ENVIRONMENTAL MANAGEMENT PLAN FOR HYDRA-GAMMA 1 and HYDRA-GAMMA 2 765kV TRANSMISSION LINES




Construction Environmental Management Plan

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ENVIRONMENTAL MANAGEMENT PLAN FOR GAMMA-HYDRA 1 & GAMMA-HYDRA 2 765 KV TRANSMISSION LINES

CONTENTS

APPENDICES

ABRREVIATIONS

ARCUS GIBB	ARCUS GIBB (Pty) Ltd
CEP	Capital Expansion Projects
CEMP	Construction Environmental Management Plan
CM	Contract Manager
DEAT	Department of Environmental Affairs and Tourism
ECO	Environmental Control Officer
Eskom	Eskom Holdings Limited – Transmission Division
EMP	Environmental Management Plan
PM	Project Manager
RoD	Record of Decision
SAHRA	South African Heritage Resources Agency
SS	Senior Site Supervisor

GLOSSARY OF TERMS

Audit	A verification process that is used to obtain information regarding the implementation of the EMP. It is an objective tool used to make improvements at the workplace
Berm	A barrier that is designed to divert surface water flow. Berms will primarily be used along roads/tracks to prevent to concentrated flow of water over particular areas, thereby reducing erosion of roads.
Bunding	An impervious containment system for potential spillages from tanks / containers stored on site. The bunded area shall have a capacity greater than 110% of the total tankage contained. The bunding shall be constructed of a material impermeable and resistant to the stored material.
Client	For the proposed 765kV transmission line project, Eskom Holdings Limited is the client.
Construction Activities	Any action undertaken by the contractor, suppliers, sub-contractors or employees during the construction process.
Contractor	Construction companies as well as their sub-consultants and suppliers appointed to undertake the construction activities on behalf of the client.
Construction camp	The area allocated for the establishment of equipment, repair area, ablution facilities, lay down and rest areas, etc. It also serves as the central point for the storage of fuel and construction material.
Environment	The surroundings within which humans exist and include biophysical, social and economic aspects. Examples include water, air, soil, plants and animals.
Environmental Control Officer	Individual appointed by the project Manager and who is responsible for the implementation of the EMP, liaison between Eskom, Contractor and Landowners and monitoring, reviewing and verifying compliance with the CEMP by the Contractor.
Environmental Specification	A component of the contractor's construction activity that is likely to interact with and potentially impact on the environment.
Environmental Impact	A positive or negative change to the environment that results from the effect of a construction activity. The impact may be a direct or indirect consequence of a construction activity.
Environmental Management Plan	An EMP is to be implemented by the appointed contactor, to ensure that environmental impacts that may occur due to construction activities are mitigated on site. An EMP provides environmental management guidelines, which must be complied with by the contractor in constructing the transmission line and associated towers. The undertaking of an EMP is in accordance with the requirements of the National Environmental Management Act (NEMA) Environmental Impact Assessment (EIA) Regulations.
General Waste	Domestic, commercial, non-hazardous waste and builders rubble e.g. paper, plastics, food, tins, etc.
Hazardous substance	Any substance that is of risk to health and safety, property or the environment. Hazardous substances have been classified under the SABS Code 0288: 'The Identification and Classification of Dangerous Goods and Substances'.
Hazardous Waste	Any inorganic or organic element or compound that because of its toxicological, physical, chemical or persisting properties, may exercise detrimental acute or chronic impacts on human health or development. Hazardous wastes are classified in accordance with the 'Minimum Requirement for the Handling, Classification and Disposal of Hazardous Waste' published by the Department of Water Affairs and Forestry (1998).
Hazardous Waste Landfill Site	A waste disposal site that is designed and managed to accommodate the disposal of hazardous waste substances, and is permitted by the Department of Water Affairs and Forestry (DWAF).
Heritage site	A site that contains either archaeological artefacts, graves, buildings older than 60 years, meteorological or geological fossils etc.
Land owner	The individual or company that owns the land through which the servitude crosses.
Method Statement	Method Statements indicate how compliance with the Environmental Specification will be achieved. The Contractor shall submit a written Method Statement to the ECO for approval, covering those activities, which are identified (in this document and/or by the ECO), as being potentially harmful to the

	environment.
Servitude	Defined as “the right to use someone else’s land, for a specified purpose”. In the case of a transmission line servitude, is the right to erect, operate and maintain an electric line as well as enter that land for the execution of those activities. It does not constitute full ownership and access and activities should always be carried out with due respect for the landowner. A servitude is registered in the Deeds office and forms part of the title deed of a property.
Social Environment	All the persons/farmers that are likely to be directly or indirectly affected by the 765kV transmission line construction activities.
Spoil	Uncontaminated soil removed during excavations, culverts and roads.
Topsoil	The layer of soil covering the ground that allows for the successful germination of seeds, water penetration and is a source of micro-organisms and plant nutrient.
Watercourse	A natural channel in which water flows regularly or intermittently.
Workforce	All people involved in the construction activities of the 765kV transmission line, including people employed by the client or contractor, either permanent or casual staff.

1 BACKGROUND AND INTRODUCTION

1.1 Introduction

The Cape 400kV Transmission network, south of the existing Hydra Substation in De Aar currently supplies electricity to the Southern Cape, West Coast, Peninsula and Namaqualand. The current status of transmission networks is not sufficient to supply the electricity requirements of customers in the area south of De Aar. The existing transmission lines are heavily loaded and are envisaged to reach their full capacity in the near future. Additional capacity is therefore required in this area, which will serve to reinforce the local transmission's reliability to ensure a back-up supply to the area; maintain a quality of electricity supply and meet the increasing electricity demands in the Cape regions.

To achieve the above, Eskom Holdings Limited proposes to construct a new substation (to be known as the Gamma Substation) near Victoria West on the farm Uitvligfontein. Two 765kV transmission lines between the existing Hydra substation close to De Aar and the new Gamma Substation will also be constructed. The transmission lines will be approximately 130 km in length (see Appendix 1).

1.2 Background

An Environmental Impact Assessment of the proposed 765kV transmission lines between the existing Hydra substation and the proposed Gamma Substation in the Northern Province was undertaken by Bohlweki Environmental (Pty) Ltd in 2005. A favourable Record of Decision (RoD) was received from the Department of Environmental Affairs and Tourism (Reference No.: 12/12/20/577) on 30 September 2005 (See APPENDIX 2). Authorisation was granted for the following activities:

- The construction of a 130 km 765kV transmission line between Hydra substation and the proposed Gamma substation site parallel to the Hydra-Droeriviewc400kV No. 2 line; and
- Construction of Gamma substation on farm Uitvligfontein.

A number of conditions of approval were recorded in the RoD, which have been taken into account in compiling this EMP.

1.2.1 Scope of the EMP

As a condition of the RoD, a CEMP must be compiled and approved by DEAT, prior to the commencement of construction activities for the proposed project. This document is also in accordance with the requirements of the National Environmental Management Act, 1998 (Act No. 107 of 1998) [NEMA] Environmental Impact Assessment (EIA) Regulations. These state that an EMP is to be implemented by the appointed contractor, which will ensure that environmental impacts that may occur due to construction activities are mitigated on site.

The CEMP will provide environmental management guidelines, which must be complied with by the contractor in constructing the transmission lines, associated towers and substation, in fulfilment of ISO 14001 requirements. The Environmental Control Officer, acting on behalf of Eskom Holdings Limited, will monitor the implementation of the CEMP. The CEMP will form part of the contractual agreement to be entered into by Eskom and the appointed contractor. Compliance with the CEMP must therefore form part of all contractor's working tender documentation and be endorsed contractually. The recommendations and constraints, as set out in this document are enforceable under the General Conditions of Contract.

This CEMP will consider the construction of both the Gamma - Hydra 1 (Line A) and Gamma - Hydra 2 (Line B) transmission lines. The construction of the Hydra substation does not form part of this CEMP and is therefore not included here.

1.2.2 Objectives of the CEMP

The long-term objective of this CEMP is to ensure that:

1. Environmental Management conditions and requirements are implemented from the start of the project;
2. Precautions against damage and claims arising from damage are taken timeously,
3. The completion date of the contract is not delayed due to problems with Landowners arising during the course of construction;
4. The Contractor is able to and shall include any costs of compliance with this CEMP into the tender price;
5. Precautions against environmental damage and claims arising from such damage are taken timeously;
6. 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; and
7. The asset created conforms to environmental standards required by ISO 14001 and Transmission Policy.

The CEMP requires a commitment from the Eskom Project Manager and the Contractor on the following issues:

1. Take into consideration the Landowner special conditions as the lines traverse private property;
2. To underwrite Eskom Transmission's Environmental Policy TRMPBAAX3 Rev 2 at all times;
3. Ensure environmental conditions stipulated in the Record of Decision (ROD) are implemented;
4. Resolve problems and claims arising from damage immediately to ensure a smooth flow of operations;
5. To implement this Environmental Management Plan for the benefit of all involved; and
6. To preserve the natural environment by limiting destructive actions on site.

1.2.3 Legislative Framework

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 the protection of the environment. The

environmental legislation applicable to the project include, but are 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)
- NEMA: Air Quality Management Act (Act No 39 of 2004)
- National Water Act (Act No 36 of 1998)
- Hazardous Substances Act, 1973 (Act No 15 of 1973)
- Fire Brigade Services Act, 1987 (Act No 99 of 1987)
- National Heritage Resources Act, 1999 (Act No 25 of 1999)
- Conservation of Agricultural Resources Act, 1977 (Act No 103 of 1977)
- Occupational Health and Safety Act, 1993 (Act No 85 of 1993)
- The White paper on integrated pollution and waste management of South Africa

(a) Permits that may be required

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, assess all areas along the alignment well in advance in order to ensure the relevant Water Use License is applied for where required.

1.2.4 Environmental management policies adopted by Eskom Transmission

Eskom Transmissions Environmental Policy (TPL 41-435) describes Eskom transmissions commitment to environmental best practise. Their policy statement states that Eskom Transmission will:

- Continually improve environmental performance
- Comply with applicable legislation and regulations as well as Eskom Holdings policies and guidelines as a minimum
- Prevent pollution of the environment

While their strategy is to minimise and prevent environmental impact by setting policy related objectives and targets in a number of areas including but not limited to:

- Undertaking Environmental Assessments - which states that Eskom Transmission will conduct environmental assessments of its activities and that this information would then be used to identify and prioritise the significant environmental aspects and to develop appropriate environmental management processes. This EMP is evidence of such commitment,
- Environmental Incidents and Wildlife interactions – which states that Eskom Transmission must identify potential significant environmental incidents and risks and develop plans to prevent, correct and monitor their effects should they occur. This EMP also addresses this component of the environmental policy.

It is clear from the above that Eskom Transmission is addressing its environmental policy requirements and the monitoring and implementing of this EMP will provide additional support to this end.

1.2.5 CEMP Methodology

A project team including environmental consultants and various specialists has compiled this CEMP. The specialists and their associated studies, which were undertaken to inform the CEMP, are listed in the table below:

Specialist	Organisation	Study/Function
Tim Liversage / Rashieda Thomas	ARCUS GIBB	Lead Environmental Consultants
Joggie van Staden	Bolhlweki Environmental	Specialist ecological assessment
Davis Morris	McGregor Museum	Heritage Impact Assessment
Megan Diamond	Endangered Wildlife Trust	Avifaunal Study
Alan Cave	Cave, Klapwijk and Associates	Visual Impact Assessment

A five-day site visit to the proposed Hydra-Gamma 1 route was undertaken between the 9th June and 2 August 2007. All specialists as well as a technical person from Eskom (José Clara) attended this visit. The project team undertook individual specialist assessments of most of the proposed tower locations. Where the tower positions were found to be inappropriate from either an environmental perspective, the crossing of telecommunication lines in proximity to the route or due to inadequate access, recommendations for alternative locations of towers were made and recorded. In addition, the project team identified sensitive micro-environments along the route, which included rivers, water bodies, areas of high erosion, avifauna niches and archaeologically significant areas.

The assessment of tower positions started at the southern end of the proposed Hydra-Gamma routes and proceeded north. During the site visit, the tower positions were assessed either by physically walking to each co-ordinate or for those in homogeneous environments doing a drive by and noting the surrounding environment.

Due to there being no road access to the 72 towers on the northern portion of the transmission line route, access routes for the site walk through were planned and all relevant landowners were contacted for permission to access their farms.

On completion of the site inspections, an integration workshop was held where the detailed route alignment and tower positions were discussed in detail by the project team.

The specialist reports submitted, including potential impacts and recommendations for mitigation measures for the two powerlines and substation have all been incorporated into the CEMP.

1.3 Description of the Effected Environment

1.3.1 Introduction

The landscape of the Karoo through which the transmission line is aligned, is generally described as an extensive very large plain vegetated by grass and low

(400 mm high) shrubs, with irregularly spaced low ridges and koppies that are mostly flat topped.

In general, the area through which the transmission lines cross is not regarded as highly sensitive, while habitat diversity is fairly low. However, at several tower sites the vegetation seems to be more sensitive (wetlands, drainage channels, steep slopes etc.).

The Karoo has a long history of human occupation and archaeological research has shown that it is particularly rich in Stone Age cultures. Although rock paintings occur in some parts, rock engravings are more common and characterize this region. The presence of stone tools can also be found intermittently along the alignment.

1.3.2 Potential environmental impacts identified by the project team

Notwithstanding the potential environmental impacts identified in the EIA that preceded this CEMP, the CEMP project team as well as impacts identified by Eskom through their past experience have been considered in this comprehensive CEMP. These include the following:

- Potential impacts on vegetation;
- Potential impacts on avifauna;
- Potential impacts on heritage resources along the route;
- Potential impacts on visual or aesthetic aspects along the route; and
- Potential impacts on the social environment.

1.4 Project Description

The project involves the construction of a new Gamma Substation near Victoria West, two 765 kV transmission lines of approximately 130 km between the existing Hydra Substation in De Aar and the new Gamma Substation, and the expansion of the Hydra Substation. The technical specifications of the transmission line are detailed below.

1.4.1 Technical specifications of the Hydra-Gamma transmission lines

The 765 kV transmission line will be constructed parallel to the existing Hydra-Droevier No. 2 400 kV transmission line over a distance of 130km. A single 80 m servitude is required to accommodate the towers that will support the 765 kV voltage lines. For the majority of the route, the compact the Guyed - V tower (see Figure 2 below) will be used, while one of four different self-supporting strain towers will be used at bend points. The following towers types will be used:

- 703B guyed V suspension towers;
- 701C self-supporting flat configuration suspension tower;
- 701E self-supporting flat configuration (0-15) angle strain tower;
- 701F self-supporting flat configuration (15-30) angle strain tower; and
- 701G self-supporting flat configuration (30-60) angle strain and 0 terminal tower.

The Guyed-V tower has a maximum footprint of approximately 53 m x 37 m and an approximate height of 43 m (see Figure 2 below).

Figure 2: Guyed-V tower

1.4.2 Major Construction activities of the project

The construction of the Gamma Substation and the 765 kV transmissions lines will require the following construction related activities, amongst others:

1. Determination of appropriate location for construction camp site and the erection thereof in consultation with the ECO;
2. Bush clearing at tower locations, to facilitate access where necessary, for construction and the safe operation and maintenance of the line as required;
3. Transportation of construction materials, equipment and workforce;
4. Installation of foundations for the towers, which involves placing construction material into piles and fencing the area with wire strands;
5. Steelwork;
6. Tower assembly, which will require many construction staff;
7. Erection of towers which will be completed with the painting of nuts and bolts prior to erection;
8. Stringing and regulation of conductors;
9. Rehabilitation of disturbed areas (to start after a maximum of 100 towers have been strung). This will include re-vegetation where necessary and measures for erosion prevention of tracks;
10. Final inspection of the line and hand over to the region for operation;
11. Signing off landowners;
12. Handing and taking over of the servitude;
13. Operation and maintenance of the line;

14. Negotiations for access roads to the servitude on the northern portion of the transmission lines route; and
15. Servitude gate installation to facilitate access to the servitude.

One year after the completion of the project, the final inspection for the release of the Contractors' guarantee will take place. The lines will be in operation immediately after completion of the project and will stay operational for the 30-year lifetime of the lines / substation. Ongoing maintenance and refurbishment of the lines and substation may extend the operational lifetime to approximately to 50 years.

1.5 Environmental Monitoring and Auditing

To measure and ensure compliance to this EMP it is imperative that a monitoring and auditing programme be established, in which monthly reports are submitted to Eskom and DEAT to indicate the level of compliance. In addition, potential risks to the project will be identified.

Bearing in mind that this document is a living document and may be updated from time to time, should any amendments be considered such amendments need to be discussed with the appointed ECO, who will then make such amendments to the EMP if considered to be applicable. The amended EMP will be submitted to DEAT to inform them of what changes have been implemented and why.

2 CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

2.1 Organisational requirements

During construction, all instructions and official communications regarding environmental matters shall follow the organisational structure shown in **Figure 1**. The organisational structure identifies and defines the authorities structure, and the communication structure for the various parties involved in the construction of the proposed development.

Capital Expansion Projects (CEP) will act as the Project Manager for the proposed development. The Consultant/Engineer shall appoint a Site Supervisor / Contract Manager on site to co-ordinate and monitor the Contractor during the construction of the development.

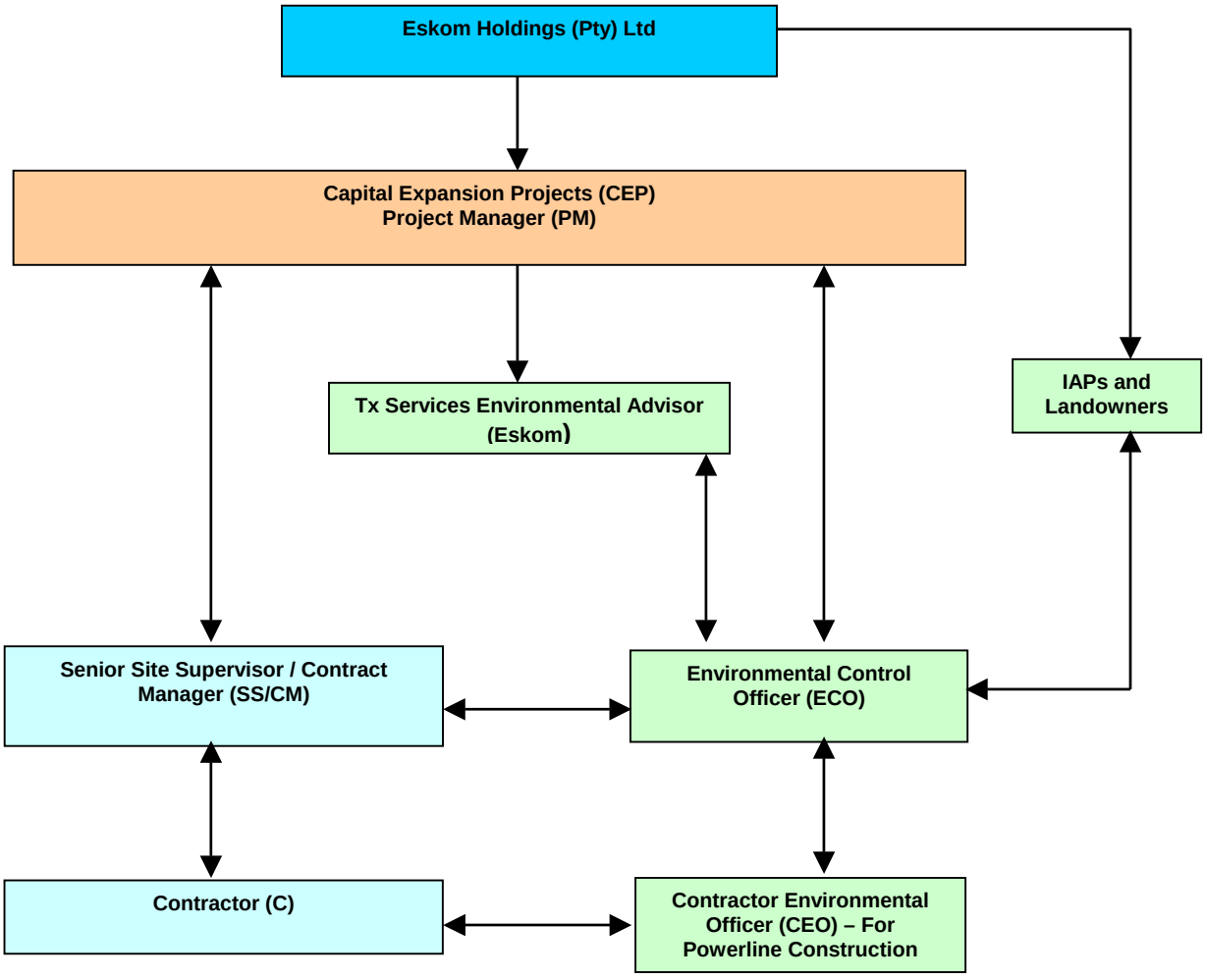


Figure 1: Organisational / Reporting Structure for implementation of the CEMP

CEP shall appoint an independent Environmental Control Officer (ECO) to oversee the implementation of the CEMP on site. It will be the responsibility of the ECO to consult with the RE regarding instructions pertaining to contravention, corrective actions, and penalties or working methods. Except in an emergency situation, where

instructions may be given directly to the Contractor, all instructions given by the ECO shall go through the SS/CM, who will then convey these to the Contractor.

The CEMP will be an item of the monthly site meetings, and the ECO shall attend these meetings in order to provide input with respect to compliance with the CEMP. Copies of the minutes will be sent to Eskom.

2.2 Community Relations

When specified the Contractor shall erect an information board containing background information for the construction activity and listing the relevant contact details of responsible persons.

The number, location and type of information boards will be specified in the Contract documents.

2.3 Penalties

The RE, in consultation or on the advice of the ECO, shall issue spot fines if the Contractor infringes these specifications. The Contractor shall be advised in writing of the nature of the infringement and the amount of the spot fine. The Contractor shall be liable for the fine and it is his responsibility to recover the fine from the relevant employee. The Contractor shall also take the necessary steps (e.g. training) to prevent a recurrence of the infringement.

The Contractor is also advised that the imposition of spot fines does not replace any legal proceedings the authorities, landowners and/or members of the public may institute against the Contractor. Spot fines shall be between R500.00 and R1 000.00, depending upon the severity of the infringement. The decision on how much to impose will be made by the ECO/RE and will be final.

In addition to the spot fine, the Contractor shall be required to make good any damage caused as a result of the infringement at his own expense.

A preliminary list of infringements for which spot fines will be imposed is as follows:

- Using areas outside the working areas without permission/accessing “no-go areas”;
- Clearing and/or levelling area outside of the working areas;
- Littering of the site and surrounds;
- Burying waste on site and surrounds;
- Making fires on site;
- Spillage onto the ground or water bodies of oil, diesel, etc;
- Picking/damaging plant material;
- Damaging/killing wild or domestic animals/birds;
- Discharging effluent and/or stormwater onto the ground or into surface water;
- Repeated contravention of the specification or failure to comply with instruction;

- Additional fines as determined by the ECO and added to this list and
- Damage to heritage sites.

The RE shall:

- Retain records or all fines issued. Monies for the spot fines will be deducted from the Contractors monthly certificate.
- The RE, on recommendation from the ECO, may also order the Contractor to suspend part or all the works if the Contractor repeatedly causes damage to the environment by not adhering to the CEMP (i.e. more than 3 cases of infringements). The suspension will be enforced until such time as the offending actions, procedure or equipment is corrected. No extension of time will be granted for such delays and all costs will be borne by the Contractor.

2.4 Payment for Environmental Specifications

The Contractor's costs incurred for compliance with this CEMP shall be on a lump sum basis.

2.5 Roles and Responsibilities

Function	Name / Cell Number	Responsibility
Project Manager (PM) Capital Expansion Projects		The overall management of the project and implementation, administration and enforcement of the CEMP. The PM shall: • Ensure that the CEMP specifications are included in all tender documents issued for the development works and activities on site, and shall ensure that the prospective Tenderers/Contractors abide by the provisions thereof; • Appoint an ECO to monitor implementation of and compliance with the CEMP for the duration of the works. The SS/CM may be required to fulfil this function when the ECO is not available; • Be liable/accountable, to the relevant authority, DEAT, for any contravention/non-compliance by any Contractor under their supervision; and • Through the SS/CM, issue fines or stop works orders for contravention of the CEMP and give instruction regarding corrective action
Senior Site Supervisor (SS)/ Contract Manager (CM) Trans Africa Projects		Oversees site works, liaison with Contractor, PM and ECO. The SS/CM will be responsible for monitoring, reviewing and verifying compliance with the CEMP by the Contractor when the ECO is not available. The CM's duties, over and above his contractual obligations, will include the following: • Comply with the contents of this CEMP specifications to ensure that the requirements of the CEMP are met; • Monitor and verify that the CEMP is adhered to at all times and take action if the specifications are not followed; • Monitor and verify that environmental impacts are kept to a minimum; • Review construction Method Statements in conjunction with the ECO; • Assist the Contractor in finding environmentally responsible solutions to problems with input from the ECO; • Keep records of all activities/incidents concerning the environment in the site diary; • Inspect the site and surrounding areas on a weekly basis with regard to compliance with the CEMP; • Order the removal of, or issuing spot fines for, person(s) and/or equipment not complying with the specifications; and • Issue penalties for contravention of the CEMP.
Environmental Control Officer (ECO)		Implementation of CEMP, liaison between Eskom, Contractor and Landowners and monitoring, reviewing and verifying compliance with the CEMP by the Contractor. In particular, the ECO shall: • Be appointed before the start of construction by the PM and the authorities must be notified of such an appointment for communication purposes; • Monitor all activities on site; • Visit/inspect the site on a monthly basis, to ascertain the level of compliance of works, as well as attend Contractor's meetings when necessary and monthly site meetings with the project management team and report back on the environmental issues; • Maintain inspection audit reports on file;

		• Assist the SS/CM in ensuring that necessary environmental authorisations and permits have been obtained; • Monitor and verify that the CEMP is adhered to at all times and take action if the specifications are not followed; • Monitor and verify that environmental impacts are kept to a minimum; • Review and approve construction Method Statements together with the SS/CM; • Assist the Contractor in finding environmentally responsible solutions to problems; • Keep records of all activities/incidents concerning the environment on site in the Site Diary; • Keep a register of complaints in the Site Office (to be situated in proximity to where the works are taking place) and deal with any community comments or issues; • Monitor the undertaking by the Contractor of environmental awareness training for all new personnel coming onto site or present environmental awareness courses themselves; • Provide material/manuals and assistance for the environmental awareness courses; • Advise on the removal of person(s) and/or equipment not complying with the specifications (done via the SS/CM); • Recommend the issuing of fines for transgressions of site rules and penalties for contravention; • Maintain a photographic record of the site before, during and after construction. • Ensure that activities on site comply with legislation of relevance to the environment; • Complete checklists as necessary; and • Internally review the implementation of the CEMP and submit a report to Eskom and DEAT at the end of the project.
Contractor (C)		Implementation and compliance with recommendations and conditions of the CEMP. The Contractor shall: • Ensure that the environmental specifications of this document (including any revisions, additions or amendments) are effectively implemented. This includes the on-site implementation of steps to mitigate environmental impacts; • Ensure that all employees and sub-contractors employed comply with the requirements and provisions of the CEMP; • Prepare Method Statements for submission to the ECO; • Monitor environmental performance and conformance with the specifications contained in this document during daily site inspections; • Discuss implementation of and compliance with this document with staff at routine site meetings; • Be responsible for sub-contractors preparing sites and erecting the towers; • Report progress towards implementation of and non-conformances with this document at site meetings with the ECO; • Keep Copies of two-weekly reports to the Tx Services Environmental • Notify the ECO of the anticipated programme of works and fully disclose all details of activities involved; • Ensure that suitable records are kept and that the appropriate documentation is available to the ECO; • Notify the ECO of all incidents, accidents and transgressions on site with respect to environmental management as well as requirements of the CEMP and corrective actions/remedial action taken; • Report and record all accidents and incidents resulting in injury or death; • Inform the ECO of problems arising when implementing the CEMP and recommend ways of improving it;

		• Inform the ECO of any complaints received; and • Appoint a dedicated person (Contractor Environmental Control Officer) to work with the ECO
Contractor Environmental Control Officer (CECO)		• Appointed by the contractor for the Implementation of the CEMP, landowner interaction, environmental control of site actions, re-mediation and rehabilitation work. • Be available to investigate all problems arising on the work sites concerning the Landowners.
Tx Services Environmental Advisor (Eskom)		• Environmental advice and auditing

2.6 Method Statements

The Contractor shall submit a written Method Statement to the ECO for approval, covering those activities, which are identified (in this document and/or by the ECO), as being potentially harmful to the environment.

Method Statements indicate how compliance with the Environmental Specification will be achieved.

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 study and approve 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 the ECO, which shall be done within 7 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 the ECO and RE.

The ECO and RE 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 Statements, 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 plan, 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 revegetation 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 Section 2.7 by a tick (√). 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.

2.7 Environmental Specifications for the Construction Phase of the Development

Environmental Specifications	Responsible Individual	Frequency	Method Statement Required
2.7.1 Site Monitoring, Auditing and Reporting			
• Records must be kept on site in accordance with the standard Eskom site documentation. The documentation shall be signed by all parties to ensure that such documents are legal. **The following documentation shall be kept on site:** 1. Access negotiations and physical access plan; 2. A schedule of current site activities including the monitoring of such activities; 3. Complaints register of all public complaints and the remedies applied to such complaints; 4. Site daily diary; 5. Records of all remediation / rehabilitation activities; 6. Copies of two-weekly reports to the Tx Services Environmental Advisor; 7. Copies of all reports submitted to the Department (DEAT); 8. Copy of the Construction Environmental Management Plan; 9. Environmental Incident Log; 10. ECO inspection audit reports; and 11. The Record of Decision issued for the project	Contractor / CECO	Continuous	
• All records relating to monitoring and auditing must be made available for inspection to any relevant authority, or Eskom's Environmental Audit Team (Tx Services Environmental Advisor), in respect of the development.	Contractor / CECO	As necessary	
• DEAT reserves the right to monitor and audit the development throughout its full life cycle to ensure compliance with the RoD as well as mitigation measures in the final scoping report and the this CEMP.	Contractor / CECO	As necessary	

Environmental Specifications	Responsible Individual	Frequency	Method Statement Required
• The ECO shall submit a quarterly environmental compliance report in writing, to the Department (DEAT), attention of the Director: Environmental Impact Evaluation, and copy the Applicant with such report. This report shall include: o A description of all activities on site; o Problems identified; o Transgressions noted and a task schedule of tasks undertaken by the ECO; and o The reference number of the project on the cover page.	ECO	As necessary	
• The ECO shall remain employed until all rehabilitation measures, for implementation due to construction damage, are completed and the site is handed over to Eskom by the contractor for operation.	Contractor / ECO	Continuous	
• The Landowners shall always be kept informed about any changes to the construction programme should they be involved. • All contact with the Landowners shall be courteous at all times. • The rights of the Landowners shall be respected at all times and all staff shall be sensitised to the fact that they are working on private property. • The contact numbers of the Contractor's ECO officer and the Eskom ECO shall be made available to the Landowners as this will ensure open channels of communication and prompt response to queries and claims.	ECO / CECO	As necessary	

Management objectives	Measurable targets
• Maintain good relations with Landowners	• No delays in the project due to Landowner interference • Landowner signs final release form

2.7.2 Environmental Induction Training			
• An initial environmental awareness training session is required prior to any work commencing.	ECO / CECO	When new staff are contracted	√
• The contractor must ensure that all site staff are aware of, and understand the contents and conditions of the CEMP, the key environmental issues and the consequences of non-compliance.	Contractor	As necessary	
• The ECO will provide 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 site, to his subcontractors, causal labourers and to his suppliers.	Contractor / ECO	As necessary	
• All site staff must attend induction training on the CEMP and a record must be kept of all attendees.	Contractor	As necessary	

Environmental Specifications	Responsible Individual	Frequency	Method Statement Required
• Induction training must be undertaken in a language that is understood by site staff and must include the following topics: o Key potential or actual environmental construction related impacts on site as well as related environmental precautions, which need to be taken to avoid or mitigate these impacts, o Key mitigation measures to be implemented during construction activities; o Emergency responses to issues on site; o Roles and responsibilities of all staff on site; o The benefits of achieving conformance with, and consequences of transgressions of environmental specifications or requirements of the CEMP.	Contractor	As necessary	
2.7.3 Planning and Site Preparation			
• All work must be undertaken in an environmentally sensitive manner.	Contractor	Continuous	
• A precautionary approach must be adopted with any works deviating from specifications being approved by both the SS/CM and ECO.	Contractor	Continuous	
• Campsite establishment including proposed layout and location must be approved by the ECO prior to commencement of construction. A method statement must be supplied by the contactor for campsite establishment and must be approved by the ECO.	Contractor	Prior to construction	√
• 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	√
• The number of construction camps required must be decided in conjunction with the PM, Contractor, ECO, and Landowners.	Contractor / PM / ECO / CECO	Prior to construction	
• The footprint of the campsite and access roads must be kept to a minimum to ensure the least environmental impacts.	Contractor / CECO	Continuous	√
• The campsite is to be located a minimum horizontal distance of 200m from any watercourse or above the 1:50 year floodline.	Contractor / ECO / CECO	As necessary	√
• 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 shouting or whistling must also be limited.	Contractor	Continuous	
• Appropriate safety and precaution signs shall be erected prior to the start of construction.	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	√

Environmental Specifications	Responsible Individual	Frequency	Method Statement Required
• Storm water control berms (trench and/or earth barriers) shall be constructed to divert rainwater around the campsite and to contain any dirty water running from the campsite.	Contractor	Prior to an throughout construction	√
• Sewerage and waste-water at the camp-sites have to be removed to an approved sewerage treatment works.	Contractor	Continuous	
2.7.4 Demarcation of the Site			
• Construction campsite shall be fenced and working areas secured before construction can proceed.	Contractor	Once off	
• "No-go" areas shall be demarcated by fences, steel standard with four strands of wire, and personnel and equipment shall not be permitted within these areas. Danger tape may not be used to the risk of it being eaten by livestock.	Contractor / CECO	Continuous	
• An area of the campsite shall be dedicated to the storage of materials and plant equipment.	Contractor	Once off	
2.7.5 Site Clearance			
• 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 stabilised as soon as is practically possible.	Contractor / CECO	Continuous	√
• All earthworks and excavations must be undertaken in such a manner so as to minimise the extent of any impacts caused by such activities.	Contractor	Continuous	
• Disturbance of vegetation must be limited to areas of construction.	Contractor	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 by the ECO.	Contractor / CECO / ECO	Continuous	
• The search, rescue and relocation of identified plant species must be undertaken.	Contractor / CECO / ECO	Continuous	
• Impacts on surrounding servitudes shall be avoided at all costs.	Contractor	Continuous	
• The topsoil (i.e. the top 30-50 cm of soil) must be stockpiled in a suitable place in order to be replaced on top of the exposed subsoil during rehabilitation.	Contractor / CECO	As necessary	
• Soil stockpiles should not exceed 1.5 m in height.	Contractor / CECO	As necessary	
• Erosion damage to soil stockpiles should be prevented with soil conservation works such as deflection berms etc.	Contractor	As necessary	
• Topsoil stockpiles older than 6 months should be upgraded/enriched before use to ensure the effectiveness of the topsoil.	Contractor / CECO	As necessary	

Environmental Specifications	Responsible Individual	Frequency	Method Statement Required
• Rehabilitation and landscaping shall be done with indigenous vegetation.	Contractor / ECO	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/revegetated.	Contractor / ECO	On completion of construction	
2.7.6 Access to Site			
• The site and associated infrastructure and equipment shall be off-limits to the public.	Contractor	Continuous	
• All construction vehicles using public roads shall be in a roadworthy condition.	Contractor	Continuous	
• Vehicle speeds shall not exceed 40km/h along untarred roads or when transversing unconsolidated and non-vegetated areas. Where required, speed limits must be indicated on the roads.	Contractor	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	
• Where in the opinion of the SS and/or PM, inordinate and irreparable damage would result from the development of access roads, the *Contractor* shall use alternative construction methods compatible with the access and terrain, as agreed with the PM.	Contractor	As necessary	√
• The SS shall, together with a representative of the *Contractor*, negotiate with each landowner the access to reach the servitude and each tower position. The access agreement will be formalised in the form "TPL 004/005 - Property Access Details" 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. • Any deviation from the written agreement shall be closed and re-vegetated immediately, as stipulated in TRMSCAAC1 4.4.	SS / Contractor / CECO	As necessary	
• Access roads shall be kept to a minimum and clearly marked.	Contractor	Prior to construction	
• The *Contractor* shall signpost the access roads to the tower positions, immediately after the access has been negotiated.	Contractor	Once access has been negotiated.	
• Measures for the control of influx of job seekers at the Hydra substation site extension and along sections of the line at the construction camps shall be implemented.	Contractor	As necessary	

Environmental Specifications	Responsible Individual	Frequency	Method Statement Required
(a) Use of existing roads			
• 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* (TRMSCAAC1 4.4.1).	Contractor / CECO	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 at least 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 / CECO / SS	Continuous	√
• Measures for traffic management at road intersections with district, provincial and national roads shall be implemented to ensure the nuisance factor of additional traffic to the surrounding road users are minimised.	Contractor / Eskom	Continuous	
(b) 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, railways, roads, mountains, 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 / CECO	Prior to construction	
• 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 / CECO / ECO	Prior to construction	√
• The *Contractor* is to inform the SS before entering any of the following areas: **i)** Naturally wet areas: vleis, swamps, etc **ii)** Any area after rain **iii)** Any environmentally sensitive area	Contractor / CECO	As necessary	
• If access is across running water, the *Contractor* shall take precautions not to impede the natural flow of water. If instructed, the *Contractor* is to 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 and the landowner.	Contractor / CECO / 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	

Environmental Specifications	Responsible Individual	Frequency	Method Statement Required
• In areas over 4% sideslope, roads may be constructed to a 4% outslope. 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 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 or watercourse.	Contractor / CECO	Prior to construction	
• 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 / CECO / SS	Upon completion of new roads	√
• No cutting and filling shall be allowed in areas of 4% sideslope and less.	Contractor / CECO	As necessary	
• Existing land contours shall not be crossed by vehicles and equipment unless agreed upon, in writing, by the landowner and the SS.	Contractor / CECO / SS	As necessary	
• Existing drainage systems shall not be blocked or altered in any way.	Contractor / CECO	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 / CECO	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 particular site.	Contractor / CECO	As necessary	
• Select alignments of road that minimise adjacent landform change such as cut and fill sections.	Contractor/ CECO	As necessary	√
• In cut sections strip the top layer of soil (minimum 150 mm), stockpile upslope in windrows or in separate areas. This soil will include rock and vegetation.	Contractor/ CECO	As necessary	-
• Shape cut and fill slopes to blend with adjacent landform by rounding off top cut and fill slopes, re-spreading soil and the placement of rocks packed or randomly placed to hold the replaced soil.	Contractor/ CECO	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/ CECO	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.	Contractor / ECO	As necessary	
• Any dangerous crossings shall be marked as such and where necessary, speed limits shall be enforced.	Contractor	Prior to construction	

Environmental Specifications	Responsible Individual	Frequency	Method Statement Required
(c) Closure of roads			
• Upon completion, only roads as indicated by the SS shall be closed.	Contractor / SS	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 30% slope and less, the fill of the road shall be placed back into the roadway using equipment that does not work outside the roadcut (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 sideslope shall be re-established and revegetated.	Contractor	Upon completion	
• Replacement of earth shall be at slopes less than the normal angle of repose for the soil type involved.	Contractor	As necessary	
• A photographic record of the condition of existing access / private roads to be used shall be made.	Contractor/ CECO	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	Prior to construction	
• All roads that are not to be used shall be marked with a " **NO ENTRY** " sign.	Contractor	As necessary	
(d) Water diversion berms			
• Water diversion berms shall be installed from the start of the contract (TRMSCAAC1 4.4.4).	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: o Where the track has a slope of less than 2% : 50m apart o Where the track has a slope of 2% - 10% : 25m apart o Where the track has a slope of 10% - 15% : 20m apart o Where the track has a slope of more than 15% : 10m apart	Contractor / CECO / ECO	As necessary	
• Berms shall be suitably compacted to a minimum height of 350mm.	Contractor / CECO / 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 / CECO / ECO	As necessary	
• Berms shall be constructed so that a canal is formed at the upslope side.	Contractor / CECO / ECO	As necessary	

Environmental Specifications	Responsible Individual	Frequency	Method Statement Required
• 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 C*ontractor* and submitted to the *PM* for acceptance.	Contractor / ECO / PM	As necessary	
• Borrow pits - The *Contractor*'s decision as to the location of borrow pits, shall be at the acceptance of the SS. The *Contractor* shall be responsible for the rehabilitation and revegetation 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 a permit is required under the Mineral and Petroleum Resources Act 2002 for the use of borrow pits.	Contractor / ECO / SS	As necessary	√
• 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. See Section 2.7.23 (b) for the prescribed re-vegetation to be undertaken.	Contractor / CECO / ECO	As necessary	
• The above water diversion berms shall be maintained at all times and be repaired at the end of the contract.	Contractor / CECO / ECO	Upon completion	√
• 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	
• 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 / CECO / 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 / CECO / ECO	As necessary	
• Water diversion berms as constructed on the existing ESKOM servitude are often the cause of local erosion and do not necessarily prevent it. Care shall be taken to construct these berms only where it is really necessary and where the steepness of slope warrants its effectiveness. The direction of slope in relation with the road should also be taken into account to ensure the effectiveness of the structure.	Contractor / CECO / ECO	As necessary	
(e) Levelling at tower sites			
• No leveling at tower sites shall be permitted unless approved by the SS (TRMSCAAC1 4.4.5).	Contractor / SS	As necessary	

Environmental Specifications	Responsible Individual	Frequency	Method Statement Required
• The steep slopes formed by the cutbanks 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 re-vegetated as per Section 2.7.23 (b).	Contractor / CECO / ECO	As necessary	

Management objectives	Measurable targets
• Minimise damage to existing access roads • Minimise damage to environment due to construction of new access roads • Minimise loss of topsoil and erosion	• No claims from Landowners due to damage on access roads • No visible erosion on access roads six months after completion of construction • No loss of topsoil due to runoff water on access roads

2.7.7 Tower positions / construction			
• Disturbance of topsoil on tower sites with severe slopes shall be minimised at all costs. Tower sites where the slopes are severe are highlighted in Section 2.8 of this EMP. Recommendations for the mitigation of disturbance are also provided.	Contractor / CECO	As necessary	
• Visual degradation by establishing level area for tower assembly may occur. • The *Contractor* shall select a suitable level area free of rock and large bushes for tower assembly. • Cut vegetation (grass and Karoo shrubs), if required. No clearing of vegetation or soil by grading machinery shall be undertaken.	Contractor / CECO	As necessary	
• At any tower sites where foundations are installed, the Contractor shall remove the topsoil separately and store it for later use during rehabilitation of such tower sites.	Contractor / CECO	As necessary	
• During backfilling operations, the Contractor shall ensure that topsoil is replaced at the surface.	Contractor / CECO / ECO	As necessary	
• Re-seeding shall be done on disturbed areas as directed by the ECO.	Contractor / ECO	As necessary	
• 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 towers 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 / CECO / ECO	As necessary	

Environmental Specifications	Responsible Individual	Frequency	Method Statement Required
• 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 / CECO / ECO	As necessary	
• Remove from site all waste concrete. Surplus other material shall be used to create berms in the access road where required.	Contractor / CECO	As necessary	

Management objectives	Measurable targets
• Minimise damage to topsoil and environment at tower positions • Successful rehabilitation of all damaged areas • Prevention of erosion	• No loss of topsoil due to construction 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

2.7.8 Gate installation and gate control			
• Attention is drawn to the Fencing Act No. 31 of 1963 as amended, 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	Continuous	
• At points where the line crosses any fence in which there is no suitable gate within the extent of the line servitude the Contractor is to, on the SS's instruction, provide and install a servitude gate as detailed in the relevant drawing (See APPENDIX 3 TRMAGABE1). The Contractor shall mark these crossing points when the tower positions are being pegged.	Contractor	Prior to tower construction	
• Where applicable game gates are to be installed in accordance with the TRMAGABE1 Rev 0 (See APPENDIX 3).	Contractor	As necessary	
• 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 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 Provisional Authority. No gates may be installed in National Road and Railway fences.	Contractor	Prior to construction	
(a) 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 (see APPENDIX 3 TRMAGBABE1).	Contractor	As necessary	
• Where gates are installed in jackal proof fencing, a suitable reinforced concrete sill as shown in TRMAGBABE1 (APPENDIX 3) shall be provided beneath the gate.	Contractor	As necessary	
• The original tension is to be maintained in the fence wires.	Contractor	Continuous	

Environmental Specifications	Responsible Individual	Frequency	Method Statement Required
• 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	As necessary	
(b) Securing of gates			
• The *Contractor* shall ensure that all servitude gates used by him 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 by him 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	As necessary	

Management objective	Measurable targets
• Properly installed gates to allow access to the servitude • Minimise 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 gates

2.7.9 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 (as stipulated in TRMSCAA1 Rev 3).	Contractor / CECO	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 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 / CECO / SS	Continuous	√

Environmental Specifications	Responsible Individual	Frequency	Method Statement Required
• All other construction waste, nuts, bolts, surplus concrete, etc. shall be removed from the tower sites and servitude. Plastic, litter and conductor offcuts etc. are shall be removed immediately from site to avoid injury to farm animals and wildlife.	Contractor / CECO	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 watercourses.	Contractor / CECO	Continuous	
2.7.10 Winch and tensioner stations			
• The siting of winch and tensioner stations shall be done in conjunction with the landowner and ecologist/botanist and archaeologist that participated in the compilation of the EMP where necessary. The Contractor shall identify sites in advance for approval of the specialists.	PM / ECO	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. • These areas are left to rehabilitate on their own which could be disastrous. Once the stringing of conductor has been completed in a certain area, the winch- and tensioner stations shall be rehabilitated where necessary. • If the area was badly damaged, re-seeding shall be done according to Section 2.7.23 (b) and fencing in of the area shall be considered and carried out.	Contractor / ECO	As necessary	
• Fencing (with four strands of wire) of the storage areas for drums on site shall take place, as this will keep out animals and prevent injury. • 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	Prior to construction	√

Management objective	Measurable targets
• Minimise damage to vegetation • Minimise damage to topsoil • Successful rehabilitation of disturbed areas	• No damage to vegetation outside the servitude • No loss of topsoil • No visible erosion three months after completion of the contract • All disturbed areas successfully rehabilitated three months after completion of the contract

2.7.11 Stringing Operations			
• In order to prevent damages to farm land, the necessary scaffolding or protection measures must be installed, as per TRMSCAAC1 REV 3 Section 8.2.1.	Contractor	Prior to stringing operations	√

Environmental Specifications	Responsible Individual	Frequency	Method Statement Required
• The disruption of services must be prevented. All structures supplying services such as telephone and smaller power lines, as well as main and farm roads, must therefore be safeguarded.	Contractor	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	As necessary	
• The entire footprint of the stringing storage areas shall be monitored.	Contractor	Continuous	
• The existing 6m servitude cleared during the tower construction process must be utilised 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 100m of stringing operation is complete. This to be done by cable stringing crew.	Contractor / ECO	After every 100m of stringing is complete	
• Substantial temporary conductor supports shall be used, or equally effective measures taken, to prevent encroachment of statutory clearances, or other clearance requirements 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.	Contractor / SS	As necessary	
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		
2.7.12 Bird Flight Diverters			
• In areas where there is a potential for bird collisions (specially rare or endangered species) with new overhead lines or there are actual collisions on existing lines it is advisable to install bird flappers or bird flight diverters on the earthwires. See Section 2.8 for specific spans that require the installation of bird flight diverters.	PM / ECO Contractor	As necessary	

Environmental Specifications	Responsible Individual	Frequency	Method Statement Required
• Transmission shall use the spiral type o Black and white spirals are of preformed 14mm diameter PVC UV stabilised rod. Half of the spirals must be of white colour and the other half must be of black colour. (see APPENDIX 4)	PM / ECO Contractor	As necessary	
• Installation of the bird flight diverters must be: ▪ Installed on both earth wires, staggered; ▪ Installed only on 60% of the span and in the middle of the span. ▪ Typical 765 kV line spans length=between 400m and 450m, therefore 60%= between 240m and 270m. ▪ On the lower middle lower span, spirals must be installed at 10 metre intervals on each earthwire and with alternating colours on each side (see APPENDIX 4).	PM / ECO Contractor	As necessary	
2.7.13 Social aspects, health and safety			
• No site staff other than security personnel shall be housed on site.	Contractor	Continuous	
• Potable water and washing facilities shall be made available for all personnel.	Contractor	Continuous	
• Public access to the construction site shall be prevented at all times.	Contractor	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	Continuous	
• Designated eating areas shall be allocated.	Contractor	Continuous	
• Staff must wear the necessary personal protective equipment.	Contractor	Continuous	
(a) Prevention of disease			
• All the necessary precautions against the spreading of disease, especially in farms with livestock and game shall be taken.	Contractor	Continuous	
• A record shall be kept of drugs administered and the dates when this was done, which can then be used as evidence in court should any claims be instituted against Eskom or the Contractor	Contractor	Continuous	
Management objective	**Measurable target**		
• Prevent litigation due to infestation of livestock	• No complaints and claims from Landowners • No litigation		
2.7.14 Waste management			
• An on-site waste management plan 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 must be emptied regularly.	Contractor	Continuous	
• A daily clean-up of the site must be instituted.	Contractor	Continuous	

Environmental Specifications	Responsible Individual	Frequency	Method Statement Required
• No waste shall be buried or burned on site. All solid waste collected on site shall be disposed of off site 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	Continuous	√
• Covered waste bins shall be supplied by the contractor.	Contractor	As necessary	
• The site office and materials storage area must be kept neat and tidy and free of litter.	Contractor	Continuous	
• Littering by the employees of the Contractor shall not be allowed.	Contractor	Continuous	
• The Contractor shall collect all litter and dispose thereof in terms of the approved waste management plan.	Contractor	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	Continuous	
• A litter patrol around the construction camp and work areas along the alignment are to take place every day to collect any litter that may have been strewn around.	Contractor	Continuous	
• A skip, with a cover, should be used to contain refuse from campsite bins, rubble and other construction material.	Contractor	Continuous	
• Once full and on a regular basis, the contents of the skip must be disposed of at a licensed commercial facility.	Contractor	Continuous	
• Material that may harm humans or animals must not be left on site.	Contractor	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	Continuous	
• The piling of any material that could rot and release unpleasant smells into the air will not be permitted.	Contractor	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 / CECO	Continuous	

Management objectives	Measurable targets
• Neat workplace and site • To keep the servitude neat and clean • Disposal of rubble and refuse in an appropriate manner • Minimise litigation • Minimise 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

Environmental Specifications	Responsible Individual	Frequency	Method Statement Required
2.7.15 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	Continuous	
• A service provider shall be appointed and shall empty toilets regularly.	Contractor	Prior to construction	
• Chemical and waste from toilet cleaning operations should not be spilled on the ground at any time.	Contractor / CECO	Continuous	
2.7.16 Effluent and Storm Water Management			
• Storm water must be effectively captured and led well away from all structures.	Contractor / CECO / ECO	As necessary	
• No ponding of surface water shall occur adjacent to foundations both during and after construction.	Contractor / CECO / ECO	Continuous	
• No mechanical plant or equipment shall be washed on site, unless in an area equipped for such a purpose.	Contractor / CECO / ECO	Continuous	
• Pollutants such as cement, concrete, lime, chemicals and fuels shall not be discharged into any water source.	Contractor / CECO / ECO	Continuous	
• Water from ablution facilities and the Contractor‘s camp shall be discharged into a sewer, or where such sewer is not available (as if predominantly the case for this 765kV line) into a conservancy tank for removal from the site.	Contractor / CECO / ECO	Continuous	
2.7.17 Air Quality			
• The production of dust from areas cleared of vegetation and soil stockpiles shall be avoided.	Contractor / CECO	Continuous	
• Stockpiles shall be located in areas where they are exposed to the minimum erosive effects of wind.	Contractor / CECO	As necessary	
• Excavation, handling and transport of erodable materials must be avoided under high wind conditions.	Contractor / CECO	As necessary	
• Dust-suppression measures must be used on stockpiles and exposed areas at the Hydra Substation site.	Contractor / CECO	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	
2.7.18 Erosion and Sedimentation Control			
• Areas susceptible to erosion shall be protected by installing temporary and permanent drainage works.	Contractor / CECO / ECO	As necessary	√

Environmental Specifications	Responsible Individual	Frequency	Method Statement Required
• Spoil from cut area shall be used for the in-filling of erosion gulleys or be used in the rehabilitation of excavated sites.			
• Stabilise and manage cleared areas to prevent and control erosion. The method of stabilisation shall be determined in consultation with the SS.	Contractor / CECO / SS	As necessary	
• Implement measures to protect the construction site from erosion by stormwater.	Contractor / ECO	Continuous	
2.7.19 Wet Areas			
• Vehicular traffic shall not be allowed in permanently wet areas.	Contractor	Continuous	
• No damage shall be caused to wet areas. See Section 2.8 for wet area locations.	Contractor	Continuous	
• Where necessary, alternative methods of construction shall to used to avoid damage to wet areas.	Contractor	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, 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

2.7.20 River crossings			
• Stream and river crossings shall be avoided as far as practicable as they may cause erosion and downstream siltation.	Contractor / CECO / 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 may be required under the National Environmental Management Act (No 107 of 1998).	Contractor / ECO	As necessary	√
• Sedimentation into the river during construction shall be prevented. Sediment should be piled alongside the site and removed to a suitable waste disposal site as soon as possible, so as to prevent it entering the aquatic system during rain events.			
• All structures constructed for river access purposes shall be properly designed and drawings of such structures shall be available for record purposes.	Contractor / CECO	Continuous	

Environmental Specifications	Responsible Individual	Frequency	Method Statement Required
Management objectives	**Measurable targets**		
• Minimise damage to river and stream embankments • Minimise 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		
2.7.21 Erosion and Donga Crossings			
• Where necessary, crossing of dongas and eroded areas shall be thoroughly planned.	Contractor / CECO	As necessary	
• Water diversion berms shall be installed at donga crossings to ensure water runoff from the powerline servitude does not run into dongas and cause or exacerbate an erosion hazard.	Contractor / CECO	As necessary	
• Suitable erosion containment structures shall be constructed at donga crossings where required and viable.	Contractor / CECO / ECO	As necessary	
• All structures shall be properly designed and drawings shall be available for reference purposes.	Contractor / CECO	As necessary	
• No unplanned / improperly planned cutting of donga embankments is allowed as this leads to erosion and degradation of the environment.	Contractor / CECO	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	As necessary	
Management objectives	**Measurable targets**		
• Minimise erosion damage on donga crossings • Minimise impeding the natural flow of water • Minimise initiation of erosion through donga embankments	• No disturbance to donga embankments • No erosion visible on donga embankments due to construction activities • No interference with the natural flow of water		
2.7.22 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. • The Contractor shall fence the area (with four strands of wire) for two years 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.	Contractor / ECO	As necessary	
• The removal or picking of any protected or unprotected indigenous plants shall not permitted.	Contractor / ECO	Continuous	
• Areas where soils have been compacted shall be rehabilitated once construction is completed.	Contractor	As necessary	

Environmental Specifications	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	Continuous	
• The establishment and regrowth of alien vegetation must be controlled after the removal of grass.	Contractor	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 (TRMSCAAC1 4.1.2). 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	As necessary	
(a) Landscaping, stabilisation and soil stockpiling			
• Exposed slopes and/or destabilised areas should be landscaped to blend in with the surrounding area.	Contractor	As necessary	
• In exposed areas with slopes steeper than 1:3, re-vegetation should not be used as the primary means of stabilisation. Such slopes should rather be stabilised 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 / CECO / ECO	As necessary	
(b) Re-vegetation			
• Exposed areas with slopes less than 1:3 should be rehabilitated with a grass mix that blends in with the surrounding vegetation. • The grass mix should consist of a mix of Cynodon dactylon (50%; Eragrostis curvula (30%) and Pioneer grass mix (20%).	Contractor / CECO / ECO	As necessary	
• In the local situation the areas that are re-vegetated will stand out amongst the grasses in the area. Therefore, the revegetated 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 / CECO / ECO	As necessary	
• The revegetated areas should be temporarily fenced for two years (with four strands of wire) to prevent damage by grazing animals.	Contractor / CECO	As necessary	
• Re-vegetated areas should be monitored every 3 months for the first 12 months and once a year thereafter until the vegetation is stabilised.	Contractor	Continuous	

Environmental Specifications	Responsible Individual	Frequency	Method Statement Required
• 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 / CECO / ECO	As necessary	
• Damage to re-vegetated areas should be repaired promptly.	Contractor	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	As necessary	
• Weed control methods should be confirmed with the PM to prevent any undesirable secondary impacts.	Contractor	As necessary	

Management objectives	Measurable targets
• Minimise damage to vegetation • Keep servitude as natural looking as possible • Minimise interference by vegetation to towers and powerlines • Minimise possibility of erosion due to removal of vegetation • Minimise removal of plant material on river and stream embankments • Eradication of alien invader species • Minimise scarring of the soil surface and land features • Minimise 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 • 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 unauthorised 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

2.7.23 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 / CECO	Prior to construction	
2.7.24 Archaeology / Heritage			
• If any heritage/archaeological sites/objects not mentioned in this document 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 South African Heritage Resources Association (SAHRA) at 021 462 4502 and McGregor Museum immediately at 053 839 2706/7	Contractor / ECO	As necessary	

Environmental Specifications	Responsible Individual	Frequency	Method Statement Required
• All sites identified by specialists as having heritage significance 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 all identified archaeological sites • The collection of heritage/archaeological objects/artefacts at identified sites shall not be allowed. • No defecation and or urination inside or next to buildings, structures, rock shelters and other sites by the construction and or the operational teams should be allowed.	Contractor / ECO	As necessary	√
• Any destruction of a 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 are to be destroyed or altered.	Contractor / ECO	As necessary	

Management objectives	Measurable targets
• Protection of archaeological sites and land considered to be of cultural value • Protection of known heritage sites against vandalism, destruction and theft • The preservation and appropriate management of new archaeological finds, should these be discovered during construction	• No destruction of or damage to known heritage sites • Management of existing heritage sites and new discoveries in accordance with the recommendations of the Archaeologist

2.7.25 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.	Contractor	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	As necessary	

Environmental Specifications	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 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 / CECO	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, installations and crops

2.7.26 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	
• 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	Continuous	
• Spills of hazardous substances, in excess of 10 litres shall be reported to the ECO immediately and the appointed Tx Services Environmental Advisor (TX Key Performance Indicator requirement)	Contractor	As necessary	

Environmental Specifications	Responsible Individual	Frequency	Method Statement Required
• 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 / CECO / 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 bunded 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.	Contractor / ECO	Once-off	√
• All staff handling hazardous waste must be trained accordingly.	Contractor	Once-off	
• All necessary approvals with respect to fuel storage and dispensing shall be obtained from the appropriate authorities.	Contractor	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 Municipal Fire Prevention Officer.	Contractor / SS	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	
(a) 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 plan.	Contractor / ECO	Once-off	√
• All wastewater resulting from batching of concrete shall be disposed of via the wastewater management system.	Contractor	Continuous	
• Bags of cement shall be stored in an area protected from the weather.	Contractor	Continuous	

Environmental Specifications	Responsible Individual	Frequency	Method Statement Required
• The *Contractor* shall be responsible for negotiating the site of his batching plant (if 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.	Contractor / CECO	As necessary	√
• 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	Upon completion	
(b) Servicing of vehicles			
• Servicing of vehicles in the veld is strictly prohibited.	Contractor	Continuous	
• Only emergency repairs shall be allowed on site and a drip tray shall be used to prevent oil spills.	Contractor	As necessary	
• All vehicles shall be serviced in the designated area inside the Contractors camp.	Contractor	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 bio-remediation can be done. • Smaller spills can be treated on site. • 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.	Contractor / ECO	As necessary	√
Management objective	**Measurable targets**		
• Prevention of pollution of the environment • Minimise 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		
2.7.27 Fire Prevention			
• No open fires shall not be allowed on site under any circumstance (The Forest Act, No 122 of 1984,).	Contractor / CECO / ECO	Continuous	
• Accidental fires in natural grassland/karoo should be prevented through proper sensitisation 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	

Environmental Specifications	Responsible Individual	Frequency	Method Statement Required
• An emergency preparedness plan 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. The Contractor shall supply fuel for fires.	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, collectors value etc) should be agreed upon beforehand and be included in the contract.	Contractor / ECO	Prior to construction	

Management objectives	Measurable targets
• Minimise risk of veld fires • Minimise 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

2.7.15 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	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 / CECO / ECO	Continuous	
• 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. See the Contract documentation for the specifications of the H&S Officer that will be present on site for the duration of the works.	Contractor	Continuous	
• The Contractor is liable for any expenses incurred by any organisations 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	As necessary	
• All equipment shall be user safe and vehicles shall be roadworthy.	Contractor	Continuous	
• Vehicles transporting materials such as sand, rock and pipes shall be covered to prevent their contents falling/ blowing off, causing traffic hazards.	Contractor	As necessary	
• Only qualified/ trained personnel shall operate equipment and construction vehicles.	Contractor	Continuous	

2.8 Site Specific Mitigation Measures

The following table identifies specific towers and associated environmental aspects thereof. For each identified environmental aspect, mitigation measures and relevant penalties for a transgression of such mitigation measures are prescribed. In addition, the stakeholder responsible for implementing the required mitigation measures is noted and where necessary, mitigation measures that require method statements, outlining the proposed method of implementation, are indicated with √.

The specific mitigation measures therefore address location specific conditions that are not covered by the generic mitigation measures. Thus, where a tower is not mentioned in Section 2.8 below, the Contractor must apply the general mitigation measures as prescribed in Section 2.7 above.

Archaeological / Heritage

Bird nesting in existing lines

Watercourse / Drainage line

Aviation

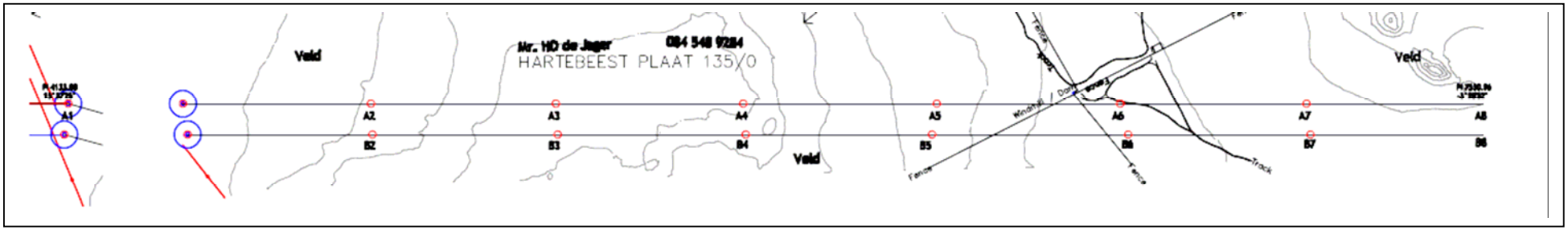
Bird flight diverters

Wetland / Vlei

Powerline crossing

Erosion protection

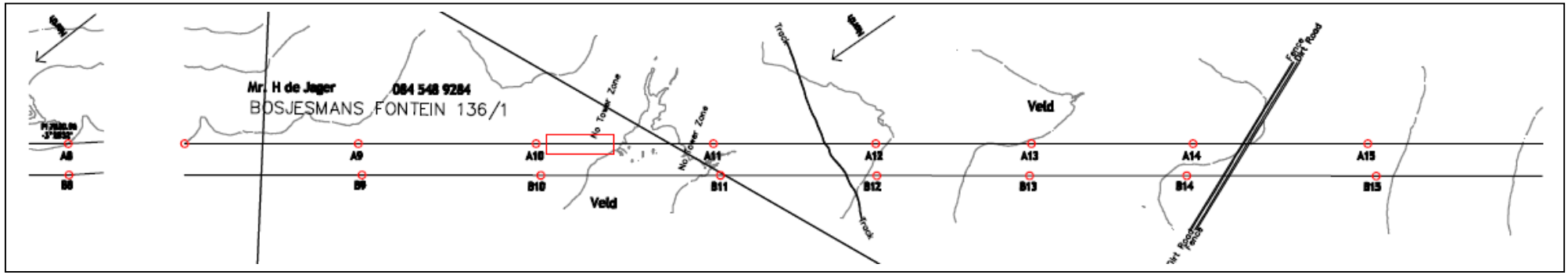
Railway line crossing



View North from tower A1 dolerite boulders on surface

Farm Name	Haarebeesplaat 135 12
Owner	De Put Trust
Contact name	H de Jager
Tel No.:	0536310152
Cell No.:	084 548 9284
Special Conditions	Contact owner prior to construction

TOWER NUMBER	ENVIRONMENTAL ASPECT	MITIGATION MEASURES	RESPONSIBILITY OF	PENALTY	METHOD STATEMENT REQUIRED
A1	Wind polished sculptural boulders. **IMPACT**: Can be damaged or removed. If this occurs, the visual character of area will be changed.	• Avoid all large boulder groups when aligning access roads.	ECO / CELO	-	√
	Steep dolerite ridge in proximity to tower. **IMPACT:** This sensitive habitat may be damaged by construction activities.	• Construction and assembly area to be clearly demarcated and its surrounding area to be declared a no-go zone.	ECO / Contractor	R1000.00	-
B1	Wind polished sculptural boulders in proximity to tower, IMPACT: Boulders may be damaged or removed during construction. Visual character of area will potentially be changed.	• Avoid all large boulder groups when aligning access roads.	ECO / CELO	-	√
A2 – A7	No specific environmental aspects	• Generic EMP	Contractor	Generic	-
B2 – B8	No specific environmental aspects	• Generic EMP	Contractor	Generic	-



A8 – Circular stone enclosure

Tower A8 on top of koppie

A10 – A14 Drainage line

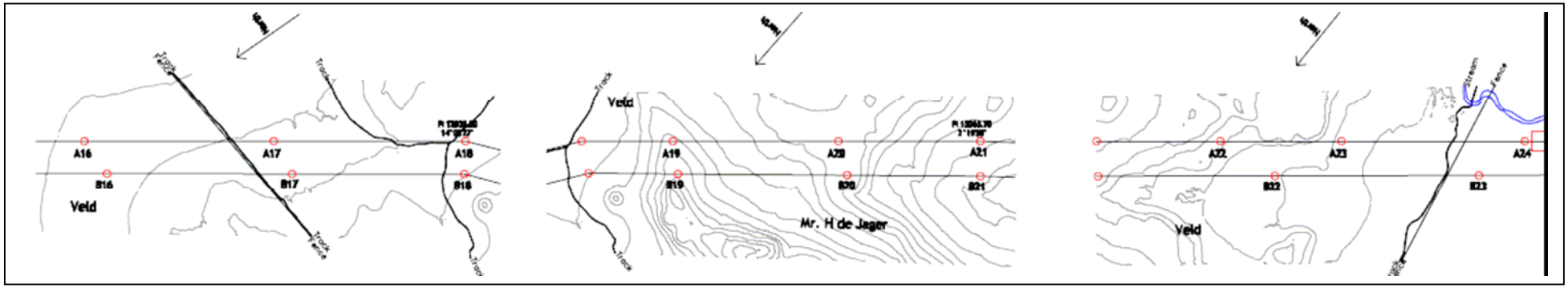
A11 – Plant leaf fossils

A11 – Plant leaf fossils

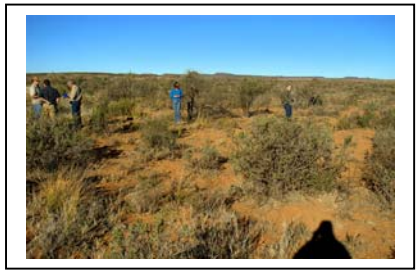
Farm Name	Bosjemans Fontein 136/12
Owner	De Put Rust
Contact name	H de Jager
Tel No.:	053 631 0152
Cell No.:	084 548 9284
Special Conditions	Contact owner prior to construction

TOWER NUMBER	ENVIRONMENTAL ASPECT	MITIGATION MEASURES	RESPONSIBILITY OF	PENALTY	METHOD STATEMENT REQUIRED
A8 	Presence of an archaeologically significant circular stone enclosure at the coordinates of 30°52'11. 7"S, 23°57'26. 9"E. **IMPACT:** Damaging of circular stone enclosure.	• Area should be demarcated as a no-go zone by use of fencing during construction, and access thereto by the construction team must be denied. • No construction camp shall be erected within a radius of least 50m from the identified site. • Defecation and or urination inside or next to the structures must not be allowed. • No artefacts may be tampered with or removed from the site	ECO / PM / ELO	Fine and or imprisonment in terms of the National Heritage Resources Act no. 25 of 1999	-

TOWER NUMBER	ENVIRONMENTAL ASPECT	MITIGATION MEASURES	RESPONSIBILITY OF	PENALTY	METHOD STATEMENT REQUIRED
A10 – A14 	Drainage line will attract birds **IMPACT: Power line / bird c**ollisions.	• Both earth wires between tower A10 and tower A14 require the installation of Bird Flight Diverters (large spirals). • Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the "ESKOM Collision Guidelines" (APPENDIX 5)	ECO / Contractor	The Endangered Wildlife Trust (EWT) insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be re-applied correctly, at the contractor's cost	-
B10 – B14 	Drainage line will attract birds **IMPACT: Power line / bird c**ollisions.	• Both earth wires between tower B10 and tower B14 require the installation of Bird Flight Diverters (large spirals). • Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the "ESKOM Collision Guidelines" (APPENDIX 5)	ECO / Contractor	The Endangered Wildlife Trust (EWT) insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be re-applied correctly, at the contractor's cost	-
A11   	Main drainage line, which is a seasonal wetland area, in proximity to tower. **IMPACT**: Sensitive vegetation could be damaged during construction, specifically to gain access to the tower site. The seasonal wetland provides specialised habitat to various faunal species, potentially including the Blue Crane.	• Use existing tracks only to cross the drainage line. • Rest of the wetland area and drainage channel to be fenced off as a no-go zone.	ECO / Contractor	R5000.00	√
	Presence of archaeologically significant plant leaf fossils at 30˚45'18. 1"S, 24˚01'29. 3"E. **IMPACT**: Damaging of fossils during construction.	• Demarcate area as a no-go zone by fencing with a radius of 30m around fossils during construction. • No artefacts may be tampered with or removed from the site	ECO / PM / ELO	Fine and or imprisonment in terms of the National Heritage Resources Act no. 25 of 1999	-
B11	Tower located close to a main drainage line, which seems to be a seasonal wetland area. **IMPACT**: Sensitive vegetation could be damaged during construction, specifically to gain access to the tower site.	• Use existing tracks only to cross the drainage line. • Rest of the wetland area and drainage channel to be demarcated as a no-go zone.	ECO & Contractor	R1000.00	Yes
A9 , A15	No specific environmental aspects	• Generic EMP	Contractor	Generic EMP	-
B9, B15	No specific environmental aspects	• Generic EMP	Contractor	Generic	-



View North from tower A24 to tower A19 & B19 on horizon



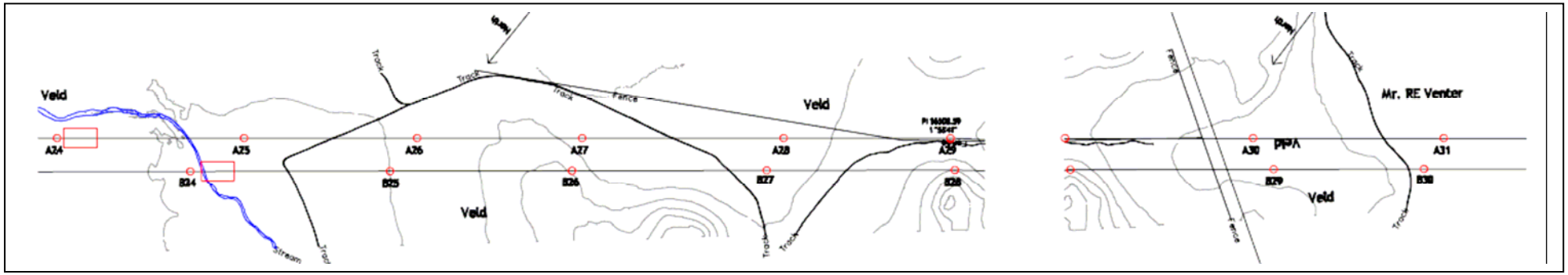
A21 - Drainage Line

B23 – B25 Stream crossing

Farm Name	Bosjemans Fontein 136/12
Owner	De Put Rust
Contact name	H de Jager
Tel No.:	053 631 0152
Cell No.:	084 548 9284
Special Conditions	Contact owner prior to construction

TOWER NUMBER	ENVIRONMENTAL ASPECT	MITIGATION MEASURES	RESPONSIBILITY OF	PENALTY	METHOD STATEMENT REQUIRED
A16 – A18	No specific environmental aspects	• Generic EMP	Contractor	Generic	
B16	No specific environmental aspects	• Generic EMP	Contractor	Generic	
A19  	Tower just south of ridge is highly visible on horizon. **IMPACT**: Scarring due to foundation construction and access road.	• Align construction access road along eastern side of drainage line, which flows to south. • Will require self-supporting tower on steep southern rock slope	TAP	-	√
	Tower located close to a main drainage line, which is a seasonal wetland area. **IMPACT**: Sensitive vegetation could be damaged during construction, specifically to gain access to the tower site. The seasonal wetland provides specialised habitat to various faunal species, potentially including the Blue Crane.	• Use existing tracks only to cross the drainage line. • Rest of the wetland area and drainage channel to be demarcated as a no-go zone. • Penalties shall be enforced for non-conformances.	ECO / Contractor	R5000.00	-
B19	No specific environmental aspects	• Generic EMP	Contractor	Generic	

TOWER NUMBER	ENVIRONMENTAL ASPECT	MITIGATION MEASURES	RESPONSIBILITY OF	PENALTY	METHOD STATEMENT REQUIRED
A 20 – A22 	Drainage line that will attract birds in proximity to tower. **IMPACT: Power line / bird c**ollisions.	• Both earth wires between tower A20 and tower A22 require the installation of Bird Flight Diverters (large spirals) • Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the "ESKOM Collision Guidelines" (APPENDIX 5)	ECO / Contractor	The EWT insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be re-applied correctly, at the contractor's cost	
B20 – B22 	Drainage line that will attract birds in proximity to tower. **IMPACT: Power line / bird c**ollisions.	• Both earth wires between tower B20 and tower B22 require the installation of Bird Flight Diverters (large spirals) • Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the "ESKOM Collision Guidelines" (APPENDIX 5)	ECO / Contractor	The EWT insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be re-applied correctly, at the contractor's cost	
A21 	A well-defined drainage line (dry streambed) located in proximity to tower. **IMPACT**: Sensitive habitat can be seriously disturbed while foundation structures could cause diversion of stream flow and erosion of the stream banks and surrounding area.	• The drainage line must to be demarcated a no-go zone and access should be strictly controlled during construction.	ECO & Contractor	R1000.00	-
A23 – A26 	Stream crossing that will attract birds in proximity to tower. **IMPACT: Power line / bird c**ollisions.	• Both earth wires between tower A23 and tower A25 require the installation of Bird Flight Diverters (large spirals) • Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the "ESKOM Collision Guidelines" (APPENDIX 5)	Environmental Control Officer and Eskom contractor	The EWT insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be re-applied correctly, at the contractor's cost	-
B23 – A25 	Stream crossing that will attract birds in proximity to tower. **IMPACT: Power line / bird c**ollisions.	• Both earth wires between tower B23 and tower B25 require the installation of Bird Flight Diverters (large spirals) • Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 3) and the "ESKOM Collision Guidelines" (APPENDIX 4)	Environmental Control Officer and Eskom contractor	The EWT insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be re-applied correctly, at the contractor's cost	



A29 Circular stone enclosure

A29 Circular stone enclosure

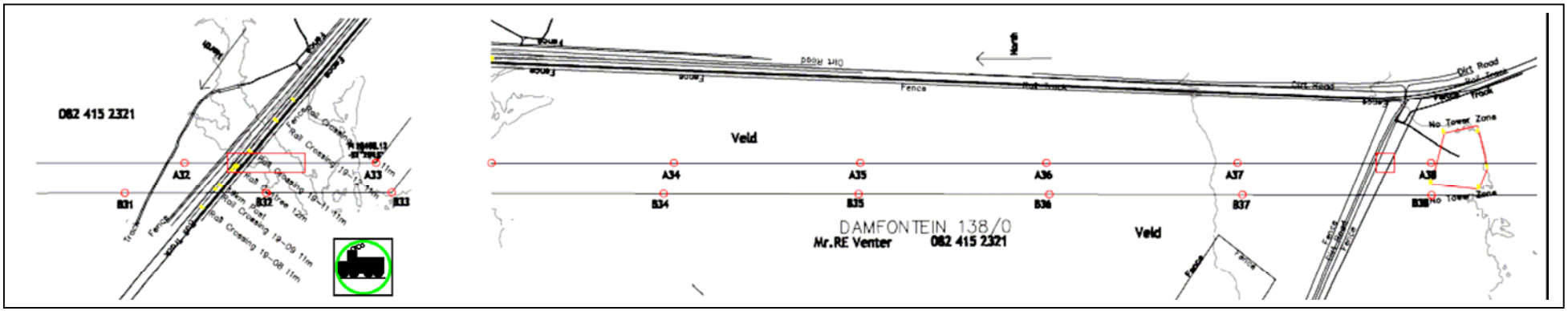
A27 – A30 & B27 – B29 Korhaans in the area

A27 – A30 Korhaans in the area

Farm Name	Damfontein 130/0
Owner	Private
Contact name	RE Venter
Tel No.:	082 415 2321
Cell No.:	082 825 1872
Special Conditions	Contact owner prior to construction

TOWER NUMBER	ENVIRONMENTAL ASPECT	MITIGATION MEASURES	RESPONSIBILITY OF	PENALTY	METHOD STATEMENT REQUIRED
A24 – A25	No specific environmental aspects	• Generic EMP	Contractor	Generic	
A27 – A 30 	Korhaans sighted in the area. Possible flight path. **IMPACT: Power line / bird c**ollisions.	• Both earth wires between tower A27 and tower A30 require the installation of Bird Flight Diverters (large spirals) • Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the "ESKOM Collision Guidelines" (APPENDIX 5)	ECO / Contractor	The EWT insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be re-applied correctly, at the contractor's cost	-
B26 – B29 	Korhaans sighted in the area. Possible flight path. **IMPACT: Power line / bird c**ollisions.	• Both earth wires between tower B26 and tower B29require the installation of Bird Flight Diverters (large spirals) • Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the "ESKOM Collision Guidelines" (APPENDIX 5)	ECO / Contractor	The EWT insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be re-applied correctly, at the contractor's cost	-

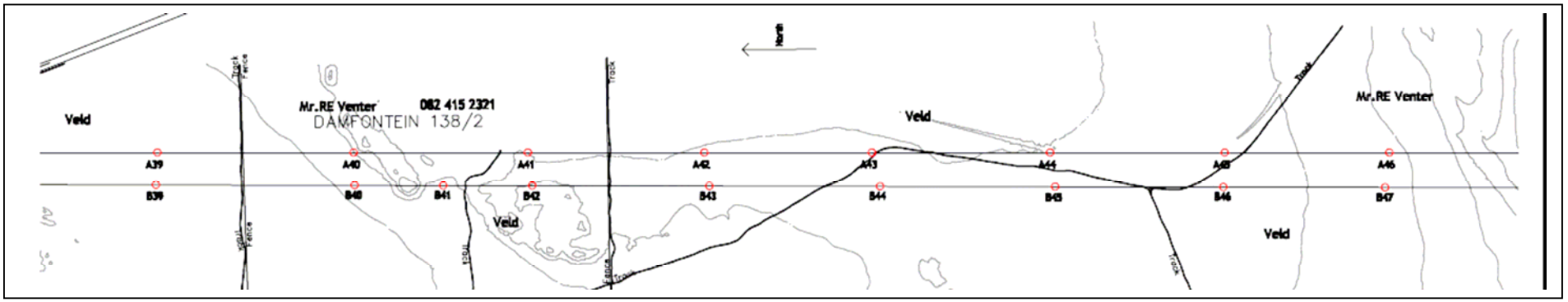
TOWER NUMBER	ENVIRONMENTAL ASPECT	MITIGATION MEASURES	RESPONSIBILITY OF	PENALTY	METHOD STATEMENT REQUIRED
A29 	Presence of an archaeologically significant circular stone enclosure at the coordinates of 30˚52'43. 3"S, 23˚57'0. 35"E. **IMPACT**: Damaging of circular stone enclosure.	• Area should be demarcated as a no-go zone by use of fencing during construction, and access thereto by the construction team must be denied. • No construction camp shall be erected within a radius of at least 50m from the identified site. • Defecation and or urination inside or next to the structures must not be allowed. • No artefacts may be tampered with or removed from the site.	ECO / PM / ELO	Fine and or imprisonment in terms of the National Heritage Resources Act No. 25 of 1999	-
A31 – A33 	Drainage line that will attract birds in proximity to tower. **IMPACT: Power line / bird c**ollisions.	• Both earth wires between tower A31 and tower A33 require the installation of Bird Flight Diverters (large spirals) • Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the "ESKOM Collision Guidelines" (APPENDIX 5)	ECO / Contractor	The EWT insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be re-applied correctly, at the contractor's cost	-
B30 – B31 	Drainage line that will attract birds in proximity to tower. **IMPACT: Power line / bird c**ollisions.	• Both earth wires between tower B30 and tower B31 require the installation of Bird Flight Diverters (large spirals) • Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the "ESKOM Collision Guidelines" (APPENDIX 5)	ECO / Contractor	The EWT insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be re-applied correctly, at the contractor's cost	



A37 – A39 Pans

Farm Name	Damfontein 130/0
Owner	Private
Contact name	RE Venter
Tel No.:	082 415 2321
Cell No.:	082 825 1872
Special Conditions	Contact owner prior to construction

TOWER NUMBER	ENVIRONMENTAL ASPECT	MITIGATION MEASURES	RESPONSIBILITY OF	PENALTY	METHOD STATEMENT REQUIRED
A34 – A50 	Cranes frequent Damfontein farm. Pans that will attract birds located between tower A36 and tower A38 **IMPACT**: **Power line / bird** collisions.	• Both earth wires between tower A34 and tower A50 require the installation of Bird Flight Diverters (large spirals) • Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the "ESKOM Collision Guidelines" (APPENDIX 5)	ECO / Contractor	The EWT insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be re-applied correctly, at the contractor's cost	-
B32 – B51 	Cranes frequent Damfontein farm. Pans that will attract birds located between tower A36 and tower A38 **IMPACT**: **Power line / bird** collisions.	• Both earth wires between tower B32 and tower B51 require the installation of Bird Flight Diverters (large spirals) • Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the "ESKOM Collision Guidelines" (APPENDIX 5)	ECO / Contractor	The EWT insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be re-applied correctly, at the contractor's cost	-



A41 – Circular stone enclosure

A41 – Circular stone enclosure

A45 – Old farmhouse

A45 – Iron artefacts

Farm Name	Damfontein 138/2
Owner	Private
Contact name	RE Venter
Tel No.:	082 415 2321
Cell No.:	082 825 1872
Special Conditions	Contact owner prior to construction

TOWER NUMBER	ENVIRONMENTAL ASPECT	MITIGATION MEASURES	RESPONSIBILITY OF	PENALTY	METHOD STATEMENT REQUIRED
A39 – A40, A46	No specific environmental aspects	• Generic EMP	Contractor	Generic	
A41 	Presence of an archaeologically significant circular stone enclosure at the coordinates of 30˚52'43. 3"S, 23˚57'03. 5"E **IMPACT**: Damaging of circular stone enclosure	• Area should be demarcated as a no-go zone by use of fencing during construction, and access thereto by the construction team must be denied. • No construction camp shall be erected within a radius of least 50m from the identified site. • Defecation and or urination inside or next to the structures must not be allowed. • No artefacts may be tampered with or removed from the site.	ECO / PM / ELO	Fine and or Fine and or imprisonment in terms of the National Heritage Resources Act No. 25 of 1999	-
A45 	Presence of a farm house and iron artefacts at 30˚52'26.8"S, 23˚57'03.5"E **IMPACT**: Damaging of heritage structure (farmhouse).	• Area should be demarcated during construction, access denied to construction team and strictly no collection of tools • No construction camp within a radius of least 30m from site. • No defecation and or urination inside or next to the structures. • No artefacts may be tampered with or removed from the site	ECO / PM / ELO	Fine and or imprisonment in terms of the National Heritage Resources Act No. 25 of 1999	-