ENVIRONMENTAL MANAGEMENT PROGRAMME FOR PROPOSED CONSTRUCTION OF THE NZHELELE-TRIANGLE SUBSTATION 5OOkV TRANSMISSION LINE, LIMPOPO PROVINCE

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***LIST OF ABBREVIATIONS*ABBREVIATIONS**	**DESCRIPTION**
CE	Consulting Engineers
C	Contractor
CELO	Contractor Environmental Liaison Officer
CM	Contract Manager (Eskom)
NEMA	National Environmental Management Act (Dedicated Person)
ECO	Environmental Control Officer
ELO	Environmental Liaison Officer
EMPR	Environmental Management Programme
DEA	Department of Environmental Affairs
EA	Environmental Authorisation
SABS	South African Bureau of Standards
SAHRA	South African Heritage Resource Agency
SAMOAC	South African Manual for Outdoor Advertising Control
SS	Site Supervisor

Key Definitions

Auditing: A systematic process of objectively obtaining and evaluating evidence regarding the effectiveness and performance of the Environmental Management Programme.

Corrective Measures: A response required to eliminate the occurrence of a non-compliance with the requirements of the EMPR.

Environmental Impact Assessment (EIA): A systematic process of identifying, assessing and reporting environmental impacts associated with an activity.

Environmental Impact Report: A report describing the process of examining the environment effects of a development proposal, the expected impacts and the proposed mitigating measures.

Environmental Method Statement: A statement that indicates how compliance with environmental specifications will be achieved, providing a framework for the setting of objectives and targets.

Impact: A description of the potential effect or consequence of an aspect of the development on a specified component of the biophysical, social or economic environment within a defined time and space.

Mitigation Measures: These are the management measures that are used to mitigate negative impacts or enhance positive impacts associated with a proposed project.

Non-conformance: Non-compliance is issued when a transgression of the underlying management measures outlined in this document, relating to the construction, operation or decommissioning of the power lines occurs. A Non-conformance report must be completed setting out corrective actions, responsibilities and timeframes.

SECTION 1: GENERAL INFORMATION

1. Introduction

Baagi Environmental Consultancy CC, was appointed by Eskom Holdings SOC Limited to undertake an Environmental Impact Assessment (EIA) for the proposed construction of the NZHELELE-TRIANGLE Substation 5OOkV Transmission Line, Limpopo Province (DEA ref No: 14/12/16/3/3/2/629) .As per the EIA Regulations of 2010, this Draft Environmental Management Programme is required to accompany the Environmental Impact Assessment Report for the above-mentioned project.

The EMPR, therefore, has to be understood and implemented within the context of the Final Environmental Impact Assessment Report (FEIR) for this project. It is thereby recommended that, all key players involved in the implementation of this plan and the subsequent final site-specific Construction EMPR (CEMPR), have access to and review the FEIR for this project.

1.1. BACKGROUND

It is widely accepted that any development can pose various risks to the environment as well as the inhabitants in the surrounding areas. These possible risks should be taken into account during both the construction and operational phase of the development. The purpose of this document is to provide management responses that will ensure impacts resulting from the development are minimised. This EMPR is, therefore, a stand-alone document, which must be used onsite during each phase of the development (construction and operation).

This document is flexible, and will allow the contractor and Eskom Holdings SOC Limited to conform to the management commitments provided in this document. The management commitments will ensure that the anticipated risks on the environment will be minimised. It is a tool used to ensure that undue or reasonably avoidable adverse

impacts of the construction, operation and decommissioning of a project are prevented; and that the positive benefits of the projects are enhanced. The responsibility to undertake the requirements set out in the EMPR rests with Eskom Holdings SOC Limited, the main contractors and subcontractors. Any party responsible for transgression of the underlying management measures outlined in this document, will be held liable for non-compliances and will be dealt with accordingly.

The process that was followed in compiling the EMPR is in compliance with Regulation 34 in terms of chapter 5 of the National Environmental Management Act (Act 107 of 1998) of as amended 18 June 2010. The purpose of this EMPR is to formulate mitigation measures that are legally binding to all contractors during the construction phase as well as measures that should be implemented during the operational phase.

2. The Project Process and Phases

The detailed and overall process that is undertaken for the planning, construction and operation of the proposed project is as follows:

1) Environmental Impact Assessment: this Draft EMPR is submitted together with the FEIR **(DEA ref No: 14/12/16/3/3/2/629)** to the DEA. After approval and the issuing of the Environmental Authorisation (EA), the EMPR will be refined through development of a site-specific construction EMPR.

2) Negotiations for the servitude: Eskom will initiate a negotiation process with various landowners situated within the project area to discuss issues pertaining to servitude acquisition. During the negotiation process, special landowner conditions will be discussed and agreed to with the property owners. These special landowner conditions will be detailed in the site-specific construction EMPR, which is a product of the walk down process.

3) Preliminary placement of the line towers: Once the agreements to register the servitude with the respective landowners are successful, the Surveyors will prepare a preliminary route alignment profile.

4) Walk Down Process: The walk down process is a pre- requisite activity for the design and negotiation process, whereby specialists are appointed to undertake detailed surveys of the proposed power line route and each pylon position. The Specialist team will usually comprise of an ecologist, archaeologist, avi-fauna specialist, visual scientist and a wetland specialist. The two main objectives of the walk down process are to identify sensitive area, with regards to the respective fields of specialisation, and to recommend local deviations and

pylon position modifications to avoid these areas and appropriate mitigation measures where deviations are not possible.

5) Final profiles for construction: The information generated from the walk down process will be issued to the design engineers to generate a final profile of the power lines.

6) Erection of campsites for the Contractors' workforce: The appointed Contractor will have to negotiate with respective landowners in order to acquire land for the establishment of the campsite. The campsite will be used for duration of the construction phase and thereafter it has to be cleaned and rehabilitated and the land evacuated.

7) Negotiations for access roads to the servitude: Eskom and the respective landowners will agree on the access road including the access points to be used by Eskom to gain entry to the servitude through the landowner's properties.

8) Servitude gate installation to facilitate access to the servitude: Gates will be installed at the agreed upon points of entry at each property.

9) Bush clearing: to facilitate access, construction and the safe operation of the line: A specific strip of vegetation cover has to be removed to facilitate access, construction and the safe operation of the line.

10) Establishment of access roads on the servitude

11) Transportation of equipment, materials and personnel

12) Installation of foundations for the towers and substation equipment: Soil types and trial pits at each foundation point will be carried to determine foundation requirements. Thereafter, the foundations will be excavated to the required depth and steel reinforcement and concrete used to reinforce and stabilise them.

13) Tower assembly and erection: The towers are brought to site in sections and assembled before they are erected into position using cranes.

14) Conductor stringing and regulation: The conductor cables are pulled up and strung from one tower to the next though the use of a pulley. Sag and tensions are checked for in order to ensure that the minimum ground clearance heights are achieved.

15) Final inspection of the line and substation: Once the construction of power lines is completed it will be tested to ensure it functions correctly.

16) Rehabilitation of disturbed areas: Excess material and equipment are removed from the project area and the campsite. The disturbed environment is returned to a condition close to its original state.

17) Signing off Landowners: Eskom's internal procedures prescribe that landowners sign off a release forms confirming that the land was rehabilitated accordingly. There is a one-year guarantee on contractors' work during which all rehabilitation work must be completed.

18) Handing and taking over of the servitude: The Eskom Transmission head offices will, after the satisfaction that line is operating correctly and all rehabilitation works implemented correctly, hand over the line to regional division for operation and maintenance.

19) Operation and maintenance of the line: Ongoing maintenance will be performed periodically throughout the operational life span of power line. This typically includes annual visits to inspect the line and at least one visit for servitude maintenance per year.

The point of departure for this EMPR is to take a practical approach, through addressing potential problems before they occur, thereby providing corrective measures that will be required during the construction and operational phases of the development. In particular, this EMPR deals with the following phases, as detailed below:

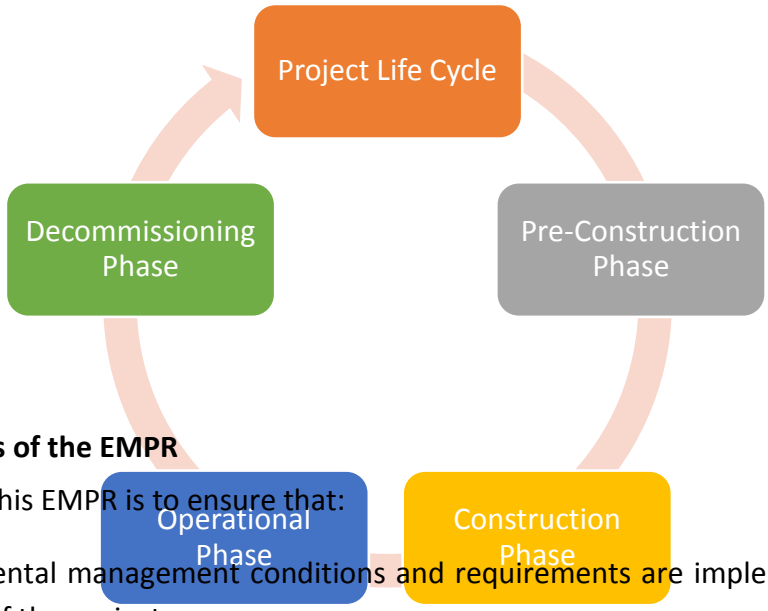
Construction Phase

The final outcome of this EMPR, after the acceptance of the FEIR (and draft EMPR) and the issuing of an EA, is a site-specific construction Environmental Management Programme (CEMPRR), therefore, details of the planning stage is not necessary. The bulk of the impacts during this phase will have immediate effect (e.g. noise, dust and water pollution). If the site is monitored on a continual basis during this phase, it is possible to identify these impacts as they occur. These impacts will then be mitigated accordingly in conjunction with a commitment to sound environmental management from the Eskom Team.

Operational Phase

By taking pro-active measures during the construction phases, potential environmental impacts emanating during the operational phase will be minimised. This, in turn, will minimise the risk and reduce the monitoring effort, but it does not make monitoring obsolete.

Project Life Cycle:



3. Objectives of the EMPR

The objective of this EMPR is to ensure that:

- Environmental management conditions and requirements are implemented from the start of the project,
- The contractor is able to and shall include any costs of compliance with this EMPR into the tender price;
- Precautions against environmental damage and claims arising from such damage are taken timeously;
- The completion date of the contract is not delayed due to environmental problems with the landowner, grid staff, communities or regulatory authorities arising during the course of the project execution;
- The asset created conforms to environmental standard required by ISO 14001 and Transmission Policy;
- Eskom Project manager and Contractor should take into consideration any landowner special conditions, with regards to the power lines, which may arise during the negotiation phase;
- Environmental conditions stipulated in the Environmental Authorisation (EA), which is still to be issued, are implemented;
- Resolve problems and claims arising from damaged immediately to ensure a smooth flow of operations;
- Implementation of this EMPR for the benefit of all involved; and
- Preservation of the natural environment by limiting destructive activities on site.

4. Legal Framework

Depending on the type of development that is being proposed, certain legislation applies, either as a framework to guide the development process or as permit or approval requirements. This EMPR has been undertaken in accordance with provisions of the Constitution and principles of Integrated Environmental Management.

All legislation applicable to the development must be strictly enforced both during the construction and operational phases. The contractor must be acquainted with the relevant environmental legislation, including provincial and local government regulations, which are in place to ensure protection of the environment. The environmental legislation applicable to the project includes, but is not limited to, the following:

- The Constitution of the Republic of South Africa, 1996;
- National Environmental management Act, 1998 (Act No. 107 of 1998) (NEMA);
- National Environmental Management: Air Quality Management Act (Act No. 39 of 2004);
- National Water Act, 1998 (Act No. 36 of 1998);
- National Environmental Management: Biodiversity Act (Act 10 of 2004);
- Fencing Act(No. 31 of 1963 (as amended by act 108 of 1991));
- Occupational Health and Safety Amendment Act (Act No. 181 of 1998);
- Hazardous Substances Act, 1973 (Act No. 15 of 1973);
- National Heritage Resource Act, 1999 (Act No. 25 0f 1999);
- Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983);
- National Environmental Management: Waste Act (Act No. 59 of 2008).

<u>The Constitution of the Republic of South Africa</u> The Constitution of South Africa states that everyone has the right to an environment that is not harmful to his or her health or well-being and to have the environment protected for the benefit of present and future generations.

The Act implies that measures must be implemented to:

- Prevent pollution and ecological degradation;
- Promote conservation, and
- Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

<u>The National Environmental Management Act</u>

There are various elements within the National Environmental Management Act that are relevant to the construction and operational phases of the project. The 'polluter pays' concept is enforced to ensure that any party or parties, which undertakes any activity that may cause, causes or caused any pollution, must prevent, mitigate or remedy the effects.

- Section 2 of Chapter 1 of the National Environmental Management Act provides details of the environmental management principles that should be adhere to during both the construction and operational phase of the development. The consideration of various factors must be brought into focus:

- Avoidance/minimisation of the loss of biodiversity,
- Avoidance/minimisation of the disturbance of ecosystems,
- Avoidance/minimisation of pollution,
- Avoidance/minimisation of cultural and heritage sites,
- Avoidance/minimisation/recycling of waste,
- Responsible and equitable use of renewable and non-renewable resources, and
- Avoidance/minimisation/mitigation of adverse impacts.

The National Environmental Management: Air Quality Act

The National Environmental Management: Air Quality Act (AQA) is the main legislative piece that controls air pollution within South Africa. The main objective of the AQA is to restore, protect and enhance the quality of air in South Africa, through sustainable development. The AQA aims to achieve these objectives through the establishment of norms and standards, and provide a regulatory framework for air quality management planning and reporting.

The National Water Act

The National Water Act (NWA) is the main legislative piece that controls both private and public water use within South Africa. According to section 19(1) of the National Water Act 'an owner of land, a person in control of land or a person who occupies or uses land on which any activity or process is or was performed or undertaken or any other situation exists, which causes, has caused or is likely to cause pollution of a water resource, must take all reasonable measures to prevent any such pollution from occurring, continuing or recurring.'

In accordance with Section 21 of the National Water Act the following are considered as water uses and therefore need to be licensed:

A. Taking water from a water resource.
B. Storing water.

C. Impending or diverting the flow of water in a watercourse.
D. Engaging in a stream flow reduction activity.
E. Engaging in a controlled activity identified as such in section 37(1) or declared under section 38(1).
F. Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit.
G. "Disposing of waste in a manner which may detrimentally impact on a water resource.
H. Disposing in any manner of water which contains waste from, or which has been heated in, any industrial or power generation process.
I. Altering the beds, banks, course or characteristics of a watercourse.
J. Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people.
K. Using water for recreational purposes.

National Environmental Management: Biodiversity Act

The Biodiversity Act provides for the management and conservation of South Africa's biodiversity within the framework of NEMA and the protection of species and ecosystems that warrant national protection. As part of its implementation strategy, the National Spatial Biodiversity Assessment was established. The Biodiversity Act further requires landowners to manage and conserve South Africa's biodiversity for current and future generations. The National Spatial Biodiversity Assessment classifies areas as worthy of protection based on their biophysical characteristics, which are ranked according to priority levels.

Fencing Act

The Act regulates matters with regard to boundary fences of farms and makes provisions for the erection, alteration, maintenance, damage and repair of. It also spells rights of owners or lease holders where the land is subject to certain servitudes and outlines procedures for settling of disputes due to wilful actions including leaving gates opened and unauthorised entry to private land.

Occupational Health and Safety Amendment Act

The Act makes provision for the health and safety of persons at work and persons that are not employees against any hazards that may arise out of or in connection with the work related activities. The act has provisions regarding the maintenance and operation of plant and machinery, working conditions to the use of protective clothing and equipment. The Act therefore informs the EMPR on measures and procedures to be incorporated regarding the safety and health of the persons on site.

Hazardous Substances Act

The main objectives of the Hazardous Substances Act is to provide measures, norms and standards 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. The Hazardous Substances Act also aims to provide for the prohibition and control of the importation, manufacture, sale, use, operation, application, modification, disposal or dumping of such substances and products.

The National Heritage Resources Act

The Act aims to promote an integrated system for the identification, assessment, and management of the heritage resources of South Africa. Section 35(4) of this above-mentioned Act states that no person may, without a permit issued by the responsible heritage resources authority; destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or paleontological site or any meteorite.

This Act is concerned with the protection of the archaeological or paleontological sites or meteorites. Furthermore, Section 36(3) of the National Heritage Resources Act states that no person may, without a permit issued by the relevant heritage resources authority handle any human remains. Human remains can only be handled by a registered undertaker or an institution given the authority to do so under the Human Tissues Act (Act 65 of 1983 as amended).

Conservation of Agricultural Resources Act

The Act provides for control over the utilisation of the natural agricultural resources in the Republic of South Africa in order to promote the conservation of soil, the water resources, vegetation and the combating of weeds and invader plants.

The National Environmental Management: Waste Act

The National Environmental Management: Waste Act is the main legislative piece that aims to consolidate waste management within South Africa. Part 2 of the Waste Act details the general duty in respect to the management of waste by the holder of the waste. In accordance to Section 16(1) of the Waste act, 'a holder of waste must, within the holder's power, take all reasonable measures to:

A. avoid the generation of waste and where such generation cannot be avoided to minimise the toxicity and amounts of waste that are generated;
B. reduce, re-use, recycle and recover waste;
C. where waste must be disposed of, ensure that the waste is treated and disposed of in an environmentally sound manner;

D. manage the waste in such a manner that it does not endanger health or the environment or cause a nuisance through noise, odour or visual impacts;
E. prevent any employee or any person under his or her supervision from contravening this Act; and
F. prevent the waste from being used for an unauthorised purpose.'

5. Possible Permit Applications

Water Use Licence

Any construction or operation activities near or in a permanent drainage system may have implications in terms of the National Water Act 1998 (Act No.36 of 1998), and thereby, may require the application for Water Use Licence. Therefore, the contractor must in consultation with the ECO, assess all areas along the alignment well in advance in order to ensure the relevant Water Use License is applied for where required.

Heritage permit

In the event that any heritage artefacts are found on site, it would be necessary to apply for a Heritage Permit under the National Heritage Resource Act, 1999 (Act No. 25 of 1999).

Removal of protected trees permit

In the event whereby Red Data plants are affected by construction activities, measure should be taken to avoid or rescue these plants. The following species require permits to remove or destroy these species in terms of National Forest Act No 84 of 1998; *Sclerocarya birrea* (Marula), *Combretum imberbe* (Leadwood)*, Boscia albitrunca* (Sheperd Tree)*, Acacia erioloba* (Camel Thorn), *Adansonia digitata* (Baobab), *Spirostachys africana* (Tamboti). An attempt should be made to evaluate and avoid obviously large specimens of trees, which would qualify as champion or remarkable trees based on their height (> 10 m), stem diameter at chest height (> 1 m) and the diameter of their crowns (> 15 m).

6. Environmental Monitoring and Auditing

Environmental monitoring describes processes and activities that need to take place to characterize and monitor the quality of the environment. It is used in preparation of environmental impact assessments, as well as in many circumstances in which human activities carry a risk of harmful effects on the natural environment. All monitoring strategies and programmes have reasons and justifications which are often designed to establish the current status of an environment or to establish trends in environmental parameters. In this case the results of monitoring will be reviewed, analysed statistically and published. The design of a monitoring programme must therefore have regard to the final use of the data before monitoring starts.

To measure and ensure compliance to this EMPR it is imperative that a monitoring and auditing programme be established, in which bi-monthly reports are submitted

to Eskom and DEA to indicate the level of compliance. In addition, potential risks to the project will have to be identified. Where the ECO identifies a transgression or blatant disregard to the EMPR it should be reported to Eskom immediately and rectification steps undertaken.

This document is a draft document that is being submitted with the FEIR for the project. The final site-specific construction EMPR (CEMPR), however, will be a living document and therefore must be updated from time to time. The ECO, in consultation with the proponent (Eskom) can make recommendations to the proponent for certain CEMPR amendments. The proponent should then officially apply to DEA for the approval of the proposed amendments to the CEMPR. The amended CEMPR becomes valid once the authority (DEA) approves it in writing.

SECTION 2: SITE SPECIFIC ENVIRONMENTAL MANAGEMENT PROGRAM

1. Background

Environmental aspects that are generic and specific for the construction and operation stages for the project are identified and mitigation procedures are described.

During the construction phase and maintenance of the substation and power lines, some habitat destruction and alteration inevitably takes place. Habitat destruction and alteration will result from the construction of access roads to the substation and pylons, the removal of vegetation within the substation footprint and the pylon footprints and the clearing of servitudes. Servitudes have to be cleared of excess vegetation at regular intervals in order to allow access to the line for maintenance, to prevent vegetation from intruding into the legal prescribed clearance gap between the ground and the conductors and to minimise the risk of fire under the line, which can result in the electrical flashover. These activities have an impact on birds breeding, foraging and roosting in or in close proximity of the servitude and substation through habitat modification.

Whilst the indirect impact of the substation and power line on avifauna through habitat destruction and disturbance can be mitigated by generic means, the impact of bird collision from the power lines is highly specialised and sites specific. Therefore, the impact of bird collision requires its own mitigation at each tower and span.

Where it is anticipated that ecological qualities of the landscape are going to be particularly altered by the substation and the various pylons, whether it to be the position or the result of erection and construction requirements, it is necessary to identify those locations and to describe what mitigations are required. In this way

the specific ecological mitigation relates to an identified condition that will result in short term or long term ecological impacts. If this is not addressed in time and in a particular manner, persistent and irreversible long-term ecological impacts will result.

2. Project Scope

The proposed Nzhelele-Triangle 500kV transmission line project entails the following activities:

The Construction of two 500kV power lines to be operated from Nzhelele Substation to Triangle substation. However, the line from Nzhelele will end at the border of SA and Zimbabwe where it will connect with line from the Triangle in Zimbabwe whereby ZESA is responsible for it.

Taking into consideration that environmental management requires an integrated, holistic, multi-disciplinary approach, the input of various specialists was obtained at a scoping/desktop level to inform the scoping report and the way forward. A mandate was given to Baagi Environmental Consultancy to find a suitable, least environmentally sensitive and most socially acceptable alignment of a 2x500kV lines between Nzhelele and Triangle substations. However, the search of a suitable corridor will be from Nzhelele substation to the border as the ZESA will be responsible for the line from Triangle substation in Zimbabwe to the border where it will join with SA power line.

The following approach was applied in an attempt to identify possible alignment alternatives:

- Literature Review and Desktop Study Analysis Eskom provided Baagi with the study area boundary, the two substations and key towns with the study area in GIS format (ESRI: shape files).
- GIS software (ESRI ArcGIS 10.2 program) was used to create a study area map, which indicates the location of the existing transmission power line, distribution power line and other infrastructure such as roads. The developed map was used as a point of departure for GIS analysis of the study area. The objective of GIS analysis was to come up with possible corridors that would have the least environmental impact and be socio-economically viable or feasible.
- Site Visit a reconnaissance level site visit was completed during January 2014. The persons present during the site visit were the Baagi team (project manager, Environmental Officer), Eskom team (project manager, line designer and surveyor), and specialists (Geotechnical, Flora, Fauna, Wetland, Social, Visual, and Avifauna). There was drive through of the study area as well as fly over of the study area by the teams. The specialists were involved

at the scoping level and were asked to provide input based on their respective disciplines.

- Information was gathered in a Post Site Visit Meeting, as well an actual site visit and a detailed desktop study EMPr to understand the study area, and provide an amalgamated view, from the various specialists, of the possible alternative alignments that must be investigated further. The feasibility of the identified corridors from social, economic and environmental point of view as well as taking into consideration the technical viabilities were evaluated.

Power-line route alternatives Nzhelele- Triangle Project:

The route alternatives discussed are illustrated in figure 1 below, which indicates the various alternatives and key areas of conservation value.

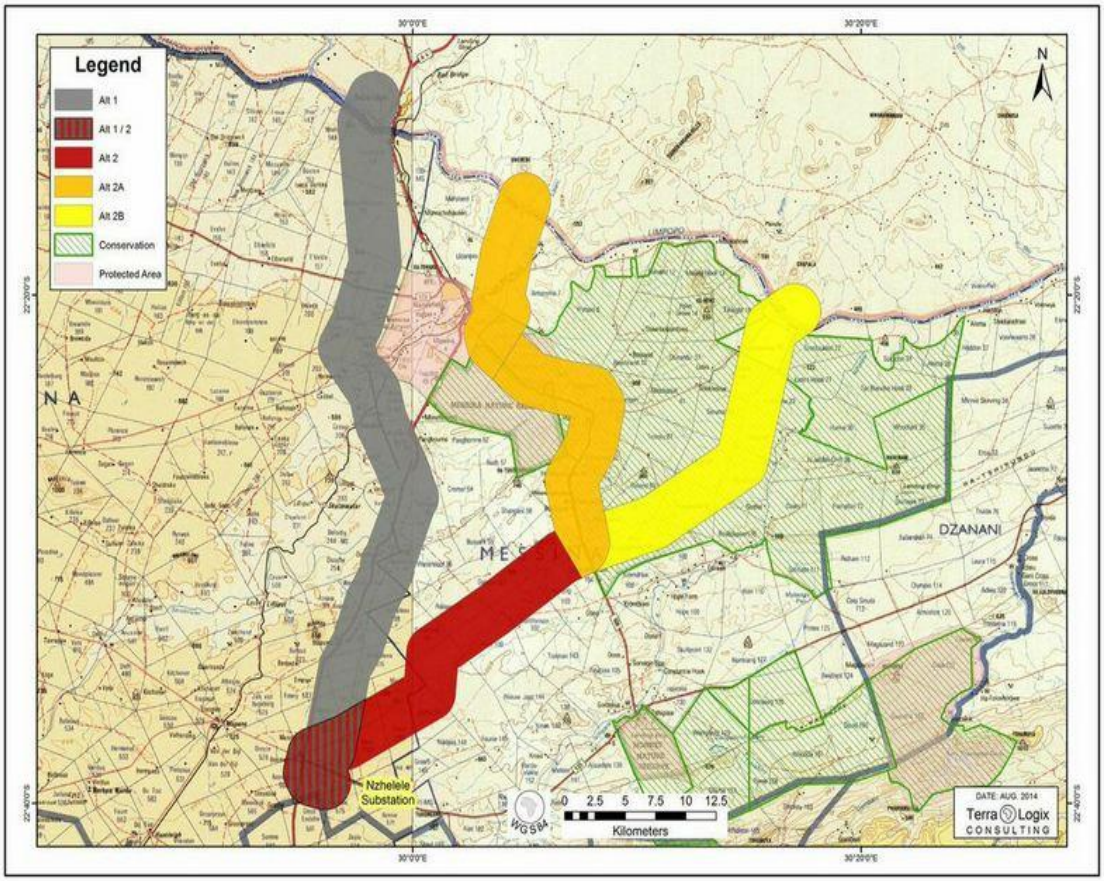


Figure 1: Alternative corridors

3. Environmental Matrix

Function	Name / Cell No	Responsibility
Project Manager		Overall management of project and

(PM) Eskom		EMPR implementation
Site Supervisor/ Contract Manager (CM) Eskom		Oversees site works, liaison with Contractor, PM and ECO
Environmental Control Officer (ECO) Eskom		Implementation of EMPR and liaison between Eskom, Contractor and Landowners
Contractor (C)		Implementation and compliance with recommendations and conditions of the EMPR, Appoints dedicated person (CELO) to work with ECO
Contractor Environmental Liaison Officer (CELO)		Implementation of EMPR, landowner interaction, environmental control of site actions, re-mediation and rehabilitation work.
Group Capital Environmental Advisor (Eskom)		Environmental advice and auditing

4. Responsibility of the Role Players

Eskom Holdings SOC Limited

The Eskom Team is responsible for ensuring that the development is implemented according to the requirements of the EMPR. Although the Eskom Team appoints specific role players to perform functions on their behalf, this responsibility is delegated. The Eskom Team is responsible for ensuring that sufficient resources (time, financial, human, equipment, etc.) are available to the other role players (e.g. the ECO, CELO and contractor) to efficiently perform their tasks in terms of the EMPR. The Eskom Team is liable for restoring the environment in the event of negligence leading to damage to the environment.

The Eskom Team must ensure that the EMPR is included in the tender documentation so that the contractor who is appointed is bound to the conditions of the EMPR. The Eskom Team must appoint an independent Environmental Control

Officer (ECO) during the construction phase to oversee all the environmental aspects relating to the development.

Contractor

The contractor, is Eskom's agent on site, and therefore is bound to the EMPR conditions through its contract with the Eskom Holdings SOC Limited, and is responsible for ensuring that it adheres to all the conditions of the EMPR. The contractor must be thoroughly familiarised with the EMPR requirements before coming onto site and must request clarification on any aspect of these documents, should they be unclear. The contractor must ensure they have provided sufficient budget for complying with all EMPR conditions at the tender stage.

The contractor must comply with all orders (whether verbal or written) given by the ECO, project manager or site engineer in terms of the EMPR.

Environmental Control Officer (ECO)

The Environmental Control Officer (ECO) is appointed by Eskom Holdings SOC Limited Independently for implementation of the EMPR and monitoring project compliance. The ECO must form part of the project team and be involved in all aspects of project planning that can influence environmental conditions on the site. The ECO must attend relevant project meetings, conduct inspections to assess compliance with the EMPR and be responsible for providing feedback on potential environmental problems associated with the development. In addition, the ECO is responsible for:

- Liaison with relevant authorities;
- Liaison with contractors regarding environmental management;
- Undertaking routine monitoring and identifying a competent person/institution to be responsible for specialist monitoring, if necessary; and
- The ECO has the right to enter the site and undertake monitoring and auditing at any time, subject to compliance with health and safety requirements applicable to the site (e.g. wearing of safety boots and protective head gear).

The ECO will be also be responsible for conducting the environmental induction-training course in order to provide the site employees with an understanding of Eskom's policies regarding safety, health and environmental issues. This will include the overall objective of the EMPR and of their roles and responsibilities. The typical environmental induction-training course should include:

- A site induction;
- Emergency incident and response training;
- Familiarisation with site environmental controls;

- Specific environmental training for relevant employees; and
- Convey areas of environmental sensitivity to the attention of Employees and also procedure with regard to these areas.

Liaison with Authorities

The ECO will be responsible for liaising with the National Department of Environmental Affairs (DEA). The ECO must submit monthly environmental reports and quarterly audit reports to the authorities. These environmental and audit reports must contain information on the contractor and Eskom's levels of compliance with the EMPR.

The audit report must also include a description of the general state of the site, with specific reference to non-compliance. The ECO is to recommend corrective action measures to eliminate the occurrence of the non-compliance incidents. In order to keep a record of any impacts, an Environmental Log Sheet should be kept on a continual basis.

Liaison with Contractors

The Eskom EO is responsible for informing the contractors of any decisions that are taken concerning environmental management during the construction phase. This would also include informing the contractors with the necessary corrective action to be taken.

Contractor Environmental Liaison Officer (CELO)

The contractor must appoint an Environmental Liaison Officer (CELO) to assist with day-to-day monitoring of the construction activities. Any issues raised by the ECO will be routed to the CELO for the contractors' attention and subsequently, CELO liaise with the main contractor for his or her attention. The CELO shall be permanently on site during the construction pehase to ensure daily environmental compliance with the EMPR and should ideally be a senior and respected member of the construction crew.

5. Method Statement

It is a statement that indicates how compliance with environmental specifications will be achieved, providing a framework for the setting of objectives and targets.

A Contractor shall submit a written method statement to the ECO for review and recommendations, covering these activities, which are identified (in this document and/or by the ECO), as being potential harmful to the environment. Method statements indicate how compliance with the Environmental Specification will be achieved. The approval of the method statements will be undertaken by the ECO.

The Method Statement shall state clearly:

- Timing of activities;
- Materials to be used;
- Equipment and staffing requirements;
- Proposed construction procedure designed to implement the relevant environmental specifications;
- The system to be implemented to ensure compliance with the above; and
- Other information deemed necessary by the ECO.

The method statement shall be submitted at least 14 working days prior to projected commencement of work on an activity, to allow the ECO time to review and provide recommendations on the method statement. The Contractor shall not commence work on that activity until such time as the method statement has been approved in writing by ECO, which shall be done within seven working days of receipt.

Due to changing circumstances, it may be necessary to modify method statements. In such cases, the proposed modifications must be indicated and agreed upon in writing between Eskom, the ECO and the Contractor.

The ECO and SS must retain records of any amendments and ensure that the most current version of any method statement is being used.

The following are typical Method Statement's which will be called for by the ECO:

- Location, layout and preparation of the construction camp(s) and materials storage areas;
- Location, layout and preparation of cement/concrete batching facilities including the methods employed for the mixing of concrete and the management of runoff water from such areas;
- Contaminated water management Program, including the containment of runoff and polluted water;
- Emergency construction Method Statements (including details of methods for fuel spills and clean-up operations);
- Rehabilitation of disturbed areas and re-vegetation after construction is complete;
- Solid waste management and removal of waste from site; and

- Crossing of erosion trenches and drainage lines

The specific activities for which a method statement is required is indicated in the Table below, under general environmental specifications for the construction of the development by the following asterisk (√). Please note that wherever the √ appears, the Contractor shall submit a method statement. Additional method statements may be required by the ECO during the course of works, depending on the nature of the construction works and the location thereof. The SS and ECO shall approve any deviation from a method statement.

6. Generic Mitigation Measures

The following tables form the core of this EMPR for the construction and operational phases of the development. These tables should be used as checklists on site, especially during the construction phase. Compliance with this EMPR must be audited weekly or monthly depending on duration during the construction phase and once immediately following completion of construction. This must be followed up with annual audits for a period of two years during the operational phase

Ecology

Environmental Impact	Mitigation Requirements
Removal of vegetation	• Place construction camps in already transformed areas such as cultivated fields or revamping derelict homesteads or other abandoned infrastructure. • New borrow pits should be kept to the minimum; existing one should rather be used than new ones created, if existing borrow pits are not suitable, and new ones are required an application should be lodged with DMR for permitting of such borrow pit.
Harvesting of medicinal plants and wood	• The necessary medical facilities must be available for staff on site • Gas and electrical cooking facilities should be provided • Open fires should be discouraged and only used under controlled circumstance, as the area is prone to large fires on a regular basis • Medicinal plants rescued instead of being destroyed and rare or threatened species moved to nurseries for re-establishment after construction
Alien vegetation	• Declared alien vegetation should be controlled and the spread thereof proactively managed
Construction of access roads	• Where possible, existing routes into rugged terrain should be used and enhanced. • If the access roads are required to cross green fields (untransformed) areas, it is strongly recommended that the plants present be surveyed, collected for documentation at SANBI, medicinal plants rescued instead of being destroyed and rare or threatened species moved to nurseries for re-establishment after construction or used for rehabilitation in areas where construction activities had result in the significant loss of natural vegetation

Fauna

Environmental Impact	Mitigation Requirements

Environmental Impact	Mitigation Requirements
Loss of sensitive habitats units (primary upland and rocky grassland)	• A sensitivity map should be used as a decision making tool to guide the layout design of the proposed development - all wetland areas (including man-made areas), upland primary grassland, ridges and outcrops (irrespective of their surface area) are regarded as sensitive habitat units • Quartzite and dolerite grassland should be avoided to prevent unnecessary damage or disturbances
• Disturbances caused during the construction phase	• Extent of the construction sites and access roads should be demarcated on site layout plans and should be restricted to disturbed areas or those identified with low conservation importance • The construction of “new” access roads should be limited, and existing roads should be used during the construction phase • Construction activities must be limited to daylight hours
• Increased hunting, poaching and removal of fire-wood	• Harvesting of firewood or any plant material (for medicinal or cultural purpose) during the construction phase is strictly prohibited • Open fires is strictly prohibited and only allowed at designated areas • Hunting/snaring is strictly prohibited • Intentional killing of any faunal species (in particular invertebrates and snakes) should be avoided by means of awareness programmes presented to the labour force • If any subterranean/fossorial reptile, scorpion or mammal species is recovered during the construction phase, this species must be relocated to the nearest area or natural open space with suitable habitat
• Loss of conservation important faunal species	• A sensitivity map should be used as a decision making tool to guide the layout design of the proposed development - all wetland areas (including man-made areas), upland primary grassland, ridges and outcrops (irrespective of their surface area) are regarded as sensitive habitat units • Quartzite and dolerite grassland should be avoided to prevent unnecessary damage or disturbances • Hunting/snaring is strictly prohibited • Intentional killing of any faunal species (in particular invertebrates and snakes) should be avoided by

Environmental Impact	Mitigation Requirements
	means of awareness programmes presented to the labour force • If any subterranean/fossorial reptile, scorpion or mammal species is recovered during the construction phase, this species must be relocated to the nearest area or natural open space with suitable habitat
• Maintenance of the vegetation on the power line servitude	• Where possible, the servitude below the line should be left natural and is not allowed to be burned on an annual basis • Inspections must be carried out at regular intervals to identify areas where erosion is occurring. Appropriate remedial action, including the rehabilitation of eroded areas should be undertaken
• Disturbances associated with maintenance procedures	• Quartzite and dolerite grassland should be avoided to prevent unnecessary damage or disturbances • Where possible, the servitude below the line should be left natural and is not allowed to be burned on an annual basis • Inspections must be carried out at regular intervals to identify areas where erosion is occurring. Appropriate remedial action, including the rehabilitation of eroded areas should be undertaken

- **Avi-fauna**

• Environmental Impact	• Mitigation Requirements
• Loss of habitat and disturbances	• The construction sites must be confined to disturbed areas or those identified with low conservation importance • All road networks must be planned with care to minimize dissection or fragmentation of important avifaunal habitat type. Where possible, the use of existing roads is encouraged The construction sites must be confined to disturbed areas or those identified with low conservation importance • A natural buffer zone should be allowed between the line servitude and any wetland or other sensitive habitat type

• Environmental Impact	• Mitigation Requirements
	• All intact/primary grassland, wetland, river and drainage line crossings should by default be marked • The breeding status of threatened species, in particular bustards and korhaan species, Yellow-breasted Pipit and Rudd's Lark should be evaluated prior to construction/decommissioning. If breeding is confirmed, the nest site must be barricaded and appropriately buffered (by at least 500m). Construction/ decommissioning activities shall only commence once the fledglings are successfully reared and has left the nesting site • Construction activities are not allowed within 1000m of a known crane breeding site – even when the nesting site is not in use/occupied • Open fires is strictly prohibited and only allowed at designated areas • Depending on the crane species, construction activities should cease during the peak breeding period when within 1km of a nesting site: November to December. The breeding status of known nesting sites should be verified by a representative of EWT;
• Poaching and trade of birds	• Killing or poaching of any bird species (in particular cranes) should be avoided by means of awareness programmes presented to the labour force
• Collisions	• Where the line crosses a wetland/river, the actual crossover span as well as one span on either side of the wetland/river/ should be marked • Marking devices to be used should include large Double Loop Bird Flight Diverters. Spans in close proximity to crane nesting sites or areas known to provide foraging habitat, as spans in close proximity to pans should be marked • All devices should be applied in a staggered fashion to the phase while alternating between black and white diverters
• Electrocution	• It is recommended that the “cross-rope suspension” type tower be used for the proposed transmission line

- **Wetlands and Surface Water**

• Environmental Impact	• Mitigation Requirements
• Compaction of watercourse soils	• Avoid driving on watercourses during construction of the transmission line to prevent vehicle track incisions and the potential for channel initiation. Where this is unavoidable, crossing structures should be in place across affected wetlands and other watercourses • Restrict the construction of infrastructure in watercourses as far as possible • No pylons, construction camps or quarries should not be constructed within watercourses • Construction and maintenance tracks and roads should also be located outside of watercourses
• Changes to the hydrological regime	• The use of drains, such as table drains and cut-off drains, should not be used in any of the watercourse crossings. These types of drains typically have concentrated high-velocity flows and can frequently form channels within the watercourse • Excavated watercourses should be re-sloped to a stable gradient (e.g. at least a slope of 1:3), re-vegetated with naturally occurring indigenous species or annual grass species such as Eragrotis tef, and covered with biojute to help facilitate re-vegetation soon after construction • No pylons, construction camps or quarries should not be constructed within watercourses • The smallest possible footprint should be utilized and positioned as close to the boundary of the affected watercourse in cases where pylon construction in a watercourse is unavoidable • Pylon construction activities in these areas should be completed in the shortest possible time and preferably during the dry season • Pylon construction in wetland, riparian and wash buffer zones should only be allowed in exceptional circumstances where these areas cannot be spanned • All unavoidable overlap between individual pylons and along road crossings in demarcated watercourses will require a Water Use License (WUL) in order to be allowable • Permanent crossing structures across channelled watercourses can include unvented fords that are constructed of riprap, gabions, or concrete to provide a stream crossing without the use of pipes. Water will periodically flow over the crossing

• Environmental Impact	• Mitigation Requirements
• Decrease in water quality	• Storm water should be diverted away from the road early and often, so as to reduce the catchment area of the road
• Loss of wetland, riparian, and drainage line vegetation and habitat	• Restrict the construction of infrastructure in watercourses as far as possible • No pylons, construction camps or quarries should not be constructed within watercourses • Pylon construction in wetland, riparian and wash buffer zones should only be allowed in exceptional circumstances where these areas cannot be spanned • Excavated watercourses should be re-sloped to a stable gradient (e.g. at least a slope of 1:3), re-vegetated with naturally occurring indigenous species or annual grass species such as Eragrotis tef, and covered with biojute to help facilitate re-vegetation soon after construction. Restrict the clearing of watercourse vegetation as far as possible. Areas that have been cleared should be re-vegetated with indigenous species after construction • Restrict the clearing of watercourse vegetation as far as possible. Areas that have been cleared should be re-vegetated with indigenous species after construction
• Increased sedimentation and erosion	• If the construction of a crossing is unavoidable make sure that substrate continuity in the watercourse is maintained within upstream and downstream portions of the channel bed • Permanent crossing structures across channelled watercourses can include unvented fords that are constructed of riprap, gabions, or concrete to provide a stream crossing without the use of pipes. Water will periodically flow over the crossing • Storm water should be diverted away from the road early and often, so as to reduce the catchment area of the road • Pylons in wetlands or other watercourses should not be located on steep slopes, channels or other surfaces with visible erosion features • Road crossings should make provision for dispersed flow and energy dissipation • Management of roadside drainage is the most effective way of controlling sediment runoff from

• Environmental Impact	• Mitigation Requirements
	unsealed roads • To minimise sediment load, an unsealed road network should have an EMPrhasis on slowing drainage flows and dispersing them more frequently
• Encroachment of invasive alien vegetation into watercourses	• Transmission line infrastructure (e.g. pylons) should be located outside of demarcated watercourses with a buffer of 50 m to avoid edge effects and opportunity for the encroachment of invasive alien plant species • Compile and implement an alien plant control program during the operational phase of the project • Restrict the clearing of watercourse vegetation as far as possible. Areas that have been cleared should be re-vegetated with indigenous species after construction

- **Agriculture**

• Environmental Impact	• Mitigation Requirements
• Impact on stock farming activities	• Eskom should discuss the construction schedule and activities with the affected farmers to enable them to plan their farming activities and animal movement accordingly • Placement of the line and towers should preferably not impact on income generating activities • Sensitivities with regards to farming practices should be considered
• Impact on timber farms and plantations	• Eskom should discuss the construction schedule and activities with the affected farmers to enable them to plan their farming activities and animal movement accordingly • Placement of the line and towers should preferably not impact on income generating activities • Sensitivities with regards to farming practices should be considered
• Impact on agricultural and irrigation activities	• Eskom should discuss the construction schedule and activities with the affected farmers to enable them to plan their farming activities and animal movement accordingly • Placement of the line and towers should preferably not impact on income generating activities • Sensitivities with regards to farming practices should be considered

- **Socio-Economic**

• Environmental Impact	• Mitigation Requirements
• Impacts on Existing Residential area	• Should relocation be required, residents should be resettled nearer to their places of work and amenities. • Avoid placing the transmission line in close view of restaurants and accommodation facilities where the aesthetic nature of the area is the main attraction. • Where possible, towers should be placed on the border of properties. • Avoid placing the transmission line across properties used for eco-tourism and leisure activities, such as horse riding and horse-based tourism. Should avoidance not be possible, the alignment should avoid the main activity areas and preferably be placed on the border of the properties.
• Impacts on Schools	• Movement of vehicles on routes used by learners and pedestrians should be avoided, especially during peak times • Maintenance personnel should travel in a marked vehicle and should wear uniforms to ensure that the personnel are easily identifiable as Eskom personnel • Ideally permission should be sought before entering school properties
• Impacts on Tourism	• Deviating line alignments away from tourism establishments and activities throughout the study area could serve as mitigation measure • Representatives of tourism establishments that would be affected by the transmission line construction should be consulted prior to the construction phase with regards to the construction schedules, transportation routes, construction of additional access roads and construction methods to be used • Construction of access roads should be kept to a minimum and rather use the existing infrastructure, as the construction and maintenance of these roads are very costly, impact on the residents' daily living and movement patterns, and create a potential for erosion • Workers should be easily identifiable • Activities should adhere to normal working hours

• Environmental Impact	• Mitigation Requirements
	• The movement of construction vehicles should be limited to off-peak periods (where possible) • Machinery and vehicles should be in good working order to limit excessive noise pollution • Avoid placing the transmission line in close view of restaurants and accommodation facilities where the visual beauty of the area is the main attraction point; • Avoid placing the transmission line across properties used for eco-tourism and leisure activities such as fly fishing and other outdoor recreational activities. Should avoidance not be possible, the alignment should avoid the main activity areas and preferably be placed on the border of the properties
• Disruption in daily living and movement patterns and proximity of homestead	• Property owners that would be affected by the transmission line construction should be consulted prior to the construction phase with regards to the construction schedules, transportation routes, construction of additional access roads and construction methods to be used • Construction of access roads should be kept to a minimum and rather use the existing infrastructure, as the construction and maintenance of these roads are very costly, impact on the residents' daily living and movement patterns, and create a potential for erosion • Workers should be easily identifiable • Activities should adhere to normal working hours • The movement of construction vehicles should be limited to off-peak periods (where possible) • The movement of construction vehicles in areas where sensitive receptors are situated e.g. schools and pedestrians should be limited • Machinery and vehicles should be in good working order to limit excessive noise pollution • Consideration should be given to the placement of the towers and the type of towers that would be used. Towers with the smallest footprint (e.g. double circuit structures) with its associated more confined impact would be preferable • Maintenance personnel should travel in a marked vehicle and should wear uniforms to ensure that the

• Environmental Impact	• Mitigation Requirements
	personnel are easily identifiable as Eskom personnel • Ideally permission should be sought before entering properties
• Impact on Land Value	• Placement of the power line along the farm boundaries where possible would limit the possible negative economic impacts • Tourism establishments should preferably be avoided
• Inflow of workers	• Eskom and the contractors should maximise the use of local labour where possible by developing a strategy to involve local labour in the contractor teams and construction process. • Before construction commences, representatives from the local municipality and community-based organisations, as well as neighbouring and/or affected residents should be informed of the details of the construction company (contractor), size of the workforce and construction schedules. • Contractors and tEMProrary Employees should behave fittingly at all times. • Workers should receive fines if they do not adhere to the conditions, rules and regulations. • A specific contact person should be identified to allow community members and property owners to easily direct their queries and concerns and obtain general information regarding the construction process • Eskom personnel should preferably not access private properties without prior notification of the property owners. • Eskom maintenance personnel should be in possession of the required identification documents and clothing when undertaking maintenance work. • Vehicles used should be clearly marked. • Eskom personnel should behave properly at all times
• Influx of Job seekers	• The number of job opportunities available as part of the proposed project and the recruitment process should be clearly communicated • The communication strategy should ensure that unrealistic Employment expectations are not created

• Environmental Impact	• Mitigation Requirements
	• The use of local labour should be maximised through contractual conditions set for the sub-contractors
• Impacts on airfields	• The details of the preferred route alignment and position of the aerodromes should be communicated and negotiated with the Civil Aviation Authority's Obstacle Section to obtain the necessary approvals from them, in the event that the proposed power line would be in close proximity to such airfields • Special conditions or regulations to adhere to in the vicinity of the airfields should be communicated and clearly noted by the contractors
• Local Economic contribution	• Local procurement should be aimed at local businesses as far as possible. • Local sourcing of materials would assist in providing more economic and Employment opportunities for the local people. • Maximise the use of local labour even if the number of locals that would be Employed would be limited. • Accommodate, but regulate the activities of vendors in the vicinity of the construction areas and at the construction camps • Eskom should aim to turn the indirect local economic benefits into direct local and regional benefits through the provision of stable and sufficient electricity supply to the region thereby stimulating the local economy and by ensuring investor confidence in the region
• Employment Opportunities	• It is recommended that the contractor and subcontractor employ semi-skilled and unskilled labour from the study area to avoid conflict between locals and outsiders with regards to the securing of employment. • Eskom should stipulate in their contracts with the contractors that local labour should be used for e.g. bush clearing, road construction and fencing. • Ward councillors could assist in determining available local labourers that could be considered for possible employment.

• Environmental Impact	• Mitigation Requirements
	• Eskom should ensure an equitable process whereby minorities and previously disadvantaged individuals (women) are also taken into account. • It is recommended that Eskom implements a skills audit and develops a skills database. • Capacity building and skills transfer should immediately commence to ensure that locals are employable. • It should be ensured that contractors use local skills, or train semi-skilled people or re-skill appropriate candidates for employment purposes where possible. • On-site training should focus on the development of transferable skills (technical, marketing and entrepreneurial skills) to ensure long term benefits to the individuals involved • Should opportunities arise for employment during the operational phase, Eskom should consider locals for any intermittent or permanent opportunities.
• Health risks	• Eskom and the local municipalities should regular inspect the servitude and put a strategy in place to deal with any possible illegal “squatting” in the servitude areas. • The safety exclusion zone should be strictly adhered to • Homesteads and dwellings should be avoided when finalising a route alignment • Careful consideration should be given to the location of the construction site where workers would be accommodated • Littering should be prevented by ensuring adequate facilities at the construction sites to dispose of refuse • Sufficient water and sanitation facilities should be provided for the workers on site during the construction period • Informal vending stations (if it occurs) should be closely monitored to ensure that no environmental pollution occurs • Local labour should be employ as far as possible.

• Environmental Impact	• Mitigation Requirements
	• An HIV / Aids awareness campaigns should be focused on the contract workers. • Adequate water supply and sanitation related facilities should be provided to the workers at the construction sites. • Local labour should be employ as far as possible to avoid additional pressure of outsiders on the existing services
• Community infrastructure	• Eskom should contact the relevant government departments and other possible stakeholders regarding the possible impact on infrastructure prior to construction. Written agreement should be sought from these affected parties to allow the project proponent to cross the various types of infrastructure. • Rehabilitation of new access roads for construction vehicles should be undertaken as soon as the construction process allows. • There should be strict adherence to speed limits when using local roads and when travelling through residential areas. • Access routes and access points for heavy construction vehicles should be indicated to warn motorists of the movement of these vehicles. • Limit the movement of construction vehicles to off-peak periods (where possible) • Conditions to access farms should be discussed during the negotiation phase • An Environmental Control Officers and Community Liaison Officer could be appointed to ease communication between the property owners and Eskom • Maintenance personnel should travel in a marked vehicle and should wear uniforms to ensure that the personnel are easily identifiable as Eskom personnel • Maintenance personnel should keep to the service roads • Maintenance vehicles should be operated according to all road regulations • Maintenance vehicles should be in good working order

• Environmental Impact	• Mitigation Requirements
	• Ideally permission should be sought before entering properties

- **Visual**

• Environmental Impact	• Mitigation Requirements
• Impact on sense of place	• Avoid placing the proposed transmission line within nature reserves and conservation areas • Avoid tourism nodes where possible
• Visual Intrusion and reduction of open space	• Avoid placing the proposed transmission line within nature reserves and conservation areas • Careful consideration should be given to the type of towers to be used to ensure the least intrusive technology possible
• Deposition of litter	• No litter, refuse, waste, rubble and builder's waste generated on the premises are to be placed, dumped or deposited on adjacent/surrounding properties including road verges, roads or public places and open spaces during or after the construction period of the proposed development. Refuse must be disposed of at a dumping site approved by the Council. Site cleaning and screening of storm water outlets is essential to prevent large debris from impacting on stream banks downstream of the site. Dustbins must be provided at strategic places within the construction area, and cleared at regular intervals as required to avoid overflow
• Night light	• Security lights in the construction camp are to be angled downwards and into the centre of the site to avoid disturbance to adjoining residents. No tall lighting masts are to be erected or operated during the construction or operational phases

- **Heritage**

• Environmental Impact	• Mitigation Requirements
• Impact on heritage resources	• Impacts of power lines on heritage can easily be avoided through spanning the electrical cables or conductors over the identified heritage resources • No construction camps, pylons, access roads or borrow pits should be constructed on a heritage resources without the appropriate permits

7. General Environmental Specifications for the Construction and Operational Phase

The following tables should be used as checklists on site, especially during the construction phase. Compliance with the final EMPR must be audited weekly or monthly depending on duration during the construction phase and once immediately following completion of construction. This must be followed up with annual audits for a period of two years during the operational phase.

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
• **Construction Initiation, Site Monitoring, Auditing and Reporting**			
❖ Eskom must appoint a suitably qualified ECO, prior to the commencement of construction, on a daily basis, monitor project compliance with environmental legislation and the recommendations of the revised EMPR. Eskom to notify the authorities of the appointment.	PM	Once-off	
❖ The ECO / CECO shall remain employed until all rehabilitation measures are completed and the site is handed over to Eskom by the contractor for operation.	PM	Continuous	
❖ Fourteen (14) days written notice must be given to the Department prior to construction and prior to operation commencing. Commencement for the purposes of this condition includes site preparation. The notice must include the anticipated date on which the activity will commence.	PM	Prior to construction	
❖ Records and documents as indicated below must be kept on site in accordance with the standard Eskom site documentation policy. The documentation shall be signed by all parties to	Contractor CELO	Continuous	

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
indicate acceptance and understanding. **The following documentation shall be kept on site:** 1. Access negotiations and physical access Program; 2. Complaints register; 3. Site daily dairy; 4. Records of all remediation / rehabilitation activities; 5. Copies of two-weekly reports to the Environmental Advisor; 6. Copy of the Construction Environmental Management Program; 7. Environmental Incident Log; 8. ECO inspection audit reports; 9. The record of decision issued for the project. 10. Copies of all permits and licenses, and 11. HIRSA			
❖ All records relating to monitoring and auditing must be made available for inspection to any relevant authority, or Eskom's Environmental Audit Team Environmental Advisor), in respect of the development. Monthly reports of the ECO must be submitted to all relevant authorities.	Contractor CELO	As necessary	
❖ DEA reserves the right to monitor and audit the development throughout its full life cycle to ensure compliance with the EA as well as mitigation measures in the final EIR report and this EMPR.	Contractor CELO	As necessary	

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
❖ No work shall commence until permission is granted from the Environmental Advisor from Transmission Services and acceptance of this EMPR from DEA has been obtained.	PM	Once-off	
❖ The landowners shall always be kept informed about any changes to the construction programme should they be involved.	ECO CELO	As necessary	
❖ All contact with landowner shall always be courteous at all times and a record of all conversations must be kept. ❖ The rights of landowners shall be respected at all times and all staff shall be sensitized to the fact that they are working on the private property. ❖ The contact numbers of the contractor's, ECO officer and the Eskom project manager shall be made available to the landowner as this will ensure open channels of communication and prompt response to queries and claims.	ECO CELO	As necessary	
Management objectives		**Measurable targets**	
▸ Maintain good relationship with Landowners. ▸ Maintain accurate records in order to prove compliance to the EMPR and Eskom 's commitment to fulfil these requirements		▸ **No delays in the project due to Landowner interference** ▸ **Landowner signs final release form.**	
▪ **Environmental Induction Training**			

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
❖ An initial environmental awareness training session is required prior to any work commencing.	CELO	When new staff are contracted and before the start of construction and if required follow up after environmental impact incidence, outside of the EMPR or EIA occurred	
❖ The contractor must ensure that all site staff are aware of, and understand the contents and conditions of EMPR, the key environmental issues and the consequences of non-compliance.	Contractor C ECO	As necessary	

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
❖ The ECO will assist the contractor with the course content for the environmental awareness-training course, and the contractor shall communicate this information to his employees on the site, to any new employees coming onto the site, to his subcontractor, casual labourers and to the suppliers.	Contractor ECO	As necessary	
❖ All site staff must attend induction training on the EMPR and records must be kept of all attendees. • Induction training must be undertaken in a language that is understood by site staff and must include the following topics: • Key potential or actual environmental construction related impacts on site related environmental precautions, which need to be taken to avoid or mitigate these impacts; • Key mitigation measures to be implemented during construction activities; • Emergency responses to issues on site; • Roles and responsibilities of all staff on site; and • The benefits of achieving conformance with, and consequences of transgressions of environmental specifications or requirements of the EMPR.	Contractor ECO	As necessary	
▪ **Planning and Site Preparation**			
❖ All work must be undertaken in an environmentally friendly manner.	Contractor	Continuous	**√**
❖ The Contractor must provide Eskom with the intended actions and programme for site establishment including the site layout, demarcation for hazardous materials storage, soil stockpiles, storm water management infrastructure, access points for deliveries and services,	Contractor	Once-off	**√**

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
and the position of site offices and ablutions.			
❖ A precautionary approach must be adopted with any works deviating from specifications being approved by both the SS/CM and ECO.	Contractor ECO	Prior to construction	
❖ All site establishment components must be positioned to • Limit visual intrusion on neighbour's; and • Minimise the area disturbed.	Contractor ECO CECO	Continuous	
❖ The landowner of the farm on which the campsite is proposed must be consulted and approval must be granted in writing prior to the establishment of the campsite.	Contractor ECO	Prior to construction	
❖ Municipal by-laws should be consulted and if required, approval for the contractors' camp should be obtained from the local municipality.	Contractor ECO	Prior to construction	
❖ The contractor's camp shall be sited so as to cause the least amount of disturbance to adjacent landowners and fenced.	Contractor PM ECO CELO	Prior to construction	
❖ Operation of heavy machinery and construction equipment known to produce high noise levels shall be limited. Silent compressors must be used. Noise generated by employees	Contractor	Continuous	

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
shouting or whistling must also be limited.			
❖ Operations and construction activities must only occur during daylight hours 06H00 to 18H00. Any activities outside of these time frames must be approved by the local communities and land owners.	Contractor CELO	Continuous	
❖ Appropriate safety and precaution signs shall be erected prior to the start of construction at all access points to and from the site and all areas in close proximity to the public.	Contractor	Continuous	
❖ Installation of amenities, such as ablution facilities, shall take place prior to construction activities commencing.	Contractor	Prior to construction	
❖ The necessary ablution facilities with chemical toilets shall be provided at the construction camp. ❖ The Contractor shall supply a wastewater management system that will comply with legal requirements. The ECO and Eskom must approve this.	Contractor ECO	Prior to construction	**√**
▪ **Demarcation of sensitive areas as determined by the specialist studies**			
❖ Sensitive areas shall be fenced and areas secured before construction can proceed.	Contractor ECO	Continuous	
❖ "No-go" areas shall be demarcated by fences steel standards and four strands of wire, and personnel and equipment shall not be permitted within these areas. Danger tape may not be used due to the risk of it being eaten by livestock.	Contractor CELO	Continuous	
▪ **Site Clearance**			

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
❖ Removal of any protected and unprotected vegetation shall be avoided until such time as soil stripping is required and similarly exposed surfaces must be re-vegetated or stabilized as soon as is practically possible.	Contractor CELO	Continuous	**√**
❖ All earthworks and excavations must be undertaken in such a manner so as to minimize the extent of any impacts caused by such activities.	Contractor ECO	Continuous	
❖ Disturbance of vegetation must be limited to areas of construction.	Contractor ECO	Continuous	
❖ The removal or picking of any protected or unprotected plants shall not be permitted and no horticultural specimens (even within the demarcated working area) shall be removed, damaged or tampered with unless agreed to by the ECO.	Contractor CELO ECO	Continuous	
❖ Impacts on surrounding servitudes shall be avoided at all costs.	Contractor ECO	Continuous	
❖ The topsoil (i.e. the top 10-20 cm of soil, depending on the landscape position) must be stockpiled in a suitable place in order to be replaced on top of the exposed subsoil during rehabilitation.	Contractor CELO	As necessary	
❖ Soil stockpiles should not exceed 2 m in height and no traffic should be allowed on top of the stockpiles.	Contractor CELO	As necessary	
❖ Erosion damage to soil stockpiles should be prevented with soil conservation works such as deflection berms etc.	Contractor ECO	As necessary	

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
❖ Topsoil stockpiles older than 6 months should be upgraded/enriched before use to ensure the effectiveness of the topsoil.	Contractor CELO	As necessary	
❖ After completion of construction, the site should be properly cleared of all excavated material (rocks, excess soil etc.) and construction rubble, waste, litter etc. and properly rehabilitated/re-vegetated.	Contractor ECO	On completion of construction	
▪ **Access to Site**			
❖ The site and associated infrastructure and equipment shall be off-limits to the public.	Contractor ECO	Continuous	
❖ All construction vehicles using public roads shall be in a roadworthy condition.	Contractor ECO	Continuous	
❖ Vehicle speeds shall not exceed 40km/h along un-tarred roads on private property or when traversing unconsolidated and non-vegetated areas. Where necessary, speed limits must be indicated on the roads.	Contractor	Continuous	
❖ Construction Vehicles shall not be maintained of serviced on site. Spills of any kind will be reported as an incident and rehabilitation implemented.	Contractor ECO CELO	Continuous	
❖ Access routes shall be planned in conjunction with the Contractor, Eskom and the Landowners. All agreements reached shall be documented in writing and no verbal agreements should be made.	Contractor Eskom	Prior to construction	√

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
❖ The SS shall, together with a representative of the Contractor, negotiate with each landowner the access route to reach the servitude and each tower position. The access agreement will be formalized in the form – "Access to Farms" and signed by the three parties ❖ The Contractor will mark the proposed route and/or a competent representative will accompany the equipment when opening the access gate. ❖ Any deviation from the written agreement shall be closed and re-vegetated immediately.	SS Contractor CELO ECO	As necessary	
❖ The Contractor shall signpost the access roads to the tower positions, immediately after access has been negotiated.	Contractor ECO	Once access has been negotiated.	
❖ Maximum use of both the existing servitudes and the existing roads shall be made. In circumstances where private roads must be used, the condition of the said roads must be recorded prior to use (e.g. photographed) and the condition thereof agreed by the landowner, the SS and the Contractor.	Contractor ECO	Prior to use of roads	
❖ All private roads used for access to the servitude shall be maintained by the Contractor and upon completion of the works, be left in the original condition.	Contractor	Continuous	**√**
❖ Existing water diversion berms are to be maintained during construction and upon completion be repaired as instructed by the SS.	Contractor CELO SS ECO	Continuous	**√**
• **Use of existing roads**			

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
❖ Maximum use of both the existing servitudes and the existing roads shall be made. In circumstances where private roads must be used, the condition of the said roads must be recorded prior to use and the condition thereof agreed by the landowner, the SS and the Contractor.	Contractor CELO ECO	Prior to use of Roads	
❖ All private roads used for access to the servitude shall be maintained by the Contractor and upon completion of the works, be left in the original condition.	Contractor	Continuous	
❖ Existing water diversion berms are to be maintained during construction and upon completion be repaired as instructed by the SS.	Contractor CELO SS ECO	Continuous	**√**
❖ Implement dust control measures, such as dampening with water or use of specific chemicals will be implemented where necessary, as indicated by Eskom.	Contractor CELO	Continuous	
❖ Ensure traffic safety measures (e.g. traffic warning signs, flagmen) are erected to the satisfaction of Eskom.	Contractor CELO	Continuous	
• **Construction of new roads**			
❖ Access shall not necessarily be continuous along the line, and the Contractor must therefore acquaint himself with the physical access restrictions such as rivers, roads, etc. along the line. As far as possible, access roads shall follow the contour in hilly areas, as opposed to winding down steep slopes.	Contractor ECO	Prior to construction	**√**

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
❖ Access is to be established by vehicles passing over the same track on natural ground. Multiple tracks are not permitted. Access roads shall only be constructed where necessary at watercourses, on steep slopes or where boulders prohibit vehicular traffic. The ECO would need to determine if any other passing would be required in such cases.	Contractor ECO	Prior to construction	
❖ The Contractor must inform the SS and ECO before entering any of the following areas: **i)** Naturally wet areas: Pans, Drainage lines and Channels identified. **ii)** Any area after rain; and **iii)** Any environmentally sensitive area.	Contractor ECO	As necessary	
❖ If access is across running water, the Contractor must take precautions not to impede the natural flow of water. If instructed, the Contractor must stone pitch the crossing point. There shall be no pollution of water. Access across running water and the method of crossing shall be at the approval of the SS/ECO and the landowner.	Contractor ECO SS	As necessary	**√**
❖ Where construction of a new road has been agreed, the road width shall be determined by need, such as equipment size, and shall be no wider than necessary.	Contractor ECO	Prior to construction	
❖ In areas with a side slope of over 4%, roads may be constructed to a 4% out slope. The road shall be constructed so that material will not be accumulated in one pile or piles, but distributed as evenly as possible. The material shall be side-cast as construction proceeds, and shall not be side-cast so as to make a barrier on the downhill side. The cut banks shall not	Contractor ECO	Prior to construction	**√**

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
overhang the road cut, and shall if necessary be trimmed back at an angle which would ensure stability of the slope for the duration of the works. The sides or shoulders of roads shall not act as a canal			
❖ Water diversion berms shall be built immediately after the opening of the new access road. In addition, water outlets shall be made at intervals where berms are installed, and suitably stone pitched if instructed by the SS.	Contractor ECO SS	Upon completion of new roads	**√**
❖ No cutting and filling shall be allowed in areas of 4% side slope and less.	Contractor ECO	As necessary	
❖ Contours shall not be crossed by vehicles and equipment unless agreed upon, in writing, by the landowner and the SS.	Contractor CELO SS ECO	As necessary	
❖ Existing drainage systems shall not be blocked or altered in any way.	Contractor CELO	Continuous	
❖ No painting or marking of rocks or vegetation to identify locality or other information shall be allowed as it will disfigure the natural setting. Marking shall be done by steel stakes with tags, if required.	Contractor CELO	As necessary	
❖ The cutting down of bushes and trees to gain line of sight must be minimised as it will damage the visual character of the site.	Contractor CELO	As necessary	

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
	ECO		
❖ Alignments of roads must be selected to minimize adjacent landform change such as cut and fill sections.	Contractor CELO	As necessary	**√**
❖ In cut sections strip the top layer of soil (minimum 100 mm), stockpile upslope of the cut area in windrows or in separate areas. This soil will include rock and vegetation.	Contractor CELO	As necessary	
❖ Shape cut and fill slopes to blend with adjacent landform by rounding off top cut and fill slopes, respreading soil and the placement of rocks packed or randomly placed to hold the replaced soil.	Contractor CELO/ECO	As necessary	
❖ No trees or shrubs shall be cut for survey purposes. Offset stations or points shall be set to get around the line of site obstacle.	Contractor/ CELO ECO	As necessary	
❖ The installation of concrete pipes and drifts, to facilitate access, shall be at the discretion of the ECO on site. All structures shall be properly designed and drawings shall be available for reference purposes. Where required, a Water Use Licence must be obtained from the DWA.	Contractor ECO	As necessary	
❖ Any dangerous crossings shall be marked as such and where necessary, speed limits shall be enforced.	Contractor ECO	Prior to construction	
• **Closure of roads**			

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
❖ Upon completion, only roads as indicated by the SS shall be closed.	Contractor SS ECO	Upon completion	**√**
❖ In areas where no cut or fill has been made, barriers of earth, rocks or other suitable material shall affect closure.	Contractor	Upon completion	
❖ In areas with 30% slope and less, the fill of the road shall be placed back into the roadway using equipment that does not work outside the road cut (e.g. back-hoe). ❖ In areas of greater that 30% slope, the equipment shall break the road shoulder down so that the slope nearly approximates to the original slope of the ground. ❖ The cut banks shall be pushed down into the road and a near normal side slope shall be re-established and re-vegetated.	Contractor ECO	Upon completion	
❖ Replacement of earth shall be at slopes less than the normal angle of repose for the soil type involved.	Contractor ECO	As necessary	
❖ A photographic record of the condition of existing access / private roads to be used shall be made prior to their use for comparison purposes at the end of the construction period.	Contractor CELO ECO	Prior to construction	
❖ The Contractor shall properly mark all access roads to show the direction of travel (where appropriate). The tower numbers to which the road leads must also be indicated.	Contractor ECO	Prior to construction	

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
❖ All roads that are not to be used shall be marked with a "**NO ENTRY**" sign.	Contractor ECO	As necessary	
❖ All roads closed will be rehabilitated to the surrounding natural areas, with six monthly follow-up to determine success of the rehabilitation as well as to determine if any erosion has occurred. The rehabilitation monitoring should continue as per the rehabilitation plan or until success of the road rehabilitation is assured.	ECO	After road closure and twice yearly	
• **Water diversion berms**			
❖ Develop a clean and dirty water separation plan prior to construction	Contractor ECO	Once-off	**√**
❖ All water diversion berms must be approved by the ECO and Eskom.	Eskom ECO	As necessary	**√**
❖ Where berms are installed on severe slopes the outflow shall be suitably stone pitched to prevent erosion from starting at the base of the berm.	Contractor ECO	As necessary	
❖ Water diversion berms shall be installed from the start of the contract.	Contractor ECO	As necessary	**√**
❖ Water diversion berms shall be spaced according to the ground slope and actual soil conditions, but no greater than the following: • Where the track has a slope of less than 2% : 50m apart • Where the track has a slope of 2% - 10% : 25m apart • Where the track has a slope of 10% - 15% : 20m apart	Contractor CELO ECO	As necessary	

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
• Where the track has a slope of more than 15% : 10m apart			
❖ Berms shall be suitably compacted to a minimum height of 350mm.	Contractor CELO ECO	As necessary	
❖ The breadth of the water diversion berm shall be 4m at the base, and extend beyond the width of the road for 2m on the outlet side to prevent water flowing back into the road. It shall be angled to a gradient of 1% to enable the water to drain off slowly.	Contractor CELO ECO	As necessary	
❖ Berms shall be constructed so that a canal is formed at the upslope side.	Contractor CELO ECO	As necessary	
❖ Berms should be created not closer than 10m from identified wetland areas, so as to ensure that no construction material and/or waste flow into wetland systems.	Contractor CELO ECO	Continuous	
❖ Where the in-situ material is unsuitable for the construction of water diversion berms, alternative methods of construction must be investigated and proposed by the Contractor and submitted to the PM for acceptance.	Contractor ECO PM	As necessary	
❖ Where the in-situ material is unsuitable for the construction of water diversion berms, alternative methods of construction must be investigated and proposed by the Contractor and submitted to the PM for acceptance.	Contractor ECO PM	As necessary	

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
❖ Where necessary, a suitable mixture of grass seed shall be used to re-seed damaged areas. Badly damaged areas shall be fenced in to enhance rehabilitation. ❖ The grass mix should consist of a mix of *Cynodondactylon* (50%); *Eragrostiscurvula*(30%) and the remainder should consist of other pioneer grass species suitable for the area (20%). The introduction of forbs from the Fabaceae family is also recommended.	Contractor CELO ECO	As necessary	
❖ The above water diversion berms shall be maintained at all times and be repaired at the end of the contract.	Contractor CELO ECO	Upon completion	**√**
❖ No roads shall be constructed on slopes of more than 20% unless such roads follow contours. In such areas the Contractor shall only use existing roads or alternative methods of construction. The Contractor shall take such areas into consideration during the tender.	Contractor CELO ECO	As necessary	
❖ Surface runoff water from the road shall be managed by not allowing its concentration. ❖ Provide diversion berms across the road to deflect water to undisturbed vegetated areas as necessary. ❖ The frequency, form and size of the berms will depend on the slope and material available. ❖ Material from the excavation for the foundations shall be used to create the berms where possible. ❖ The excavation of material alongside the road for the berm formation shall not be allowed.	Contractor CELO ECO	As necessary	
• **Borrow pits**			
❖ Borrow pits - The Contractor's decision as to the location of borrow pits shall be at the	Contractor	As necessary	**√**

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
acceptance of the SS. The Contractor shall be responsible for the rehabilitation and re-vegetation of the borrow pits. It is the Contractor's responsibility to negotiate the royalties for the borrow pits with the landowner. The Contractor shall, in consultation with the ECO, determine whether an authorization is required under the Mineral and Petroleum Resources Act, 2002 for the opening or extension of borrow pits.	ECO SS		
• **Levelling at tower sites**			
❖ No levelling at tower sites shall be permitted unless approved by the SS.	Contractor SS	As necessary	
❖ The steep slopes formed by the cut banks and respective fillings, when building the tower platforms, shall be trimmed back to an angle that ensures stability of the slope. When the ground is loose, berms are to be built on the top of the slope. 2m long logs spaced evenly must be pegged across the down-slope and the disturbed area must be re-vegetated.	Contractor CELO ECO	As necessary	
Management objectives		**Measurable targets**	
▸ Minimize damage to existing access roads. ▸ Minimize damage to environment due to construction of new access roads. ▸ Minimize loss of topsoil and erosion.		▸ **No claims from Landowners due to damage on access roads** ▸ **No visible erosion on access roads six months after**	

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
		completion of construction **▸ No loss of topsoil due to runoff water on access roads**	
• **Tower positions / construction**			
❖ Disturbance of topsoil on tower sites with severe slopes shall be minimised at all costs.	Contractor CELO ECO	As necessary	
❖ The Contractor shall select a suitable level area free of rock and large bushes for tower assembly. ❖ Cut vegetation (grass and shrubs), if required. No clearing of vegetation or soil by grading machinery shall be undertaken.	Contractor CELO	As necessary	
❖ At any tower sites where conventional foundations are installed, the Contractor shall remove the topsoil separately and store it for later use during rehabilitation of such tower sites.	Contractor CELO ECO	As necessary	
❖ During backfilling operations, the Contractor shall ensure that topsoil is replaced at the surface.	Contractor CELO ECO	As necessary	
❖ Re-seeding shall be done on disturbed areas as directed by the ECO.	Contractor ECO	As necessary	

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
❖ Slopes in excess of 2% must be contoured and slopes in excess of 12% must be terraced. Other methods of rehabilitation of tower sites may also be used at the discretion of the Environmental Control Officer, e.g. stone pitching, logging, etc.	Contractor ECO	As necessary	
❖ Contour banks shall be spaced according to the slope on tower sites. The type of soil shall also be taken into consideration.	Contractor	As necessary	
❖ The creation of platforms for pylon on sloping landforms must be done in a manner that does not create scars that visually alter the landscape character.	Contractor ECO	As necessary	
❖ Cut and fill slopes shall be shaped to blend with the adjacent landform by rounding off the top edge of each.	Contractor CELO ECO	As necessary	
❖ Re-spread stockpiled soil and pack rock on slopes to protect surface against erosion. This shall occur in all instances at the tower foundations.	Contractor CELO ECO	As necessary	
❖ All waste concrete must be removed from the site. Surplus other material shall be used to create berms in the access road where required.	Contractor CELO	As necessary	
❖ Implement dust suppression measures e.g. regular watering, during the drilling of the foundations.	Contractor	As necessary	
Management objectives		**Measurable targets**	
▸ Minimize damage to topsoil and environment at tower positions. ▸ Successful rehabilitation of all damaged areas.		▸ **No loss of topsoil due to construction**	

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
▸ Prevention of erosion. ▸ Avoid dust generation		**activities** ▸ **All disturbed areas successfully rehabilitated within three months of completion of the contract** ▸ **No visible erosion scars three months after completion of the contract**	
• **Gate installation and gate control**			
❖ Attention is drawn to the Fencing Act No. 31 of 1963, in particular with regard to the leaving open of gates and the dropping of fences for crossing purposes, climbing, and wilful damage or removal of fences.	Contractor ECO	Continuous	
❖ At points where the line crosses a fence in which there is no suitable gate within the extent of the line servitude, the Contractor must install a servitude gate as detailed in the relevant drawing, based on the SS's instruction and Landowner agreement. The Contractor shall mark these crossing points when the tower positions are being pegged.	Contractor ECO	Prior to tower construction	
❖ All vehicles shall pass through gates when crossing fences and the Contractor shall not be allowed to drop fences temporarily for the purpose of driving over them. No construction	Contractor ECO	Prior to	

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
work shall be allowed to commence on any section of line, unless all gates in that section have been installed. Installation of gates in fences on major road reserves shall comply with the ordinances of the relevant Provincial Authority. No gates may be installed in fences along National Roads and railway lines.		Construction	
• **Installation of gates**			
❖ Care shall be taken that the gates shall be so erected that a gap of no more than 100mm to the ground is left below the gate	Contractor ECO	As necessary	
❖ Where required, the Contractor shall replace rusted or damaged wire strands on either side of the gate with similar new wiring to prevent the movement of animals. The extent of the replacement shall be on the SS's instruction.	Contractor SS ECO	As necessary	
• **Securing of gates**			
❖ The Contractor shall ensure that all servitude gates used are kept closed and locked at all times.	Contractor	As necessary	
❖ The Contractor shall provide locks for all servitude gates, and when responsibility of the transmission line is taken over by the employer, these locks shall be recovered by the Contractor and replaced by locks supplied by the employer. ❖ The Contractor shall also ensure that all existing farm gates used are kept closed. ❖ The Contractor shall provide the SS with keys for the above locks. No keys shall be provided to landowners to avoid conflict situations between neighbouring landowners.	Contractor ECO	As necessary	
Management objective		**Measurable targets**	

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
❖ Properly installed gates to allow access to the servitude. ❖ Minimize damage to fences. ❖ Limit access to Eskom and Contractor personnel with gate keys. ❖ Manage the movement of livestock.			**‣ No transgressions of the fencing act and therefore no litigation** **‣ No damage to fences and subsequent complaints from Landowners** **‣ All gates equipped with locks and kept locked at all times to limit access to key holders** **‣ All fences properly tied off to the gate posts** **‣ All gates properly and neatly installed according to specifications** **‣ No complaints or claims due to open**

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
		gates	
• **Construction - within the servitude**			
❖ All foundation excavations shall be kept covered or barricaded in a manner acceptable to the SS to prevent injury to people and livestock. Four strand wire fencing shall be used to barricade excavations. Failure to maintain proper protection of excavations may result in the suspension of excavation work until proper protection has been restored.	Contractor CELO ECO	Continuous	
❖ Material removed from the excavation, which is not suitable or not required for backfill shall be spread evenly over or adjacent to the tower position. If in the opinion of the SS the excavated material is not suitable for spreading it shall be disposed of as directed by the SS. ❖ Spreading of subsoil and topsoil will not be permitted. ❖ All excavated soil suitable for backfill will be returned to the excavation by backfilling with the subsoil first and the topsoil last.	Contractor CELO SS ECO	Continuous	**√**
❖ All other construction waste, nuts, bolts, surplus concrete, etc. shall be removed from the tower sites and servitude. Plastic, litter and conductor off cuts etc. shall be removed immediately from site to avoid injury to farm animals and wildlife.	Contractor CELO ECO	Continuous	
❖ No surplus concrete or concrete washing shall be allowed to be dumped on the servitude, at tower locations, anywhere on site or on neighbouring properties. ❖ No concrete washing is allowed in or near watercourses or wetlands.	Contractor CELO	Continuous	
• **Winch and tensioner stations**			

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
❖ The sitting of winch and tensioner stations shall be done in conjunction with the landowner and the ECO.	PM ECO CELO	As necessary	**√**
❖ Eskom-supplied material, especially conductor drums shall be protected on site. This normally means that a firebreak is bladed around a drum station in the veld. ❖ Once the stringing of conductor has been completed in a certain area, the winch- and tensioner stations shall be rehabilitated where necessary. These areas may not be left to rehabilitate on their own. ❖ If the area was badly damaged, re-seeding shall be done and fencing in of the area shall be considered and carried out.	Contractor ECO	As necessary	
❖ Should the Contractor want to leave guards on site, this shall be discussed and negotiated with the Landowner. Proper facilities must be provided to ensure sanitation standards are met. Mobile chemical toilets shall be installed at such sites where a large number of the workforce is concentrated.	Contractor PM ECO	Prior to construction	**√**
Management objective			**Measurable targets**
▸ Minimize damage to vegetation. ▸ Minimize damage to topsoil.			▸ **No damage to vegetation outside the servitude** ▸ **No loss of topsoil**

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
▸ Successful rehabilitation of disturbed areas.		▸ **No visible erosion three months after completion of the contract** ▸ **All disturbed areas successfully rehabilitated three months after completion of the contract**	
• **Stringing Operations**			
❖ In order to prevent damages to farm land, the necessary scaffolding or protection measures must be installed.	Contractor ECO	Prior to stringing operations	**√**
❖ The disruption of services must be prevented. All structures supplying services such as telephone and smaller power lines, as well as main roads and farms, must therefore be safeguarded.	Contractor ECO	Continuous	
❖ All fences shall be protected against damage during stringing operations. ❖ "Rugby" posts to protect roads and telephone lines shall be made as necessary.	Contractor ECO	As necessary	

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
❖ The entire footprint of the stringing storage areas shall be monitored.	Contractor ECO	Continuous	
❖ The existing 8m servitude cleared during the tower construction process must be utilized for access of construction machinery required for stringing and bird flapper installation as well as for maintenance. ❖ In the case where the servitude has not been cleared, the ECO must be consulted to ensure sensitive areas such as rocky outcrops, wetland areas, ridges, etc. are not impacted on negatively.	Contractor ECO	Continuous	
❖ Visual degradation of areas where stringing machinery is operated shall be avoided as this may result in severely disturbed vegetation, as traction of machines tear up grass and vegetation. ❖ Disturbed areas shall be repaired as soon as a "span" of 3 to 6 km of the stringing operation is complete. This to be done by the contractor.	Contractor ECO	After every 3 to 6km of stringing is complete	
❖ Should the Contractor want to leave guards on site, this shall be discussed and negotiated with the Landowner. Proper facilities must be provided to ensure sanitation standards are met. Mobile chemical toilets shall be installed at such sites where a large number of the workforce is concentrated.	Contractor PM ECO	Prior to construction	**√**
❖ Substantial temporary conductor supports shall be used, or equally effective measures taken, to prevent encroachment of statutory clearances, or other clearance requirements	Contractor ECO		**√**

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
stated in the permits, between the conductor being strung and other power or communication lines, roads or railways being crossed. ❖ Suitable structures under each phase shall be erected to protect all fences from conductor damage during stringing. Temporary changes in poles, fixtures or conductors of lines being crossed shall only be carried out if accepted by the SS. The Contractor shall indicate any changes considered necessary and the SS will co-ordinate any changes with the owner of the service.			
Management objective		**Measurable targets**	
▸ Prevent damage to expensive structures such as windmills, farmhouse etc. ▸ Prevent disruption of services.		▸ **No claims emanating from damage to supporting structures** ▸ **No complaints or claims arising from disruption of services**	
• **Ablution Facilities**			
❖ Abluting anywhere other than in the toilets shall not be permitted. Under no circumstances shall use of the veld be permitted.	Contractor ECO	Continuous	
❖ Toilets must be secured to prevent them from blowing over.	Contractor ECO	Continuous	

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
❖ A registered service provider shall be appointed and shall empty toilets regularly.	Contractor ECO	Prior to construction	
❖ Chemical and waste from toilet cleaning operations should not be spilled on the ground at any time.	Contractor CELO ECO	Continuous	
❖ Ablution facilities must be maintained in a hygienic state and serviced regularly. Toilet paper will be provided. Toilet paper is also a source of littering, and the Contractor shall be forced to clean up any litter.	Contractor CELO	Continuous	
• **Water Management**			
❖ Strict control shall be maintained and the ECO shall regularly inspect the abstraction point and methods used. The connection must be kept in neat working order without leaks or spillages.	Contractor CELO ECO	Continuous	
❖ Storm water must be effectively captured and led well away from structures.	Contractor CELO ECO	As necessary	
❖ No ponding of surface water shall occur adjacent to foundations both during and after construction.	Contractor CELO ECO	Continuous	
❖ No mechanical plant or equipment shall be washed on site, unless in an area equipped for such a purpose.	Contractor CELO	Continuous	

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
	ECO		
❖ Pollutants such as cement, concrete, lime, chemicals and fuels shall not be discharged into any water source or wetland.	Contractor CELO ECO	Continuous	
❖ Water from ablution facilities and the Contractor‘s camp shall be discharged into a conservancy/septic tank for removal from the site.	Contractor CELO ECO	Continuous	
❖ The dust control measures, such as watering, chemical stabilisation and the reduction of surface wind speed through the use of windbreaks and source enclosures must be put in place during construction activities. Emission control efficiencies of 50% can readily be achieved through the implementation of effective watering programme for unpaved roads and material handling points.	Contractor CELO	Continuous	
• **Air Quality**			
❖ The production of dust from areas cleared of vegetation and soil stockpiles shall be avoided.	Contractor CELO ECO	Continuous	
❖ Stockpiles shall be located in areas where they are exposed to the minimum erosive effects of wind.	Contractor CELO ECO	As necessary	
❖ Excavation, handling and transport of erodible materials must be avoided under high wind	Contractor	As necessary	

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
conditions.	CELO ECO		
❖ Dust-suppression measures must be used on stockpiles and exposed areas.	Contractor CELO	As necessary	
❖ All machinery and equipment to be used on site shall be properly serviced and in good working order to avoid excessive smoke and exhaust fumes.	Contractor	Continuous	
• **Erosion and Sedimentation Control**			
❖ Areas susceptible to erosion shall be protected by installing temporary and permanent drainage works.	Contractor CELO ECO	As necessary	√
❖ Cleared areas must be stabilized and managed to prevent and control erosion. The method of stabilization shall be determined in consultation with the SS.	Contractor CELO SS ECO	As necessary	
❖ Measures must be implemented to protect the construction site from erosion by storm water.	Contractor ECO	Continuous	
❖ Vehicular traffic shall not be allowed in permanently wet areas.	Contractor ECO	Continuous	
❖ No damage shall be caused to wet areas.	Contractor	Continuous	

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
	ECO		
❖ Where necessary, alternative methods of construction shall be used to avoid damage to wet areas.	Contractor ECO	Continuous	
❖ Any work or access near or in a permanent drainage system may have implications in terms of the National Water Act, 1998 (Act No. 36 of 1998), and therefore may well require the application of a Water Use License. Therefore, the contractor must in consultation with the ECO and a representative of Eskom, assess all areas along the alignment well in advance in order to ensure the relevant Water Use License is applied for where required.	Contractor ECO	As necessary	
Management objectives		**Measurable targets**	
▸ Avoid wet areas to prevent damage. ▸ Avoid the requirement for additional environmental authorisations as a result of working in wetlands.		▸ **No damage to wet areas** ▸ **No complaints from landowners and litigation**	
• **River crossings**			
❖ If a river crossing or stream crossing must be created, a Water Use License must be obtained from the Department of Water Affairs and Forestry before the crossing is constructed.	Contractor CELO ECO	As necessary	
❖ Stream and river crossings shall be avoided as far as practicable as they may cause erosion and downstream siltation.	Contractor CELO		

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
	ECO	As necessary	
❖ Existing drifts and bridges may be used at the consent of the landowner. However, such structures must be examined for strength and durability before being used.	Contractor ECO	As necessary	
❖ In the event of a need for new bridges and drifts to be constructed, approval must be sought from Eskom and the Landowner and this must be done in consultation with the ECO. ❖ An environmental authorization will be required under the National Environmental Management Act, 1998 (Act No.107 of 1998).	Contractor ECO	As necessary	√
❖ All structures constructed for river access purposes shall be properly designed and drawings of such structures shall be available for record purposes.	Contractor CELO ECO	Continuous	
Management objectives		**Measurable targets**	
▸ Minimize damage to river and stream embankments. ▸ Minimize erosion of embankments and subsequent siltation of rivers, streams and dams.		**▸ No new access roads through river and stream banks** **▸ No visible erosion scars on embankments once construction is completed**	
• **Erosion and Donga Crossings**			

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
❖ Where necessary, crossing of dongas and eroded areas shall be thoroughly planned.	Contractor CELO ECO	As necessary	
❖ Water diversion berms shall be installed at donga crossings to ensure water runoff from the power line servitude does not run into dongas and cause or exacerbate an erosion hazard.	Contractor CELO ECO	As necessary	
❖ Suitable erosion containment structures shall be constructed at donga crossings where required and viable.	Contractor CELO ECO	As necessary	
❖ All structures shall be properly designed and drawings shall be available for reference purposes.		As necessary	
❖ No unplanned / improperly planned cutting of donga embankments are allowed as this leads to further erosion and degradation of the environment.	Contractor CELO ECO	Continuous	
❖ In general, soil disturbance should be kept to a minimum. The disturbance of land contour banks or other erosion control structures shall be avoided.	Contractor ECO	As necessary	
Management objectives		**Measurable targets**	
▸ Minimize erosion damage on donga crossings. ▸ Minimize impeding the		▸ **No disturbance to donga embankments** ▸ **No erosion visible**	

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
natural flow of water. ▸ Minimize initiation of erosion through donga embankments.		**on donga embankments due to construction activities** ▸ **No interference with the natural flow of water**	
• **Landscaping and Re-vegetation**			
❖ General disturbance of land surface will degrade by erosion. Permanent visual scarring will result. ❖ The Contractor shall rip all areas compacted by machinery, smooth off and integrate disturbed areas visually into surrounding landform using spoil rock and stockpiled top layer of soil. ❖ Where practically possible, the Contractor shall temporally fence the area (with four strands of wire) until vegetation has been re-established to ensure that game and livestock do not have access to areas that are on slopes and on erodible soils. The fencing aspect shall be agreed with the landowner prior to erection. Consultation with landowner should be undertaken to determine the preferred rehabilitation strategy.	Contractor ECO	As necessary	
❖ The removal or picking of any protected or unprotected indigenous plants is not permitted without the applicable permits or outside the servitude.	Contractor ECO	Continuous	
❖ Areas where soils have been compacted shall be rehabilitated once construction is completed.	Contractor ECO	As necessary	

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
❖ All declared aliens shall be identified and managed in accordance with the Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983).	Contractor ECO	Continuous	
❖ The establishment and re-growth of alien vegetation must be controlled after the removal of grass.	Contractor ECO	As necessary	
❖ No damage shall be caused to any farms unless both the landowner and the SS, prior to the work commencing agree upon the extent of the intended damage. ❖ While the presence of crops was not apparent at the time of the site visit, farms may change to crops at a later stage, either during construction or operation.	Contractor ECO	As necessary	
• **Landscaping, stabilisation and soil stockpiling**			
❖ Exposed slopes and/or destabilized areas should be landscaped to blend in with the surrounding area.	Contractor ECO	As necessary	
❖ In exposed areas with slopes steeper than 1:3, re-vegetation should not be used as the primary means of stabilization. Such slopes should rather be stabilized by suitable structures agreed to by the ECO which can be enhanced by re-vegetation to facilitate blending with the environment.	Contractor ECO	As necessary	√
❖ Erosion of rehabilitated areas shall be prevented.	Contractor CELO ECO	As necessary	
• **Re-vegetation**			
❖ Exposed areas with slopes less than 1:3 should be rehabilitated with a grass mix that blends	Contractor	As necessary	

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
in with the surrounding vegetation. ❖ The grass mix should consist of a mix of *Cynodon dactylon* (50%); *Eragrostis curvula* (30%) and the remainder should consist of other pioneer grass species suitable for the area (20%). The introduction of forbs from the Fabaceae family is also recommended.	CELO ECO		
❖ In the local situation the areas that are re-vegetated will stand out amongst the grasses in the area. ❖ Therefore, the re-vegetated areas should be properly fenced until the grass sward is well established to protect it from overgrazing and trampling by livestock and game. ❖ The fertiliser should be applied conservatively, just enough in order to help the grasses to establish. ❖ Re-vegetation should take place within the rainy season and water of a reasonable quality will have to be supplied as needed until the grasses reach the seed-filling stage.	Contractor CELO ECO	As necessary	
❖ The re-vegetated areas should be temporarily fenced, with agreement of the landowner (with four strands of wire) to prevent damage by grazing animals. Consultation with landowner should be undertaken to determine the preferred rehabilitation strategy.	Contractor CELO ECO	As necessary	
❖ Re-vegetated areas should be monitored every 4 months for the first 12 months and once a year thereafter for the maintenance period of two years.	Contractor	Continuous	
❖ Re-vegetated areas showing inadequate surface coverage (less than 30% coverage, 8 months after re-vegetation) should be prepared and re-vegetated from scratch.	Contractor CELO ECO	As necessary	

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
❖ Damage to re-vegetated areas should be repaired promptly.	Contractor ECO	As necessary	
❖ Exotic weeds and invaders that might establish on the re-vegetated areas should be controlled to allow the grasses to properly establish.	Contractor ECO	As necessary	
❖ Weed control methods should be confirmed with the PM to prevent any undesirable secondary impacts.	Contractor ECO	As necessary	
Management objectives		**Measurable targets**	
▸ Minimize damage to vegetation. ▸ Keep servitude as natural looking as possible. ▸ Minimize interference by vegetation to pylon and power lines. ▸ Minimize possibility of erosion due to removal of vegetation. ▸ Minimize removal of plant material on river and stream embankments. ▸ Eradication of alien invader species. ▸ Minimize scarring of the soil surface and land features. ▸ Minimize disturbance and loss of topsoil Rehabilitate all disturbed areas along the servitude.		▸ **No vegetation interfering with structures as per statutory safety requirements, upon completion of the contract** ▸ **No de-stumping of vegetation on river and stream embankments** ▸ **All alien invaders removed**	

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
			▸ **No visible herbicide damage to the vegetation along the servitude one year after completion of the contract due to incorrect herbicide use** ▸ **No litigation due to unauthorized removal of vegetation** ▸ **No visible erosion scars once construction is completed** ▸ **No claims regarding damage leading to litigation** ▸ **All damaged areas successfully rehabilitated one year after completion**

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
• **Fauna Protection**			
❖ It is illegal to interfere with any wildlife or other fauna. All fauna occurring on-site shall be protected. Hunting and snaring must not be permitted.	Contractor ECO	Continuous	
❖ Tower excavations and construction camps must be fenced off to prevent wildlife from entering the sites.	Contractor CELO ECO	Prior to construction	
❖ Should any new sites or nests be found, during the construction process, that was not known or have been noted before, each site shall be assessed for merit and the necessary precautions be taken to ensure the least disturbance.	Contractor CELO ECO	Continuous	
• **Archaeology / Heritage**			
❖ If any heritage/archaeological sites/objects are discovered during the construction or operational processes, the ECO or other relevant person on site should note the location of and ensure that such sites/objects are not disturbed/destroyed and contact the Eskom Environmental Advisor and South African Heritage Resources Association (SAHRA).	Contractor ECO	As necessary	
❖ In the event that any heritage/archaeological sites are discovered during construction they shall be demarcated with wire fencing with a radius of at least 30 m. Construction teams shall not be allowed access to these sites. ❖ No construction camps shall be allowed within 50 m of any known archaeological sites. ❖ The collection of heritage/archaeological objects/artefacts at identified sites shall not be allowed.	Contractor ECO	As necessary	**√**

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
❖ Any destruction of a heritage site can only be allowed once a permit is obtained from SAHRA and the site has been mapped and noted. ❖ Permits shall be obtained from the SAHRA should the proposed line affect any heritage sites.	Contractor ECO	As necessary	
Management objectives		**Measurable targets**	
▸ The preservation and appropriate management of new archaeological finds, should these be discovered during construction.		▸ **No destruction of or damage to new heritage sites**	
• **Infrastructure**			
❖ Where pipelines are found along the route, the depth of the pipes under the surface shall be determined to ensure that proper protection is afforded to such structures. ❖ All pipelines shall be clearly marked and protected. ❖ Any damage to pipe lines shall be repaired immediately and the cost will be for the contractors account.	Contractor ECO	As necessary	
❖ It is probable that the use of private roads for construction purposes would lead to damage due to heavy equipment and frequent use. The Contractor shall be responsible to repair roads if damaged. Photographs must be taken of the road prior and post use to prove the extent of the damage caused by construction activities. ❖ All existing private access roads used for construction purposes, shall be maintained at all times. This will ensure that the local people have free access to and from their properties.	Contractor ECO	As necessary	

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
❖ Some Landowners use electrically driven farming activities such as irrigation. Power cuts to facilitate construction and especially stringing shall therefore be carefully planned. ❖ Disruptions shall be kept to a minimum. They should be well advertised and communicated to the Landowners prior to it the power being cut. ❖ Care must be taken not to damage irrigation equipment, lines, channels and crops, as this could lead to major claims being instituted against Eskom and the Contractor. ❖ The position of all pipelines and irrigation lines must be obtained from the Landowners and be shown on the access plans.	Contractor CELO ECO	Prior to power cuts	
Management objectives		**Measurable targets**	
▸ The control of temporary or permanent damage to landowner's equipment and installations. ▸ Control of interference with the normal operation of landowner's equipment and installations. ▸ Securing of the safe use of infrastructure, landowner's equipment and installations.		▸ **No unplanned disruptions of services** ▸ **No damage to any plant or installations** ▸ **No complaints from authorities or Landowners regarding disruption of services** ▸ **No litigation due to losses of landowner's equipment,**	

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
		installations and crops	
• **Materials Use, Handling, Storage and Transport (Cement, Fuel [Petrol and Diesel] and Oils)**			
❖ Procedures for material handling shall be discussed with and approved by the ECO.	Contractor ECO	Once-off	
❖ Relevant national, regional and local legislation regarding the transport, use and disposal of hazardous waste must be adhered to at all times.	Contractor ECO	Continuous	
❖ Hazardous waste generated during construction must be classified in terms of the Hazardous Substances Act.	ECO Contractor	As necessary	
❖ A permit must be obtained if the storage, handling, transporting and disposal of any hazardous waste are within the thresholds stated in the NEMWA. The permit will have specific conditions that must be adhered to in accordance with the hazardous waste class.	ECO Contractor	As necessary	
❖ Hazardous waste must be disposed of at either a licensed H:h or H:H waste disposal site depending on the class of hazardous waste being disposed .	ECO Contractor	Continuous	
❖ An emergency procedure to deal with accidents and incidents (e.g. spills) arising from hazardous substances shall be compiled and implemented.	Contractor ECO	Once-off	**√**
❖ All mechanical equipment used in construction activities shall be clean and free of oil, petrol, and diesel leaks.	Contractor ECO	Continuous	
❖ Spills of hazardous substances, in excess of one litre shall be reported to the ECO immediately and the appointed Environmental Advisor (Key Performance Indicator	Contractor ECO	As necessary	

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
requirement).			
❖ A register for spills and incidents involving hazardous materials shall be maintained. ❖ Soil or yard stone, which has been contaminated, shall be removed and disposed of at an approved waste disposal site. ❖ Alternatively, contaminated soil can be treated on site through bioremediation. Should a person experienced in bioremediation not be available on site, a specialist contractor shall be used. ❖ Such spills must be cleaned and remediated to the satisfaction of the ECO. ❖ A method statement is required from the Contractor that details the procedure to be followed in dealing with leaks or spills.	Contractor CELO ECO	As necessary	√
❖ A complete emergency spill kit shall be available on site at all times. The Contractor must also ensure that relevant staff members are trained to use the emergency spill kit and on the manner in which to deal will spills of hazardous substances (oils, diesel or petrol).	Contractor ECO	Continuous	
❖ A concrete platform with a bund wall must be allocated to accommodate fuel, oil paint, bitumen, herbicide and insecticides to guard against infiltration of hazardous substances into the soil. Fuel tanks must be bounded to hold 110% of the contents of the tank. The tanks shall be housed in a roofed area so that no water will collect within the bund wall. It is recommended that the most preferable site for these activities may be at one of the existing substations.	Contractor ECO	Once-off	√
❖ All staff handling hazardous waste must be trained accordingly.	Contractor ECO	Once-off	

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
❖ All necessary approvals with respect to fuel storage and dispensing shall be obtained from the appropriate authorities.	Contractor ECO	As necessary	
❖ Areas of fuels storage and other flammable materials shall comply with standard fire safety regulations and will require the approval of the SS/CM and the local Fire Prevention Officer.	Contractor SS ECO	As necessary	
❖ No smoking shall be allowed in the vicinity of the stores and adequate fire-fighting equipment shall be accessible at fuel storage area and areas in the vicinity of the storage area. "**No smoking**" and "**Danger**" signs shall be erected at hazardous substance storage areas.	Contractor	Continuous	
❖ All empty and externally dirty tanks shall be sealed and stored on an area where the ground has been protected.	Contractor	Continuous	
• **Batching Plants**			
❖ Concrete shall not be mixed directly on the ground.	Contractor ECO	Continuous	
❖ The concrete batching activity shall be located in an area of low environmental sensitivity. The site for the batch plant shall be indicated on the site layout program.	Contractor ECO	Once-off	**√**
❖ All wastewater resulting from batching of concrete shall be disposed of via the wastewater management system.	Contractor	Continuous	
❖ Suitable screening and containment must be in place to prevent windblown contamination from cement storage, mixing, loading and batching operations.	Contractor	Continuous	
❖ The Contractor shall be responsible for negotiating the site of his batching plant (if	Contractor	As necessary	**√**

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
required) and the conditions under it may be established, with the landowner. The Contractor shall be responsible for the proper management of the batching plant.	CELO		
❖ The use of local water for concrete must first be negotiated with the landowner and the appropriate authorities. Such water is to be analysed and accepted by the PM before use.	Contractor PM ECO	Prior to batching	
❖ Upon completion of works, the ground of the batching plant area shall be rehabilitated and the site cleaned and left as it was found and to the satisfaction of the SS and landowner.	Contractor ECO	Upon completion	
• **Servicing of vehicles**			
❖ Servicing of vehicles in the veld is strictly prohibited.	Contractor ECO	Continuous	
❖ Only emergency repairs shall be allowed on site and a drip tray shall be used to prevent oil spills.	Contractor ECO	As necessary	
❖ All vehicles shall be serviced in the designated area.	Contractor ECO	As necessary	
❖ In the event of a breakdown in the veld, any oil spills shall be cleaned up and the following shall apply: ❖ All contaminated soil shall be removed and be placed in containers. ❖ Contaminated soil can be taken to one central point at the Contractors campsite where bioremediation can be done. ❖ Smaller spills can be treated on site.	Contractor ECO	As necessary	**√**

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
❖ A specialist Contractor shall be used for the bio-remediation of contaminated soil. ❖ The area around the fuel storage drum at the Contractor's campsite shall also be re-mediated upon completion of the contract ❖ All oil spills must be reported to the ECO and SS.			
Management objective		**Measurable targets**	
▸ Prevention of pollution of the environment. ▸ Minimize chances of transgression of the legislation controlling pollution.		▸ **No pollution of the environment** ▸ **No litigation due to transgression of pollution control acts** ▸ **No complaints from Landowners**	
• **Fire Prevention**			
❖ The Contractor must document a fire reduction management plan. The plan will identify sources of fire hazards, and appropriate management measures to reduce the identified risk. The relevant authority will be notified of such potential fire hazards.	Contractor CELO	As necessary	
❖ No fires shall be allowed on site under any circumstance even for that of cooking in the manner indicated below (The Forest Act, No 122 of 1984).	Contractor CELO ECO	Continuous	

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
❖ In terms of the Atmospheric Pollution Prevention Act (APPA), burning is not permitted for waste disposal.	Contractor CELO ECO	Continuous	
❖ Accidental fires in natural grassland should be prevented through proper sensitization of the contractors and their workers towards the associated risks, dangers and damage of property.	Contractor ECO	Continuous	
❖ The Contractor shall have fire-fighting equipment, for each construction team readily available on site, especially during the winter months. The fire fighting equipment shall be regularly checked and shall be approved by the ECO / Safety and Health Officer on site.	Contractor ECO	Continuous	
❖ An emergency preparedness Program should be in place in order to fight accidental veld fires, should they occur. The adjacent land owners/users/managers should also be informed and/or involved.	Contractor ECO	Continuous	**√**
❖ The use of open fires for cooking of food etc. by construction and maintenance personnel should be strictly prohibited. Temporary enclosed areas (windshield) for food preparation should be provided specifically for this reason. The Contractor shall supply alternative cooking facilities.	Contractor	Continuous	
❖ Use of branches of trees and shrubs for fire making purposes must be strictly prohibited. Penalties for the unnecessary removal and/or destruction of any plant for any reason (firewood, medicinal use, collector's value etc.) should be agreed upon beforehand and be included in the contract.	Contractor ECO	Prior to construction	

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
Management objectives		**Measurable targets**	
▸ Minimize risk of veld fires. ▸ Minimize damage to grazing. ▸ Prevent runaway fires.		▸ **No veld fires started by the Contractor's work force** ▸ **No claims from Landowners for damages due to veld fires** ▸ **No litigation**	
• **Emergency Procedures**			
❖ Emergency procedures shall be set up prior to the commencement of work. It must include but not be limited to fires, spills, and contamination of ground and surface water, accidents to Employees and damage to services.	Contractor ECO	Once-off	√
❖ Key staff shall be trained in emergency response and all staff made aware of the emergency procedures.	Contractor ECO	As necessary	
❖ A register of all incidents, accidents, etc. must be maintained, which includes the action taken after the event has occurred. The ECO must be informed of the event.	Contractor CELO ECO	Continuous	

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
❖ The site and all operations shall comply with all National Health and Safety Standards and other relevant national, regional and local regulations. Eskom shall appoint a Health and Safety (H&S) Officer.	Contractor ECO	Continuous	
❖ The Contractor is liable for any expenses incurred by any organizations called to assist with fighting fires and any cost relating to the rehabilitation of burnt areas/and/or properties and persons should the fire be the cause of the Contractor's activities on site.	Contractor ECO	As necessary	
❖ All equipment shall be user safe and vehicles shall be roadworthy.	Contractor ECO	Continuous	
• **Health and safety**			
❖ A medical and safety induction must be prepared and must be undertaken prior to entering the site.	Contractor	As necessary	
❖ No site staff other than security personnel shall be housed on site.	Contractor ECO	Continuous	
❖ Potable water and washing facilities shall be made available for all personnel.	Contractor ECO	Continuous	
❖ Public access to the construction site shall be prevented at all times.	Contractor ECO	Continuous	
❖ Portable toilets shall be provided on site. The toilets must be cleaned regularly and the number of toilets shall be based on a minimum ratio of 15 people per toilet.	Contractor ECO	Continuous	
❖ Designated eating areas shall be allocated.	Contractor	Continuous	

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
	ECO		
❖ Staff must wear the necessary personal protective equipment.	Contractor ECO	Continuous	
❖ Daily clean up of working areas will take place and safety notices or tape placed in areas of danger	Contractor ECO	Continuous	
▪ **Prevention of disease**			
❖ All the necessary precautions against the spreading of disease, especially in farms with livestock and game, shall be taken.	Contractor ECO	Continuous	**√**
Management objective		**Measurable target**	
▸ Prevent litigation due to infestation of livestock or game.		▸ **No complaints and claims from Landowners** ▸ **No litigation**	
• **Waste management**			
❖ An on-site waste management program to prevent the spread of refuse within and beyond the site shall be developed and implemented.	Contractor SS ECO	Once-off	**√**
❖ Sufficient bins with secure lids for waste disposal purposes shall be provided. These bins	Contractor	Continuous	

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
must be emptied regularly. The waste must be disposed at a registered/ permitted waste disposal site.	ECO		
❖ A daily clean-up of the site must be maintained.	Contractor ECO	Continuous	
❖ No waste shall be buried or burned on site. All solid waste collected on site shall be disposed of offsite at an appropriate permitted landfill site. Where a permitted landfill site is not available in proximity to the construction site, the Contractor must provide a method statement with regard to waste management.	Contractor ECO	Continuous	√
❖ Covered waste bins shall be supplied by the contractor.	Contractor ECO	As necessary	
❖ The site office and materials storage area must be kept neat and tidy and free of litter.	Contractor ECO	Continuous	
❖ Littering by the employees of the Contractor shall not be allowed.	Contractor ECO	Continuous	
❖ The Contractor shall collect all litter and dispose thereof in terms of the approved waste management Program.	Contractor ECO	Continuous	
❖ Refuse generated from the campsite, construction area, storage area or any other area shall be collected and placed in a skip on a daily basis.	Contractor ECO	Continuous	

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
❖ A litter patrol around the construction camp and work areas as well as along the alignment are to take place every day to collect any litter that may have been strewn around.	Contractor ECO	Continuous	
❖ A skip, with a cover, must be used to contain refuse from campsite bins, rubble and other construction material.	Contractor ECO	Continuous	
❖ Once full and on a regular basis, the contents of the skip must be disposed of at a permitted landfill site.	Contractor ECO	Continuous	
❖ No hazardous material, e.g. oil or diesel fuel shall be disposed of in any unregistered waste site.	Contractor ECO	Continuous	
❖ Material that may harm humans or animals must not be left on site.	Contractor ECO	Continuous	
❖ Any broken insulators shall be removed and all shards picked up. Broken, damaged and unused nuts, bolts and washers must be picked up and removed from site.	Contractor ECO	Continuous	
❖ The piling of any material that could rot and release unpleasant smells into the air will not be permitted.	Contractor ECO	Continuous	
❖ Surplus concrete may not be dumped indiscriminately on site, but must be disposed of at a licensed landfill site, or in designated areas agreed by the Landowner and ECO.	Contractor ECO	Continuous	
❖ Concrete trucks shall not be washed on site after depositing concrete into foundations. Any spilled concrete shall be cleaned up immediately.	Contractor CELO ECO	Continuous	
Management objectives		**Measurable targets**	

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
▸ Neat workplace and site. ▸ To keep the servitude neat and clean. ▸ Disposal of rubble and refuse in an appropriate manner. ▸ Minimize litigation. ▸ Minimize Landowner complaints.		▸ **No complaints from Landowners** ▸ **No rubble or refuse lying around on site** ▸ **No incidents of litigation** ▸ **No complaints from Landowners** ▸ **No visible concrete spillage on the servitude**	
▪ **Bird Flight Diverters**			
❖ In areas where there is a potential for bird collisions (especially rare or endangered species) with new overhead lines or where there are actual collisions on existing lines it is advisable to install bird flappers or bird flight diverters on the earth wires. Collisions should be reported to Eskom so that the matter can be resolved.	PM ECO Contractor	As necessary	
❖ Transmission shall use the <u>double loop bird flight diverter (BFD):</u> • Black and white spirals are of preformed 14mm diameter PVC UV stabilized rod. • Half of the spirals must be of white colour and the other half must be of black colour. • Diverters should be fitted to the entire span	PM ECO Contractor	As necessary	

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
❖ Installation of the bird flight diverters at specific spans must be: • Installed on both earth wires, staggered; • Installed only on 60% of the span and in the middle of the span; and • On the lower middle lower span, spirals must be installed at 10 metre intervals on each earth wire and with alternating colours on each side.	PM ECO Contractor	As necessary	
▪ **Sanitation**			
❖ Ensure that proper sanitation is achieved ❖ No complaints received from Landowners regarding sanitation ❖ Regular cleaning of and empting of sanitation equipment must take place ❖ All staff must be provided with adequate sanitation facilities and equipment.	ECO Contractor	Continuous	**√**
▪ **Destruction of heritage resources**			
❖ Construction personnel must be alert and must inform the local Council should they come across any findings. ❖ Should any additional archaeological artefacts be exposed during excavation, work on the area where the artefacts were found, must cease immediately and the ECO must be notified as soon as possible. ❖ Upon receipt of such notification, the ECO must be notified and Eskom should arrange for the excavation to be examined by an Archaeologist as soon as possible. ❖ Under no circumstances shall archaeological artefacts be removed, destroyed or interfered with.	ECO Contractor		

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
❖ Any archaeological sites exposed during construction or operational phases may not be disturbed prior to authorization by the South African Heritage Resources Agency. The removal, exhuming, destruction, altering or any other disturbances of heritage sites must be authorized by SAHRA in terms of the National Heritage Resources Act (Act No. 26 of 1999).			
▪ **Traffic impact**			
❖ Vehicular movement beyond the property boundaries should be limited during peak hour. Access to the site must follow current and established routes. ❖ It must be ensured that a backlog of traffic does not develop at the access points during peak hours, through the implementation of an efficient and effective access control system. ❖ Security fence is to inspected daily to ensure no illegal entry points are created.	ECO Contractor	As a Necessary	
▪ **Crime, safety and security**			
❖ Illegal occupants on the property must be removed to ensure no uncontrolled fires, cutting down of vegetation and littering. ❖ The site and crew are to be managed in strict accordance with the Occupational Health and Safety Act, 1993 (Act No.85 of 1993) and the National Building Regulations. ❖ Ensure the contacts details of the police or security company and ambulance services are available on the site. ❖ Ensure that the handling of equipment's and materials is supervised and adequately instructed. ❖ Do not allow the movement of public within the development site by posting notices at the entrance gates, and where necessary on the boundary fence.	ECO Contractor	Continuous	

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
❖ Appropriate notification signs must be erected, warning the residents and visitors about the hazards around the construction site and presence of heavy vehicles. ❖ No collecting of wood or the removal of wood or any item not associated with the construction activities will be allowed. ❖ No picking, pouching or snaring and killing of any fauna or flora will be allowed.			
▪ **Atmospheric pollution**			
❖ Dust production must be controlled by regular watering of roads and works area, should the need arise. ❖ Points of ingress and egress onto the site must be regularly cleaned for dust and mud. ❖ No refuse wastes are burnt on the premises or on surrounding premises. ❖ All vehicles transporting material that can be blown off (e.g. soil, rubble etc.) must be covered with a tarpaulin, and speed limits of 30 km/h must be adhered to. ❖ Vehicles to be used during the construction phase are to be kept in good working condition so as not to be the source of excessive fumes and nuisance.	ECO Contractor	As a necessary	
▪ **Social & Economic Benefits**			
❖ Contractor will be encouraged to Employ local people on work that does not requires specialized skills. ❖ Contractor must clearly emphasize to the general public that some work requires specialized skills and therefore contractor will bring skilled personnel for such work. ❖ Local community shall be informed about possible employment opportunities arising within the development in order to conflict between contractor and community.	Contractor CELO	As a necessary	

Environmental Specification	Responsible Individual	Frequency	**Method Statement Required**
❖ Impact on local communities due to construction activities will be limited as far as possible. No unnecessary noise or movement from access roads or corridors will be allowed.			
▪ **Vegetation clearance and maintenance**			
❖ No less than an 8 metre (or as determined per site) wide strip of identified vegetation along the centre line of the power line should be cleared ❖ Clear all vegetation within proposed tower position and within a maximum (depending on the tower type and voltage) radius of 5 m around the position, including de-stumping /cutting stumps to ground level, treating with an herbicide and re-compaction of soil ❖ Selective trimming or cutting down of Indigenous vegetation within servitude area interfering or posing a threat to the integrity of the power line ❖ Deep valleys and environmentally sensitive areas that restrict vehicle access, or legally protected areas, shall not be cleared of vegetation provided that the vegetation poses no threat to the safe operation and reliability of the power line. In the case of the construction of new power lines, a one (1) metre "trace-line" may be cut through the vegetation for stringing purposes only and no vehicle access shall be allowed along the cleared "trace-line". Alternative methods of stringing across inaccessible valleys should however be considered ❖ It shall be ascertained from the property owners concerned whether they wish to retain the cut vegetation. If not, it shall be removed, or disposed of in an appropriate manner to the satisfaction of the owner. Burning shall not be permitted under any circumstance.	Contractor ECO	As a necessary	

SECTION 3: CONCLUSION

This Environmental Management Programme should be used as an on-site reference document during all phases of this development, and auditing should take place in order to determine compliance with this EMPR. Parties responsible for transgression of this EMPR should be held responsible for any rehabilitation that may need to be undertaken. Parties responsible for environmental degradation through irresponsible behaviour / negligence should receive penalties.

The EIA process facilitated the identification of relevant and practical mitigation measures, which may be used by the construction team and Eskom to draw up and respond to Tender documentation. It is thus key to this process that this document be included during tendering to allow all potential bidders for this work to seriously consider and cost for such mitigation. This will ensure that the document receives the necessary buy in that it requires from the outset of the project

In order to have records of environmental incidences and the handling thereof, it is suggested that incidence logs (refer to **Appendix 2**) be filled in by the Environmental Control Officer or Environmental Liaison Officer. The contract manager needs to be informed of such incidences and further actions need to be taken, should the need arise.

APPENDIX 1: DECLARATION OF UNDERSTANDING BY DEVELOPER, ENGINEER AND CONTRACTOR

DECLARATION OF UNDERSTANDING BY THE DEVELOPER

I, _____

Representing _____

Declare that I have read and understood the contents of the Environmental Management Program for:

Contract _____

I also declare that I understand my responsibilities in terms of enforcing and implementing the Environmental Specifications for the aforementioned Contract.

Signed: _____

Place: _____

Date: _____

Witness 1: _____

Witness2: _____

DECLARATION OF UNDERSTANDING BY THE ENGINEER

I, _____

Representing _____

Declare that I have read and understood the contents of the Environmental Management Program for:

Contract _____

I also declare that I understand my responsibilities in terms of enforcing and implementing the Environmental Specifications for the aforementioned Contract.

Signed: _____

Place: _____

Date: _____

Witness 1: _____

Witness2: _____

DECLARATION OF UNDERSTANDING BY THE CONTRACTOR

I, _____

Representing _____

Declare that I have read and understood the contents of the Environmental Management Program for:

Contract _____

I also declare that I understand my responsibilities in terms of enforcing and implementing the Environmental Specifications for the aforementioned Contract.

Signed: _____

Place: _____

Date: _____

Witness 1: _____

Witness2:

APPENDIX 2:INCIDENT AND ENVIRONMENTAL LOG

ENVIRONMENTAL INCIDENT LOG				
Date	*Env. Condition*	Comments (Include any possible explanations for current condition and possible responsible parties. Include photographs, records etc. if available)	Corrective Action Taken (Give details and attach documentation as far as possible)	**Signature**

APPENDIX 3: METHOD STATEMENTS

METHOD STATEMENT: Solid Waste Management

CONTRACT:…… **DATE**:…….

WHAT WORK IS TO BE UNDERTAKEN? [give a brief description of the works to be undertaken on site that will generate waste (hazardous and non-hazardous wastes)]: * Note: please attach extra pages if more space is required.

***Insert additional pages as required**

WHERE ARE THE WORKS TO BE UNDERTAKEN? (where possible, provide an annotated Program and a full description of the extent of the works): * Note: please attach extra pages if more space is required

*Insert additional pages as required

METHOD STATEMENT: Solid Waste Management (contd.)

START AND END DATE OF THE WORKS FOR WHICH THE METHOD STATEMENT IS REQUIRED:

Start Date: **End Date:**……

HOW IS WASTE TO BE MANAGED ON SITE? (provide as much detail as possible, including annotated sketches and plans where possible): * Note: please attach extra pages if more space is required

***Insert additional pages as required**

DECLARATIONS for Method Statement **Solid Waste Management (contd.)** **(SAMPLE)**

1) ENGINEER

The work described in this Method Statement, if carried out according to the methodology described, is satisfactory to prevent or control environmental harm and is thus approved:

_____

(Signed) (Print name)

Dated:._____

2) ECO

The work described in this Method Statement, if carried out according to the methodology described, is satisfactory to prevent or control environmental harm and is thus approved:

(Signed) _____ (Print name)

Dated:._____

2) CONTRACTOR

I understand the contents of this Method Statement and the scope of the works required of me. I further understand that this Method Statement may be amended on application to and with approval by the Engineer, and that the SHE Coordinator, Construction Manager and ECO will audit my compliance with the contents of this Method Statement

_____

(Signed) (Print name)

Dated: _____

METHOD STATEMENT:

Crew Camps and Construction Lay Down Areas

CONTRACT:…… **DATE**:……..

WHAT CREW CAMPS AND CONSTRUCTION LAY DOWN AREAS ARE REQUIRED ON SITE DURING CONSTRUCTION? (give a brief description of these): * Note: please attach extra pages if more space is required

*Insert additional pages as required

WHERE ARE THE CREW CAMPS AND CONSTRUCTION LAY DOWN AREAS TO BE LOCATED? (where possible, provide an annotated Program and a full description of the extent of the works): * Note: please attach extra pages if more space is required

*Insert additional pages as required

METHOD STATEMENT:

Crew Camps and Construction Lay Down Areas (contd.)

START AND END DATE OF THE WORKS FOR WHICH THE METHOD STATEMENT IS REQUIRED:

Start Date:…….. **End Date:**…….

HOW ARE CREW CAMPS AND CONSTRUCTION LAY DOWN AREAS TO BE MANAGED? (provide as much detail as possible, including annotated sketches and plans where possible): * Note: please attach extra pages if more space is required

***Insert additional pages as required**

DECLARATIONS for Method Statement

Crew Camps and Construction Lay Down Areas (contd.) **(SAMPLE)**

1) ENGINEER

The work described in this Method Statement, if carried out according to the methodology described, is satisfactory to prevent or control environmental harm and is thus approved:

_____

(Signed) (Print name)

Dated:._____

2) ECO

The work described in this Method Statement, if carried out according to the methodology described, is satisfactory to prevent or control environmental harm and is thus approved:

_____

(Signed) (Print name)

Dated: _____

2) CONTRACTOR

I understand the contents of this Method Statement and the scope of the works required of me. I further understand that this Method Statement may be amended on application to and with approval by the Engineer, and that the SHE Coordinator, Construction Manager and ECO will audit my compliance with the contents of this Method Statement

_____

(Signed) (Print name)

Dated: _____

METHOD STATEMENT:

Workshop and Maintenance/Cleaning of Plant

CONTRACT:…… **DATE**:…….

WHAT WORK IS TO BE UNDERTAKEN? (give a brief description of the works): * Note: please attach extra pages if more space is required

***Insert additional pages as required**

WHERE ARE THE WORKSHOPS AND CLEANING BAYS TO BE LOCATED? (where possible, provide an annotated Program and a full description of the extent of the works): * Note: please attach extra pages if more space is required

*Insert additional pages as required

METHOD STATEMENT:

Workshop and Maintenance/Cleaning of Plant (contd.)

START AND END DATE OF THE WORKS FOR WHICH THE METHOD STATEMENT IS REQUIRED:

Start Date:……. **End Date:**…….

HOW ARE WORKSHOPS AND PLANT MAINTENANCE/CLEANING TO BE MANAGED DURING CONSTRUCTION? (provide as much detail as possible, including annotated sketches and plans where possible): * Note: please attach extra pages if more space is required

*__Insert additional pages as required__

DECLARATIONS for Method Statement

Workshop and Maintenance/Cleaning of Plant (contd.) **(SAMPLE)**

1) ENGINEER

The work described in this Method Statement, if carried out according to the methodology described, is satisfactory to prevent or control environmental harm and is thus approved:

_____ _____

(Signed) (Print name)

Dated:._____

2) ECO

The work described in this Method Statement, if carried out according to the methodology described, is satisfactory to prevent or control environmental harm and is thus approved:

_____ _____

(Signed) (Print name)

Dated:._____

2) CONTRACTOR

I understand the contents of this Method Statement and the scope of the works required of me. I further understand that this Method Statement may be amended on application to and with approval by the Engineer, and that the SHE Coordinator, Construction Manager and ECO will audit my compliance with the contents of this Method Statement

_____

_____

(Signed) (Print name)

Dated: _____

ANNEXURE 4 D (SAMPLE)

METHOD STATEMENT: Cement and Concrete Batching

CONTRACT:…… **DATE**:……..

WHAT WORK IS TO BE UNDERTAKEN? (give a brief description of the works): * Note: please attach extra pages if more space is required

*Insert additional pages as required

WHERE ARE THE WORKS TO BE UNDERTAKEN? (where possible, provide an annotated Program and a full description of the extent of the works): * Note: please attach extra pages if more space is required

*Insert additional pages as required

METHOD STATEMENT:

Cement and Concrete Batching (contd.)

START AND END DATE OF THE WORKS FOR WHICH THE METHOD STATEMENT IS REQUIRED:

Start Date:…….. **End Date:**…….

HOW ARE THE WORKS TO BE UNDERTAKEN? (provide as much detail as possible, including annotated sketches and plans where possible): * Note: please attach extra pages if more space is required

***Insert additional pages as required**

DECLARATIONS for Method Statement

Cement and Concrete Batching (contd.) **(SAMPLE)**

1) ENGINEER

The work described in this Method Statement, if carried out according to the methodology described, is satisfactory to prevent or control environmental harm and is thus approved:

_____

(Signed) (Print name)

Dated:._____

2) ECO

The work described in this Method Statement, if carried out according to the methodology described, is satisfactory to prevent or control environmental harm and is thus approved:

_____

(Signed) (Print name)

Dated:._____

2) CONTRACTOR

I understand the contents of this Method Statement and the scope of the works required of me. I further understand that this Method Statement may be amended on application to and with approval by the Engineer, and that the SHE Coordinator, Construction Manager and ECO will audit my compliance with the contents of this Method Statement

_____

(Signed) (Print name)

Dated: _____

METHOD STATEMENT: Dust Control

CONTRACT:…… **DATE**:……..

WHAT WORK IS TO BE UNDERTAKEN ON SITE THAT COULD GENERATE DUST? (give a brief description of the works): * Note: please attach extra pages if more space is required

*Insert additional pages as required

WHERE ARE THE WORKS TO BE UNDERTAKEN (where possible, provide an annotated Program and a full description of the extent of the works): * Note: please attach extra pages if more space is required

*Insert additional pages as required

METHOD STATEMENT: **Duct Control (contd.)**

START AND END DATE OF THE WORKS FOR WHICH THE METHOD STATEMENT IS REQUIRED:

Start Date:…. **End Date:**…….

HOW ARE THE WORKS TO BE UNDERTAKEN SO AS TO MINIMISE AND CONTROL DUST GENERATION ON SITE? (provide as much detail as possible, including annotated sketches and plans where possible): * Note: please attach extra pages if more space is required

*Insert additional pages as required

DECLARATIONS for Method Statement

Dust Control (contd.) **(SAMPLE)**

1) ENGINEER

The work described in this Method Statement, if carried out according to the methodology described, is satisfactory to prevent or control environmental harm and is thus approved:

_____

(Signed) (Print name)

Dated:._____

2) ECO

The work described in this Method Statement, if carried out according to the methodology described, is satisfactory to prevent or control environmental harm and is thus approved:

_____

(Signed) (Print name)

Dated:._____

2) CONTRACTOR

I understand the contents of this Method Statement and the scope of the works required of me. I further understand that this Method Statement may be amended on application to and with approval by the Engineer, and that the SHE Coordinator, Construction Manager and ECO will audit my compliance with the contents of this Method Statement

_____

(Signed) (Print name)

Dated: _____

METHOD STATEMENT:

Hydrocarbon and Emergency Spill Procedure

CONTRACT:…… **DATE**:……..

WHAT HAZARDOUS SUBSTANCES (INCL. FUELS) ARE TO BE STORED ON SITE? (give a brief description of the works): * Note: please attach extra pages if more space is required

*Insert additional pages as required

WHERE ARE THE THESE SUBSTANCES TO BE STORED ON SITE? (where possible, provide an annotated Program and a full description of the extent of the works): * Note: please attach extra pages if more space is required

*Insert additional pages as required

METHOD STATEMENT:

Hydrocarbon and Emergency Spill Procedures (contd.)

START AND END DATE OF THE WORKS FOR WHICH THE METHOD STATEMENT IS REQUIRED:

Start Date: **End Date:**…….

HOW ARE HAZARDOUS SUBSTANCES TO BE MANAGED TO AVOID SPILLAGES AND WHAT EMERGENCY PROCEDURES ARE TO BE IMPLEMENTED IN CASE OF A SPILLAGE? (provide as much detail as possible, including annotated sketches and plans where possible): * Note: please attach extra pages if more space is required

*Insert additional pages as required

DECLARATIONS for Method Statement

Hydrocarbon and Emergency Spill Procedures (contd.) **(SAMPLE)**

1) ENGINEER

The work described in this Method Statement, if carried out according to the methodology described, is satisfactory to prevent or control environmental harm and is thus approved:

_____

(Signed) (Print name)

Dated:._____

2) ECO

The work described in this Method Statement, if carried out according to the methodology described, is satisfactory to prevent or control environmental harm and is thus approved:

_____

(Signed) (Print name)

Dated:._____

2) CONTRACTOR

I understand the contents of this Method Statement and the scope of the works required of me. I further understand that this Method Statement may be amended on application to and with approval by the Engineer, and that the SHE Coordinator, Construction Manager and ECO will audit my compliance with the contents of this Method Statement

_____

(Signed) (Print name)

Dated: _____

METHOD STATEMENT:

Diesel Tanks and Re-fuelling Procedures

CONTRACT:…… **DATE**:…….

WHAT WORK IS TO BE UNDERTAKEN? (give a brief description of the number and capacity of diesel tanks to be kept on site): * Note: please attach extra pages if more space is required

***Insert additional pages as required**

WHERE ARE THE WORKS TO BE UNDERTAKEN? (where possible, provide an annotated Program and a full description of the extent of the works): * Note: please attach extra pages if more space is required

***Insert additional pages as required**

METHOD STATEMENT:

Diesel Tanks and Re-fuelling Procedures (contd.)

START AND END DATE OF THE WORKS FOR WHICH THE METHOD STATEMENT IS REQUIRED:

Start Date:. **End Date:**…….

HOW ARE DIESEL TANKS TO BE MANAGED AND RE-FUELLING TO BE UNDERTAKEN? (provide as much detail as possible, including annotated sketches and plans where possible): * Note: please attach extra pages if more space is required

*Insert additional pages as required

DECLARATIONS for Method Statement

Diesel Tanks and Re-fuelling Procedure (contd.) **(SAMPLE)**

1) ENGINEER

The work described in this Method Statement, if carried out according to the methodology described, is satisfactory to prevent or control environmental harm and is thus approved:

_____

(Signed) (Print name)

Dated:._____

2) ECO

The work described in this Method Statement, if carried out according to the methodology described, is satisfactory to prevent or control environmental harm and is thus approved:

_____

(Signed) (Print name)

Dated:._____

2) CONTRACTOR

I understand the contents of this Method Statement and the scope of the works required of me. I further understand that this Method Statement may be amended on application to and with approval by the Engineer, and that the SHE Coordinator, Construction Manager and ECO will audit my compliance with the contents of this Method Statement

_____

(Signed) (Print name)

Dated: _____

METHOD STATEMENT:

Sourcing, Excavating, Transporting and Dumping of Fill and Spoil Material

CONTRACT:…… **DATE**:…….

WHAT WORK IS TO BE UNDERTAKEN? (give a brief description of the works): * Note: please attach extra pages if more space is required

*Insert additional pages as required

WHERE ARE THE WORKS TO BE UNDERTAKEN? (where possible, provide an annotated Program and a full description of the extent of the works): * Note: please attach extra pages if more space is required

*Insert additional pages as required

METHOD STATEMENT:

Sourcing, Excavating, Transporting and Dumping of Fill and Spoil Material (Contd.)

START AND END DATE OF THE WORKS FOR WHICH THE METHOD STATEMENT IS REQUIRED:

Start Date: **End Date:**…….

HOW ARE THE WORKS TO BE UNDERTAKEN? (provide as much detail as possible, including annotated sketches and plans where possible): * Note: please attach extra pages if more space is required

*Insert additional pages as required

DECLARATIONS for Method Statement

Sourcing, Excavating, Transporting and Dumping of Fill and Spoil Material (Contd.)

(SAMPLE)

1) ENGINEER

The work described in this Method Statement, if carried out according to the methodology described, is satisfactory to prevent or control environmental harm and is thus approved:

_____

(Signed) (Print name)

Dated:._____

2) ECO

The work described in this Method Statement, if carried out according to the methodology described, is satisfactory to prevent or control environmental harm and is thus approved:

_____

(Signed) (Print name)

Dated:._____

2) CONTRACTOR

I understand the contents of this Method Statement and the scope of the works required of me. I further understand that this Method Statement may be amended on application to and with approval by the Engineer, and that the SHE Coordinator, Construction Manager and ECO will audit my compliance with the contents of this Method Statement

_____

(Signed) (Print name)

Dated: _____

METHOD STATEMENT:

Topsoil Management

CONTRACT:…… **DATE**:…….

WHAT WORK IS TO BE UNDERTAKEN? (give a brief description of the works to be undertaken that require topsoil to be stripped): * Note: please attach extra pages if more space is required

*Insert additional pages as required

WHERE ARE THE WORKS TO BE UNDERTAKEN? (where possible, provide an annotated Program and a full description of the extent of the works): * Note: please attach extra pages if more space is required

*Insert additional pages as required

METHOD STATEMENT:

Topsoil Management (contd.)

START AND END DATE OF THE WORKS FOR WHICH THE METHOD STATEMENT IS REQUIRED:

Start Date:…….. **End Date:**……..

HOW ARE TOPSOIL STOCKPILES TO BE MANAGED? (provide as much detail as possible, including annotated sketches and plans where possible): * Note: please attach extra pages if more space is required

*Insert additional pages as required

DECLARATIONS for Method Statement

Topsoil Management (contd.) **(SAMPLE)**

1) ENGINEER

The work described in this Method Statement, if carried out according to the methodology described, is satisfactory to prevent or control environmental harm and is thus approved:

_____

(Signed) (Print name)

Dated:._____

2) ECO

The work described in this Method Statement, if carried out according to the methodology described, is satisfactory to prevent or control environmental harm and is thus approved:

_____

(Signed) (Print name)

Dated:._____

2) CONTRACTOR

I understand the contents of this Method Statement and the scope of the works required of me. I further understand that this Method Statement may be amended on application to and with approval by the Engineer, and that the SHE Coordinator, Construction Manager and ECO will audit my compliance with the contents of this Method Statement

_____

(Signed) (Print name)

Dated: _____

METHOD STATEMENT:

Fire Management

CONTRACT:…… **DATE**:……..

WHAT WORK IS TO BE UNDERTAKEN? (give a brief description of the works): * Note: please attach extra pages if more space is required

***Insert additional pages as required**

WHERE ARE THE WORKS TO BE UNDERTAKEN? (where possible, provide an annotated Program and a full description of the extent of the works): * Note: please attach extra pages if more space is required

*Insert additional pages as required

METHOD STATEMENT:

Fire Management (contd.)

START AND END DATE OF THE WORKS FOR WHICH THE METHOD STATEMENT IS REQUIRED:

Start Date:. **End Date:**…….

HOW ARE THE WORKS TO BE UNDERTAKEN? (provide as much detail as possible, including annotated sketches and plans where possible): * Note: please attach extra pages if more space is required

*Insert additional pages as required

DECLARATIONS for Method Statement

Fire Management (contd.) **(SAMPLE)**

1) ENGINEER

The work described in this Method Statement, if carried out according to the methodology described, is satisfactory to prevent or control environmental harm and is thus approved:

_____

(Signed) (Print name)

Dated:._____

2) ECO

The work described in this Method Statement, if carried out according to the methodology described, is satisfactory to prevent or control environmental harm and is thus approved:

_____

(Signed) (Print name)

Dated:._____

2) CONTRACTOR

I understand the contents of this Method Statement and the scope of the works required of me. I further understand that this Method Statement may be amended on application to and with approval by the Engineer, and that the SHE Coordinator, Construction Manager and ECO will audit my compliance with the contents of this Method Statement

_____

(Signed) (Print name)

Dated: _____

METHOD STATEMENT:

Rehabilitation of Crew Camps and Other Disturbed Areas

CONTRACT:…… **DATE**:…….

WHAT WORK IS TO BE UNDERTAKEN? (give a brief description of works to be undertaken that may result in the need for rehabilitation of the affected areas): * Note: please attach extra pages if more space is required

*__Insert additional pages as required__

WHERE ARE THE WORKS TO BE UNDERTAKEN? (where possible, provide an annotated Program and a full description of the extent of the works): * Note: please attach extra pages if more space is required

*Insert additional pages as required

METHOD STATEMENT:

Rehabilitation of Crew Camps and Other Disturbed Areas (contd.)

START AND END DATE OF THE WORKS FOR WHICH THE METHOD STATEMENT IS REQUIRED:

Start Date: **End Date:**…….

HOW ARE THE REHABILITATION WORKS TO BE UNDERTAKEN? (provide as much detail as possible, including annotated sketches and plans where possible): * Note: please attach extra pages if more space is required

*Insert additional pages as required

DECLARATIONS for Method Statement

Rehabilitation of Crew Camps and Other Disturbed Areas (contd.) (SAMPLE)

1) ENGINEER

The work described in this Method Statement, if carried out according to the methodology described, is satisfactory to prevent or control environmental harm and is thus approved:

(Signed) _____ (Print name)

Dated:._____

2) ECO

The work described in this Method Statement, if carried out according to the methodology described, is satisfactory to prevent or control environmental harm and is thus approved:

(Signed) _____ (Print name)

Dated:._____

2) CONTRACTOR

I understand the contents of this Method Statement and the scope of the works required of me. I further understand that this Method Statement may be amended on application to and with approval by the Engineer, and that the SHE Coordinator, Construction Manager and ECO will audit my compliance with the contents of this Method Statement

_____

(Signed) (Print name)

Dated: _____

APPENDIX 4: SPECIALIST REPORTS