>In the event of heritage resources being unearthed during construction then:</p> <ul style="list-style-type: none"> • All work in immediate area of the find must stop and a 5m perimeter boundary must be placed around the find • A registered heritage specialist must be called to site to investigate the find • The Free State Provincial Heritage Resources Agency (PHRA) must also be informed • The heritage specialist will assess the significance of the resource and provide guidance on the way forward. • Permits must be obtained from the Free State PHRA if heritage resources are to be altered, removed or destroyed 	<ul style="list-style-type: none"> • Protecting the country's heritage resources from damage or destruction 	<ul style="list-style-type: none"> • Workforce understanding of and compliance with process to deal with chance finds. • No damage to heritage resource • Zero legal contraventions 	Ongoing	ECO ESO Contractor

Development phase	Construction				
Impacts / Issues	Mitigation measures	Management objectives	Management targets	Frequency	Responsible party
	<ul style="list-style-type: none"> • Work can only commence once go-ahead is given by the heritage specialist • Under no circumstances may any heritage material be destroyed or removed from site unless under direction of a heritage specialist. • If remains are found that could be human, then the SAP must be informed immediately 				
Waste management	<ul style="list-style-type: none"> • The contractor must provide and maintain a method statement for “solid waste management”. The method statement must provide information on the proposed licensed facility to be utilised and details of proposed record keeping for auditing purposes. • Waste must be taken to registered waste landfill sites as mentioned in the method statement. • Proof of legal disposal must be produced on request. • Any illegal dumping of waste must not be tolerated, no on-site burning, burying or dumping of any waste 	<ul style="list-style-type: none"> • Adherence to method statement and correct storage and disposal of waste • Promote waste separation at source for recycling purposes 	<ul style="list-style-type: none"> • No complaints from Mulalo power station management regarding litter lying around the construction site and being blown across the power station • Regular disposal of waste • No complaints from surrounding communities and landowners 	Ongoing throughout construction phase	ECO ESO Contractor ER

Development phase	Construction				
Impacts / Issues	Mitigation measures	Management objectives	Management targets	Frequency	Responsible party
	<p>materials, litter or refuse shall be permitted</p> <ul style="list-style-type: none"> • Separate bins must be clearly marked and used for recycling of waste such as glass, plastic and tins where possible. • All refuse bins must have lids that can be secured to prevent animals from gaining access. • Sufficient containers must be strategically located around the construction site to handle the amount of litter, wastes, rubbish, debris, etc., generated by the construction site • If skips are used, then they must be covered to prevent waste from being blown about by wind; limit access of animals in to waste skips and bins • Skips and other waste containers must be emptied regularly to registered waste landfill sites. • Monkey proof bins to be erected in alignment with the station requirements to minimise potential safety risk to employees. 		<ul style="list-style-type: none"> • Zero legal contraventions 		

Development phase	Construction				
Impacts / Issues	Mitigation measures	Management objectives	Management targets	Frequency	Responsible party
	<ul style="list-style-type: none"> Chemical containers and packaging brought onto the site must be removed for disposal at a suitable hazardous licenced landfill site. 				
Use of cement and concrete	<ul style="list-style-type: none"> The contractor must provide a method statement for cement and concrete batching if this is to be done on site. The method statement must provide information on proposed storage, washing and disposal of cement and concrete, packaging and tools. The mixing of cement and concrete must only be done at specifically selected sites on mortar boards or similar structures to contain run-off. Cleaning of cement and concrete mixing and handling equipment must be done using proper cleaning trays. All empty containers must be stored in a dedicated area and later removed from the site for disposal at a licensed facility. All spillage that may occur must be investigated and immediate remedial action (removal of spillage and 	<ul style="list-style-type: none"> Minimise / avoid cement residue from entering into the environment Minimise / avoid pollution of soil, surface and groundwater resources 	<ul style="list-style-type: none"> No evidence of contaminated soil on the construction site Method statement in place and enforced Zero legal contraventions 	Daily monitoring	ECO ESO Contractor ER

Development phase	Construction				
Impacts / Issues	Mitigation measures	Management objectives	Management targets	Frequency	Responsible party
	<p>contaminated soil to registered landfill site) must be undertaken.</p> <ul style="list-style-type: none"> Cement batching areas must be located in consultation with the ESO or ECO to ensure spillages are contained and that the proposed location does not fall within sensitive areas 				
Hazardous substances	<ul style="list-style-type: none"> If hazardous substances are to be stored or used on site, the Contractor shall conform to the station's waste management procedure and submit a method statement detailing the substances / materials to be used, together with the transport, storage, handling and disposal procedures for the substances The transportation and handling of hazardous substances must comply with the provisions of the Hazardous Substances Act (Act No.187 of 1993) and associated regulations. The Contractor shall also comply with all other applicable regional and local legislation and regulations with regard to the transport, use and disposal of hazardous substances. 	<ul style="list-style-type: none"> Minimise harm / damage to workers and to the environment through hazardous substances Ensure safety of workers handling such substances Safe transport of substances 	<ul style="list-style-type: none"> No spillage of hazardous substances No harm to workers Zero legal contraventions 	As and when required	ECO ESO Contractor ER

Development phase	Construction				
Impacts / Issues	Mitigation measures	Management objectives	Management targets	Frequency	Responsible party
	<p>Hazardous chemical substances are defined in the Regulations for Hazardous Chemical Substances). The relevant Material Safety Data Sheets (MSDS) shall be available on site. Procedures in the MSDSs shall be followed in the event of an emergency.</p> <ul style="list-style-type: none"> The Contractor shall be responsible for the training and education of all personnel on site who will be handling hazardous materials about their proper use, handling and disposal. Staff designated to handle hazardous waste must be supplied with the necessary safety items (gloves, dust masks, etc.) to ensure safety of workers. 				
Workshop and equipment maintenance	<ul style="list-style-type: none"> Where practical, all maintenance of equipment and vehicles on site shall be performed in a workshop off-site. If it is necessary to do maintenance outside of the workshop area, the Contractor shall obtain the approval of the ECO prior to commencing such activities. 	<ul style="list-style-type: none"> Ensure that environment is not damaged by leaking oil and/or fuel from vehicles 	<ul style="list-style-type: none"> No damage to the environment No complaints from Mulalo power station management 	Daily monitoring	ECO ESO Contractor ER

Development phase	Construction				
Impacts / Issues	Mitigation measures	Management objectives	Management targets	Frequency	Responsible party
	<ul style="list-style-type: none"> The Contractor shall ensure that there is no contamination of the soil or vegetation. The workshop shall have a smooth impermeable (concrete or thick plastic covered with sand) floor. The floor shall be bunded and sloped towards an oil trap or sump to contain any spillages. When servicing equipment, drip trays shall be used to collect the waste oil and other lubricants. Drip trays shall also be provided in construction areas for stationary plant (such as compressors and vehicles). All vehicles and equipment must be kept in good working order. Leaking equipment must be repaired immediately or removed from site. The washing of equipment must be undertaken in the workshop or maintenance area, and these areas must be equipped with an impermeable floor and sump/oil trap. 				

Development phase	Construction				
Impacts / Issues	Mitigation measures	Management objectives	Management targets	Frequency	Responsible party
	<ul style="list-style-type: none"> As part of the site layouts, a plan must be submitted to the ECO detailing the design of the bunding of the workshop and how run-off from the workshop will be managed as well as how drip trays used under plant will be managed. 				
Eating areas for construction workers	<ul style="list-style-type: none"> The Contractor shall designate an eating area, subject to the approval of the ECO. No cooking is allowed outside this area The area shall be well demarcated and in a location approved by the ECO and shall not be within 20 m of any “no go” areas. All workers must eat in designated eating areas. These areas shall have shade for the workers. The eating areas may be in existing structures or a temporary structure that shall be well constructed Sufficient monkey-proof bins shall be provided in the area. All disposable food packaging must be disposed of in the bins. 	<ul style="list-style-type: none"> Control potential influx of vermin and flies Neat work place Hygienic environment for workers 	<ul style="list-style-type: none"> No signs of vermin (e.g. rats) and flies No complaints from Mulalo power station management and workforce 	Daily monitoring	ECO ESO Contractor ER

Development phase	Construction				
Impacts / Issues	Mitigation measures	Management objectives	Management targets	Frequency	Responsible party
	<ul style="list-style-type: none"> The area must be cleaned after every meal. The feeding or leaving of food for animals must be strictly prohibited. 				
Ablution facilities for construction workers: contamination of soil, surface and groundwater and environment	<ul style="list-style-type: none"> The contractor is responsible for providing all ablution facilities for his/her workers and those of any sub-contractors. Relieving oneself outside of ablution facilities is strictly prohibited. A minimum of one chemical toilet must be provided per 12 workers. Sanitary arrangements must be to the satisfaction of the ECO and OHS official Toilets must be of the chemical type. All toilets will be located within the construction site. The contractor must keep the toilets in a clean, neat and hygienic condition. The contractor must supply toilet paper at all times. A reputable toilet-servicing company must be used to clean, maintain and 	<ul style="list-style-type: none"> Ensure proper on-site sanitation. Minimise potential of diseases on-site Minimise potential pollution of soil, water resources and natural habitat Frequent checks for leakages Ensure proper waste disposal. Waste disposal of ablution facilities shall be done according to legal requirements. 	<ul style="list-style-type: none"> Worker use toilets provided and not veld No complaints received Lethabo power station and from workforce No visible signs of pollution of the environment (soils, water, veld) Zero legal contraventions 	Daily monitoring	Contractor ESO ECO ER

Development phase	Construction				
Impacts / Issues	Mitigation measures	Management objectives	Management targets	Frequency	Responsible party
	<p>service the toilets. The contractor must ensure that all toilets are cleaned and emptied before any long weekends, workers' holidays, etc.</p> <ul style="list-style-type: none"> Toilets must be secured to the ground and have a sufficient locking mechanism that are operational at all times. 				
Safety and security	<ul style="list-style-type: none"> The site and workforce must be managed in strict accordance with the OHS Act and the National Building Regulations as well as with Eskom's Safety, Health, Environment and Quality Policy (32-727). The contractor must ensure that all emergency procedures are in place prior to commencing work. Emergency procedures must include: fire, spills contamination of the ground, accidents to employees, use of hazardous substances and materials, etc. The contractor must ensure that lists of all emergency telephone numbers / contact persons are kept up to date and that all numbers and names are 	<ul style="list-style-type: none"> Reducing risk of incidents that could lead to fatalities or serious injury No complaints from inside and outside construction area 	<ul style="list-style-type: none"> No incidents reported during construction phase No complaints from the health and safety officer No complaints from surrounding communities and landowners regarding illegal squatting or dangerous driving by those driving construction vehicles 	Daily monitoring	Applicant Contractor PM ECO ESO ER

Development phase	Construction				
Impacts / Issues	Mitigation measures	Management objectives	Management targets	Frequency	Responsible party
	<p>posted at relevant locations throughout the construction site.</p> <ul style="list-style-type: none"> The nearest emergency centre must be identified during all phases of the project. The contact details of this centre, as well as the police and ambulance services, must be available at prominent locations around the construction site. A Health and Safety Officer as well as an independent firm must be appointed to audit the site's compliance with the OHS Act during construction. Ensure a grievances procedure is in place for local people to log complaints regarding misbehaviour of construction workers Monitor the surrounding area for illegal squatting and develop a strategy to deal with illegal squatting that may occur as a result of people coming to the site looking for work 				

Table 3: Environmental Management Programme: Operational Phase

Development phase	Operational				
Impacts / Issues	Mitigation measures	Management objectives	Management targets	Frequency	Responsible party
Construction site decommissioning	<ul style="list-style-type: none"> • All structures comprising the site office (if any) are to be removed from site. • The area that previously housed the site office is to be checked for spills such as oil, concrete, etc., and these shall be cleaned up and removed. • All surfaces hardened during construction are to be ripped and imported material thereon removed. • All rubble is to be removed from the site to an approved disposal site. • Fences, barriers and demarcations are to be removed unless otherwise stipulated by the Engineer or Contractor • All residual stockpiles must be removed as directed by the Engineer. • All residual building materials must be removed from the site 	<ul style="list-style-type: none"> • Ensure site is restored to original condition • Ensure that remains of construction activity are disposed of at approved disposal sites 	<ul style="list-style-type: none"> • No complaints from Mulalo power station management 	Once off after construction is completed	Contractor Engineer ECO
Rehabilitation of vegetation	<ul style="list-style-type: none"> • Topsoil removed during the construction phase must be used 	<ul style="list-style-type: none"> • Minimise exposed areas 	<ul style="list-style-type: none"> • Exposed areas are rehabilitated 	Monthly until vegetation	Contractor Applicant

Development phase	Operational				
Impacts / Issues	Mitigation measures	Management objectives	Management targets	Frequency	Responsible party
	<p>where possible to rehabilitate disturbed areas;</p> <ul style="list-style-type: none"> • Topsoil must be analysed for its fertility and if reduced, appropriate fertilisers must be used to increase the fertility of the soil prior to rehabilitation. • Re-vegetate the area with plant species consistent surrounding environment and under guidance of a qualified ecologist. • Methods and timing of rehabilitation must be prescribed by an ecologist based on site conditions at the time • Badly damaged areas should be fenced off to allow the area to rehabilitate. • Remove invasive vegetation from damaged construction area and from rehabilitated areas • Manual labour to be used to remove alien plant species instead of chemical removal 	<ul style="list-style-type: none"> • Appropriate plants are used for re-vegetating • Reduce risk of spread of invasive species 	<p>quickly to reduce loss of soil</p> <ul style="list-style-type: none"> • Area is rehabilitated to surrounding area standard • No signs of invasive species on rehabilitated areas 	<p>has established; yearly thereafter</p>	

Development phase	Operational				
Impacts / Issues	Mitigation measures	Management objectives	Management targets	Frequency	Responsible party
Erosion	<ul style="list-style-type: none"> Reshape soil surface to flat as soon as possible and stabilise it. Eroded areas to be re-vegetated immediately with appropriate fast growing vegetation Ensure hydrological controls are in place to control both rainfall and overland flow generated by roofs, roads and paving such as storm water drains and runoff paths that will not cause continued erosion of disturbed areas. If necessary, erosion barriers (such as straw bales or fibre netting) should be installed until eroded areas are rehabilitated 	<ul style="list-style-type: none"> Avoid permanent scarring of surrounding area Ensure that rain water coming off Mulalo MTS does not lead to erosion of surrounding areas 	<ul style="list-style-type: none"> No visible signs of erosion around the Mulalo MTS 	Every month until eroded areas are stabilised; thereafter as and when required	Contractor Applicant
Leakages from CWTP	<ul style="list-style-type: none"> A drainage system must form part of the Mulalo MTS where water will drain for collection and subsequent disposal and/or use. 	<ul style="list-style-type: none"> Avoid contaminating groundwater with chemicals and salts 	<ul style="list-style-type: none"> No contamination of groundwater during routine tests 	As required	Applicant
Noise	<ul style="list-style-type: none"> Applicant must ensure that noise levels are kept as low as is possible 	<ul style="list-style-type: none"> Ensuring that Mulalo MTS has limited impacts 	<ul style="list-style-type: none"> No complaints from surrounding communities and landowners 	Ongoing	Applicant

Development phase	Operational				
Impacts / Issues	Mitigation measures	Management objectives	Management targets	Frequency	Responsible party
Use of hazardous substances	<ul style="list-style-type: none"> The transportation and handling of hazardous substances must comply with the provisions of the Hazardous Substances Act (Act No.187 of 1993) and associated regulations as well as SABS 0228 and SABS 0229. The applicant shall comply with all other applicable regional and local legislation and regulations with regard to the transport, use and disposal of hazardous substances. Hazardous chemical substances used during operation shall be stored in secondary containers and the relevant MSDS shall be available on site. Procedures detailed in the MSDSs shall be followed in the event of an emergency. The applicant is responsible for the training and education of all personnel on site who will be handling hazardous materials about their proper use, handling and disposal. 	<ul style="list-style-type: none"> Minimising risk to workers and environment through correct handling of such substances 	<ul style="list-style-type: none"> No accidents or spillages 	Daily	Applicant
Safety and security	<ul style="list-style-type: none"> Emergency procedures, including the names and contact details of responsible personnel and 	<ul style="list-style-type: none"> Reduce risk of incidences that could 	<ul style="list-style-type: none"> No incidences reported during construction phase 	As and when required	Applicant

Development phase	Operational				
Impacts / Issues	Mitigation measures	Management objectives	Management targets	Frequency	Responsible party
	<p>emergency services shall be made available to all staff and shall be clearly displayed at relevant locations at the site.</p> <ul style="list-style-type: none"> • Staff will be trained what to do in the case of emergencies • Telephone numbers of emergency services shall also be posted conspicuously in the office(s) near the telephone. 	lead to fatalities or serious injury			

Table 4: Environmental Management Programme: Decommissioning Phase

Development phase	De-commissioning				
Impacts / Issues	Mitigation measures	Management objectives	Management targets	Frequency	Responsible party
Loss of vegetation and seed banks due to oil and diesel spillages	<ul style="list-style-type: none"> • Ensure that measures are in place to contain any oil and diesel leakages or spills. Proper handling and storage practices, as well as readily available oil-spill kits should minimise the risks associated with such spills. • Spills should be cleaned up immediately by removing the spills together with the polluted soil and disposing thereof at a registered facility. • Suitable covered containers should be provided and conveniently placed for waste disposal. All used oils, grease or hydraulic fluid should be placed therein and these containers should be removed from the site to a registered facility 	<ul style="list-style-type: none"> • Minimise disturbance and pollution of the environment during dismantling of Mulalo MTS 	<ul style="list-style-type: none"> • No visible spills once Mulalo MTS is dismantled • No complaints from Mulalo management 	Daily during dismantling	Applicant Contractor
Shaping, top soil infilling and seeding of disturbed area	<ul style="list-style-type: none"> • Re-vegetate the area with plant species consistent with the post construction land use and with indigenous species 	<ul style="list-style-type: none"> • Effective rehabilitation of footprint of Mulalo MTS 	<ul style="list-style-type: none"> • Visible signs of footprint are reduced 	Immediately after dismantling has occurred;	Applicant Contractor

Development phase	De-commissioning				
Impacts / Issues	Mitigation measures	Management objectives	Management targets	Frequency	Responsible party
				monthly checks thereafter to ensure that vegetation has taken	
Dust	<ul style="list-style-type: none"> Area to be watered regularly to reduce dust levels Fence off area with shade cloth to reduce spread of dust Working crews to wear dust masks when necessary Dust suppression of project site to reduce fugitive emissions generated by construction activities. Fugitive emissions to be monitored 	<ul style="list-style-type: none"> Minimise nuisance factor during dismantling process 	<ul style="list-style-type: none"> No complaints from Mulalo management No complaints from surrounding communities and landowners 	Daily	Applicant Contractor
Noise	<ul style="list-style-type: none"> Early detection and eradication of alien vegetation species through on-going monitoring and eradication programme Control and manage the removal of vegetation Vegetation removal to be undertaken in consultation with the ECO 	<ul style="list-style-type: none"> Reduce nuisance factor of dismantling process 	<ul style="list-style-type: none"> No complaints from surrounding communities and landowners 	Daily	Applicant Contractor

4. CONCLUSION

The EMPr sets out the environmental standards that are required to minimize the negative impacts and maximize the positive benefits of the proposed Mulalo MTS project. The EMPr is a living document, and should therefore be continuously reviewed and updated where necessary. If managed correctly, the EMPr can result in successful construction and operation of the proposed Mulalo MTS project.

The conditions contained in the Environmental Authorization, if the project is granted approval, must be incorporated into the final EMPr and implemented.