



**CONSTRUCTION ENVIRONMENTAL MANAGEMENT PROGRAM REPORT
FOR THE**

ARIADNE-EROS TRANSMISSION POWERLINE PROJECT

DECEMBER 2014

DEA REF No: 12/12/20/1272

VOLUME I: MAIN REPORT & APPENDICES

Prepared for:
ESKOM HOLDINGS SOC LIMITED
P O BOX 1091
Johannesburg
2000

Compiled by:
BAAGI ENVIRONMENTAL CONSULTANCY
Private Bag x 4
Menlo Park
0102



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Consultant details: Baagi Environmental Consultants Post Suite 412 Private Bag x4 Menlo Park 0102 RSA Tel: 012 993 0756 x 7 Fax: 012 993 0743 Fax to Email: 086 433 2321 Email: info@baagi.co.za	Client details: Eskom Holding Limited P O BOX 1091 Johannesburg 2000 RSA Mobile: 082 324 5870 Tel: 011 800 4057 Fax:086 602 9207 Email: MotalaA@eskom.co.za
Compiled by	Mr T.A Setjie
Reviewed by	Mr. N.L Makhura
Approved by	Mr. N.L Makhura
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LIST OF ABBREVIATIONS

BENVSC	Bachelor of Environmental Science
BSc	Bachelor of Science
CE	Consulting Engineers
C	Contractor
CELO	Contractor Environmental Liaison Officer
CM	Contract Manager (Eskom)
CEMPR	Construction Environmental Management Programme Report
DEA	Department of Environmental Affairs
DWS	Department of Water & Sanitation
EA	Environmental Authorisation
ECO	Environmental Control Officer
EMPR	Environmental Management Programme Report
ELO	Environmental Liaison Officer
FEIR	Final Environmental Impact Report
MOU	Memorandum of Understanding
NEMA	National Environmental Management Act (Dedicated Person)
SABS	South African Bureau of Standards
SAHRA	South African Heritage Resource Agency
SAMOAC	South African Manual for Outdoor Advertising Control
SASS	South African Sugar Association
SS	Site Supervisor

A. SECTION 1: GENERAL INFORMATION

1. Introduction

Eskom Holdings SOC Limited (hereafter referred to as Eskom) is responsible for generation, transmission and distribution of electricity in South Africa. Coal-fired stations provide most of the power, supplemented by additional energy sources such as nuclear and wind. Eskom is faced with an increasing demand for power and the need to improve service quality and reliability in South Africa. Over the past few years there has been an increasing demand for electricity in the south coast areas of South Africa with several towns currently facing electricity cuts. As part of Eskom's plans to address this situation, Eskom Transmission applied for an Environmental Authorisation to strengthen its supply network by constructing transmission lines from Mpumalanga (Alpha Sub-station, Standerton) to KwaZulu-Natal (Eros Sub-station, Harding).

Eskom has to supply power reliably to meet the increasing needs of end-users. Therefore, Eskom has to expand and establish its infrastructure of transmission lines and substations on an ongoing basis. For the purposes of project management and environmental authorisation, the continuous transmission network linking the Alpha Sub-station to the Eros Sub-station has been divided into four separate sections. Each of the four sections of the project will be separately managed and undergo separate environmental authorisation processes. This Construction Environmental Management Programme Report (CEMPR) document deals with the Section 4 of this bigger project which is:

Ariadne-Eros Transmission Line Project entails a multi-circuit 400/132 kV transmission power line between the Ariadne Sub-station, located near Thornville (south of Pietermaritzburg) to the Oribi substation, located near Port Shepstone and the continuation of a single circuit 400 kV line to Eros substation, located near southeast of Harding, KwaZulu Natal Province. The Environmental Authorisation (EA), pertaining to this project was issued under Reference number 12/12/20/1272.

The project also entails expansion and upgrading of Ariadne and Eros Sub-stations in order to accommodate the multi-circuit power line. Work at the sub-stations is expected to occur within the existing sub-station terrace and will entail the establishment of 400 kV feeder bays at both sub-stations.

In accordance with environmental best practice and environmental legislation, Eskom has appointed Baagi Environmental Consultancy CC (hereafter referred to as Baagi), to conduct tower to tower walk-through surveys and compile a site specific Construction Environmental Management Program for the approved Ariadne-Eros 400/132kV Transmission Power Line Project.

This document represents the Construction Environmental Management Program (CEMPR) for the multi-circuit Transmission line, and is compiled in accordance with the Integrated Environmental Management (IEM) philosophy (DEAT, 2004a). This philosophy aims to achieve a

desirable balance between conservation and development (DEAT, 1992). IEM is a key instrument of the NEMA (Act No. 107 of 1998). NEMA promotes the integrated environmental management of activities that may have a significant effect on the environment, while IEM prescribes a code of practice for ensuring that environmental management principles are fully integrated into all stages of the development process. It advocates the use of several environmental and management tools that are appropriate for the various levels of decision-making. One of such tools is an Environmental Management Program.

2. Background

The construction, refurbishment or upgrading of transmission lines and substations can have a major impact on the environment. It is, therefore, imperative that precautions are taken to ensure that environmental damage is minimised. This will take a concerted effort from Eskom and the Contractor, and detailed planning is of importance.

These potential impacts should be taken into account during both the construction and operational phase of the development. The purpose of this CEMPr document is to provide mitigation guidelines and management responses that will ensure impacts resulting from this development are minimised. This CEMPR must be used onsite during each construction phase of the development.

The CEMPr document is flexible and dynamic, so as to allow Eskom to conform to the management commitments and can be amended when the need arises during construction. . The management commitments will ensure that the anticipated risks to the environment are minimised if they are consistently and effectively adhered to. The responsibility to undertake the requirements set out in this CEMPr rests with Eskom, its appointed contractors and subcontractors. Any party responsible for transgression of the underlying management measures outlined in this CEMPr document will be held liable for non-compliance and will be dealt with in accordance with the provisions of the National Environmental Management Act, 1998 (as amended).

Any changes to the CEMPr must be submitted to the Department of Environmental Affairs (DEA) for approval.

The process that was followed in compiling the CEMPR is in compliance with Regulation 34 in terms of chapter 5 of the National Environmental Management Act (Act 107 of 1998) of the Environmental Impact Assessment Regulations, promulgated on the 2nd of August 2010.

As per the requirements of the National Environmental Management Act: NEMA, 1998 (Act No. 107 of 1998), (NEMA) as amended and the Environmental Impact Assessment Regulations of 2010 the details of the people who prepared and amended the Environmental Management Plan are provided below:

Name	Details	Qualifications
Mr. Lordwick Makhura	Project manager	BENVSC, BSc Hons in Plant Ecology
Mr. Abram Setjie	Assist Project Manager	BENVSC

3. *The Scope*

An Environmental Authorisation was received from the National Department of Environmental Affairs with reference number 12/12/20/1272. The activities authorised are the 400kV multicircuit line, the upgrade and extension of the substations (i.e. Ariadne and Eros substations) to accommodate the new line. The scope of this document is to give environmental management guidelines to the Contractor doing construction work, in fulfilment of environmental authorisation and ISO 14001 requirements. This document is part of the overall contract and is supplementary to Eskom's technical specifications (TRMSCAAC1, as amended) (Appendix A). Therefore, the recommendations and constraints, as set out in this document, are enforceable under the general conditions of contract.

The CEMPR must be read in conjunction with the FEIR and the associated conditions of the EA. This CEMPR is used as an update of the Draft EMPR included in the EIR and approved by the DEA. All of these documents should be seen as one set and information should be assessed in conjunction with all the relevant documentation to ensure compliance. This CEMPR is compiled in compliance with condition 17 of the Environmental Authorisation which states that '**a site specific Construction EMPR for the powerline, which will concentrate on tower positioning as guided by the walk-down with the avifaunal specialist, floral specialist and heritage specialists must be prepared and submitted to the Department for approval**'. In compiling this CEMPR the conditions of the EA, the Final EIR and the Draft EMP were taken into consideration. Furthermore as per condition 15 of the EA, this CEMPR is a dynamic document that can be adapted during the construction period to address changes to the construction process. However any changes to the CEMPR will have to be submitted to the DEA for approval before such changes could be effected.

4. *Terms of Reference of the EMPR*

As a condition of the EA, a CEMPR that is based on the tower positions must be compiled and approved by DEA, prior to the commencement of the construction activities for the proposed project. This CEMPR document is also in accordance with the requirements stipulated in the Environmental Impact Assessment (EIA) Regulations of the National Environmental Management Act (NEMA) as amended. The regulations state that an Environmental Management Programme (EMPR) 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 CEMPr provides environmental management guidelines, which must be complied with by the contractor during construction of the power lines and associated pylons, in fulfilment of ISO 14001 requirements. The Environmental Control Officer (ECO), acting independently from Eskom, will monitor the implementation of the CEMPr. The CEMPr will form part of the contractual agreement to be entered into by Eskom Holdings SOC Limited and the appointed contractor. Compliance with the CEMPr 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. The detailed terms of reference were as follows;

- » Undertake an ecological survey (walkthrough) to confirm the potential presence of listed plant species at the determined tower positions and provide mitigation measures as well as specify permitting requirements for the removal of listed species where applicable.
- » Undertake a heritage survey (walkthrough) to confirm the potential presence of heritage features, artefacts etc. in the landscape and provide mitigation measures as well as specify permitting requirements where applicable.
- » Undertake a wetland delineation study to determine the proximity of towers to watercourses and wetlands and provide mitigation measures as well as determine requirements for a Water Use License.
- » Consider the findings, mitigation and permitting requirements of the above specialist studies.
- » Apply for the WUL, Heritage and Biodiversity permits on behalf of Eskom.
- » Provide a CEMPr for the construction of the Ariadne to Eros 400kV Multi-circuit power line considering previous studies, EMPr's and most recent information.

5. Objectives of the CEMPr

The objective of this CEMPR is to ensure that:

- » Environmental management conditions and requirements are implemented from the start of the project,
- » The contractor is able to and shall include any costs of compliance with this EMPr into the tender document,
- » Environmental management considerations are implemented, starting from the design phase of the project.
- » Precautions against environmental damage and claims arising from such damage are taken timorously;
- » The completion date of the contract is not delayed due to environmental problems with the landowner, communities or regulatory authorities arising during the course of the project execution;

- » The asset created conforms to environmental standard required by ISO 14001 and Transmission Policy;
- » Eskom Project manager and Contractor take into consideration the landowner special conditions in regards to the power lines which transverses private property where applicable;
- » Environmental conditions stipulated in the Environmental Authorisation (EA) are implemented;

6. *Limitations of the Study*

The project is located within steep mountain slopes with difficult access. Some of the tower positions were accessed using a helicopter. All the tower positions were accessed and assessed by the specialists. As the scope of work was restricted to a survey of the positions of the towers within the approved power line servitude only, it is assumed that the information relating to the staking tables received from Eskom is accurate and relevant. It is further assumed that the information contained in the draft EMPr and the Final Environmental Impact Report (FEIR) for the project is accurate and reliable. Baagi Environmental Consultancy and its sub-consultants will therefore not be held liable for inaccurate information sourced from previous studies used in the compilation of this CEMPr.

7. *Legal Framework*

This CEMPr has been compiled in accordance with provisions of the Environmental Authorisation issued by the DEA and in accordance with the provision of the Constitution as well as the principles of Integrated Environmental Management.

All legislation applicable to the development must be strictly enforced both during the construction phase. 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 includes, but is not limited to, the following:

- » The Constitution of the Republic of South Africa, 1996;
- » National Environmental management Act, 1998 (Act No. 107 of 1998) (NEMA);
- » National Environmental Management: Air Quality Management Act (Act No. 39 of 2004);
- » National Water Act, 1998 (Act No. 36 of 1998);
- » National Environmental Management: Biodiversity Act (Act 10 of 2004);
- » Fencing Act(No. 31 of 1963 (as amended by act 108 of 1991));

- » Occupational Health and Safety Amendment Act (Act No. 181 of 1998);
- » Hazardous Substances Act, 1973 (Act No. 15 of 1973);
- » National Heritage Resource Act, 1999 (Act No. 25 Of 1999);
- » Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983);
- » National Environmental Management: Waste Act (Act No. 59 of 2008).

8. Permits required

8.1 Water Use Licence

Construction or operation of activities near or in a permanent drainage system have implications in terms of the National Water Act 1998 (Act No.36 of 1998), and thereby, require the application for Water Use Licence. In some areas the proposed line is crossing about 10 major rivers along the entire length of the line. There are areas where the access roads go over wetlands and within drainage lines as it should be expected for a Transmission line of this length. During the walk down some tower positions were found to be directly impacting on drainage systems and wetlands (refer to **Appendix 6.1**). It was therefore, recommended that some tower positions be moved away from the direct impact as part of the mitigation measures. However there were cases where it was technically impossible to move the towers from the drainage system or a wetland, then a Water Use Licence will be applied to ensure compliance with the provisions of the Water Act. The process of applying for a Water Use License is currently in progress.

8.2 Heritage permits

There are some of the heritage artefacts fall outside the pylon footprint, specialist concerns need to be considered during construction phase of the project. Various sites were considered to be of high heritage significance and this is reflective of the mitigation measures developed for these sites. These are sites that will not require any **further intervention** in terms of their management. There are a number of graves that are affected by some of the tower positions that could not be moved due to engineering challenges. A grave relocation permit application will be lodged with AMAFA.

8.3 Removal of protected trees permit

Some of the Red Data plants will be affected by construction activities, and at times some of the towers are placed on areas that have these species. Where it is absolutely essential to cut protected indigenous trees, the provisions of the Biodiversity Act and Forest Act shall be adhered to the ecological (fauna and flora) report (**Appendix 6.3**), in the section discussion and recommendations, a tree removal permit application will be lodged with the Department of Agriculture, Forestry and Fisheries.

9. Environmental Monitoring and Auditing

As per condition 19 of the EA, an independent Environmental Control Officer (ECO) must be appointed on a full-time basis to oversee, monitor and implement the requirements of this CEMPr. The ECO shall make contact with the local Extension Officer of the Department of Agriculture, as this person has valuable information about the area and the local farming community. Contact must also be made with the Offices of Traditional Authorities in the project area, as these contacts will have information about the area and the local communities.

The ECO shall convey the contents of this document, the conditions of the EA from DEA as well as Landowner Special Conditions to the Contractor's site staff, and discuss the contents in detail with the Eskom Project Manager and Contractor at a pre-construction meeting. This formal induction training is a requirement of ISO 14001 and shall be done with all main and sub-contractors. The ECO shall keep a record of training dates, people who attended and discussion points.

The ECO must conduct daily inspections to monitor compliance with the CEMPr and be responsible for providing feedback on potential environmental problems associated with the development.

Monthly reports must be submitted to Eskom and DEA indicating the level of compliance to the conditions of this CEMPr and the EA issued for the project. In addition, potential risks to the project will have to be identified. Where the ECO identifies a transgression or blatant disregard to the EMPr it should be reported to Eskom immediately and rectification steps undertaken.

Bearing in mind that this document is a dynamic document, it may be updated from time to time during construction to address any changes. The ECO, in consultation with Eskom can make recommendations for certain EMPr amendments. Eskom should then officially apply to DEA for the approval of the proposed amendments to the CEMPr. The amended CEMPr becomes valid once the authority (DEA) approves it in writing.

10. Conditions of Environmental Authorisation

General and specific conditions of the Environmental Authorisation (EA) issued by the Department of Environmental Affairs (DEA) on 19 April 2011 are provided in **Appendix 5** and must be adhered to at all times.

B. SECTION 2: ENVIRONMENTAL MANAGEMENT PROGRAM SPECIFICATION

1. Background

Both generic and specific environmental aspects for the construction and operation stages of the individual tower locations are identified and mitigation procedures are described.

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

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

2. Technical Specifications

The construction activities, with regards to the 400kV transmission lines, will not only include the erection of pylons but also the stringing of the power lines, and the clearing of vegetation for the pylons and the servitude roads. The technical details regarding the 400kV transmission power line are as follows:

- » Transmission line length will be approximately 180 kilometres
- » The servitude for the transmission line is 55 m wide. In the forestry areas, the servitude is 76 m wider to allow for the trees not to interfere with the safe operation of the transmission line. Construction is limited to the width of the servitude in which the line will be constructed;
- » Normal tower heights for a 400kV transmission line: Conductor attachment heights are about 30m to 35m; structure heights of 45m to 50m
- » In terms of the Memorandum of Understanding between Eskom and the South African Sugar Association, in areas where the line is crossing the sugar cane plantations, the tower specifications are: Conductor attachment heights -35m to 44m, structure height- 50m to 69m (this is to allow the farmers to burn sugar cane under the line while at the same time ensuring that the line continues to operate safely).

- » Distance between steel towers is between 300 and 600m, depending on terrain and route angles; and

The following types of towers (Figure 1) will be used throughout the project depending on the terrain and the angles of the line;

- » Guyed V suspension tower
- » Self-supporting strain tower
- » Cross – rope suspension towers

There are various tower designs for the 400/132kV power lines as shown in **Figure 1** and **Figure 2**. Self-supporting Strain towers and Self-supporting Suspension towers (refer to **Figure 3**) will likely be utilised where difficult terrain is encountered or line deviations of more than 30° are unavoidable. The servitude width required for the construction of the 400/132kV power lines is 55m.

The major construction activities that are generally associated with the construction phase of the transmission power lines include the following:

- » Establishment of the access roads within the servitude, where required;
- » Signing off with all landowners upon completion of construction and rehabilitation
- » Servitude gate installation to facilitate access to the construction site;
- » Establishment of Construction camp;
- » Vegetation clearing to facilitate access, construction and the safe operation of the loop-in and loop-out lines;
- » Pegging of tower positions for construction by the contractor;
- » Transportation of equipment, materials and personnel to site and stores;
- » Installation of foundations for the towers;
- » Tower assembly and erection;
- » Conductor stringing and regulation;
- » Taking over the line from the contractor for commissioning;
- » Final inspection of the line, commissioning and hand over to the Grid Line and Servitude Manager for operation;
- » Rehabilitation of disturbed areas;

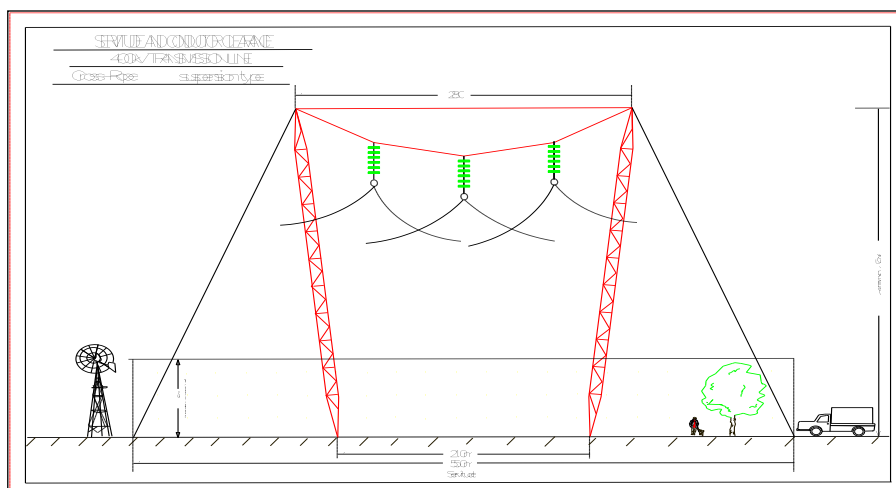


Figure 1: Cross-Rope Suspension Tower



Figure 2: Guyed-V Suspension Tower



Figure 3: Self-Supporting Strain Tower

3. Environmental Matrix

Function	Name / Cell No	Responsibility
Project Manager (PM) Eskom		Overall management of project and CEMPr implementation
Site Supervisor/ Contract Manager (CM) Eskom		Oversees site works, liaison with Contractor, PM and ECO
Environmental Control Officer (ECO) Eskom		An independent suitably qualified person appointed by Eskom for the implementation of CEMPr and liaison between Eskom, Contractor, the DEA and Landowners. S/He will undertake landowner interaction, environmental control of site actions, remediation and rehabilitation work.
Contractor (C)		Implementation and compliance with recommendations and conditions of the CEMPr, Appoints dedicated person (CELO) to work with ECO
Contractor Environmental Liaison Officer (CELO)		Implementation of EMPr, landowner interaction, environmental control of site actions, remediation and rehabilitation work.
Group Capital Environmental Advisor (Eskom)		Environmental advice throughout the construction phase of the project. Auditing of compliance to the conditions of the EA and the CEMPr
Group Capital Senior Acquisition Advisor		Assist with any challenges that the construction team may encounter with landowners.

This EMPr emphasises the need to take a pro-active approach by addressing potential problems before they occur. This approach will limit the corrective measures required during the construction phases of the development. Additional mitigation will be included throughout the project's various phases, as required and if necessary.

4. Responsibility of the Role Players

4.1 Eskom Holdings SOC Limited

Eskom is ultimately responsible for ensuring that the development is implemented according to the requirements of the CEMPr. Although Eskom appoints specific role players to perform functions on their behalf, this responsibility must be delegated accordingly. Eskom is responsible for ensuring that sufficient resources (time, financial, human and equipment) are available to the other role players (e.g. the ECO, CELO and contractor) to efficiently perform their tasks in terms of the CEMPr. Eskom or its contractors is liable for rehabilitating the environment in the event of negligence leading to damage to the environment.

Eskom must ensure that the CEMPr is included in the tender documentation so that the contractor who is appointed is bound to the conditions of the CEMPr. Eskom must appoint an independent Environmental Control Officer (ECO) during the construction phase to oversee all the environmental aspects relating to the development and to report any illegal deviations from the approved CEMPr.

4.2 Contractor

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

The contractor must comply with all orders (whether verbal or written) given by the ECO, Project Manager or Site Engineer in terms of the CEMPr.

4.3 Environmental Control Officer (ECO)

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

- » Liaison with relevant authorities including cases of severe misconduct whereby the ECO could report the matter to the DEA directly;
- » Liaison with contractors regarding environmental management;

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

The following responsibilities, as reflected in the original EA must be complied with:

- » The ECO must be appointed before construction commences. It is advised that the appointment must be before the planning phase (three months before commencement of construction) as the ECO will be required during this phase as well to ensure that the planned construction is in line with the EA and CEMPr;
- » Monthly reporting to the DEA must include the following information:
 - Description of all activities on site;
 - Problem identified;
 - Transgressions noted; and
 - A task schedule of task undertaken by the ECO.
- » ECO shall remain employed until all rehabilitation measures, as required for implementation due to construction damage, are completed and the site is ready for operation;
- » The following will be maintained on site:
 - Records relating to monitoring and auditing must be kept on site and made available for inspection;
 - Site diary;
 - Copies of all monthly reports submitted to DEA;
 - Schedule of current activities on site as well as monitoring activities schedule; and
 - Compile a register of complaints by the public as well as the remedies applied to the complaints.
- » All documentation, reports and notifications, required to be submitted to the department in terms of this authorization, must be submitted to the Director: Compliance Monitoring at the department.

An ECO must be contracted to oversee the project throughout, up to the completion of the rehabilitation on site and the site is then handed over to Eskom by all the contractors.

Liaison with Authorities

The ECO will be responsible for liaising with the National Department of Environment (DEA). The ECO must submit monthly environmental reports. These environmental and audit reports must contain information of the contractor and Eskom's levels of compliance with the CEMPr.

The audit report must also include a description of the general state of the site, with specific reference to non-compliance. The ECO is to recommend corrective action measures to eliminate the occurrence of the non-compliance incidents. In order to keep a record of any impacts, an Environmental Log Sheet (refer to **Appendix 1**) should be kept on a continual basis.

Liaison with Contractors

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

4.4 Contractor Environmental Liaison Officer (CELO)

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

5.5. CEMPR Approach

A project team comprising of environmental consultants as a project manager and various specialists have contributed to the compilation of this CEMPr. The specialists (all specialists are registered with their respective council) and their associate studies, which were undertaken to inform the CEMPr, are listed in the table below.

Specialist	Organisation	Study/Function
Mr. Lordwick Makhura	Baagi Environmental Consultancy CC	Project Manager
Mr. Abram Setjie		Assistant Project Manager
Mr. Lukas Niemand	Pachnoda Consulting cc	Avifauna
Mr. Sam Laurence	Enviro-Insight	Flora & Fauna
Mr. Warren Beets		
Mr. Nkosinathi Tomose	NGT Projects & Heritage Consultants (Pty) Ltd	Cultural & Heritage
Mr. Philip Troy		
Mr. Steven van Staden	Scientific Aquatic Services	Surface Water & Wetland
Ms. Mmampe Aphone		

Prior to a site visit of the proposed Ariadne-Eros transmission power line walk down process, the specialists were provided with the tower positions and coordinates in order to acquaint themselves with the area.

The physical walkthrough of the tower positions was undertaken 25-30 August 2014, 08-11 September 2014 and 22-26 September 2014 and A "fly-over" by means of helicopter to evaluate areas that were inaccessible or remote to investigate on foot (14 October 2014) by the team.

The entire route as approved in the EA and tower positions as determined by Eskom Line Engineering Services was surveyed. The project team undertook individual specialist assessments of all the proposed tower positions. Where the pylon positions were found to be inappropriate from an environmental perspective, recommendations for an alternative location of the pylon were made and recorded. In addition, the project team identified sensitive micro-environments along the route, which included water bodies, areas of high erosion, avifauna niches and ecologically significant areas.

The specialist reports highlighted the potential impacts and recommendations for mitigation measures for the construction of the power line have been incorporated into the CEMPr and are attached to this report in **Appendix 6**.

6. Method Statements

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

The Method Statements 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 statements shall be submitted at least 14 working days prior to projected commencement of work on all the activities, to allow the ECO time to review and provide recommendations on the method statement. The Contractor shall not commence work on that activity until such time as the method statement has been approved in writing by ECO, which shall be done within five (5) working days of receipt.

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

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

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

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

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 Site Supervisor (SS) and ECO shall approve any deviation from a method statement.

SECTION 3: GENERAL ENVIRONMENTAL SPECIFICATION FOR THE CONSTRUCTION PHASE

This section specifies standard mitigation measures to be followed by the parties responsible for environmental management during the construction phase. A separate tower site-specific management is included as section 4 to assist in the mitigation of specific impacts identified at each tower position. This section should therefore be read in conjunction with Section 4.

1. General Environmental Specification for the Construction Phase

1.1. Construction Camp Site Planning and Layout

Mitigation: Target/Objective	<ul style="list-style-type: none"> » Minimise erosion during construction. » Minimise litigation during construction. » Rehabilitate all disturbed areas.
Mitigation: Action/control	Responsibility
The construction camp site selection shall be done in consultation with the landowners and ECO.	Contractor / ECO / Landowners
The Contractor and Project Manager shall negotiate with landowners for permission and the right to establish a Construction Camp on their land. Agreements between the landowner and Eskom must be in writing. To avoid risks of claims against Eskom, the Contractor may not commence with any site establishment activities, prior to the signing of the contractual agreement by the landowner.	Project manager/ ECO/ Contractor / Landowners
Prior to commencement of construction, the Contractor shall inform the Construction Project Manager and ECO of the intended actions and programme for site establishment.	Contractor
The Contractor's laydown and storage yard shall be located at the designated area as specified by the Construction Manager and the ECO.	Contractor / Construction manager
The construction site, construction road for access to the site, and materials lay down area shall be demarcated prior to construction by the Contractor. No disturbance outside the demarcated road shall be permitted. Existing roads must be used at all times wherever applicable.	Contractor / ECO
The Contractor shall supply a site plan for the Contractor's camp for the project manager's approval. Structures shall be located in a way that shall reduce visual intrusion and minimal disturbance to the biophysical environment.	Contractor / Project Manager
<p>The Contractor's camp shall be sited so as to cause the least amount of disturbance to adjacent landowners. The Contractor's camp shall be fenced and the Contractor shall maintain the fence in good order for the duration of construction. The Contractor's camp shall not be placed within 100m of a river or 100 m of a wetland. Documentation (Method Statement) for each proposed camp site shall be prepared by the Contractor prior to the commencement of construction activities, and shall be submitted to Eskom and the ECO for approval. This documentation shall include, but not be limited to the following:</p> <ul style="list-style-type: none"> » site layout including access points and material storage areas; » topsoil management; » sanitation and sewage treatment » erosion control; 	Contractor / Project Manager / ECO

» fencing; » general waste management; » provision for vehicle and plant servicing; » management of hazardous materials, » water supply; » management of veld fire risk; and » Rehabilitation.		
Damage to sensitive areas shall incur a fine and all impacts shall be rehabilitated or compensation shall be made to the affected landowner. Movement of construction vehicles and machinery shall be restricted to areas outside of the sensitive habitats on site. The site planning shall ensure that no stormwater may enter the natural drainage system directly, but rather be diverted and dispersed into the natural vegetation for absorption.		Contractor
The Contractor shall develop a Stormwater Management Plan. The site plan shall ensure that no artificial channels are constructed for stormwater diversion, but that other engineering measures are utilised to adhere to the stormwater management plan.		Contractor / ECO
Performance Indicator	» Written agreements with landowners where construction camps are situated on private land. » No claims leading to litigation. » All damaged areas successfully rehabilitated one year after completion.	

1.2. Site Establishment

Mitigation: Target/Objective	» Establish organised and controlled construction sites » Minimise the number of accidents on site.	
Mitigation: Action/control		Responsibility
The Contractor's hard park and storage yard shall be fenced, to the satisfaction of the Construction Manager. It is a requirement that the fence is maintained until such time that the project is completed. The construction site shall be barricaded off to prevent access by unauthorised persons.		Contractor
A site notice shall be erected at the construction site informing persons of restricted access, the nature and time frames of the construction activities and contact details.		Contractor
Site structures, shall be fitted with appropriate cladding and colouring to ensure reduced reflection and visual pollution.		Contractor
Access to the site shall only be permitted via the designated construction road as specified on site by the Construction Manager.		Contractor
The Contractor shall control the movement of all vehicles and plant (including suppliers), such that they remain on designated routes, comply with relevant traffic laws and ensure they are distributed so as not to cause an undue concentration of traffic.		Contractor / ECO
The vehicles of the Contractor and their suppliers shall not exceed a speed of 20 km/hr on site. Vehicles and personnel shall not move be permitted to move outside the designated areas.		Contractor
Access roads shall be maintained by the Contractor. The Contractor shall erect and maintain marker pegs along the boundaries of the working areas, access roads, haul roads or paths, to the satisfaction of the Construction Manager, before commencing any other work.		Contractor
Dust control measures, such as dampening with water shall be implemented where necessary (only if necessary and as directed by the ECO especially if the site is located near residential areas).		Contractor

Construction debris shall be cleared regularly and disposed of at the nearest municipal landfill site.	Contractor
All existing farm roads (private roads) damaged during the construction phase, shall at the end of construction be repaired to the satisfaction of the landowner, as per the conditions of the written contractual agreement between the landowner and the Eskom. The ECO and the contractor must take the pictures of the road before construction, during construction and after rehabilitation to protect Eskom from possible damages claims that may arise as a result of using the roads.	Contractor
The Contractor shall erect Traffic safety measures (e.g. traffic warning signs) to the satisfaction of the Project Manager where required.	Contractor
The Contractor and Construction Manager shall ensure that access to the site, including related infrastructure and machinery is restricted to authorised personnel only and ensure that access roads to the site are of a suitable quality to eliminate soil erosion, and channel storm water into grass buffer areas.	Contractor
The Contractor shall ensure that 'No-Go' areas are clearly demarcated and/or fenced before construction starts. Barriers are to be maintained in good order throughout the course of construction.	Contractor / ECO
The Contractor shall ensure that no machinery, personnel, material, or equipment enters 'No-Go' areas at all times during the course of the project.	Contractor / ECO
Performance Indicators / Measurable targets <ul style="list-style-type: none"> » No accidents on-site. » No vehicles or personnel outside designated areas. » No access to site by unauthorised persons. » All damaged areas successfully rehabilitated one year after completion. 	

1.3. Vegetation Clearing

Mitigation: Target/Objective <ul style="list-style-type: none"> » Minimise unnecessary damage to indigenous vegetation. » Keep servitude as natural looking as possible. » Minimise interference by indigenous vegetation to flow of electricity. » Minimise possibility of erosion due to removal of vegetation. » Minimise removal of plant material on river and stream embankments. » Eradication of alien invader and densifier species that cause a fire hazard if found within the servitude. 	
Mitigation: Action/control	Responsibility
Vegetation clearing shall be done in accordance with the Standard for bush clearance and maintenance within overhead power line servitudes and the Vegetation Management Guideline ((TGL 41-334), refer to the appendix 10 & 11. Only an 8m strip may be cleared flush with the ground to allow vehicular passage during construction.	Contractor/ ECO
No scalping shall be allowed on any part of the servitude road unless absolutely necessary and authorised by the ECO.	Contractor
All trees and vegetation cleared from the site shall be cut into manageable lengths and neatly stacked at regular intervals along the line. No vegetation shall be pushed into heaps or left lying all over the servitude.	Contractor/ ECO/ Landowner/
Stumps shall be treated with an Eskom approved herbicide.	Contractor
Smaller vegetation can be flattened with a machine, but the blade shall be kept above ground level to prevent scalping. Any vegetation cleared on a tower site shall be removed or flattened and not be pushed to form an embankment around the tower.	Contractor
No vegetation clearing in the form of de-stumping, scalping or uprooting shall be allowed	Contractor /

on river and stream banks.	ECO
Vegetation shall only be cut to allow for the passage of the pilot-cables and headboard.	Contractor
No vegetation clearing shall be allowed across ravines and gullies, as this vegetation shall very rarely interfere with the clearance to the strung conductor. Trees and vegetation not interfering with the statutory clearance to the conductors can be left under the line.	Contractor
Dense vegetation under the line which could cause a fire hazard, particularly in the middle third of the span in the vicinity of the lowest point of the conductors, shall be considered as a separate case.	Contractor
Protected or endangered species of plants shall not be removed unless they are interfering with a structure. Permits for the removal of the identified plants will be obtained from the Provincial Nature Conservation. All protected species not to be removed shall be clearly marked by the CELO and such areas fenced off if required by the ECO.	Contractor
Eskom's approval for the use of herbicides (where applicable) is mandatory. Application shall be under the direct supervision of a qualified technician registered in terms of the Fertilizers, Farm Feeds, Agricultural Remedies and Stock remedies Act, Act 36 of 1947. All surplus herbicide shall be disposed of in accordance with the supplier's specifications.	Contractor
Upon completion of the stringing operations and before handover, the servitude shall be inspected and all vegetation interfering with the safe operation of the line shall be removed / cut down. All alien vegetation in the total servitude and densifiers creating a fire hazard shall be cleared and treated with approved environmentally friendly herbicides (as per the Eskom Standard Specifications).	Contractor
Performance Indicator / Measurable targets <ul style="list-style-type: none"> » Only 8m vegetation cleared along the centre of the servitude for access purposes. » No vegetation interfering with structures and statutory safety requirements upon completion of the contract. » No de-stumping of vegetation on river and stream embankments. » All alien invaders and densifiers removed to limit the fire hazard. » 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 spreading of alien invaders six months after completion of vegetation clearing. 	

1.4. Fencing

Mitigation: Target/Objective <ul style="list-style-type: none"> » Minimise the risk of accidents occurring on site. » Avoid access to site by animals 	
Mitigation: Action/control	Responsibility
Fencing shall be erected in areas where farm animals or game are kept, this is to ensure that farm animals or game do not falling into the trenches, and from not entering into the construction camp area.	Contractor
Should a game fence be damaged as a result of construction activities, the fence shall be repaired.	Contractor
Fences shall be constructed in order to restrict game from escaping. Most wild animals shall only resort to crossing fences when they are under stress or threat. Construction and blasting activities could put the animals under stress and the necessary measures shall be implemented.	Contractor
All fences constructed for construction purposes (e.g. fences around camp sites, fencing around trenches, etc.) shall be inspected on a daily basis to detect whether any damage has occurred and shall be repaired immediately.	Contractor

Where necessary electrified fences shall be erected. Mechanisms shall be put in place to allow for faults on electrified fences to be traced as quickly as possible. Electrified fences shall be safe for contact by Humans.	Contractor
Safety precautions shall be implemented for electrified fences. Where necessary game screens shall be erected to minimize the impact on game, especially on narrow farm portions. The contractor is referred to the National Fencing Act, 1963 (Act No 31 of 1963) (as amended by Act 108 of 1991).	Contractor
Game gates shall be installed where necessary. All gates installed in electrified fencing shall be re-electrified or installed as per the specifications agreed to with the landowner.	Contractor
Performance Indicator	<ul style="list-style-type: none"> » No accidents on-site. » No animals on site » No threat to game posed during construction

1.5. Material Handling, Use and Storage

Mitigation: Target/Objective	» Minimise the risk of accidents occurring during handling and storage of materials
Mitigation: Action/control	Responsibility
The Contractor shall ensure that delivery drivers are informed of all procedures and restrictions required to ensure compliance with this document. Such drivers shall be supervised during off-loading by a person knowledgeable of the requirements.	Contractor
Materials shall be appropriately secured to ensure safe passage between destinations. Loose loads (e.g. sand, stone chip, refuse, and cement) shall be covered. The Contractor shall be responsible for any clean-up resulting from the failure by his employees or suppliers to properly secure transported materials	Contractor
Imported fill / soil / sand materials shall be free of weeds, litter and contaminants. All material lay-down areas and stockpiles shall be subject to the Project Manager's approval	Contractor / Project Manager
Storage areas shall be roofed with an impervious material, with a suitable overhang or side-cladding. Rainwater runoff shall be channelled away from the storage area as required.	Contractor
Performance Indicator	<ul style="list-style-type: none"> » No off loading accidents on-site » No contamination of the soils and surfaces

1.6. Hazardous Substances

Mitigation: Target/Objective	<ul style="list-style-type: none"> » To keep the servitude neat and clean. » Disposal of hazardous waste in an appropriate and legislated manner. » Minimise the possibility of litigation. » Minimise the possibility of Landowner complaints. » Avoid contamination of water resources and soil
Mitigation: Action/control	Responsibility
The use of ready-mix cement trucks is recommended wherever possible. Cement trucks are prohibited from dumping excess concrete or cement mixture on the ground or any permeable surfaces. The cement trucks must always have a plastic sheet to contain any concrete or cement in cases of emergency. Cement mixing shall occur in a designated area on an impervious layer (e.g. plastic or cement mixing pit). The runoff water shall be contained for re-use in cement mixing or disposed of at the waste water system. Contaminated water shall not be dispersed on the ground.	Contractor

No paint products may be disposed of on the site. All paint containers shall be removed from the site. Oil based paints and chemical additives and cleaners (e.g. thinners and turpentine) shall be strictly controlled. A painting control work instruction shall be established for the site, including disposal of material and the washing of brushes / rollers. No contaminated water or solvents may be disposed off in the veld.	Contractor
The Contractor may store above ground containers with a combined volume of fuel equal to or greater than 1000 cubic meters on the site as per the EA. All fuel storage areas shall be bunded to contain at least 110 % of the volume stored and shall be provided with a hard impervious surface. The Contractor shall ensure that there is a supply of absorbent material (e.g. sawdust, supazorb) readily available to absorb, breakdown and where possible encapsulate minor hydrocarbon spillage. The amount and type of absorbent material shall be appropriate to the volumes of hydrocarbons kept on site. Each construction site shall have a spill kit available at all times. Used material shall be disposed of by an approved service provider to a licenced site.	Contractor
Potential pollutants shall be kept, stored, and used in such a manner that any escaped pollutants can be contained and the water table not contaminated (e.g. bunded hydrocarbon storage area). Bund walls shall be of a sufficient height to contain at least 110% of the volume of any materials stored within the bunded area.	Contractor
These materials are to be removed post-construction and disposed of in a responsible manner. Soils contaminated by minor hydrocarbon spills shall be removed immediately to a designated hazardous waste storage bin to be removed off site and disposed of at a licensed hazardous waste disposal facility.	Contractor
Hazardous materials shall be removed and disposed of at licenced sites or handed to registered hazardous waste disposal facilities for disposal / recycling.	Contractor
The Contractor shall notify the Project Manager and the ECO immediately of any pollution incidents and shall prevent any hazardous substance from draining into wetlands or directly into any drainage lines	Contractor
The Contractor shall compile and provide a method statement for storage areas of hazardous substances to the ECO for approval before the activity commences	Contractor / ECO
Performance Indicator <ul style="list-style-type: none"> » No paint containers on site. » No paint stored on site. » No concrete spillage on the servitude. » No fuel equal to or greater than 1000 cubic meters stored on the site without the appropriate Environmental Authorisation (Ref to NEMA Regulations). » No hazardous materials disposed of on site 	

1.7. Workshop Equipment and Storage

Mitigation: Target/Objective	<ul style="list-style-type: none"> » To keep the servitude neat and clean. » Disposal of hazardous waste in an appropriate and legislated manner. » Minimise Landowner complaints. » Avoid contamination of water resources and soil
Mitigation: Action/control	Responsibility
No maintenance or repair of construction vehicles or machinery shall occur on site during the construction phase. Maintenance of equipment and vehicles shall be performed off-site at a suitably designed workshop.	Contractor
Movement of construction vehicles and machinery shall be restricted to areas outside of sensitive areas on site	Contractor
The Contractor shall ensure that if emergency maintenance occurs on site, that there is no contamination of the soil or vegetation for example by making use of drip trays.	Contractor

Drip trays shall be provided for the stationary vehicles and machinery.		Contractor / ECO
All vehicles and equipment shall be kept in good working order and serviced regularly. Leaking equipment shall be repaired immediately or removed from the site.		Contractor
No washing of vehicles and machinery shall be allowed on the site. Vehicles may be washed at a designated area at the construction camp site as per the approval of the ECO.		Contractor / ECO
The relevant Contractor shall ensure that facilities for the collection of hydraulic and other vehicle oils are provided within the hard park area.		Contractor / ECO
The following shall apply to hazardous substance spills: <ul style="list-style-type: none"> » All contaminated soil / yard stone shall be removed and be placed in containers. » Contaminated material can be taken to one central point 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 where the required remediation material and expertise is not available on site. » All spills of hazardous substances shall be reported to the ECO and Transmission Services Environmental Advisor (Transmission Key Performance Indicator requirement). 		Contractor
Performance Indicator	<ul style="list-style-type: none"> » No leaking vehicles. » No contamination of soils and vegetation. » No vehicles serviced on site 	

1.8. Labour, Social Issues and Their Control

Mitigation: Target/Objective	» To ensure that labour and social issues are managed in a controlled way	
Mitigation: Action/control		Responsibility
The Contractor shall ensure proper supervision of employees at all times.		Contractor
Preference shall be given to the local community for unskilled work opportunities if available.		Contractor
The Contractor shall ensure workers refrain from trespassing on surrounding private property and that immediate action is taken when workers trespass.		Contractor
Machine / vehicle operators shall receive clear instructions to remain within demarcated access routes and construction areas.		Contractor / ECO
Designated smoking areas shall be provided, with special bins for discarding cigarette butts.		Contractor
Performance Indicator	<ul style="list-style-type: none"> » No vehicles and machinery outside designated areas. » No trespassing into private property by workers 	

1.9. Toilets or Ablution Facilities

Mitigation: Target/Objective	<ul style="list-style-type: none"> » To keep the servitude neat clean, and hygienic. » To avoid contamination of water resources by effluent from the toilets 	
Mitigation: Action/control		Responsibility
The Contractor shall provide sufficient ablution facilities, in the form of mobile / portable / VIP toilets / septic tank with soak-away systems at the Construction Camps and along construction sites, and shall conform to all relevant health and safety standards and codes.		Contractor

Prior to establishment of the ablution facilities, the Site Manager and ECO shall approve an appropriate location. The Contractor shall ensure that no spillage occurs when the toilets are cleaned or emptied and that a licensed service provider removes the contents from site. Such waste shall only be disposed of to an approved Wastewater Treatment Works (WWTW). The necessary permission from the Local Municipality shall be obtained in writing.		Contractor / Site Manager
Due to the fact that the construction activities will happen in a remote rural area, a septic tank with a soak-away system shall be allowed for the duration of the construction period and toilets may not be situated within 200 meters of any water body or the 1:100 year flood line. The contractor must supply a method statement for the installation of the septic tank system for the approval of the ECO.		Contractor
A sufficient number of mobile or portable toilets shall be provided to accommodate the number of personnel working in any given area. Toilet facilities supplied by the Contractor for the workers shall occur at a maximum ratio of 1 toilet per 15 workers. Separate toilets shall be provided for the different genders.		Contractor
All temporary / portable / mobile toilets shall be secured to the ground to prevent them from toppling due to wind or any other cause		Contractor
Toilets shall not be further than 100 m from any working area.		Contractor
The Contractor shall ensure the provision and proper utilisation, maintenance and management of toilet, wash and waste facilities. These facilities shall be maintained in a hygienic state and serviced regularly. Toilet paper shall be provided.		Contractor
Performance Indicator	» No toilets within 100 m of a water resource or the 1:100 year flood line. » Sufficient toilets provided to workers (maximum ratio of 1 toilet per 15 workers). » No toilets shall be further than 100 m from any working area. » Toilet paper available in all toilets at all times	

1.10. Cooking and Eating Areas

Mitigation: Target/Objective	» To keep the servitude neat and clean. » To avoid fires on site	
Mitigation: Action/control		Responsibility
Open uncontrolled fires shall be forbidden at the site camp. 'Contained' cooking mechanisms shall be used – e.g. gas stoves or an enclosed braai facility. The cooking area shall be positioned such that no vegetation is in close proximity thereto, including overhanging trees. An area around the cooking area shall be cleared such that any escaping embers shall not start an uncontrolled fire		Contractor
Eating areas shall be designated and demarcated. The feeding, or leaving of food for animals, is strictly prohibited. The Contractor shall ensure that sufficient vermin / weatherproof bins are present in this area for all waste material.		Contractor
No fires for the purpose of cooking or warming purposes shall be permitted other than within designated areas, for instance, at the site camp.		Contractor
Performance Indicator	» No uncontrolled fires at the site camp » No cooking areas positioned in close proximity to vegetation, including overhanging trees. » Sufficient dish washing areas supplied to workers.	

1.11. Aesthetics

Mitigation: Target/Objective	» To limit the visual disturbance created by the infrastructure during
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	construction	
Mitigation: Action/control		Responsibility
The Contractor shall ensure that lighting is sufficient to ensure security but shall not constitute 'light pollution' to the surrounding areas.		Contractor
The site shall be shielded from the adjacent landowners to minimise the visual impact where this is feasibly possible		Contractor
The rehabilitation of the disturbed areas shall prevent the exposure of soil, which may cause a reduction in the visual quality of the construction area.		Contractor / ECO
Performance Indicator	» No landowner complaints	

1.12. Waste Management

Mitigation: Target/Objective	» To maintain good relations with surrounding landowners. » To keep the servitude neat and clean. » To avoid contamination of water resources by waste from site.	
Mitigation: Action/control		Responsibility
Vermin / weather proof bins shall be provided in sufficient numbers and capacity to store all solid waste produced on a daily basis. These bins shall be kept closed to reduce odour build-up and emptied regularly (minimum weekly) such that they do not overflow.		Contractor
Waste shall be separated at source (e.g. containers for glass, paper, metals, plastics, organic waste and hazardous wastes). The Contractor shall ensure the provision of waste skips on site. These skips shall be sufficient in number, and the skip storage area shall be kept clean. Skips shall be emptied and replaced before overflowing or spillage occurs.		Contractor
The PM shall ensure that no burying, dumping or burning of waste materials, vegetation, litter or refuse occurs. All solid waste shall be removed and disposed of at suitable municipal disposal sites.		Contractor / PM
Where a registered waste site is not available close to the construction site, the Contractor shall provide a method statement with regard to waste management. The disposal of waste shall be in accordance with all relevant legislation.		Contractor
Waste shall be removed during off-peak periods to minimise impacts on local traffic patterns. The Contractor shall prevent any waste effluent from draining into wetlands or directly into any drainage lines and visual inspections and proper storage facilities for waste shall be monitored in consultation with the CLO.		Contractor / CLO
No material shall be left on site that may harm people, animals or vegetation. Any broken insulators shall be removed and all shards picked up. Broken, damaged and unused nuts, bolts and washers shall be picked up and removed from site as it is considered a hazardous material.		Contractor
Surplus concrete may not be dumped indiscriminately on site, but shall be disposed of in a licenced waste disposal site, certified for a specific waste. The concrete trucks must always have an impermeable plastic sheet to be used in cases of emergency.		Contractor
Concrete trucks shall not be washed on site after depositing concrete into foundations. Any spilled concrete shall be cleaned up immediately.		Contractor
The ECO shall monitor housekeeping within the work sites as well as the campsite. The Contractor shall collect all litter and dispose thereof in a legislated manner.		ECO / Contractor
Performance Indicator	» Sufficient number and capacity of vermin / weather proof bins provided to store all solid waste produced on a daily basis (no over spilling bins on site) » Separate bins for different types of waste » Sufficient number and capacity of waste skips provided on site » No contamination of water resources by waste	

1.13. Water Management

Mitigation: Target/Objective	» To ensure that water supply is properly managed. » To minimise erosion on temporary construction roads. » To minimise wasting water.
Mitigation: Action/control	Responsibility
Water supply during the construction phase for construction activities shall be obtained from an existing water source and all connections and decommissioning shall be the Contractor's responsibility on approval by the Construction Manager.	Contractor
The Contractor shall ensure that the correct and sufficient amount of hosepipes, taps and connections are supplied. The Contractor shall ensure that no leakage occurs from pipes or dripping taps.	Contractor
The Contractor shall comply with the stormwater management plan and shall be responsible for preventing erosion on temporary construction roads.	Contractor
If water is required, the Contractor shall negotiate with the relevant Landowner and a written agreement shall be drawn up.	Contractor
Performance Indicator	» No erosion on temporary construction roads. » Sufficient water, hosepipes, taps and connections supplied to site. » No leakage of water from pipes or dripping taps.

1.14. Pollution Generation Potential

Mitigation: Target/Objective	» To maintain good relations with surrounding landowners. » To minimise light pollution. » To minimise noise pollution.
Mitigation: Action/control	Responsibility
Light Pollution: Prior to construction, the position and type of lighting shall be planned to ensure unnecessary light pollution shall be eliminated. During construction only directional / down lighting shall be used for security purposes. All lighting installed on site shall not interfere with road traffic or lead to unacceptable light pollution to the surrounding community and natural environment	Contractor / ECO
Noise: The provisions of SABS 1200A shall apply to all areas within audible distance of residents. No amplified music shall be allowed on the site. The use of radios, tape recorders, compact disc players, television sets etc. shall not be permitted unless at a level that does not serve as an intrusion to adjacent land-owners. Construction activities generating output levels of 85 dB or more shall be confined to the hours 08h00 to 19h00 Mondays to Fridays.	Contractor / ECO
The Contractor shall take preventative measures (e.g. screening, muffling, timing, pre-notification of affected parties) to minimise complaints regarding noise and vibration nuisances from sources such as power tools.	Contractor
The Contractor shall ensure that all machinery to be maintained to reduce noise levels and provide labourers with hearing protection. The Contractor shall ensure that all blasting shall be carried out in accordance with the Explosives Act (Act 15 of 2003).	Contractor
Performance Indicator	» No light pollution to the surrounding community and natural environment. » No construction activities generating output levels of 85 dB after 1800 during the week. » No amplified music on site. » All machinery in good working order.

1.15. Erosion and Sediment Control

Mitigation: Target/Objective	» Minimise erosion during construction. » Provide permanent erosion and sediment control measures. » Minimise disturbance and loss of topsoil. » Rehabilitate all disturbed areas along the servitude.	
Mitigation: Action/control	Responsibility	
During construction, the Contractor shall protect areas susceptible to erosion by installing necessary temporary and / or permanent drainage works as soon as possible and by taking suitable measures to prevent surface water concentration into nearby roadways.	Contractor / ECO	
Silt trap mechanisms shall be installed on all temporary stormwater channels. The Project Manager shall ensure that these silt traps shall be regularly checked and serviced as required. All excavated and filled slopes and stockpiles shall be of a stable angle and capable of accommodating normal expected water flows.	Project manager / Contractor / ECO	
Any runnels or erosion channels caused by the construction activity shall be backfilled and compacted, and the area/s restored to a proper condition. Stabilisation of cleared areas to prevent and control erosion shall be actively managed. The method chosen (e.g. watering, planting, retaining structures, commercial anti-erosion compounds) shall be selected according to the site specifics and ensure acceptable rehabilitation	Contractor / ECO	
Traffic and movement over stabilised areas shall be restricted. Any damage to stabilised areas shall be repaired and maintained to the satisfaction of the Site Manager. Where erosion and/or sedimentation occur, rectification shall be carried out in accordance with details specified by the Site Manager.	Contractor / Site Manager	
An effort shall be made to limit ponding on the surface and ensure stormwater runoff is channelled from the site. The method used shall be appropriate to the expected stormwater flows and the topography and geology of the site. The Contractor shall be liable for any damage to downstream property caused by the diversion of overland stormwater flows	Contractor	
Performance Indicator	» No evidence of erosion in construction areas. » No claims regarding damage leading to litigation. » All damaged areas successfully rehabilitated one year after completion.	

1.16. Cement and Concrete Batching

Mitigation: Target/Objective	» To ensure all agreements with Landowners are adhered to. » Prevention of complaints from Landowners. » Successful rehabilitation of disturbed areas. » Prevention of pollution of water resources.	
Mitigation: Action/control	Responsibility	
The siting of batching plants shall be done in conjunction with the Landowner, Project Manager and ECO.	Contractor / ECO	
The batching plant area shall be operated in such a way as to prevent contaminated water to run off the site and polluting nearby streams or water bodies.	Contractor / ECO	
Concrete shall not be mixed directly on the ground or any other permeable surface.	Contractor / ECO	
The batching / mixing area shall be kept neat and clean at all times. No batching / mixing activities shall occur on a permeable surface. All runoff from such areas shall be strictly controlled, with contaminated water collected, stored / contained and disposed of at an	Contractor / PM / ECO	

approved waste disposal site. The Project Manager and Contractor shall ensure that concrete transportation shall not result in spillage.		
Unused cement bags shall be stored so as not to be affected by rain / runoff. Used cement bags shall be stored so as to prevent wind blown dust and potential water contamination. Used bags shall be disposed of regularly via the solid waste management system.		Contractor / ECO
To prevent spillage onto roads, ready mix trucks shall rinse off the delivery shoot into a suitable sump prior to leaving the site. Suitable screening and containment shall be in place to prevent windblown contamination from cement storage, mixing, loading and batching operations. All visible remains of excess concrete shall be physically removed on completion of the plastering or concrete pouring and disposed of in an acceptable manner		Contractor / ECO
Eskom shall ensure that all agreements reached with the Landowner are fulfilled, and that such areas be rehabilitated once construction is completed. Shall any claim be instituted against Eskom due to the actions of the Contractor at a batching plant site, Eskom shall hold the Contractor fully responsible for the claim until such time that the Contractor can prove otherwise with the necessary documentation.		Contractor / PM
Performance Indicator	» No complaints from Landowners. » All disturbed areas successfully rehabilitated three months after completion of the contract. » The Contractor is to supply a method statement for the siting of batching plants to the ECO for approval before the activity commences.	

1.17. Prevention of Disease

Mitigation: Target/Objective	» To ensure all agreements with Landowners are adhered to. » Prevent litigation due to infestation of livestock.	
Mitigation: Action/control		Responsibility
Applicable where the Transmission power line traverses land where livestock (cattle, sheep, goats and pigs) and game farming are practised. The Contractor shall take all the necessary precautions against the spreading of disease, especially from livestock. A record shall be kept of drugs administered and the dates when this was done. This can then be used as evidence in court shall any claims be instituted against Eskom or the Contractor. The Contractor shall take all necessary precautions against the spreading of disease such as measles, sexually transmitted diseases such as HIV/AIDS etc, as well as diseases such as foot and mouth, etc amongst livestock in accordance with prevention measures as per specifications under TRMCAAC1.		Contractor
Performance Indicators	» No evidence of erosion in construction areas. » No complaints and claims from Landowners. » No claims regarding damage leading to litigation. » All damaged areas successfully rehabilitated one year after completion	

1.18. Interaction with Landowners

Mitigation: Target/Objective	» Maintain good relations with landowners	
Mitigation: Action/control		Responsibility
The successful completion of the project depends a lot on the good relations with the affected Landowners. It is therefore required that the Contractor shall supply one person to be the liaison officer (CELO) for the entire contract, and that this person shall		Contractor / ECO / CELO

be available to investigate all problems arising on the work sites concerning the Landowners. This person can be the Contractor's Environmental Officer who will work together with the ECO on matters concerning landowner liaison.	
All negotiations for any reason shall be between Eskom, the Landowner and the Contractor. No verbal agreements shall be made. All agreements shall be recorded properly and all parties shall co-sign the documentation. A photographic record of access roads be kept. This shall then be available shall any claims be instituted by any Landowners. Any claims instituted by the Landowners shall be investigated and treated promptly. Unnecessary delays shall be avoided at all costs.	Eskom / Contractor / Landowner
The Landowners shall always be kept informed about any changes to the construction programme shall they be involved. If the ECO is not on site the Contractor's EO shall keep the Landowners informed. The contact numbers of the Contractor's EO officer and the Eskom ECO shall be made available to the Landowners. This shall ensure open channels of communication and prompt response to queries and claims.	Contractor / ECO /
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 effect of construction work being carried out on private property.	Contractor
Performance Indicator	<ul style="list-style-type: none"> » No delays in the project due to Landowner interference. » Landowner signs final release form.

1.19. Claims for Damage

Mitigation: Target/Objective	<ul style="list-style-type: none"> » Minimise complaints from Landowners. » Prevent litigation due to outstanding claims. » Successful completion of the contract and all Landowners signing release forms.
Mitigation: Action/control	
All anticipated crop damage shall be noted while access negotiations are underway.	
All damage to commercial crops shall be recorded immediately. The ECO shall also keep a photographic record of such damage. The date, time of damage, type of damage and reason for the damage shall be recorded in full to ensure the responsible party is held liable.	
All claims for compensation emanating from crop damage shall be directed to the ECO for appraisal. The Contractor shall be held liable for all unnecessary damage to the environment and crops and livestock.	
A register shall be kept of all complaints from Landowners. All claims shall be handled immediately to ensure timeous rectification / payment.	
Performance Indicator	<ul style="list-style-type: none"> » No litigation due to unsettled claims. » All Landowners signing release forms within six months after completion of the contract.

1.20. Access Roads

Mitigation: Target/Objective	<ul style="list-style-type: none"> » Prevent damage to existing access roads. » Prevent damage to environment due to construction of new access roads. » Prevent loss of topsoil and enhancement of erosion.
Mitigation: Action/control	
Planning of access routes shall be done in conjunction between the Contractor, Eskom, the ECO and the Contractor.	
All agreements reached shall be documented in writing and no verbal agreements shall be made.	
The condition of existing access / private roads to be used shall be documented with photographs. The photographs to be taken by both the ECO and CELO for the condition of the road before use as well as after rehabilitation.	

The Contractor shall properly mark all access roads.	
Markers shall show the direction of travel as well as tower numbers to which the road leads. Roads not to be used shall be marked with a "NO ENTRY" sign. Where required, speed limits shall be indicated on the roads. All speed limits shall be strictly adhered to at all time.	
Where new access roads are constructed, this shall be done in accordance with TRMSCAAC1 REV 3. Water diversion berms shall be installed from the start of the contract in accordance with TRMSCAAC1 REV 3. Refer to condition 52 of the EA: where new tracks are required to access sites, input is required from an ECO is required. Where possible, the building of new tracks with a grader is to be avoided where not necessary, and a new vehicle track is to be created by simply driving over the grass cover without removing grass cover/topsoil.	
These berms shall be maintained at all times and be repaired at the end of the contract. 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.	
In compliance with condition 53 of the EA, where new roads need to be constructed, adequate drainage and soil erosion controls must be installed and maintained. As far as possible, access roads must follow the contour on steep slopes, rather than being aligned directly down steep slopes.	
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.	
Any dangerous crossings shall be marked as such and where necessary, speed limits shall be enforced.	
Where necessary a suitable mixture of indigenous grass seed shall be used to re-seed damaged areas. Badly damaged areas shall be fenced in to enhance rehabilitation.	
Performance Indicator	<ul style="list-style-type: none"> » No claims from Landowners due to damage on existing 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.

1.21. Access Control and Gate Installation

Mitigation: Target/Objective	<ul style="list-style-type: none"> » Access arrangements in consultation with and by approval of landowners » Properly installed gates to allow access to the servitude. » Minimise damage to fences. » Limit access to Eskom and Contractor personnel with gate keys.
Mitigation: Action/control	Responsibility
Comment: Due to the current security situation Landowners are not comfortable when strangers enter their properties. They shall look for reasons to interfere with the construction process and may therefore cause delays in the process that can be very costly to Eskom and the Contractor	N/A
The Landowners shall be kept informed about the progress and phases of the contract.	Contractor / ECO
No camping shall be allowed on any private property. If the Contractor wants to leave guards on site, it shall only be done with the written consent of the Landowners involved.	Contractor
Damage to fencing, gates and other infrastructure may occur at any time. This shall create problems with the Landowners and shall be avoided as far as possible. All damage to be repaired immediately and to the satisfaction of the landowner.	Contractor
The Contractor is referred to the Fencing Act, 1963 (Act No 31 of 1963 (as amended by Act 108 of 1991).	
Game gates shall be installed where necessary. All gates installed in electrified fencing shall be re-electrified.	
The ECO shall approve gate positions. All gate positions shall be three (3) metres off centre to allow for continued access when stringing takes place.	
All gates shall be fitted with locks and be kept locked at all times during the construction phase. Gates shall only be left open on request of the Landowner if he accepts partial responsibility for such gates in writing, once the	

Contractor has left site and the gates are fitted with Eskom locks.	
Such gates shall be clearly marked by painting the posts green. All claims arising from gates left open shall be investigated and settled in full by the Contractor.	
If any fencing interferes with the construction process, such fencing shall be deviated / protected until construction is completed.	
Performance Indicator	<ul style="list-style-type: none"> » No complaints from Landowners » No unapproved access and camping arrangements » 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. » All electrified fences in working order.

1.22. Emergency Procedures & Fire Management

Mitigation: Action/control	Responsibility
No open fires shall be allowed on site under any circumstances, the Contractors must familiarise themselves with the relevant legislation (the National Veld and Forest Fire Act (Act 101 of 1998), National Forests Act (Act 30 of 1998). The Contractor shall have fire-fighting equipment available on all vehicles working on site, at all times. All fire-fighting equipment shall be in accordance with SANS 10228:2005. Staff in charge of fire-fighting equipment shall be fully trained and certified as a fire fighter.	Contractor
A Fire Safety and Response Plan shall be put in place by the Contractor and Eskom. Landowners shall be consulted prior to the compilation of these plans in order to incorporate their site specific fire-fighting measures. The plan shall identify sources of fire hazard, and appropriate management measures to reduce the identified risk. The relevant authority shall be notified of such potential fire hazards.	Eskom / Contractor
Preferentially no fires shall be lit on the site, if however required, fires shall be limited to use for cooking and heating use only within a designated area. This area shall be at a suitable distance from fuel sources. In terms of the Atmospheric Pollution Prevention Act, 1965 (Act No. 45 of 1965) (APPA), burning is not permitted for waste disposal.	Contractor
The Project Manager shall be notified when welding shall take place, to ensure that precautionary measures are put in place.	Contractor / PM
Welded joints shall be inspected after welding to ensure that the joint has cooled off properly, and that no smouldering material is discarded.	Contractor
All fire control mechanisms (fire-fighting equipment) shall be present and accessible at all times.	Contractor
All staff on site shall be made aware of general fire prevention and control methods and the name of the responsible person to alert to the presence of a fire.	Contractor
The Contractor shall advise the relevant authority of a fire outside of a demarcated area as soon as it starts and shall not wait until he can no longer control it. The Contractor shall be responsible to compensate the landowner for damages caused by a fire as a result of the Contractor's working activities.	Contractor
Performance Indicator	No unpermitted or uncontrolled fires leading to land and infrastructure impacts

1.23. Accidental Leaks and Spillages

Mitigation: Target/Objective	Effective response to and mitigation of accidental spills of hazardous substances on site.	
Mitigation: Action/control	Responsibility	
The Contractor shall ensure that his employees are aware of procedures to be followed for dealing with spills and leaks, which shall include notifying the relevant authorities in cases of huge spillages (as per the discretion of the ECO).	Contractor	
The Contractor shall ensure that the necessary materials and equipment for dealing with spills and leaks are available on site at all times.	Contractor / ECO	
Treatment and remediation of the spill areas shall be undertaken to the reasonable satisfaction of the Site Manager in consultation with the ECO.	Contractor / ECO	
In the event of a hydrocarbon spill, the source of the spillage shall be isolated and contained. The area shall be cordoned off and secured. A flash report must be done within 24 hours of the spillage.	Contractor / ECO	
The Contractor shall ensure that there is always a supply of an appropriate absorbent material readily available to absorb, breakdown and where possible, encapsulate a minor hydrocarbon spillage.	Contractor	
Performance Indicator	Spill procedures in place.	

1.24. SAFETY AND HEALTH

Mitigation: Target/Objective	No uncontrolled incidents compromising the health and safety of employees and non-employees.	
Mitigation: Action/control	Responsibility	
Contractor to provide an Occupational Health and Safety Management Plan to the ECO for approval prior to the commencement of works in terms of the Construction regulations.	Contractor	
The Contractor shall ensure that there is an inspection schedule and log for use by security or contracts staff.	Contractor	
Fencing and barriers shall be in place in accordance with the Occupational Health and Safety Act (Act No. 85 of 1993).	Contractor	
Applicable notice boards and hazard warning notices shall be put in place and secured.	Contractor	
Emergency and Management contact details shall be prominently displayed.	Contractor	
Night hazards shall be indicated suitably (e.g. reflectors, lighting, traffic signage).	Contractor	
Security personnel shall be briefed and have facilities to contact relevant management and emergency personnel.	Contractor	
Security personnel shall be stationed at all , construction camps, construction vehicle yards, etc. during times when the construction crew is not present i.e. night times, weekends, etc.	Contractor	
The Contractor to ensure he has sufficient first aid boxes and certified first aid attendants available at each construction site.	Contractor	
The necessary procedures shall be in place for if an employee is bitten by a snake. Prior arrangements shall also be made with the local medical facilities regarding these procedures. Two-Way Radio Systems shall be available in such working areas more especially where cellular networks are very poor.	Contractor	
Structures vulnerable to high winds shall be secured. Potential risks and hazards shall be communicated effectively.	Contractor	
Should scaffolding be required, it shall be secured during both use and storage.	Contractor	
All construction personal shall be issued with the same type and colour clothing to enable better identification.	Contractor	
No unauthorised firearms or weapons of any kind shall be permitted on the site.	Contractor	

All landowners adjacent to areas where construction activities are imminent shall be alerted timeously by the ECO.	Contractor / CLO
All contractor employees shall also be issued with employee cards for landowners to identify them.	Contractor
Fire hazards shall be identified in the Fire Protection Plan and Fire Management Plan.	Contractor
All workers shall be supplied with the required Personal Protective Equipment (PPE) as per the Occupational Health and Safety Act (Act No. 85 of 1993) (OHSA).	Contractor

1.25. Geology and Soils

Mitigation: Action/control
The site and surrounding area shall be shaped to permit the ready drainage of surface water and to prevent ponding.
The Contractor shall determine the correct position of the topsoil stockpile/s within the construction servitude.
Dumping or storage of topsoil shall not be done on established vegetation, but shall remain within the servitude footprint. The position of construction related materials shall be approved by the Project Manager and shall ensure minimal impact to the area outside of the construction servitude.
Measures for the safety of workers in areas where potentially unstable geologic conditions are encountered shall be put in place, and engineering solutions shall be put in place to address potential risks.
Areas where unstable geological conditions occur could be stabilized by using rock anchors or temporary retaining structures to stabilize slopes. In areas of severe instability, the power line route shall be re-aligned to avoid these sensitive geological areas. Excavations and drilling shall be restricted to the "legs" of the towers.

1.26. Rivers, Streams and Wetlands

Mitigation: Target/Objective	Avoid undertaking activities in all types of wetlands to prevent degradation and damage.
Mitigation: Action/control	
	The Contractor shall minimise the extent of any damage to flood plains that is necessary to complete the works, and shall not pollute any river as a result of construction activities. Any of the prescribed erosion mechanism required within rivers or water courses, will be included in the Water Use License Application in terms of Section 21.
	It was advised that all rivers, streams and drainage lines, delineated in this report be buffered 32m and wetlands areas then be excluded from the development footprint. But due to technical design difficulties of the line, some towers positions will remain within the riparian zones and wetlands. Such towers are highlighted in the site specific mitigation section and will be constructed in accordance with the provisions of the Water Use License.
	All construction materials including fuels and oil should be stored in demarcated areas that are contained within berms / bunds to avoid spread of any contamination into wetlands or rivers. Washing and cleaning of equipment should also be done within berms or bunds, in order to trap any cement and prevent excessive soil erosion. These sites must be re-vegetated after construction has been completed.
	Mechanical plant and tankers/bowsers must not be refuelled or serviced within or directly adjacent to any river channel or wetland area. It is therefore suggested that all construction camps, lay down areas, batching plants or areas and any storage areas should be beyond any of the demarcated wetland or riverine area.

Weather forecasts from the South African Weather Bureau of up to three days in advance must be monitored on a daily basis to avoid exposing soil, works or materials during a storm event. Appropriate action must be taken in advance to protect works should a storm event be forecasted.	
All stockpiled material must be located outside wetlands.	
There should be no toilet facilities placed close to wetlands areas or water courses.	
Temporary earth embankments are to be constructed to contain the site and to ensure that no subsiding fill material enters the hydrological system.	
No roads shall be cut through river and stream banks as this may lead to erosion causing siltation of streams and downstream dams. In cases where the use of such roads cannot be avoided, care must be taken not to cause unnecessary damage to the wetlands. Proper bridges shall be installed where applicable and as per guidance of the ECO.	
The introduction of any construction related effluent water into any natural stream shall be approved by the ECO. No construction materials shall be stockpiled on the 1:100 year flood plain.	
No maintenance of machinery is to take place close to wetland areas unless adequate measures have been instituted to ensure that no hydrocarbons ingress into the soil or water.	
The Contractor shall not modify the banks or bed of a watercourse without a Water Use Licence.	
In order to avoid erosion at stormwater discharge points proper erosion and sedimentation prevention techniques shall be implemented. Under no circumstances may rocks from any watercourse be used for erosion and sedimentation control.	
Existing drifts and bridges may be used if the Landowner gives written consent. Furthermore, permission will be sorted from the Department of Water Affairs (DWA) before any new drifts and bridges are constructed.	
No vehicular traffic shall be allowed in wetlands delineated along the route (refer to Tower Specific Management Plan) unless it is absolutely necessary and the ECO approves access.	
Only existing roads through such wetlands may be used with the approval of Eskom, the ECO and the Landowner.	
No equipment shall be used which may cause irreparable damage to wetlands.	
If possible, the Contractor shall use alternative methods of construction in such wetlands or on areas along riparian zones. All stockpiles shall be positioned away from drainage lines and rivers.	
Performance Indicator	<ul style="list-style-type: none"> » Minimal damage to wetlands (). » Rehabilitated wetlands » No complaints from authorities or landowners and litigation.

1.27. River Crossings

Mitigation: Target/Objective	<ul style="list-style-type: none"> » Prevent and minimise damage to river and stream embankments. » Minimise erosion of embankments and subsequent siltation of rivers, streams and dams. » Follow DWA and NEMA Regulations for construction of new bridges.
Mitigation: Action/control	
No roads shall be cut through river and stream banks as this may lead to erosion causing siltation of streams and downstream dams. In cases where the use of such roads cannot be avoided, care must be taken not to cause unnecessary damage to the wetlands. Proper bridges shall be installed where applicable and as per guidance of the ECO.	
Existing drifts and bridges may be used with the written consent of the Landowner. Such structures shall then be thoroughly examined for strength and durability before they are used.	
New drifts and bridges shall only be constructed with the approval of Eskom and the Landowner and at the discretion of the ECO.	

All structures constructed for access purposes shall be properly designed and drawings of such structures shall be available for record purposes

Performance Indicator	<ul style="list-style-type: none"> » No unnecessary access roads through river and stream banks. » No visible erosion scars on embankments once construction is completed. » No siltation of rivers, streams, dams or wetlands. » Embankment vegetation successfully rehabilitated three months after construction. The Contractor is to supply a method statement for river crossings to the ECO for comment and approval before the activity commences.
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1.28. Erosion and Donga Crossings

Mitigation: Target/Objective	<ul style="list-style-type: none"> » Minimise erosion damage on donga crossings. » Minimise impeding the natural flow of water. » Minimise initiation of erosion through donga embankments.
Mitigation: Action/control	
Crossing of dongas and eroded areas shall be thoroughly planned in accordance with TRMSCAAC1 REV 3 and will require a water use licence in terms of the National Water Act, 1998 (Act 36 of 1998).	
Water diversion berms shall be installed at donga crossings to ensure runoff water on the servitude does not run into dongas and cause an erosion hazard.	
Suitable erosion containment structures shall be constructed at donga crossings where required and viable.	
All structures shall be properly designed and drawings shall be available for reference purposes. No unplanned / improperly planned cutting of donga embankments is allowed as this leads to erosion and degradation of the environment.	
Performance Indicator	<ul style="list-style-type: none"> » No disturbance to donga embankments. » No erosion visible on donga embankments due to construction activities. » No interference with the natural flow of water, unless permitted.

1.29. Winch and Tensioner stations

Mitigation: Target/Objective	<ul style="list-style-type: none"> » Prevent damage to vegetation. » Minimise damage to topsoil. » Successful rehabilitation of barren areas.
Mitigation: Action/control	
The siting of winch and tensioner stations shall be undertaken with the aim of avoiding ecological and heritage sensitivities identified by the specialists. The ECO must be consulted with regards to the placement of this stations. The guidelines provided by the Ecological and Heritage Specialists must also be taken into account.	
Specifications require the protection of Eskom supplied material on site, especially conductor drums. This normally means that a firebreak is created around a drum station in the veld where applicable.	
Once the stringing of the 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 and fencing in of the area shall be considered and carried out.	
Performance Indicator	<ul style="list-style-type: none"> » 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 one year after completion of the contract.
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1.30. Stringing Operations

Mitigation: Target/Objective	» Prevent damage to structures and crops. » Prevent disruption of services.
Mitigation: Action/control	
The necessary scaffolding / protection measures shall be installed to prevent damage to structures supporting certain high yield agricultural crops, such as vineyards, orchards, nurseries, etc., as well as the crops itself.	
All structures supplying services such as telephone and smaller power lines, as well as main and farm roads shall be safeguarded by measures to prevent disruption of services.	
All fences shall be protected against damage during stringing operations. Use of "rugby" posts to protect roads and telephone lines are sufficient.	
Performance Indicator	» No claims emanating from damage to supporting structures and crops. » No complaints or claims arising from disruption of services.

1.31. Tower Positions

Mitigation: Target/Objective	» Prevent damage to topsoil and environment at tower positions. » Successful rehabilitation of all damaged areas. » Prevention of erosion.
Mitigation: Action/control	
Disturbance of topsoil on tower sites with severe slopes shall be minimised at all costs. At any tower sites where conventional foundations are installed, the Contractor shall remove the topsoil separately and store it for later use during rehabilitation of such tower sites.	
Re-seeding shall be done on disturbed areas as directed by the ECO. In accordance with the Conservation of Agricultural Resources Act, (Act 43 of 1983), slopes in excess of 2% shall be contoured and slopes in excess of 12% shall be terraced. Other methods of rehabilitation of tower sites may also be used at the discretion of the ECO, e.g. stone pitching, logging, etc. Contour banks shall be spaced according to the slope on tower sites. The type of soil shall also be taken into consideration.	
A mixture of seed indigenous to the area can be used (where applicable) provided the mixture is carefully selected to ensure the following: <ul style="list-style-type: none"> a) Annual and perennial plants are chosen. b) Pioneer species are included. c) All the plants shall not be edible. d) Species chosen shall grow in the area without many problems. e) Root systems shall have a binding effect on the soil. f) The final product shall not cause an ecological imbalance in the area. 	
Seed distributors can also give valuable advice as to the mixtures and amount of seed necessary to seed a certain area. Re-seeding, as well as fencing in of badly damaged areas shall always be at the discretion of the ECO, and in co-operation with the Landowner.	
Performance Indicator	» 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.

1.32 Heritage and Archaeological issues

Mitigation: Target/Objective	<ul style="list-style-type: none"> » Protection of archaeological sites and land considered to be of cultural value » Protection of known sites against vandalism, destruction and theft » The preservation and appropriate management of archaeological finds during construction
Mitigation: Action/control	
Any destruction of a site can only be allowed once a permit is obtained and the site has been mapped and noted. Permits shall be obtained from Amafa aKwaZulu-Natali should the proposed line affect any heritage sites or if any sites are to be destroyed or altered.	
No disturbance to cemeteries. In cases where human remains are found outside recognised cemetery sites during construction, Amafa aKwaZulu-Natali must be informed immediately. Grave relocation permit conditions will apply to those tower positions affecting graves.	
Should any archaeological artefacts be exposed during construction activities, work on the area where the artefacts were found must cease immediately and the ECO must be notified within 24 hours.	
Tower positions with visible heritage issues (graves, artefacts, etc) are indicated in the site specific management section of this EMP.	
Performance Indicator	<ul style="list-style-type: none"> » No destruction of or damage to known archaeological sites » Management of existing sites and new discoveries in accordance with the recommendations of the archaeologist.

SECTION 4: TOWER SPECIFIC ENVIRONMENTAL MANAGEMENT PROGRAM

This Section outlines tower-specific management measures that need to be taken into consideration during the construction phase. This has been compiled for original and revised tower positions and considers the results of the walkthrough and reports undertaken by the specialists. This Section must not be read independently but with the general environmental specification outlined in Section 3 and associated Eskom policies and guidelines.

4. Description of the Affected Environmental Aspects

4.1. Flora Aspects

The proposed transmission line passes through the Savanna Biome and the Indian Ocean Coastal Belt, particularly to the Sub-Escarpment Savanna Bioregion as defined by Mucina & Rutherford (2006). It consists of five ecological types namely (1) Ngongoni Veld (2) Eastern Valley Bushveld, (3) KwaZulu-Natal Coastal Belt, (4) KwaZulu-Natal Sandstone Sourveld and (5) KwaZulu-Natal Hinterland Thornveld. A small section of the transmission line also passes through small and isolated Scarp Forests which provide habitat for forest-restricted species which include the "endangered" African Crowned-eagle (*Stephanoaetus coronatus*). Of all the vegetation types, the Ngongoni Veld and Eastern Valley Bushveld are prominent features along the transmission line while Sandstone Sourveld appears as prominent sedimentary escarpments which are all earmarked by a rich diversity of plant species. The latter are often characterised by steep vertical cliffs which provide nesting and roosting space for birds of prey, including the "endangered" Cape Vulture (*Gyps coprotheres*) which occurs as a small breeding colony near the Oribi Gorge Nature Reserve (approximately 7 km south of the proposed transmission line). It is worth mentioning that large sections of undergrowth of the thicket vegetation are invaded by near-impenetrable stands of *Lantana camara*.

4.2. Tree Marking (Protected Species)

The walk down involved a detailed vegetation assessment and the identification of protected trees in the proposed 400/132V power line corridor. The EMPr phase (walk down verification) involved a detailed vegetation assessment of the proposed transmission line. During this phase, a number of protected tree and plant species were identified as candidates to be marked/identified in accordance with the legislation. The relevant species are listed as:

- *Stangeria eriopus* (Natal grass cycad)
- *Sclerocarya birrea caffra* (Marula)
- All Protea species (proteas)
- Cyathea species (tree ferns)
- All Scadoxus species (blood lily)

In total, **48 georeferenced trees** and protected plant stands were recorded during the walk-down phase. Therefore, some of the trees recorded are likely to fall just outside the 55 m buffer. The white paint is used to illustrate to the client and contractor that if at all feasible (i.e. if the individual tree lies outside the actual required clearance zone), marked trees are to be left standing if they are not interfering with the construction and operation of the line. A protected tree removal permit application will be submitted to the Ezemvelo KZN Wildlife Authority (**Appendix 6.3**).

4.3. Fauna Aspects

From an overall faunal perspective, some of the habitat types within the corridor are considered to be sensitive on a large scale, as well as a site specific basis. Immediate impacts include trampling and overgrazing effects from livestock and wildlife mismanagement by landowners. Although a number of species in the area are considered to be red-data, the nature of the power line development is relatively low impact on most of the larger, more mobile species. It is the more sedentary and fossorial (burrowing) species, or those species relying upon sensitive habitats that may be at risk from the development process. Overall, from a terrestrial fauna perspective, power lines represent a relatively low impact development type. The linear footprint of the clearance will also be minimised as the existing servitude will be used to service the pylons, ensuring that the overall habitat loss is minimised. However, recognised sensitive habitat such as ridges, dune crests or wetlands are at risk from impacts such as the creation of the small excavation paths, vegetation clearance by machinery and power line placement (and subsequent maintenance).

4.4. Avifauna Vegetation Aspects

Bird diversity is positively correlated with vegetation structure although floristic richness is not regarded to be the most important contributor of observed patterns in bird abundance and spatial distributions. Grasslands are generally poor in woody plant species although it is considered to be an important habitat for many terrestrial bird species such as larks, pipits, korhaans and cisticolas. On the other hand, woodlands, thickets and forest are rich in woody plant species and are an important constituent of the Savanna and Forest Biome that provides habitat for a large number of bushveld and forest interior species that are impartial to grassland habitat types (notably birds of prey) (**Appendix 6.4**).

The abovementioned vegetation (or bushveld) units host a high diversity of bird species representing a broad spectrum of different functional groups (e.g. raptors, scavengers, insectivores, frugivores, granivores, hole-nesters, leaf-gleaners, hawkers and many more covering both the basal, mid and upper strata of the vegetation layer) which include dominant species such as the Sombre Greenbul (*Andropadus importunus*), Southern Boubou (*Laniarius ferrugineus*), Gorgeous Bush-shrike (*Chlorophoneus quadricolor*), White-browed Scrub-robin (*Erythropygia leucophrys*), Rattling Cisticola (*Cisticola cheniana*), Tambourine Dove (*Turtur tympanistria*), Cattle Egret (*Bubulcus Ibis*) and White-necked Raven (*Corvus albicollis*). Many of these species are also

threatened or near-threatened, while also being range-restricted (e.g. restricted to the Afro-temperate Forests).

In addition to the dominant vegetation types, a number of azonal habitat units were also identified in the study area, and it was necessary to elaborate on their importance from an avifaunal perspective:

- Drainage lines, streams and perennial rivers – These range from small seasonal streams to fairly large perennial rivers (e.g. the Mtwalume, Mzimkhulu and Lovu Rivers). These linear systems facilitate bird dispersal, thereby linking the study area with other important water bodies in the region. It provides important habitat and refuge for piscivorous species (e.g. White-breasted Cormorant (*Phalacrocorax carbo*) and African Fish Eagle (*Haliaeetus vocifer*) and wading birds (herons and storks);
- Man-made impoundments (dams) – these represent waterbodies of variable size which were mainly created to act as irrigation for sugarcane cultivation. They have undoubtedly benefit the colonisation and range expansion of many waterbird species that favours open water habitat (e.g. Little Grebe *Tachybaptus ruficollis*, Red-knobbed Coot *Fulica cristata* and Egyptian Goose *Alopochen aegyptiaca*). These waterbodies provide a safe refuge and nesting habitat for waterbird species;
- Subsistence cultivation, secondary woodland and open savannoid grassland – These are cultivated land or grazed areas corresponding to open savannoid grassland and tribal land which are important foraging habitat for large terrestrial taxa such as the White Stork (*Ciconia ciconia*), Abdim's Stork (*C. abdimii*), Secretarybird (*Sagittarius serpentarius*) and Cape Vulture (*Gyps coprotheres*);
- Escarpments – These occur as deeply incised riverine gorges or localised sandstone outcrops which provide high spatial heterogeneities and niche space. These areas are earmarked by vertical cliffs that are often utilised by birds of prey for roosting or breeding habitat e.g. Lanner Falcon (*Falco biarmicus*) and Cape Vulture (*Gyps coprotheres*);
- Dense Phragmites reedbeds - These occur as large and extensive reedbeds dominated by *Phragmites australis* and were rare and highly localised on the study area. They provide optimal foraging and breeding habitat for the African Marsh Harrier (*Circus ranivorus*) and a number of crake, warbler and Euplectine species; and
- Scarp and riverine forest - These are remnant forest patches which provide habitat for bird species that are not typically associated with any of the Savanna habitat types.

4.5. Heritage and Cultural Aspects

The positions of known sites have been shown on the final profiles, after a site-specific Heritage Impact Assessment was undertaken. Such areas have been marked as “no go” areas where applicable. Artefacts shall not be removed under any circumstances. For areas that require destruction of heritage resources a permit will be obtained from the Amafa. Should any archaeological sites be uncovered during construction, their existence shall be reported to Eskom Transmission Services Environmental Advisor immediately. An archaeologist will then take the necessary action so that construction can continue (**Appendix 6.2**).

4.6. Wetlands and Surface Watercourse

In terms of the Ramsar Convention on Wetlands (Iran 1971), to which South Africa is a signatory, "... wetlands include a wide variety of habitats such as marshes, peatlands, floodplains, rivers and lakes, and coastal areas such as salt marshes, mangroves, and sea grass beds, but also coral reefs and other marine areas no deeper than six metres at low tide, as well as human-made wetlands such as waste-water treatment ponds and reservoirs" (Ramsar Convention Secretariat 2007).

In South Africa, wetlands are defined as "...land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil" (National Water Act, Act No. 36 of 1998), (NWA). Wetlands are also included in the definition of a watercourse within the NWA, which implies that whatever legislation refers to watercourses will also be applicable to wetlands. The types of features included within the definition of a watercourse include:

- "...a river or spring..."
- "...a natural channel in which water flows regularly or intermittently..."
- "...a wetland, lake or dam into which, or from which, water flows..."
- "...any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse..."

In terms of the latest wetland delineation document available from the Department of Water Affairs and Forestry (DWAF), now known as the Department of Water and Sanitation (DWS), "wetlands must have one of the following attributes" (DWAF 2005):

- Wetland (hydromorphic) soils that display characteristics resulting from prolonged saturation.
- The presence, at least occasionally, of wetland associated plants (hydrophytes).
- A high water table that results in saturation at or near the surface, leading to anaerobic conditions developing in the top 50 cm of the soil.

It follows that the level of confidence associated with a specific area being considered as a wetland is proportionate to the number of confirmed indicators that positively correlate with wetland habitat. Not all indicators are always present within a specific biophysical and land use setting, while not all indicators are always reliable and/or useful under all conditions. The use of additional wetness indicators from different disciplines that are internationally applied therefore adds value and confidence in the identification and delineation of wetland habitats, especially in challenging environments (Illgner et al., 2009). The wetland specialist report is attached to this documents that contributed to this section can be referred at **Appendix 6.1**. There are tower positions that are located within the wetlands and in some areas riparian zones. The construction of these towers will be subjected to the conditions of the Water Use License which will be submitted to the Department of Water Affairs and Sanitation.

2. Tower Specific Issues and Management

The respective tower positions within line alignment are shown on the topocadastral backdrop map. The entire alignment has been divided in to 6 sections of the line in order to zoom out tower numbers on each and every section of the map (see **Figure 4 to Figure 10**). The powerline from Ariadne substation will be multicircuit 400/132kV until it gets to new Oribi (now known as St. Faiths) substation and from this substation the powerline will be a single circuit 400kV line up to Eros substation. The position of the towers is based on Line Engineering profiles dated August and September 2014.

The following is an interpretation of the table below;

- » MC Tower .: Multicircuit section of the line and the respective tower numbers (the 400 & 132kV)
- » SC Tower .: Single circuit section of the line and the respective tower numbers

All the tower positions within the alignment are shown on the aerial photographs as well as the various mitigation and management issues. Symbols (Map Legends) below will be used to highlight specific issues

A. The Symbols that represent issues as per tower



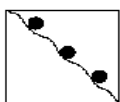
Special flora (protected trees and vegetation of significance)



Special bush clearing mitigation measures apply.



Plantations or orchards



Erosion prevention



Bird diverters / flappers



Watercourses or wetland



Agricultural practices or sugar cane plantation

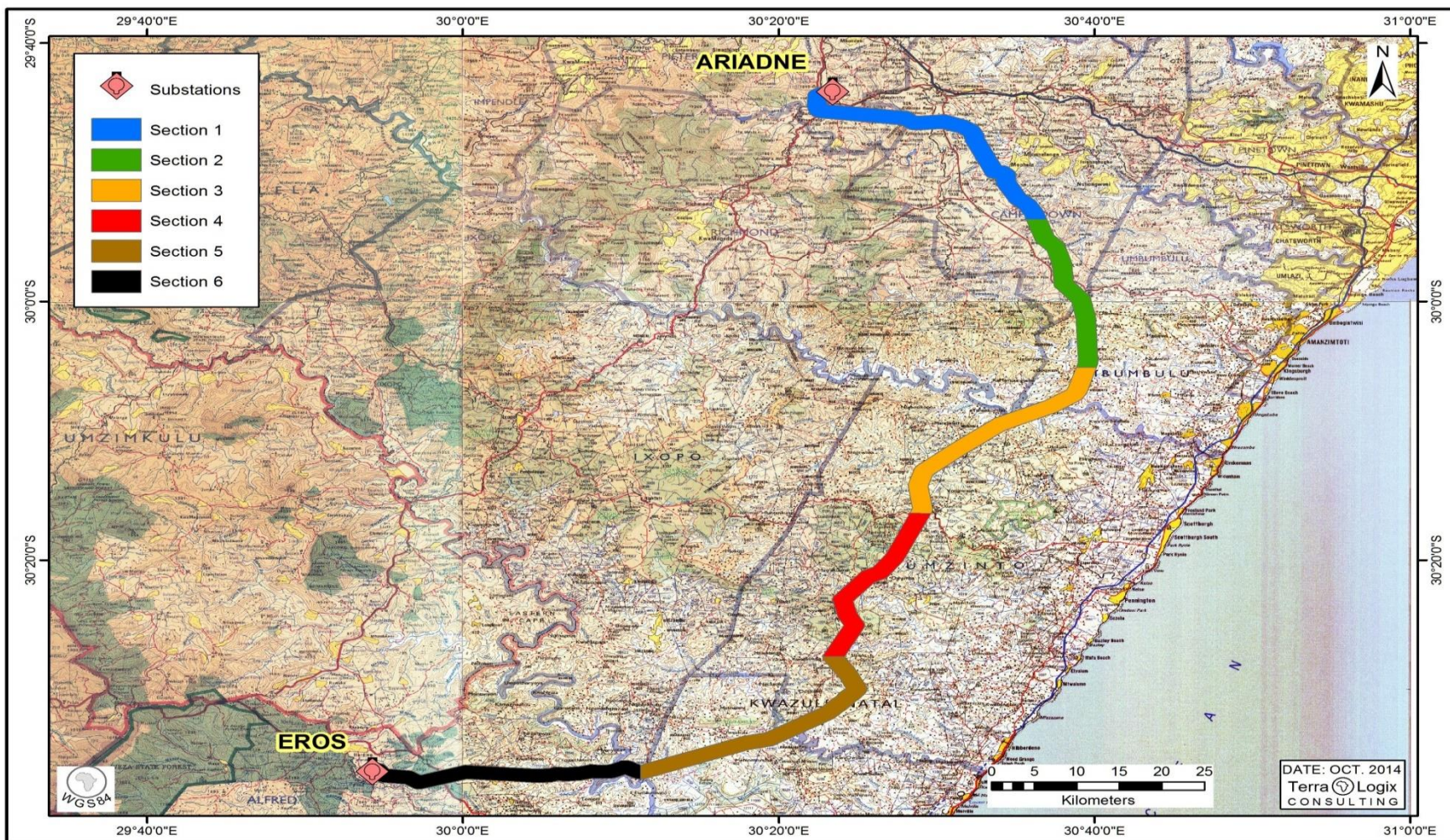


Relocation of households or grave relocation

The tables in this section of the report are structured as follows to consider the alignment as well as specialist information specific to each tower.

MC & SC Tower	Farm/ Erven Name	Contact Details and Special Condition	Aspects and Management measures
Provides tower numbers	The name of the farm and portion number	Provides the name of the landowner, contact details and special conditions	Ecology: mitigation measures as per the specialist Wetland: mitigation measures as per the specialist Heritage: mitigation measures as per the specialist

The respective tower positions within line alignment are shown on the aerial photographs (Google Earth) for the sections of the power line. The positions of the towers are based on the Line Engineering profiles dated August and September 2014.



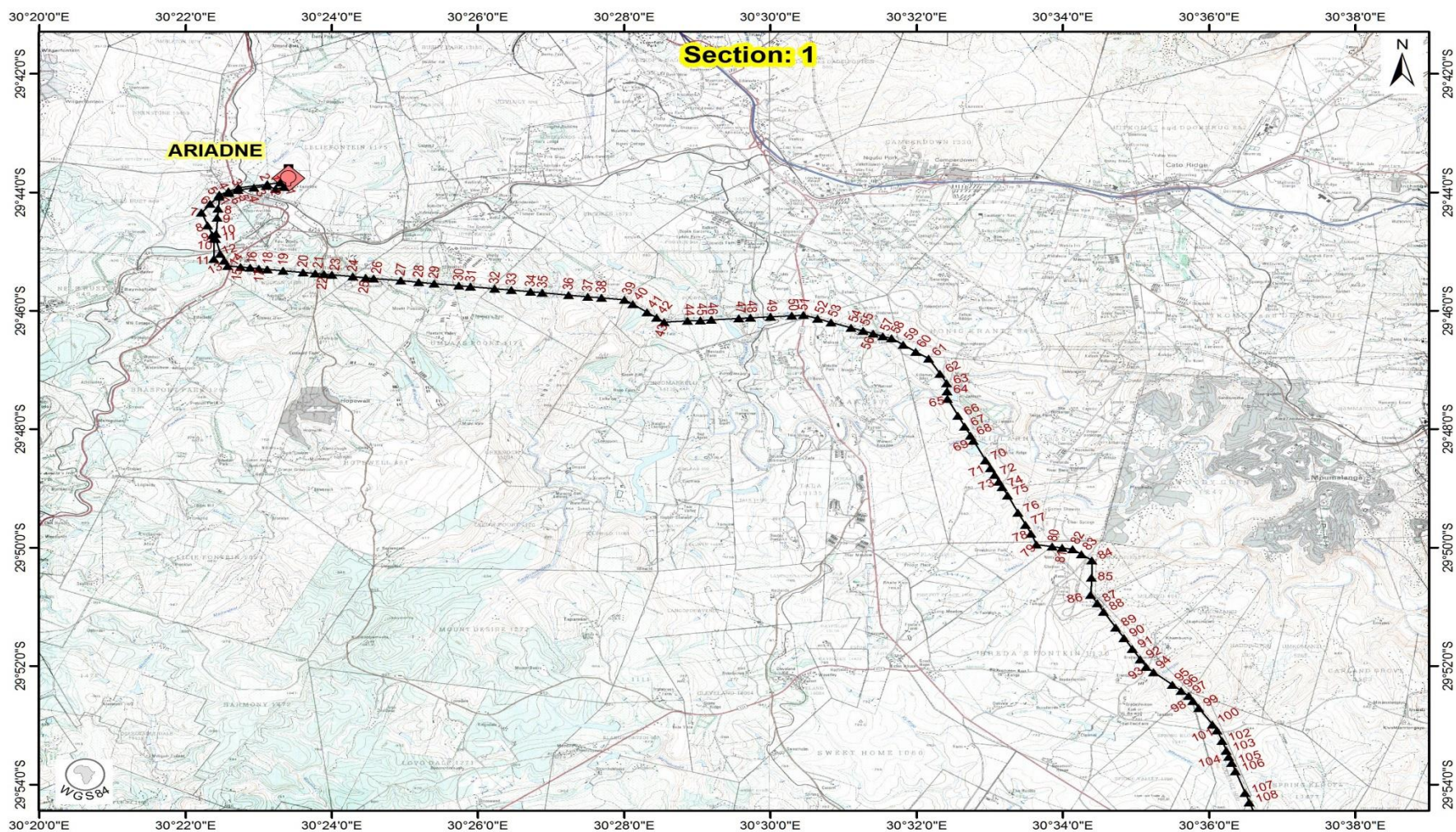


Figure 5: Section 1 of the study area with the pylon positions

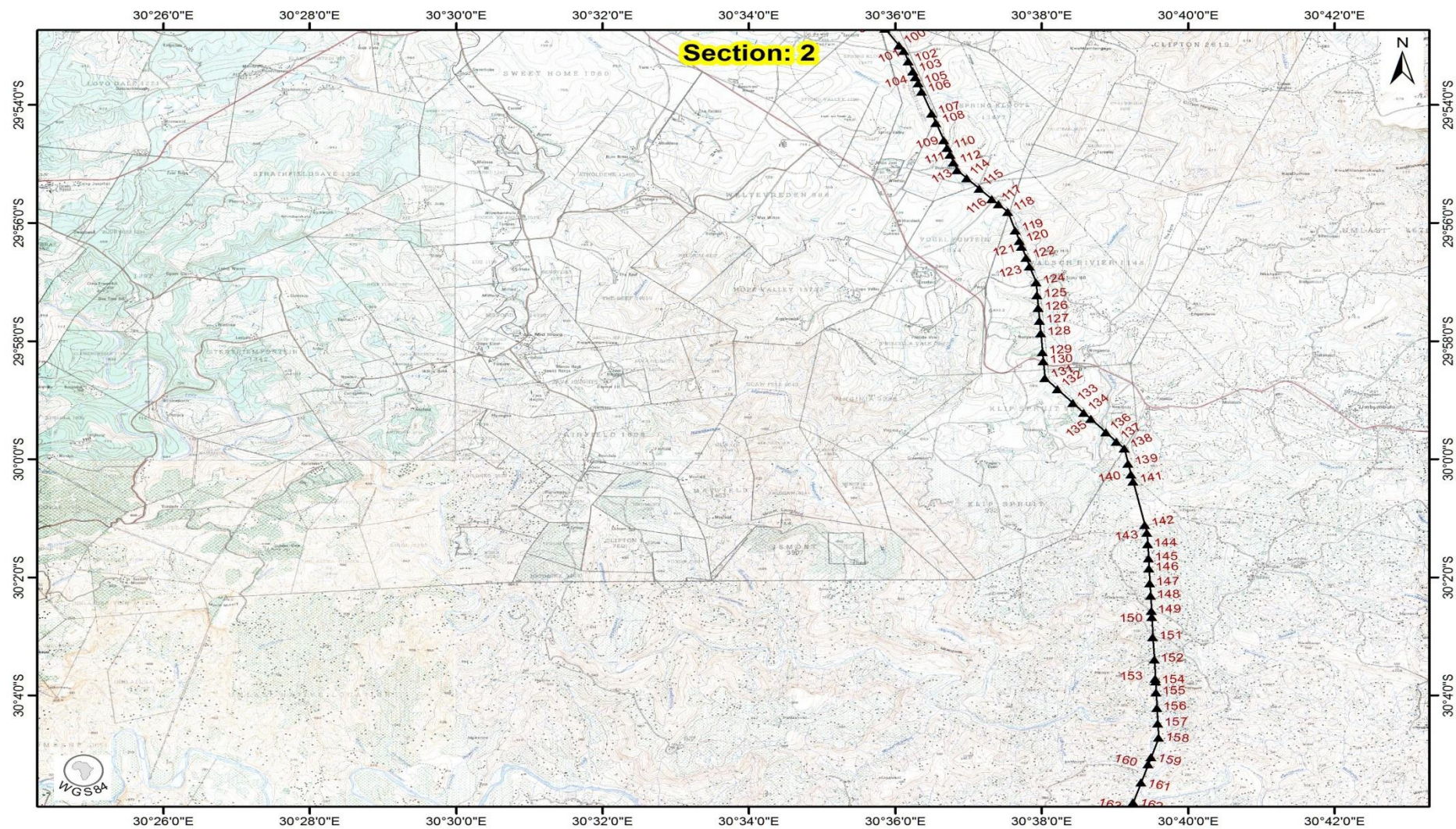


Figure 6: Section 2 of the study area with pylon positions

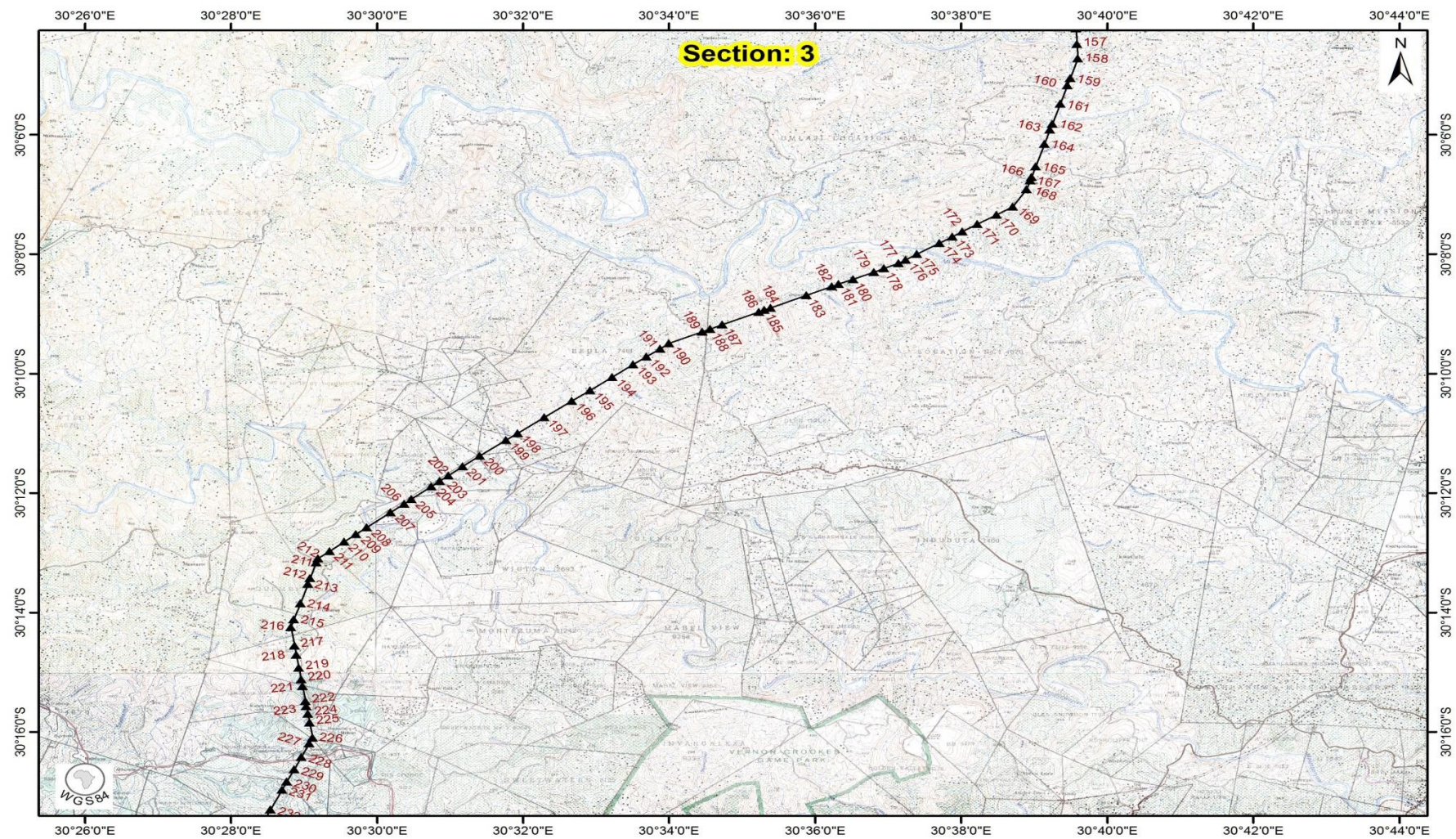


Figure 7 : Section 3 of the study area with pylon positions

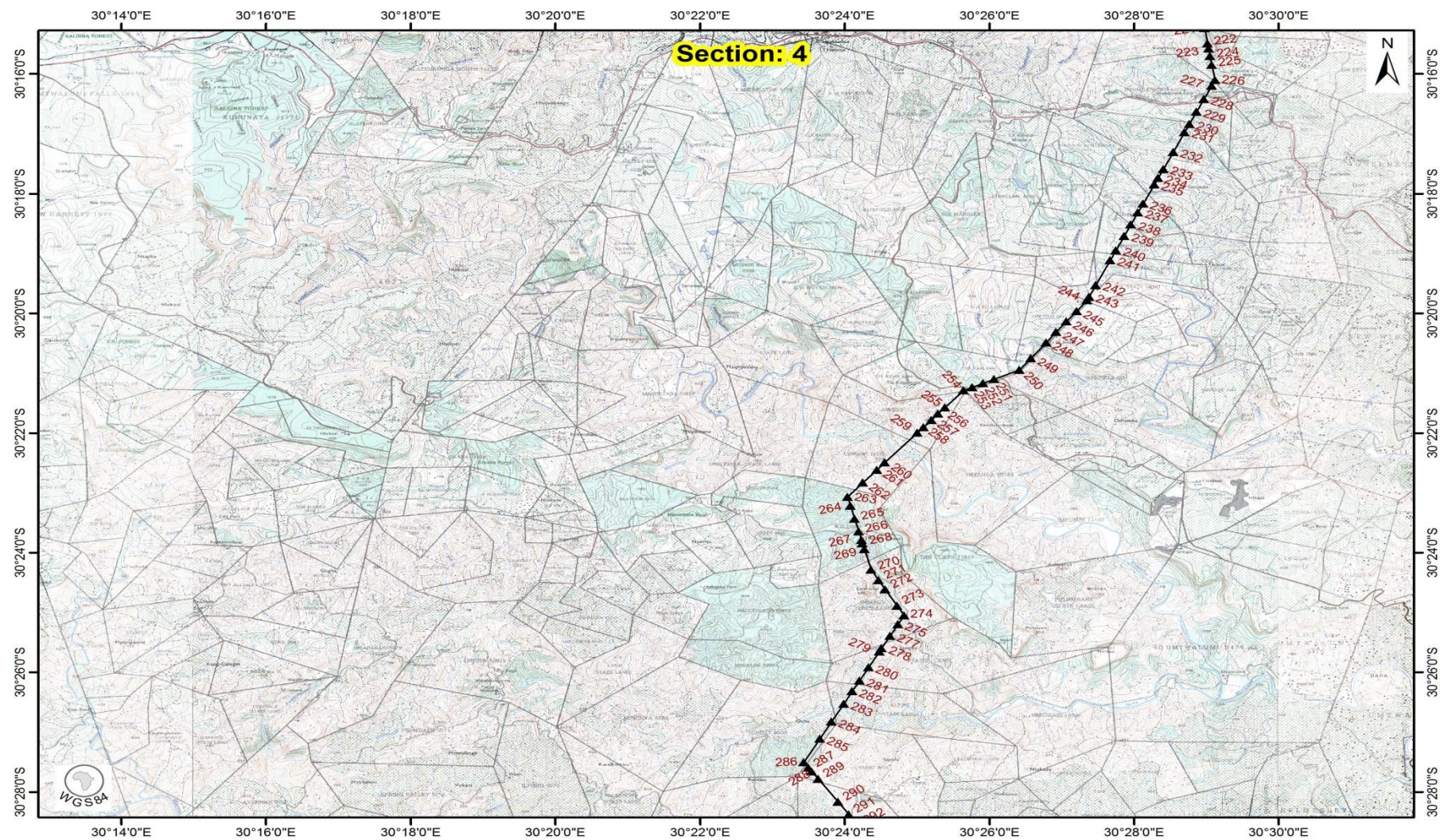


Figure 8: Section 4 of the study area with pylon positions

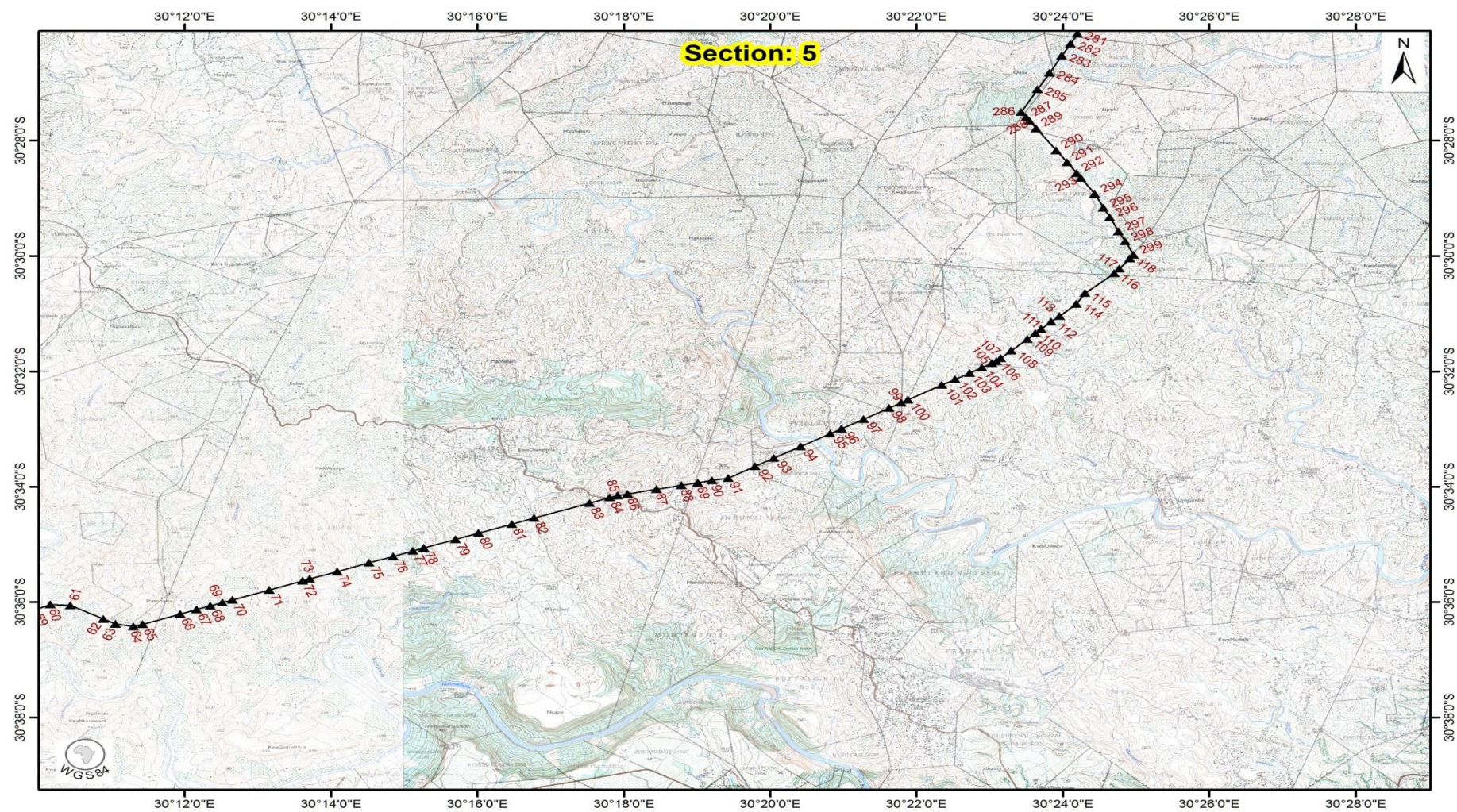


Figure 9 : Section 5 of the study area with pylon positions

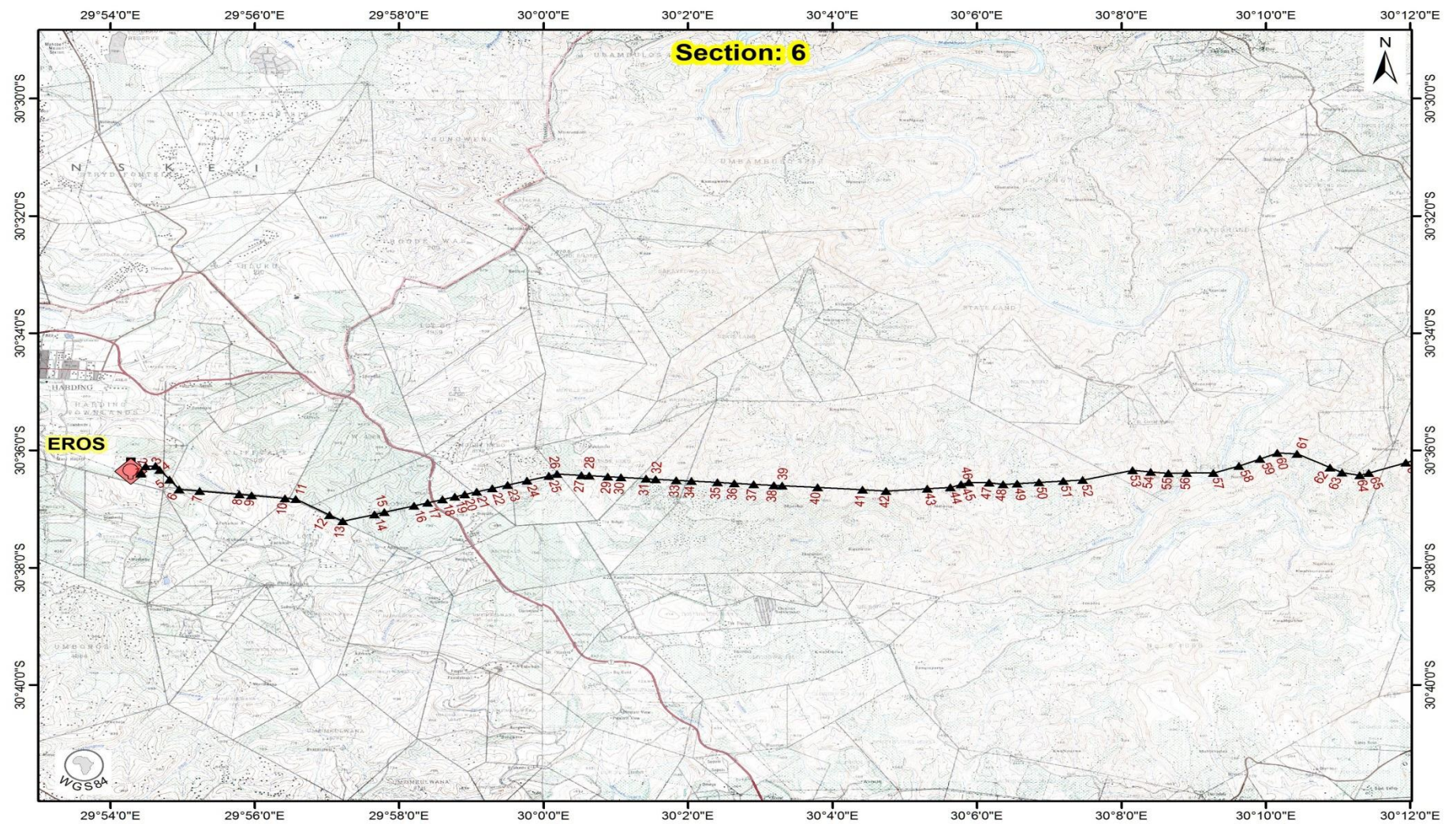
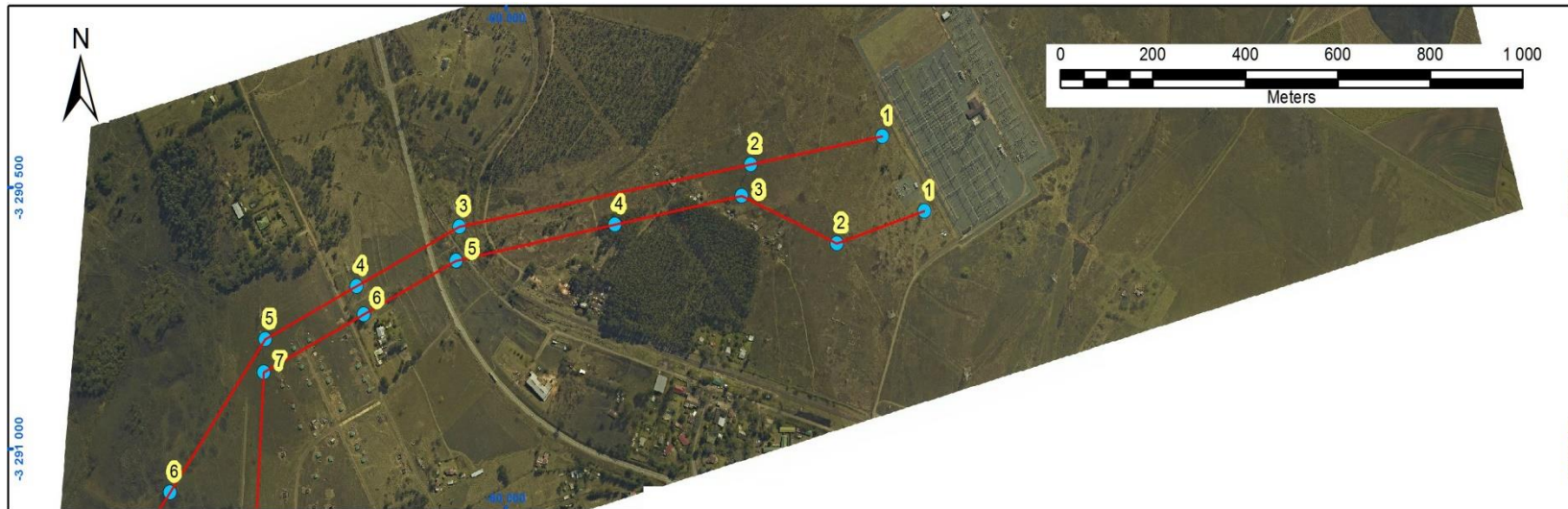


Figure 10 : Section 6 of the study area with pylon positions


2.1. Site-Specific Mitigation Measures (Multi-circuit 400/132kV Towers)




MC Tower No	Farm/ Erven Name	Contact Details and Special Condition	Aspects and Management measures
1-3	Leliefontein 1175 FT portion 85	Eskom –owned property No special conditions	Generic mitigation measures apply for this section

MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspects and Management measures
4	Thornville 67 portion 0	No contact details provided	Generic mitigation measures apply. There is plantation of eucalyptus species.

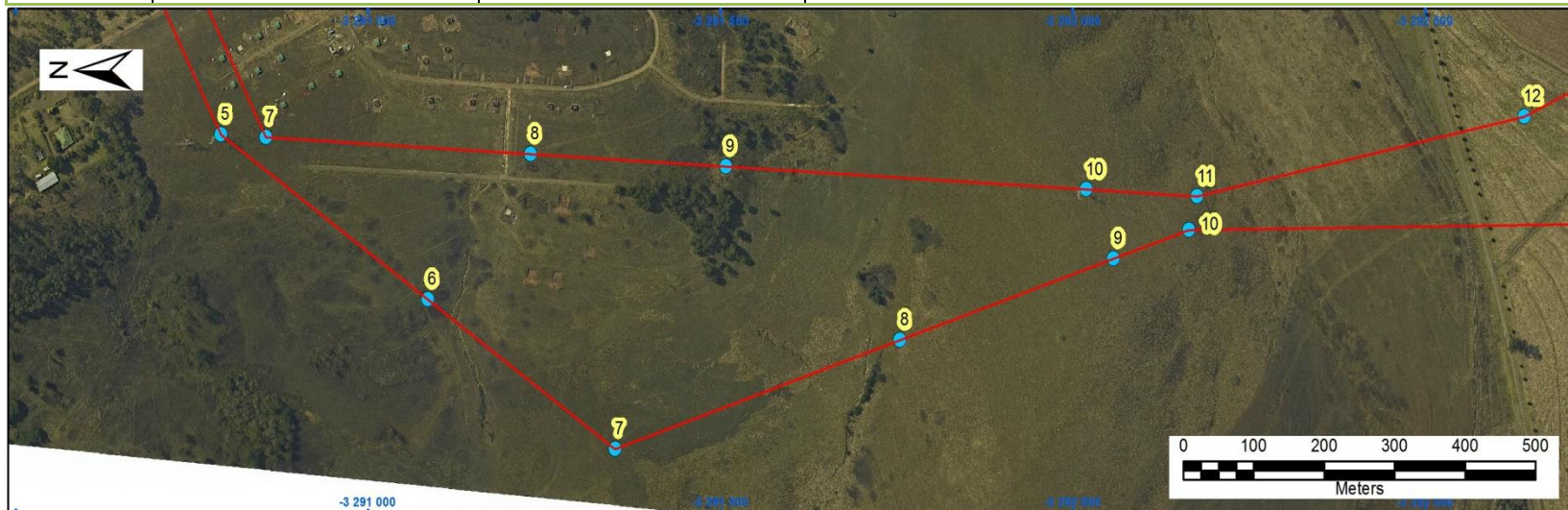
			
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MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspects and Management measures
5	Thornville portion 100	No Contact details provided	<p>Ecology and Heritage: Generic mitigation measures apply</p> <p>Wetland: Span the line over the pan. Movement of vehicles must be controlled and monitored. Keep vegetation clearing and excavations to a minimum extend.</p> 

MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
6	Thornville portion 82	No Contact details	<p>Generic mitigation measures apply for the Heritage, Ecology Wetland.</p> <p>Avifauna: Fit Bird Flight Diverters must be installed</p> 


MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
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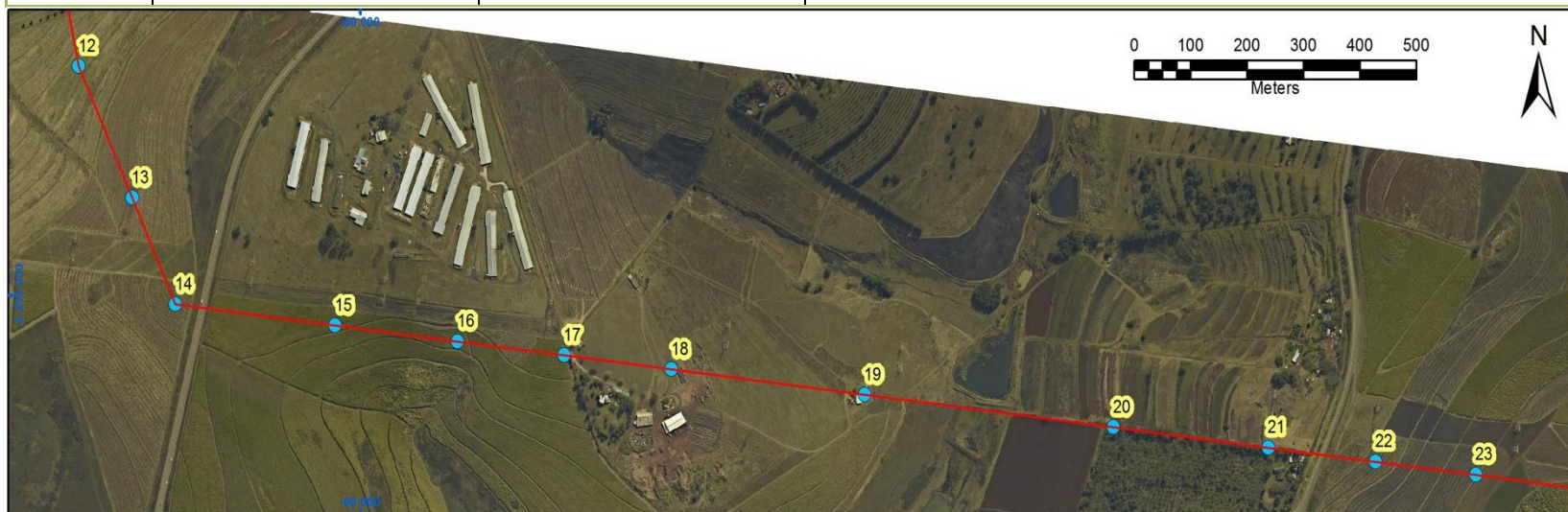
7	Zwelethu Community Trust portion 126	Zwelethu Community Trust, Mr Tony Nxele 0733652124 Please phone before entering	Wetland & Ecology: Generic Mitigation measures apply Heritage: There is a grave that needs to be protected or fenced off because it's not directly affected by tower.  Cultural or heritage issues
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MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
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8-9	Thornville portion 129	No Contact details	Wetland: control erosion and run-off Avifauna: Install Bird Flight Diverters  Heritage: Mitigation measures apply
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MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
10-11	Thornville portion 6	No Contact details	Wetland: Erosion control measures must be implemented. Avifauna: Fit the Bird Flight Diverters. 

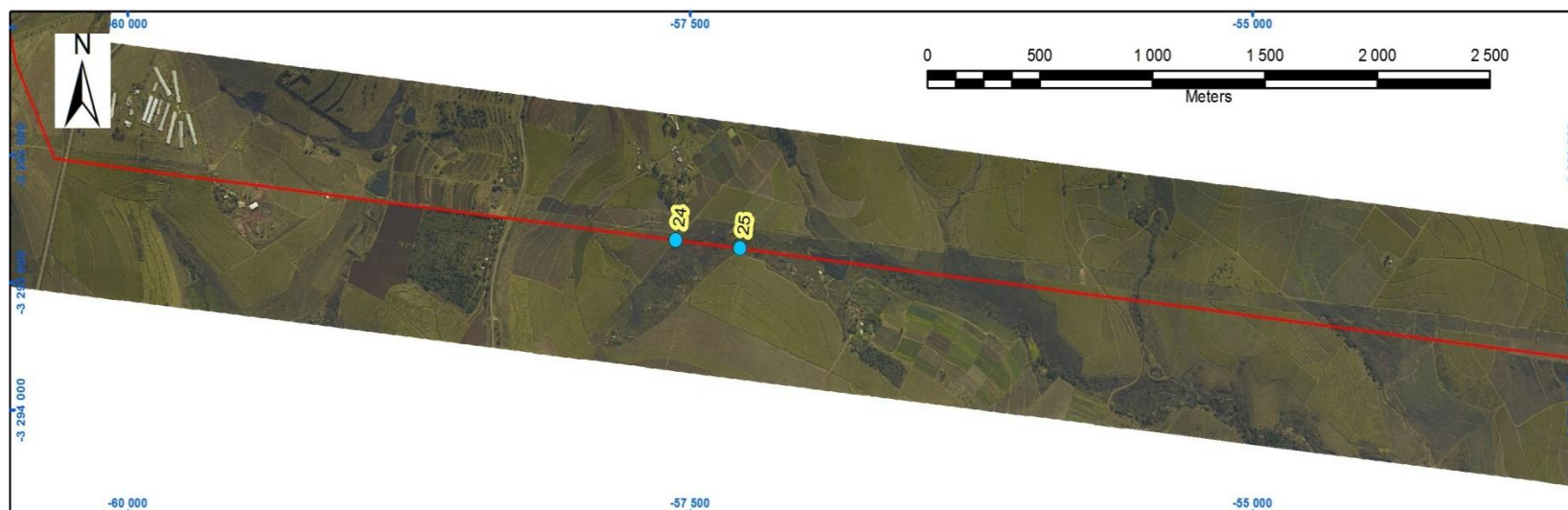






MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
12-14	Nels Rust 849 FT portion 85	Joseph Baynes Estate: Mr. Miles 033 251 0044 No Special Conditions supplied, courtesy call before entering	Wetland: Erosion control measures must be implemented. Avifauna: Fit Bird Flight Diverters   Cultivated lands (all anchors to be marked with a yellow slit). Tower 12 and 13 are on maize field.

MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
15-17	Buckan 15858 FT portion 13	Dunraven Farms (pty) Ltd Mr. Mapston 082 854 3933 Need a courtesy call before entering.	Ecology, Heritage & Wetland: Generic mitigation measures apply  Cultivated lands (all anchors to be marked with a yellow slit). Tower 15, 16 and 17 are on maize field and sugar cane plantation. Sugar cane mitigation, towers must be installed as per the MOU between Eskom and SASA or agreements with the affected landowner.

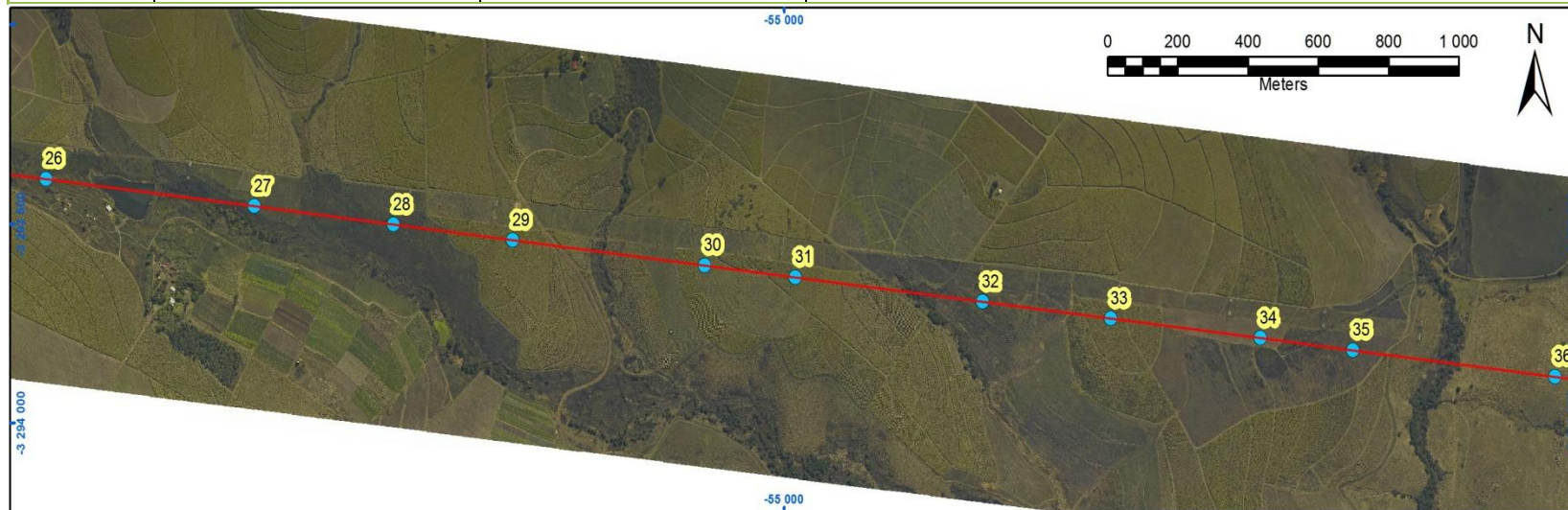
MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
18	Buckan 15858 FT portion 11 & 15	Mr. Fourie 082 375 7796 Need a courtesy call before entry	Ecology, Heritage & Wetland: Generic mitigation measures apply  Cultivated lands (sugar cane plantation). All anchors to be marked with a yellow slit. Sugar cane mitigation, towers must be installed as per the MOU between Eskom and SASA or agreements with the affected landowner.


MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
19-21	Buckan 15858 FT portion 29	Buckan Farm Trust: Mr. Mncabe 076 476 4302 Courtesy call before entry	Ecology, wetland, heritage: Generic mitigation measures apply  Social issues –Tower 19 is on the shed that needs to be relocated







MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
22-24	Timshell 17942 FT portion 0	No contact details	<p>Ecology: Fit all spans with Double Loop Bird Flight Diverters.</p> <p>Wetland: Unchannelled valley bottom. Control run-off and erosion. Conditions of the Water Use License will apply.</p> <p>Heritage: Generic mitigation measures apply</p> <div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; gap: 10px;">    </div> <div style="display: flex; align-items: center; margin-top: 10px;">  <div style="margin-left: 10px;"> <p>Cultivated lands (sugar cane plantation). All anchors to be marked with a yellow slit. The agreement between Eskom</p> </div> </div> </div>

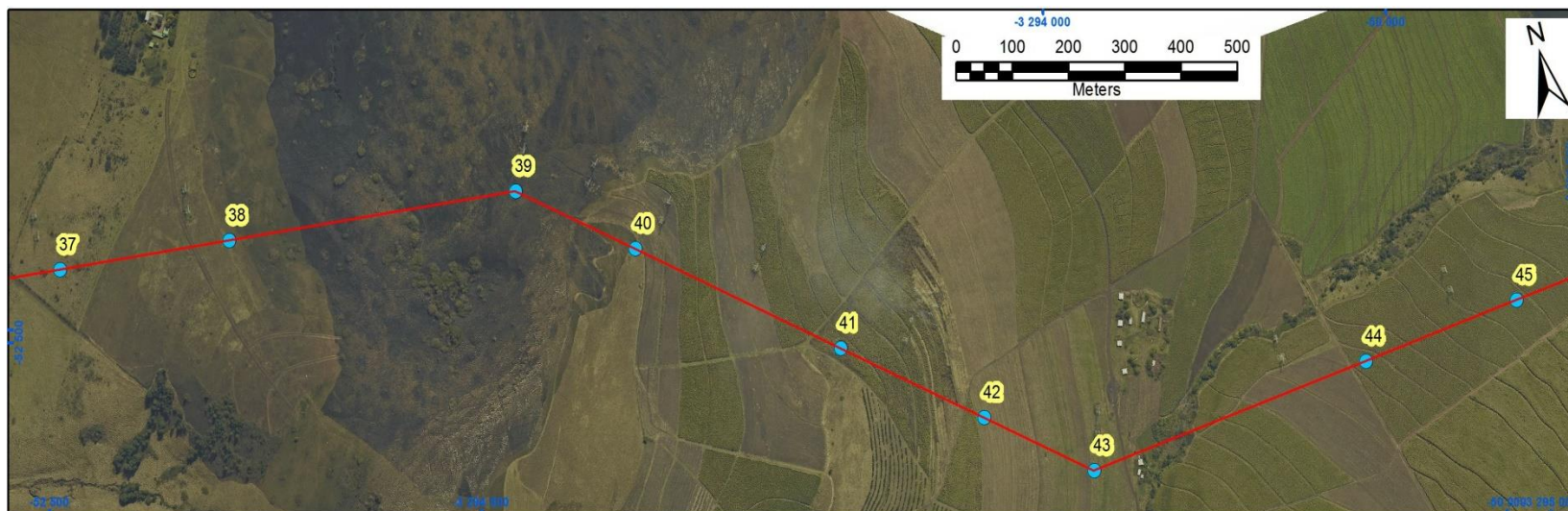
and affected landowners apply with regards to sugar cane plantation.



MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
25-26	Newleeds 17871 FT portion 0	Mr. Mapston 082 854 3933 No special conditions but a courtesy call before entry.	Avifauna: Fit Bird Flight Diverters Wetland: Erosion control measures must be implemented.  Heritage: Generic mitigation measures apply

MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
27-29	Umlaas Poort 1774 portion 2 and Crookes 1174 FT portion 14	Mr. Brendan Paul 082 569 3998 Call landowner first before entry	<p>Ecology, Heritage & Wetland: Generic mitigation measures apply</p>  <p>Cultivated lands (all anchors to be marked with a yellow slit). Towers are on sugar cane plantation. Sugar cane mitigation, towers must be installed as per the MOU between Eskom and SASA or agreements with the affected landowner.</p>

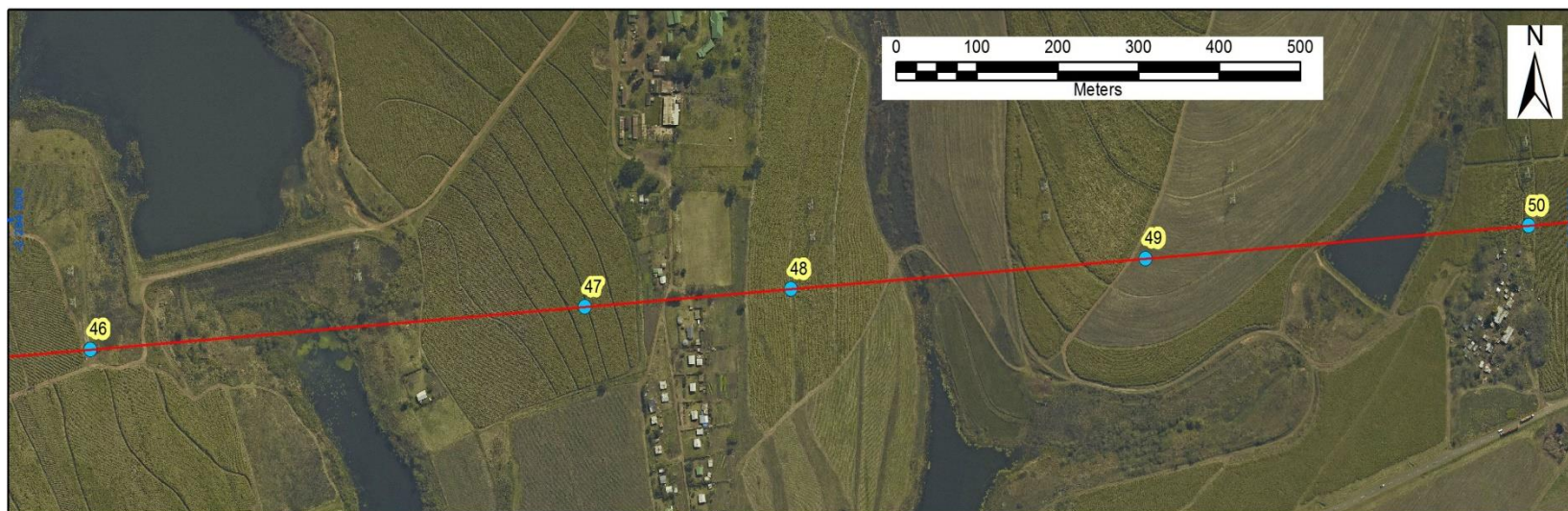
MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
30-36	Umlaas Poort 1174 FT portion 3	Thorner Estate 082 332 1600 Call landowner 24 hours before entry	<p>Ecology: Fit all spans with Double Loop Bird Flight Diverters</p> <p>Wetland: Erosion control and run-off mitigation measure to be implemented.</p>   <p>Heritage: Generic mitigation measures apply</p>  <p>Cultivated lands (all anchors to be marked with a yellow slit). Towers are on sugar cane plantation. Sugar cane mitigation, towers must be installed as per the MOU between Eskom and SASA or agreements with the affected landowner.</p>






MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
37-41	Poortjie 904 FT portion 2 and Falls/ Ingomankulu 17800 FT portion 0	Duncan Stead 083 320 4571 Call landowner first before entry	<p>Ecology: Fit all spans with Double Loop Bird Flight Diverters</p> <p>Wetland: Erosion control and run-off mitigation measure to be implemented.</p> <div> </div> <p>Heritage: Generic mitigation measures apply</p> <div> </div> <p>Cultivated lands (all anchors to be marked with a yellow slit). Towers are on sugar cane plantation. Sugar cane mitigation,</p>




			towers must be installed as per the MOU between Eskom and SASA or agreements with the affected landowner.
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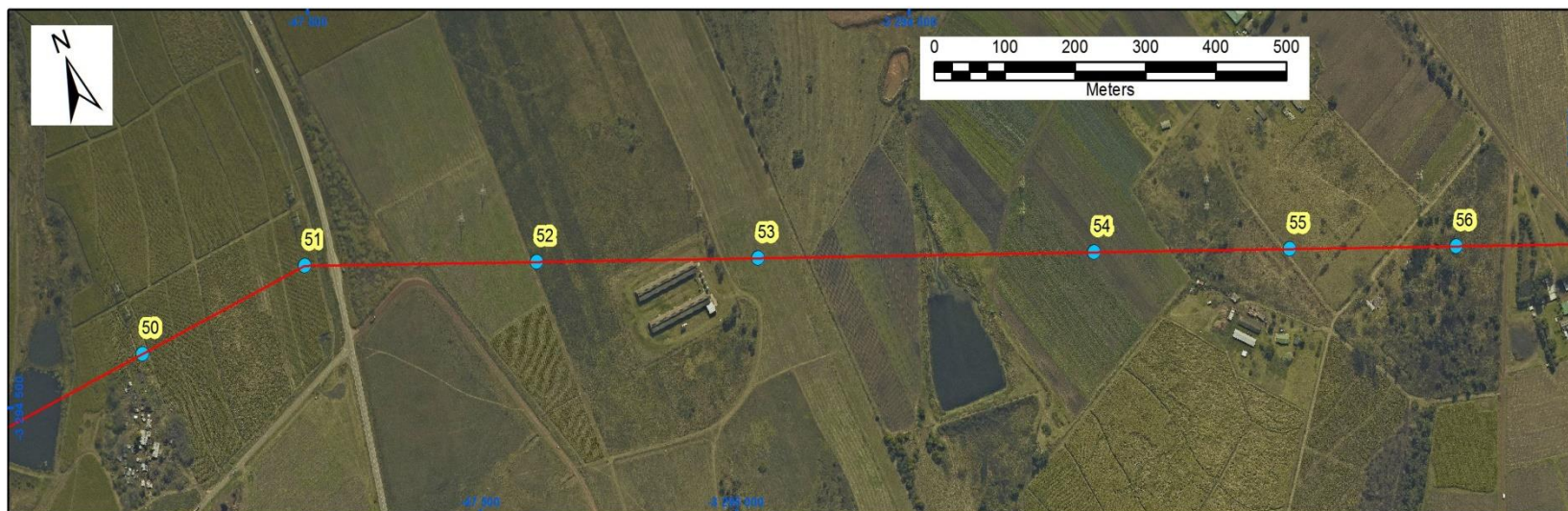
MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
42-45	Poortjie 904 FT portion 11, & 18	Jennic Trust 082 828 6191 No special landowners condition provided	<p>Ecology: Fit span with Double Loop Bird Flight Diverters. Avoid placement of laydown camps.</p> <p>Heritage & Wetland: Generic mitigation measures apply</p> <div> </div> <p>Cultivated lands (all anchors to be marked with a yellow slit). Towers and sugar cane plantation. Sugar cane mitigation, towers must be installed as per the MOU between Eskom and SASA or agreements with the affected landowner.</p>







MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
46-47	Poortjie 904 FT portion 61	Mr. Robdav 083 320 4571 No special condition provided	<p>Ecology: Fit all spans with Double Loop Bird Flight Diverters</p> <p>Wetland: Erosion control and run-off mitigation measure to be implemented.</p> <div>   </div> <p>Heritage: Generic mitigation measures apply</p> <div>  <p>Cultivated lands (all anchors to be marked with a yellow</p> </div>




			slit). Towers are on sugar cane plantation. Sugar cane mitigation, towers must be installed as per the MOU between Eskom and SASA or agreements with the affected landowner.
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MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
48-49	Poortjie 904 FT portion 61	Mr. Duncan Stead 083 320 4571 No special condition provided	<p>Ecology: Fit all spans with Double Loop Bird Flight Diverters</p> <p>Wetland: Erosion control and run-off mitigation measure to be implemented.</p>   <p>Heritage: Generic mitigation measures apply</p>  <p>Cultivated lands (all anchors to be marked with a yellow slit). Towers are on sugar cane plantation. Sugar cane mitigation, towers must be installed as per the MOU between Eskom and SASA or agreements with the affected landowner.</p>






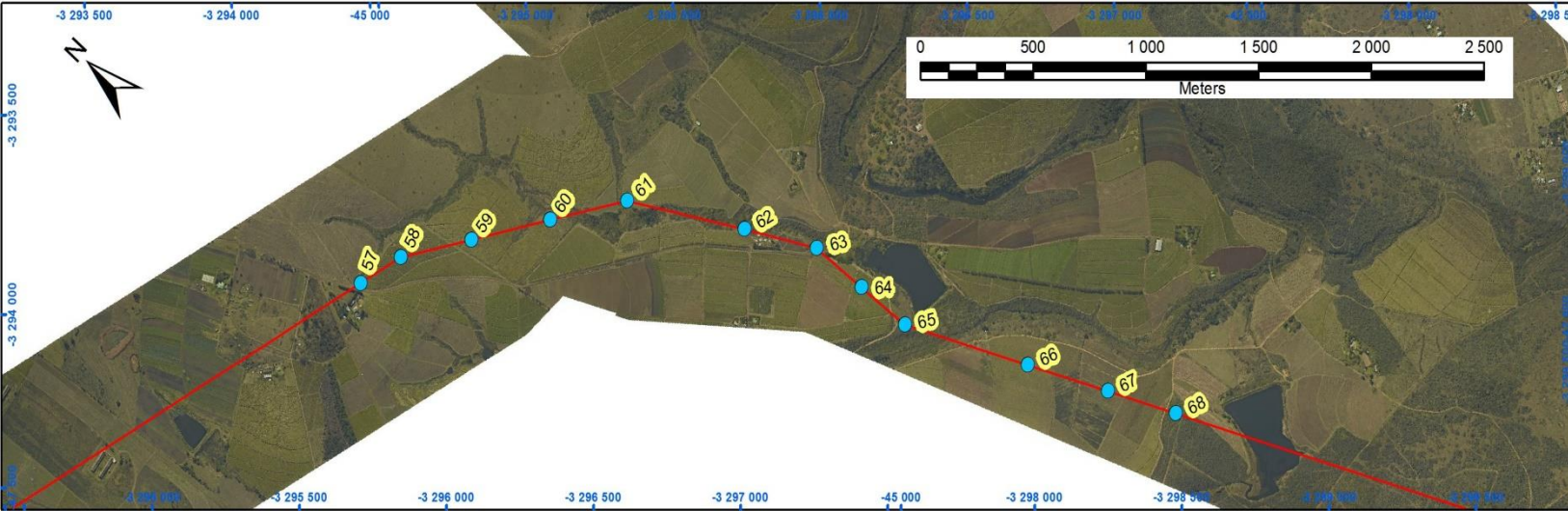



MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
50-51	Umlaas Poort 902 FT portion 6	Pioneer foods. No contact details and special conditions were provided	<p>Ecology: Fit all spans with Double Loop Bird Flight Diverters</p> <p>Wetland: Erosion control and run-off mitigation measure to be implemented.</p> <div>   </div> <p>Heritage: Generic mitigation measures apply</p> <div>  </div> <p>Cultivated lands (all anchors to be marked with a yellow</p>


			<p>slit). Towers are on sugar cane plantation. Sugar cane mitigation, towers must be installed as per the MOU between Eskom and SASA or agreements with the affected landowner.</p>  <p>Tower 50: Social issues-next to the settlement</p>
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MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
52	Umlaas Poort 902 FT portion 35	<p>Steward 082 468 5165</p> <p>No special conditions provided</p>	<p>Ecology: Fit all spans with Double Loop Bird Flight Diverters</p> <p>Wetland: Erosion control and run-off mitigation measure to be implemented.</p>   <p>Heritage: Generic mitigation measures apply</p>  <p>Cultivated lands (all anchors to be marked with a yellow slit). Towers are on sugar cane plantation. Sugar cane mitigation, towers must be installed as per the MOU between Eskom and SASA or agreements with the affected landowner.</p>

MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
53-54	Umlaas Poort 902 FT portion 36	Wilfred Mkhize 072 485 5797 No special conditions provided	Ecology, Wetland & Heritage: Generic mitigation measures apply  Cultivated lands (all anchors to be marked with a yellow slit). Towers are on sugar cane plantation. Sugar cane mitigation, towers must be installed as per the MOU between Eskom and SASA or agreements with the affected landowner.



MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
55-56	Umlaas Poort 902 FT portion 17	Robdav 083 320 4571 Please call landowner first	Ecology: Generic mitigation measures apply Wetland: Erosion control and run-off mitigation measure to be implemented. Tower 55 is closer to the channelled valley bottom. Conditions of the Water Use License (WUL) apply. Heritage: Generic mitigation measures apply    Cultivated lands (all anchors to be marked with a yellow slit). Towers are on sugar cane plantation. Sugar cane mitigation, towers must be installed as per the MOU between Eskom and



			SASA or agreements with the affected landowner.
			
MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
57-58	Honig Krantz 945 FT portion 5 & 13	Schwegmann 072 320 4571 Phone in advance please	<p>Ecology: Alignment parallel to drainage line and dam, and crossing drainage lines. Fit span with Double Loop BFD.</p> <p>Wetland: Channelled valley bottom. Erosion control measures must be implemented. Conditions of the Water Use License apply.</p> <div style="display: flex; align-items: center; gap: 10px;">    </div>




			<p>Heritage: Generic mitigation measures apply</p>  <p>Cultivated lands (all anchors to be marked with a yellow slit). Towers are on sugar cane plantation. Sugar cane mitigation, towers must be installed as per the MOU between Eskom and SASA or agreements with the affected landowner.</p>
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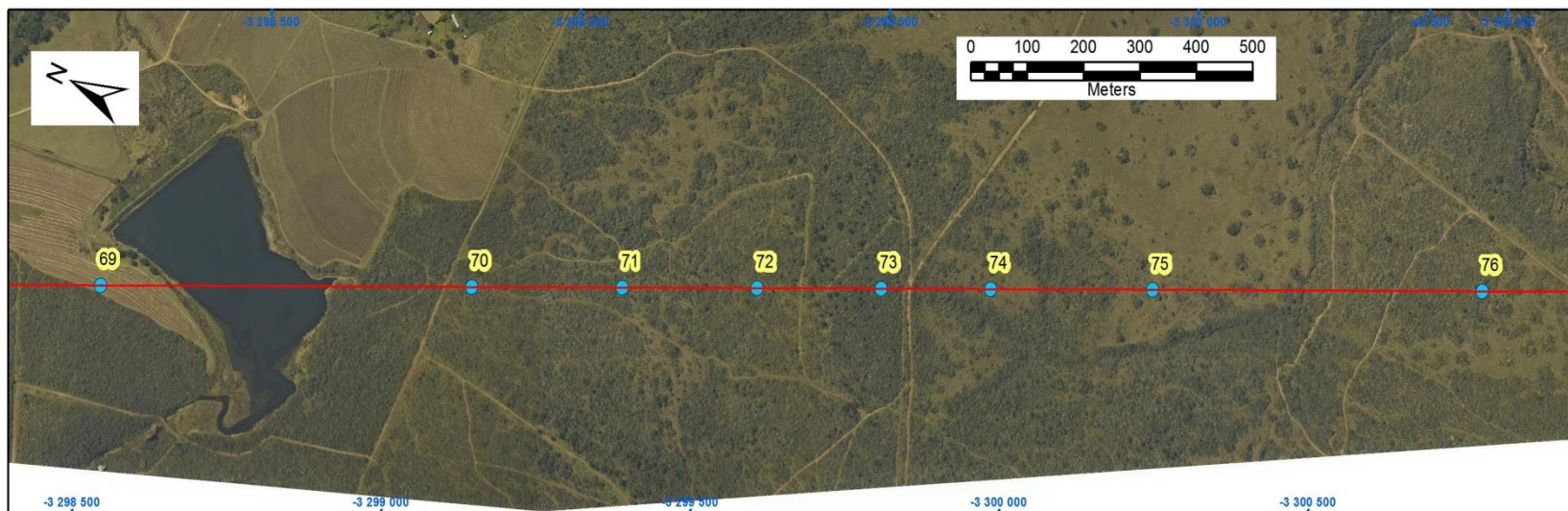
MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
59	Killarney 885 FT portion 61	Killarney Sugar Ent 082 772 2166 Give a couple of days' notice before access.	<p>Ecology: Alignment parallel to drainage line and dam, and crossing drainage lines. Fit span with Double Loop BFD. Avoid placement of laydown camps</p> <p>Wetland: Erosion control and run-off mitigation measure to be implemented.</p>   <p>Heritage: Generic mitigation measures apply</p>  <p>Cultivated lands (all anchors to be marked with a yellow slit). Towers are on sugar cane plantation. Sugar cane mitigation, towers must be installed as per the MOU between Eskom and</p>




			SASA or agreements with the affected landowner.
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


MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
60-62	Killarney 885 FT portion 60	<p>Eight Boshoff Trust 082 553 7685</p> <p>No special conditions provided</p>	<p>Ecology: Alignment parallel to drainage line and dam, and crossing drainage lines. Fit span with Double Loop BFD.</p> <p>Wetland: Erosion control and run-off mitigation measure to be implemented. Conditions of a Water Use License will apply.</p>  <p>Heritage: Possible burial ground. Conditions of heritage will apply</p>  <p>Cultivated lands (all anchors to be marked with a yellow slit). Towers are on sugar cane plantation. Sugar cane mitigation, towers must be installed as per the MOU between Eskom and SASA or agreements with the affected landowner.</p>

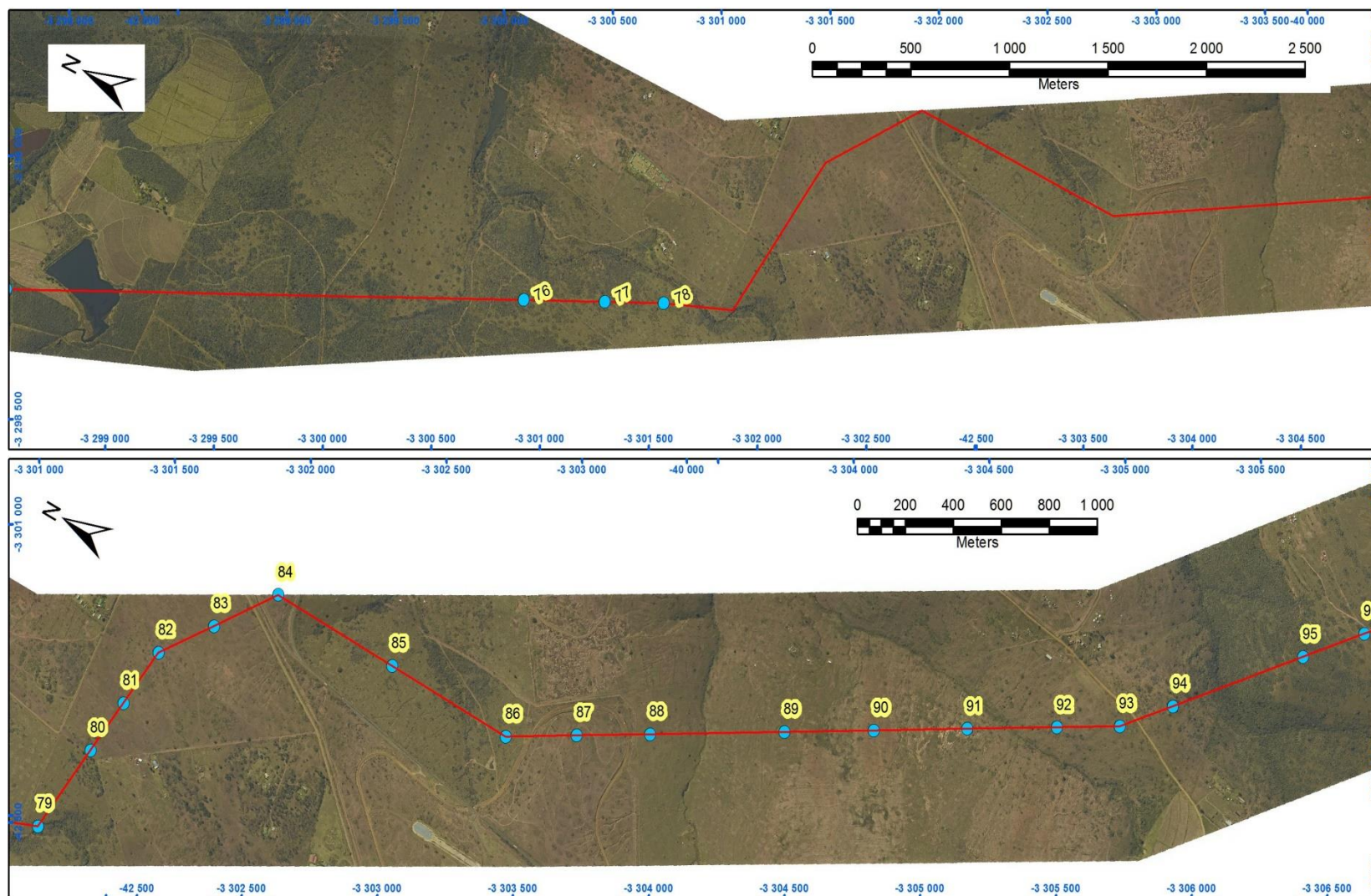
MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
63	Killarney 885 FT portion 91	Mr Harvey 083 253 1544 No special conditions provided	<p>Ecology: Alignment parallel to drainage line and dam, and crossing drainage lines. Fit span with Double Loop Bird Flight Diverters.</p> <p>Wetland: Erosion control and run-off mitigation measure to be implemented. Conditions of a Water Use License will apply.</p> <div>   </div> <p>Heritage: Generic mitigation measures apply</p>



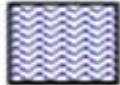

MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
64-67	Killarney 885 FT portion 6, 76, 92, 93	Mr Mkhize 084 548 0776 Please call Mr. Mkhize prior	<p>Ecology, Wetland & Heritage: Generic mitigation measures apply</p> <div>   </div> <div>  <p>Cultivated lands (all anchors to be marked with a yellow slit). Towers are on sugar cane plantation. Sugar cane mitigation, towers must be installed as per the MOU between Eskom and SASA or agreements with the affected landowner.</p> </div>




MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
68-71	Killarney 885 FT portion 6, 76, 92, 93	Mr Mkhize 084 548 0776 Please call Mr. Mkhize prior	<p>Ecology, Wetland & Heritage: Generic mitigation measures</p>    <p>Line crossing a game farm (The following towers are affected 70, 71,)</p>




MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
72-76	Killarney 885 FT portion 6, 76, 92, 93	Mr Mkhize 084 548 0776 Please call Mr. Mkhize prior	<p>Ecology: Fit span with Double Loop Bird Flight Diverters on towers 73 to 74. Avoid placement of laydown camps.</p> <p>Wetland: Generic mitigation measures apply including proper erosion control measures especially on tower 72.</p> <div>   </div> <p>Heritage: Generic mitigation measures apply</p> <div>  </div> <p>Line crossing a game farm (The following towers are affected 72, 73, 74, 75, 76)</p>




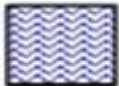

MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
77-81	Grovenhurst Park 15578 FT portion 1 & 0	J&R Trust 082 808 9787 Please call landowner first before entry	<p>Ecology: Fit spans with Double Loop BFD. Avoid placement of laydown camps on tower 77 to 81. Escarpment and river with very steep terrain, it is recommended that erosion control measures be implemented. Tower 78 has a Marula tree (<i>sclerocaria berria</i>), Conditions of removal of protected trees permit will apply.</p> <p>Wetland: River, Drainage line on tower 76-78. Erosion control and run-off mitigation measure to be implemented. Conditions of the Water Use license will apply</p> <div>     </div> <p>Special flora (protected trees and vegetation of significance)</p> <p>Heritage: Generic mitigation measures apply</p>


MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
82-83	Grovenhurst Park 15578 FT portion 3	Toyota 031 910 2725 No special conditions provided	<p>Ecology: Fit spans with Double Loop Bird Flight Diverters.</p> <p>Wetland: Generic mitigation measures apply</p> <p>Heritage: Generic mitigation measures apply</p> <div>  </div>


MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
84-85	Bredas Fontein 1130 FT portion 41	Toyota 031 910 2725 No special conditions provided	Ecology: Spanning primary savannoid grassland. Fit spans with Double Loop BFD. Wetland: Generic mitigation measures apply Heritage: Generic mitigation measures apply. 

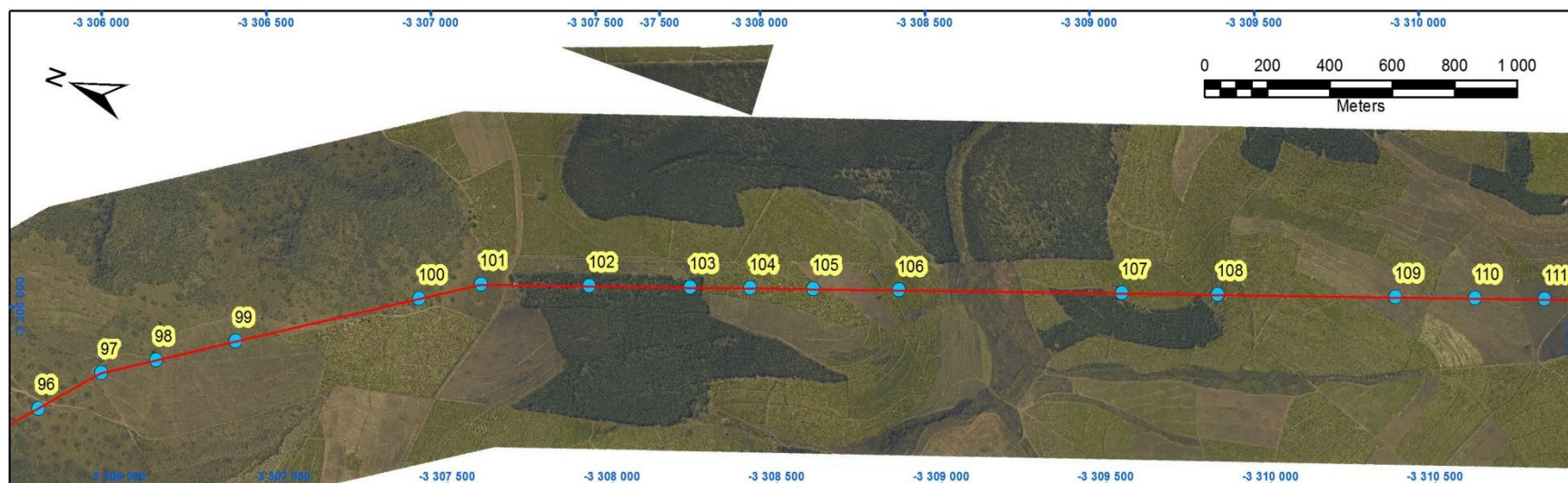
MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
86-88	Bredas Fontein 1130 FT portion 42	Werner 072 808 2858 No special conditions provided	Ecology: Fit spans with Double Loop Bird Flight Diverters Wetland: Towers 86-87 will be spanning over the stream. Care should be taken during the creation of access road. Conditions of the Water Use license will apply Heritage: Generic mitigation measures apply   

MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
89-92	Bredas Fontein 1130 FT portion 42	Werner 072 808 2858 No special conditions	Ecology: Fit spans with Double Loop Bird Flight Diverters Wetland: Towers 89-90 will be spanning over the stream. Care should be taken during the creation of access road. Heritage: Generic mitigation measures apply

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MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
93-94	Bredas Fontein 1130 FT portion 29	Sinoti Dlamini 084 381 7372 No special conditions provided	Ecology: Fit spans with Double Loop Bird Flight Diverters. Wetland & Heritage: Generic mitigation measures apply 

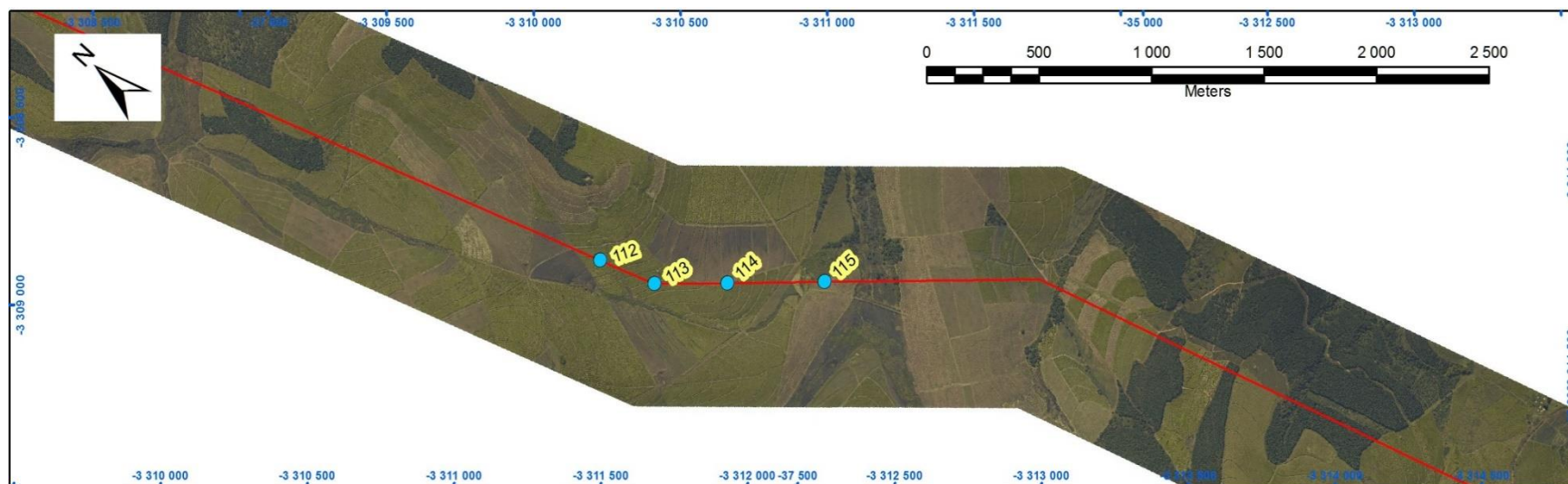
MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
95-96	Spring Kloof 13477 FT portion 0	Masibuyele Emakhaya 083 627 9754 No special conditions provided	Ecology: Fit spans with Double Loop Bird Flight Diverters. Wetland & Heritage: Generic mitigation measures apply 

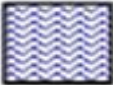




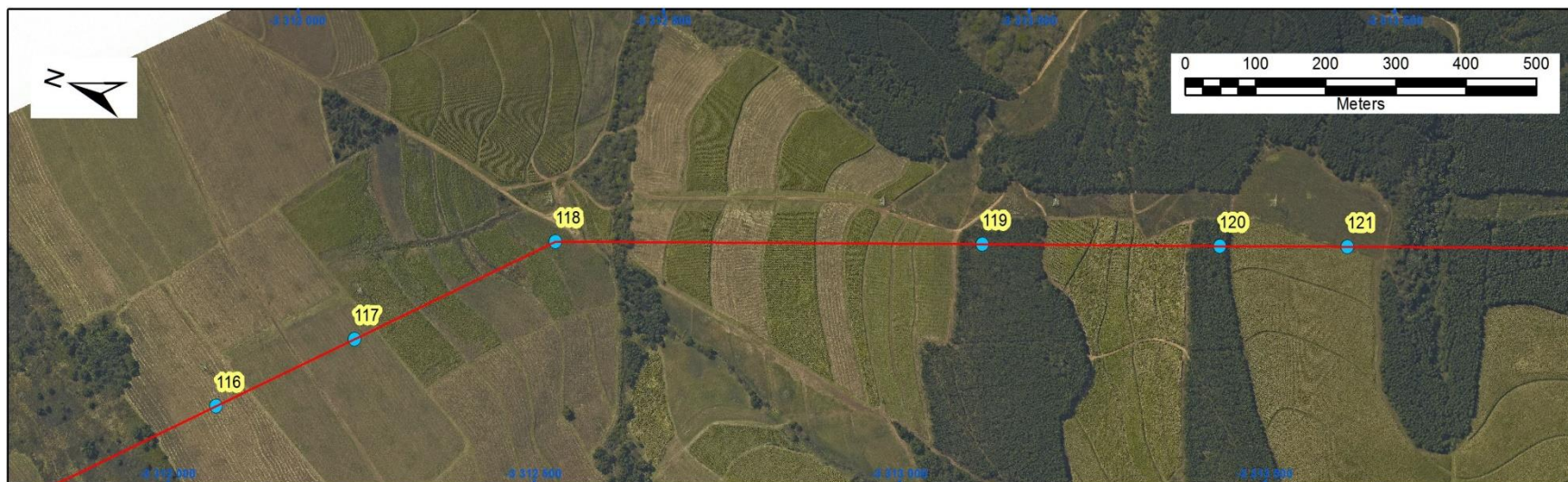
MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
97-103	Prickelsvale 14689 FT portion 0	Masibuyele Emakhaya 083 627 9754 No special conditions provided	<div> </div> <p>Ecology, Wetland & Heritage: Generic mitigation measures apply</p> <div> </div> <p>Cultivated lands (all anchors to be marked with a yellow slit). Towers (97-101) are on sugar cane plantation. Sugar cane mitigation, towers must be installed as per the MOU between Eskom and SASA or agreements with the affected landowner.</p> <p>Towers 102 & 103 are on Plantations</p>


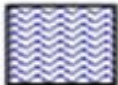
MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
104-105	Prickelsvale 14689 FT portion 0	Masibuyele Emakhaya 083 627 9754 No special conditions provided	<p>Ecology & Heritage: Generic mitigation measures apply</p>  <p>Cultivated lands (all anchors to be marked with a yellow slit). Towers (104 & 105) are on sugar cane plantation. Sugar cane mitigation, towers must be installed as per the MOU between Eskom and SASA or agreements with the affected landowner.</p>


MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
106-109	Spring Kloof 13477 FT portion 0	Masibuyele Emakhaya 083 627 9754 No special conditions provided	<p>Ecology & Heritage: Generic mitigation measures apply</p> <p>Wetland: Tower 106-107 span over the stream. Conditions of a Water Use License will apply.</p>   <p>Cultivated lands (all anchors to be marked with a yellow slit). Towers are on sugar cane plantation. Sugar cane mitigation, towers must be installed as per the MOU between Eskom and SASA or agreements with the affected landowner.</p>





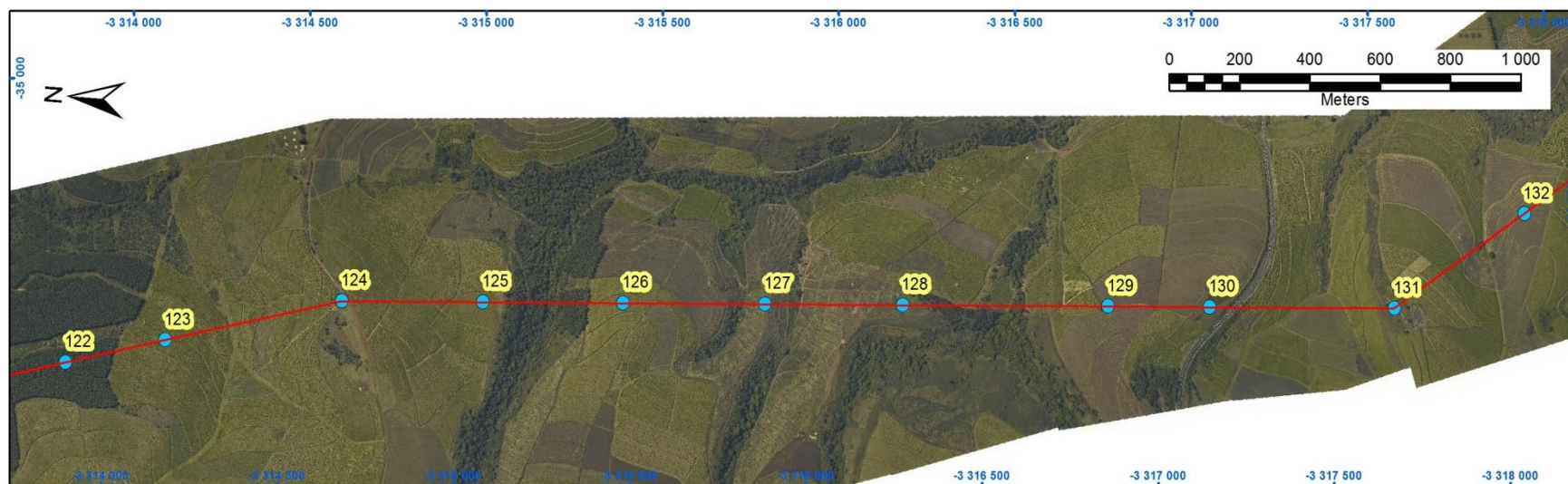
MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
110-112	Spring Kloof 13477 FT portion 0	Masibuyele Emakhaya 083 627 9754 No special conditions provided	<p>Ecology, & Heritage: Generic mitigation measures apply</p> <p>Wetland: Erosion control measures must be implemented. Tower 110 closer to the drainage line. Conditions of a water use license apply.</p> <div style="display: flex; align-items: center;">   </div> <div style="display: flex; align-items: center;">  <div style="margin-left: 10px;"> <p>Cultivated lands (all anchors to be marked with a yellow slit). Towers are on sugar cane plantation. Sugar cane mitigation, towers must be installed as per the MOU between Eskom and SASA or agreements with the affected landowner.</p> </div> </div>


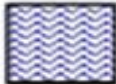


MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
113-116	Dering 16664 FT portion 0	Dering 031 781 1066	<p>Ecology: Spanning Phragmites reedbeds and valley bottom wetland - breeding habitat for at least two pairs of "endangered" African Marsh Harrier (<i>Circus ranovorus</i>). Fit spans with LARGE Double Loop BFD. Use only existing access roads during construction where possible.</p> <p>Wetland: Towers spanning over the watercourses. Conditions of the Water Use License will apply.</p> <p>Heritage: Generic mitigation measures apply</p> <div style="display: flex; align-items: center;">   </div>



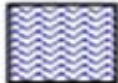

			 <p>Cultivated lands (all anchors to be marked with a yellow slit). Towers are on sugar cane plantation. Sugar cane mitigation, towers must be installed as per the MOU between Eskom and SASA or agreements with the affected landowner.</p>
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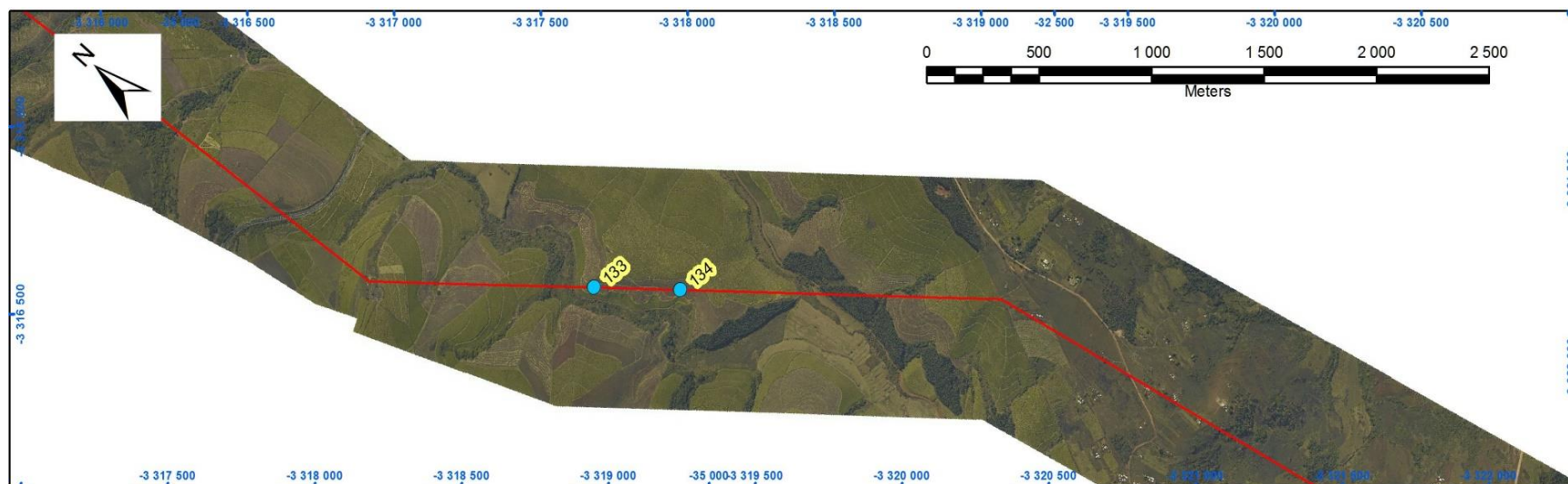
MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
117-121	Valsch River 1148 FT portion 10	<p>Stoney Hill Farm cc 082 789 5956</p> <p>No special conditions provided</p>	<p>Ecology, Wetland & Heritage: Generic mitigation measures apply</p> <div>  <p>Towers (117-120) are on the Plantations</p> </div> <div>  <p>Cultivated lands (all anchors to be marked with a yellow slit). Tower 121 is on the sugar cane plantation. Sugar cane mitigation, towers must be installed as per the MOU between Eskom and SASA or agreements with the affected landowner.</p> </div>





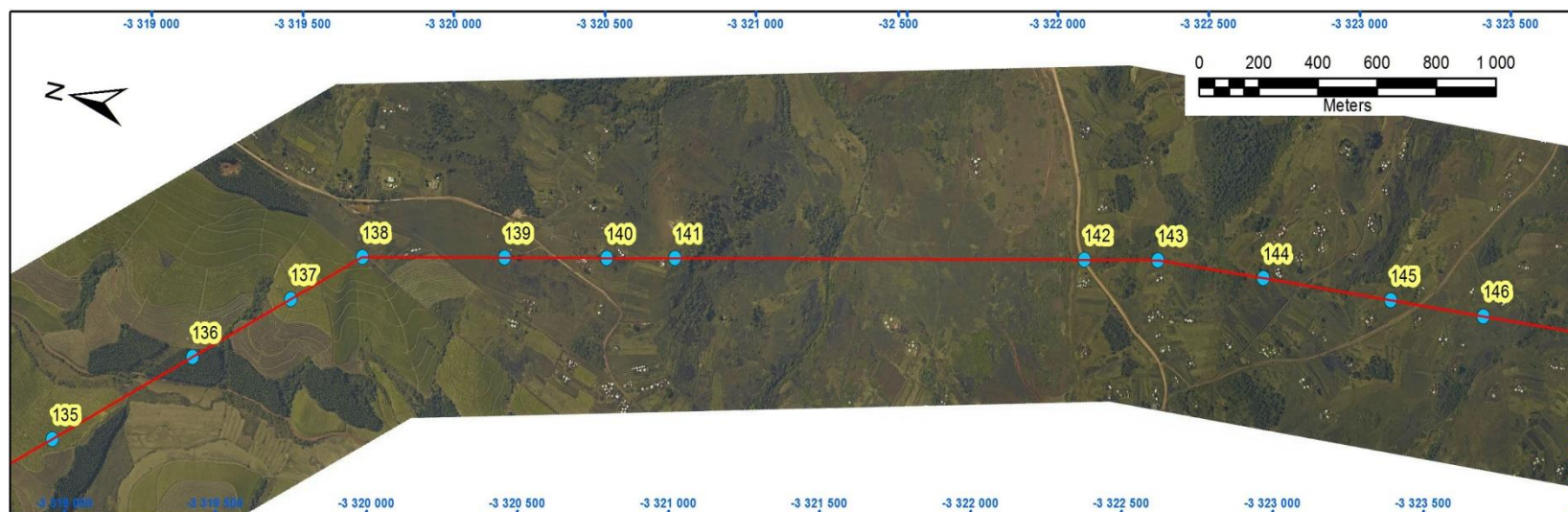
MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
122-128	Valsch River 1148 FT portion 17, 19 & 28	Rob Gurney 083 242 0285 No special conditions provided	<p>Ecology: Span crossing forested drainage lines. - good refugia for bird species. Fit span with Double Loop BFD. Avoid placement of laydown camps.</p> <p>Wetland: Span crossing forested drainage lines. Conditions of a water use license will apply.</p> <p>Heritage: Generic mitigation measures apply</p> <div>   </div>



			 <p>Cultivated lands (all anchors to be marked with a yellow slit). Towers (122, 123. 124 & 127) are on the sugar cane plantation. Sugar cane mitigation, towers must be installed as per the MOU between Eskom and SASA or agreements with the affected landowner.</p>
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MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
129-131	Catling 16733 FT portion 1	<p>Gonlag Aidan Willem 082 789 5956</p> <p>No special condition provided</p>	<p>Ecology: Span crossing forested drainage lines Fit span with Double Loop BFD.</p> <p>Wetland: Tower 130 & 131 span drainage lines. Erosion control and run-off mitigation measure to be implemented. Conditions of a water use license will apply.</p> <p>Heritage: Generic mitigation measures apply</p> <div>    </div> <div>  <p>Cultivated lands (all anchors to be marked with a yellow slit). Towers are on the sugar cane plantation. Sugar cane mitigation, towers must be installed as per the MOU between Eskom and SASA or agreements with the affected landowner.</p> </div>





MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
132-136	Klip Spruit 932 FT portion 0 & 12	Rob Gurney 083 242 0285	<p>Ecology: Fit span with Double Loop BFD.</p> <p>Wetland: Generic mitigation measures apply</p> <p>Heritage: Generic mitigation measures apply</p> <div style="display: flex; align-items: center;">   <div style="margin-left: 10px;"> <p>Cultivated lands (all anchors to be marked with a yellow slit). Towers are on sugar cane plantation. Sugar cane mitigation, towers must be installed as per the MOU between Eskom and SASA or agreements with the affected landowner.</p> </div> </div>

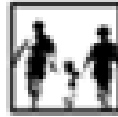


MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
137-139	Umlazi Location 4676 FT portion 2202	<p>Ingonyama Trust. No contact details provided</p> <p>No need to call landowner</p>	<p>Ecology: Fit span with Double Loop BFD.</p> <p>Wetland: Span crossing forested drainage lines. Conditions of the water use licence will apply</p> <p>Heritage: Towers 138-139 are on homesteads. Relocation of those homesteads might be necessary and these will result in relocation of families' graves. Grave relocation permits might be required.</p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div>

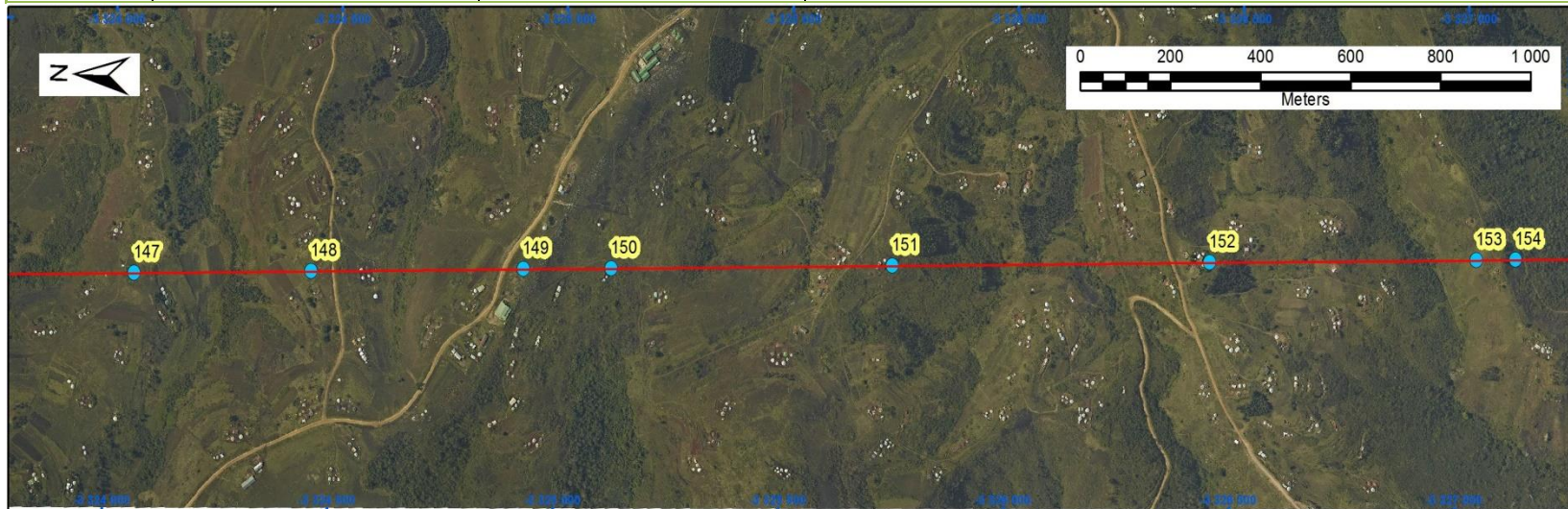
			 <p>Tower 138-139: Social issues (mostly include an indication of settlements next to the line or the resettlement of the affected communities)</p>
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MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
140-141	Umlazi Location 4676 FT portion 2202	<p>Ingonyama Trust. No contact details provided</p> <p>No need to call landowner</p>	<p>Ecology: Fit span with Double Loop BFD.</p> <p>Wetland: Span crossing forested drainage lines, conditions of a WUL will apply.</p> <p>Heritage: Generic mitigation measures apply. Tower 140-141 is located in a homestead and there is possibility of graves. A resettlement Action Plan must be developed.</p>  


MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
142-146	Umlazi Location 4676 FT portion 2202	<p>Ingonyama Trust. No contact details provided</p> <p>No need to call landowner</p>	<p>Ecology & Wetland: Generic mitigation measures apply</p> <p>Heritage: The towers 142-146 homesteads are affected by servitude and there will be relocation of those homesteads which might result in relocation of families' graves but no graves were observed during walkdown.</p>

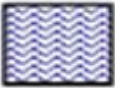



Tower 142-153: Social issues (mostly include an indication of settlements next to the line or the resettlement of the affected communities)

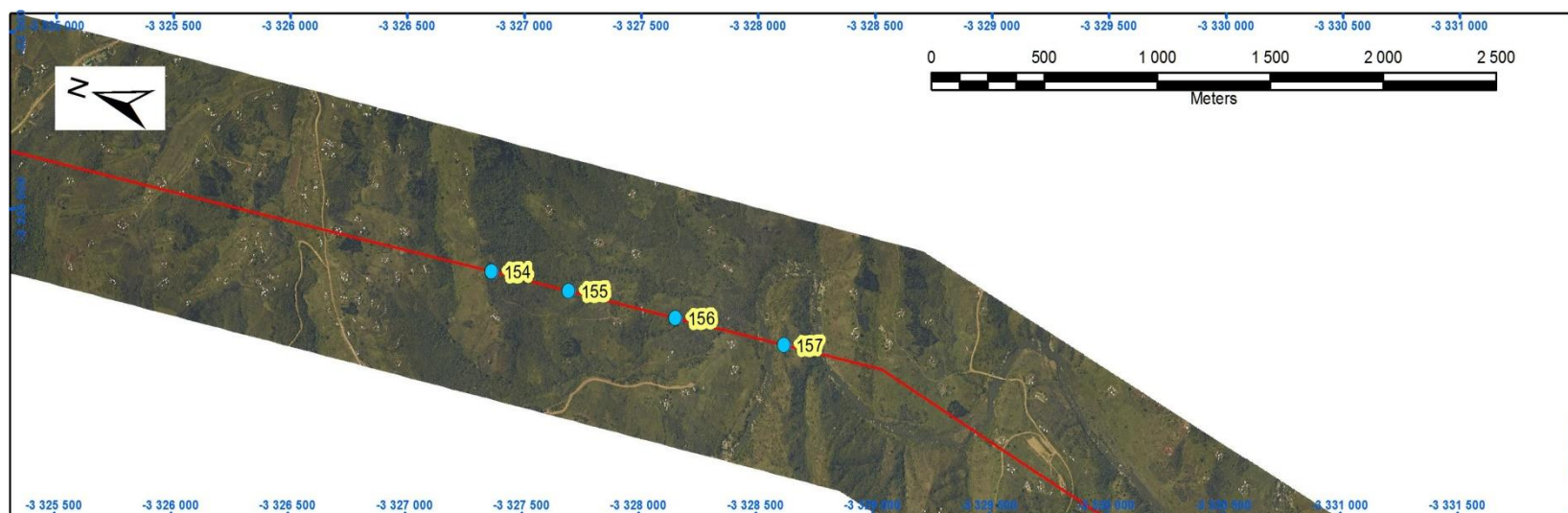


MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
147-150	Umlazi Location 4676 FT portion 2202	Ingonyama Trust. No contact details provided No need to call landowner	Ecology & Wetland: Generic mitigation measures apply Heritage: The towers 147-150 homesteads are affected by servitude and there will be relocation of those homesteads which might result in relocation of families' graves but no graves were observed during walkdown. However, Tower 147 is right next to the grave and the grave need to be fenced off and protected

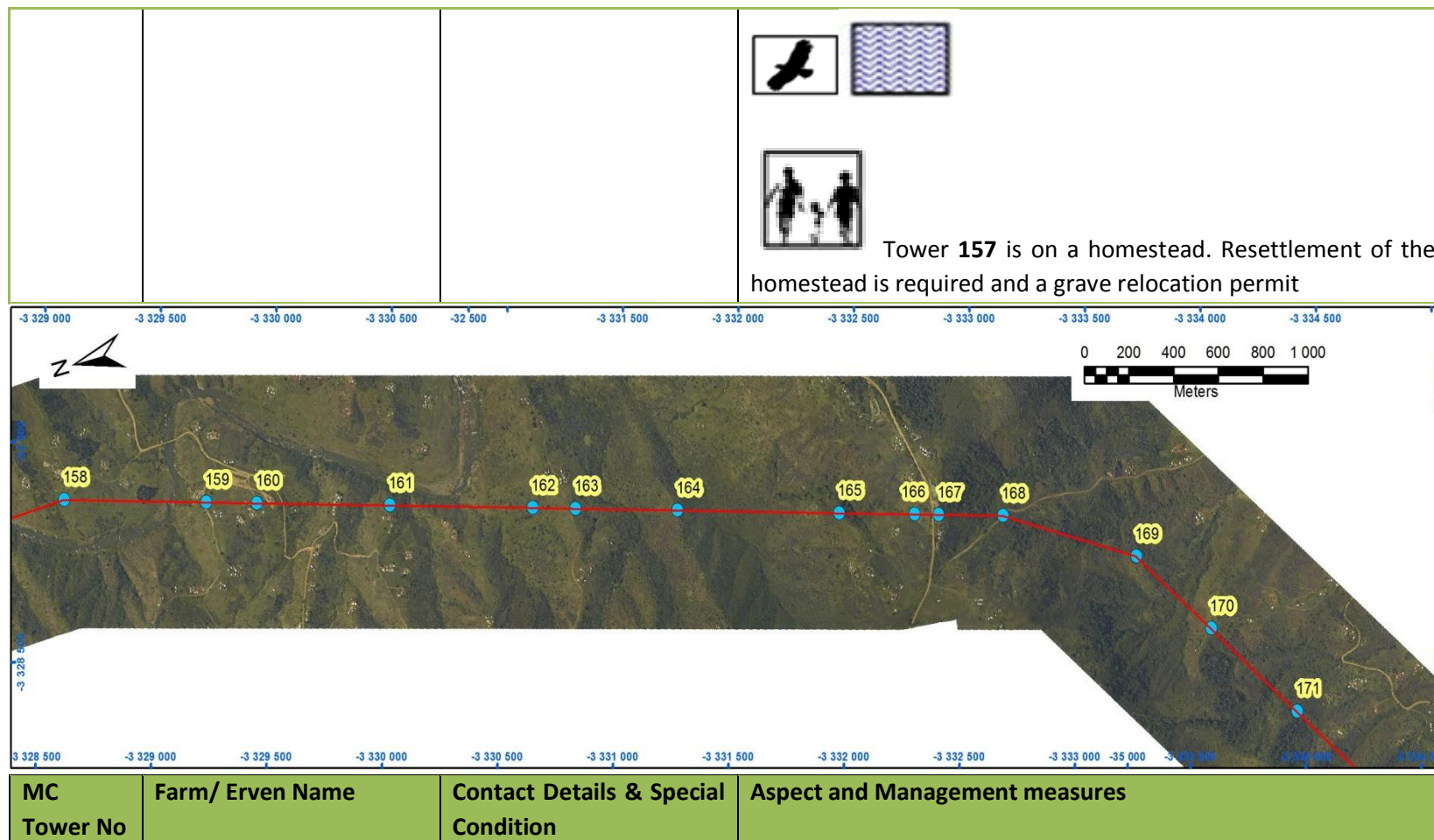
			<p>during construction.</p>  <p>Tower 147-150: Social issues (mostly include an indication of settlements next to the line or the resettlement of the affected communities)</p>
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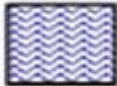

MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
151-153	Umlazi Location 4676 FT portion 2202	<p>Ingonyama Trust. No contact details provided</p> <p>No need to call landowner</p>	<p>Ecology: Generic mitigation measures apply</p> <p>Wetland: Tower 152 affects the drainage line. Erosion control measures must be implemented. Conditions of the WUL will apply</p> <p>Heritage: The towers 151-153 homesteads are affected by servitude and there will be relocation of those homesteads which might result in relocation of families' graves but no graves were observed during walkdown.</p>   <p>Tower 151-153: Social issues (mostly include an indication of settlements next to the line or the resettlement of the affected communities)</p>


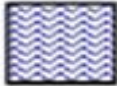
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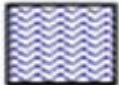




MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
154-157	Umlazi Location 4676 FT portion 2202	Ingonyama Trust. No contact details provided No need to call landowner	Ecology: Span crossing forested drainage lines. Fit span with Double Loop BFD. Wetland: Crossing Lovu river (154-157). Conditions of a water use license will apply. Heritage: Generic mitigation measures apply



158-159	Umlazi Location 4676 FT portion 2202	Ingonyama Trust No need to call landowner	<p>Ecology: Span crossing forested drainage lines. Fit span with Double Loop BFD.</p> <p>Wetland: Crossing over the drainage lines – conditions of a Water Use License apply.</p> <p>Heritage: Possible burial grounds. Conditions of heritage permit will apply</p> <div>   </div> <div>  <p>Tower 158-159 is on a homestead. Resettlement of the homestead is required and a grave relocation permit</p> </div>
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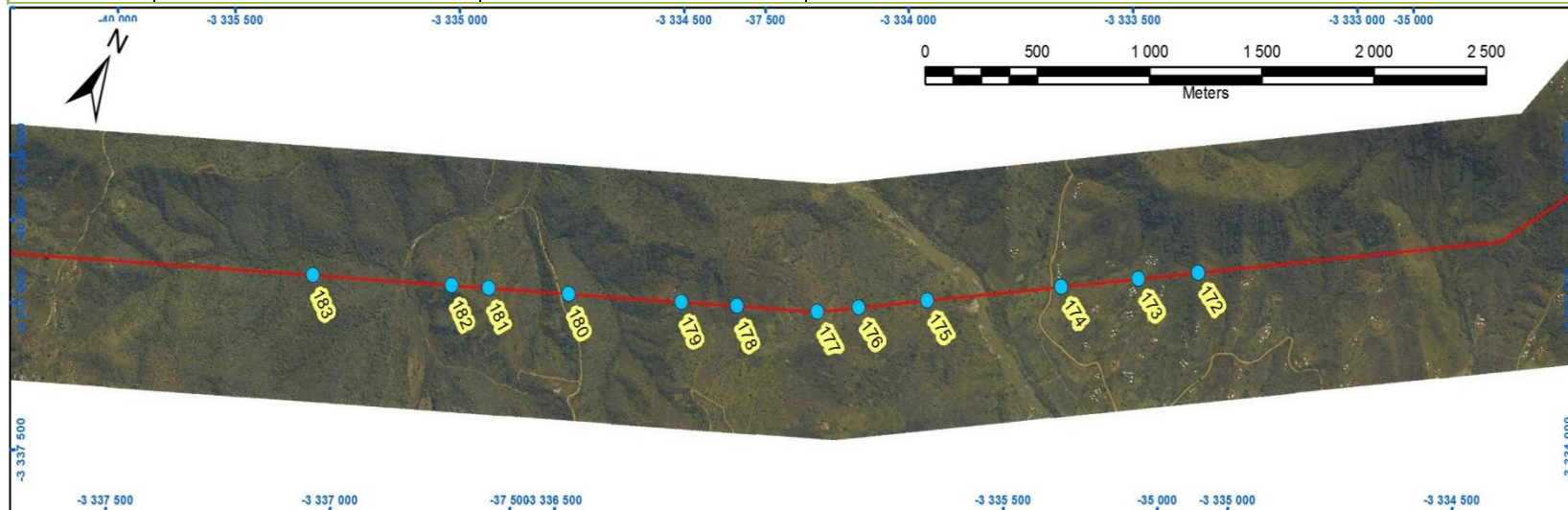
MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
160-164	Umlazi Location 4676 FT portion 2202	Ingonyama Trust. No contact details provided No need to call landowner	<p>Ecology: Span crossing forested drainage lines. Fit span with Double Loop BFD.</p> <p>Wetland: Crossing over the drainage lines – conditions of a water use license apply.</p> <p>Heritage: Generic mitigation measures apply</p> <div>   </div>

MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
165-168	Umlazi Location 4676 FT portion 2202	Ingonyama Trust No need to call landowner	<p>Ecology: Span crossing forested drainage lines -. Fit span with Double Loop BFD.</p> <p>Wetland: Tower 166 crossing over the drainage lines – conditions of a water use license will apply.</p> <p>Heritage: Possible burial grounds. Conditions of heritage permit will apply.</p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;">  <div> <p>Tower 165 is on a homestead. Resettlement of the homestead is required and a grave relocation permit</p> </div> </div>


MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
169-171	Umlazi Location 4676 FT portion 2202	Ingonyama Trust No need to call landowner	<p>Ecology: Span crossing forested drainage lines -. Fit span with Double Loop BFD.</p> <p>Heritage & Wetland: Generic mitigation measures apply</p> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;">  </div>





Tower **170** is on a homestead. Resettlement of the homestead is required and a grave relocation permit




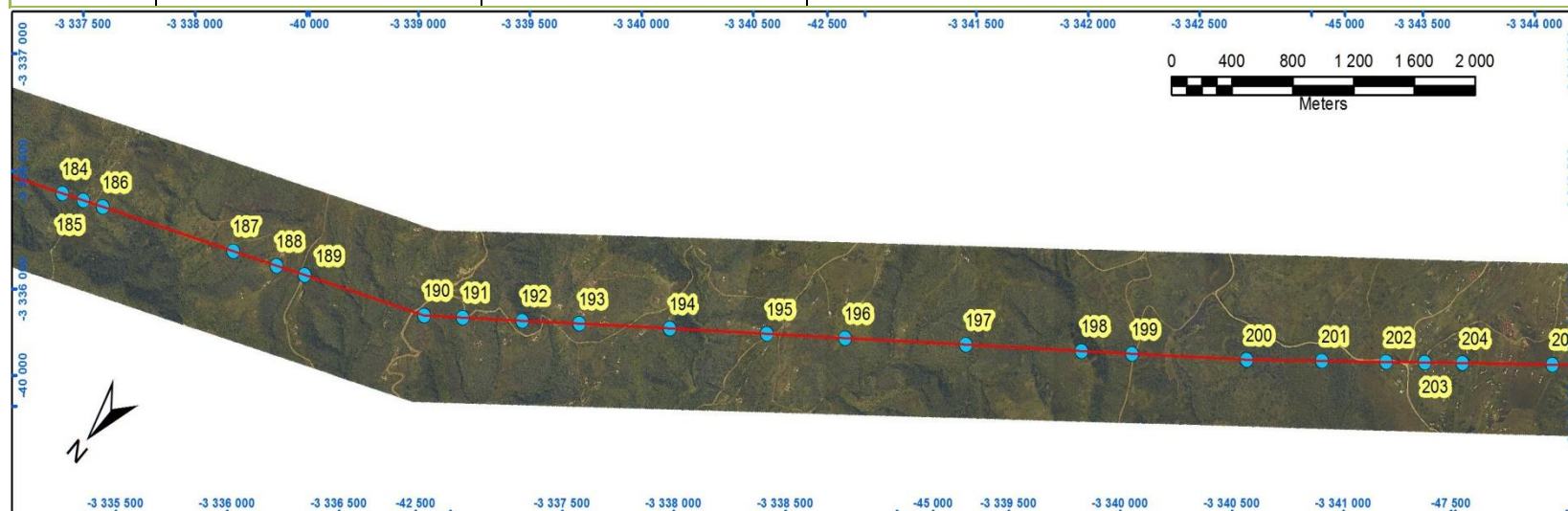
MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
172-174	Umlazi Location 4676 FT portion 2202	Ingonyama Trust No need to call landowner	Ecology: Span crossing forested drainage lines. Fit span with Double Loop BFD. Wetland: The tower 174-175 Spanning of Mkomazi river - important flyway for birds. Erosion control and run-off mitigation measure to be implemented. Conditions of a Water Use License will apply.

			   <p>Heritage: Tower 173 is closer to the grave and possibility of graves. Conditions of the heritage permit will apply.</p>  <p>Cultural or heritage issues</p>
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MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
175-179	Qiko 17448 FT portion 0	Ingonyama Trust. No contact details provided No need to call landowner	<p>Ecology: Remote area of <i>Acacia</i> thicket and valley bushveld - large source area/wilderness area. Fit spans with LARGE Double Loop BFD. Where possible helicopter may be used on very difficult terrain.</p> <p>Wetland: Tower 176 crossing over drainage line – conditions of a Water use license apply.</p> <p>Heritage: Generic mitigation measures apply</p>  


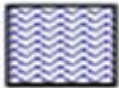

MC	Farm/ Erven Name	Contact Details & Special	Aspect and Management measures
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Tower No		Condition	
180-183	Qiko 17448 FT portion 0	Ingonyama Trust. No contact details provided No need to call landowner	<p>Ecology: Remote area of <i>Acacia</i> thicket and valley bushveld-large source area/wilderness area. Fit spans with LARGE Double Loop BFD. Where possible helicopter may be used on very difficult terrain.</p>  <p>Wetland & heritage: Generic mitigation measures apply</p>


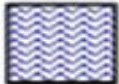


MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
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184-187	Qiko 17448 FT portion 0	Ingonyama Trust No need to call landowner	<p>Ecology: Remote area of <i>Acacia</i> thicket and valley bushveld - large source area/wilderness area. Fit spans with LARGE Double Loop BFD.</p>  <p>Wetland & Heritage: Generic mitigation measures apply</p>
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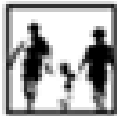
MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
188-194	Zembe 17449 FT portion 0		<p>Ecology: Remote area of <i>Acacia</i> thicket and deep valley - primary source area. Tower 192-194 Long spans across secondary thornveld and deep valleys. Fit all spans with Double Loop BFD. A remote area - limit construction of access roads where possible.</p> <p>Wetland Spanning over the drainage line. Conditions of WUL will apply</p> <p>Heritage: Tower 189-194 do affect dwellings which will result in relocations and possible burial grounds. Conditions of a heritage permit will apply.</p>    <p>Tower 189-194 Cultural or heritage issues</p>

			 <p>Tower 189-194 is on a homestead. Resettlement of the homestead is required and a grave relocation permit</p>
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MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
195-196	Zembe 17449 FT portion 0	No contact details provided	<p>Ecology: Remote area of Acacia thicket and deep valley - primary source area. Tower 195-196 Long spans across secondary thornveld and deep valleys. Fit all spans with Double Loop BFD. A remote area - limit construction of access roads where possible.</p> <p>Wetland: Tower 196 affects drainage line. Conditions of a water use license will apply.</p> <p>Heritage: Generic mitigation measures apply</p>  

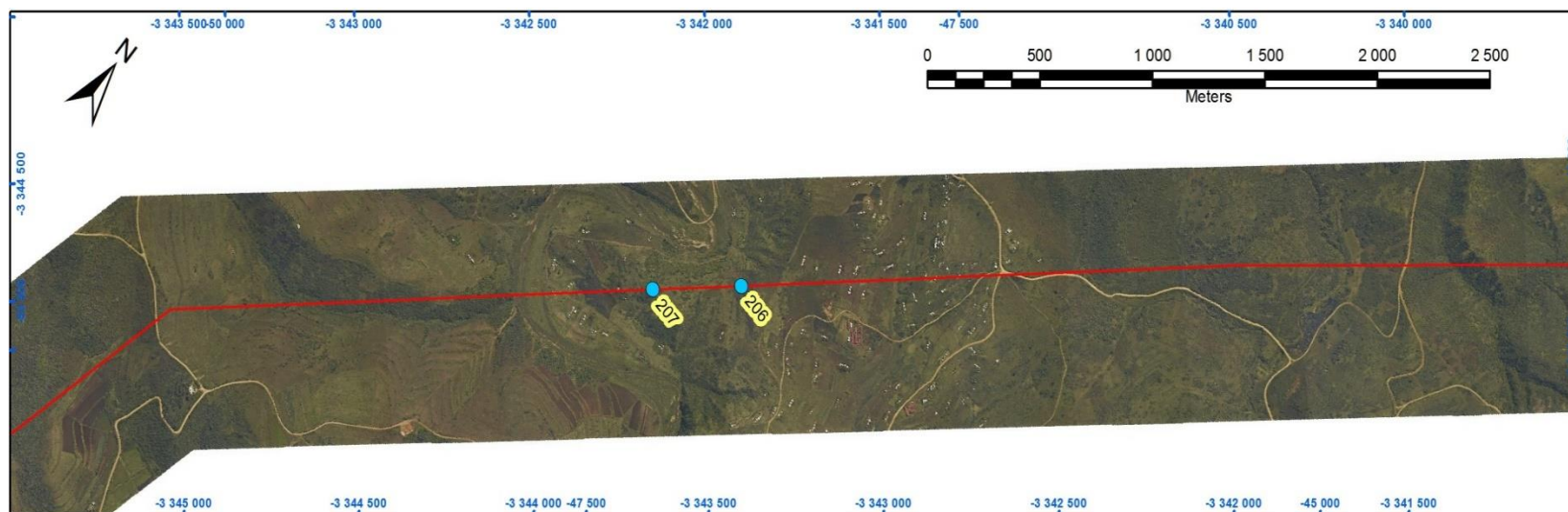
MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
197-198	Lot A 8 5192 ET portion 0 and Lot F 5717 ET portion 0	Falakhe Mkhize 083 487 3497	<p>Ecology Towers 197 to 198 are on long spans across secondary thicket and valley bushveld - fairly remote area. Fit all spans with Double Loop BFD. Construction of access roads to be limited.</p> <p>Wetland: Generic mitigation measures apply</p>


			Heritage: Generic mitigation measures apply 
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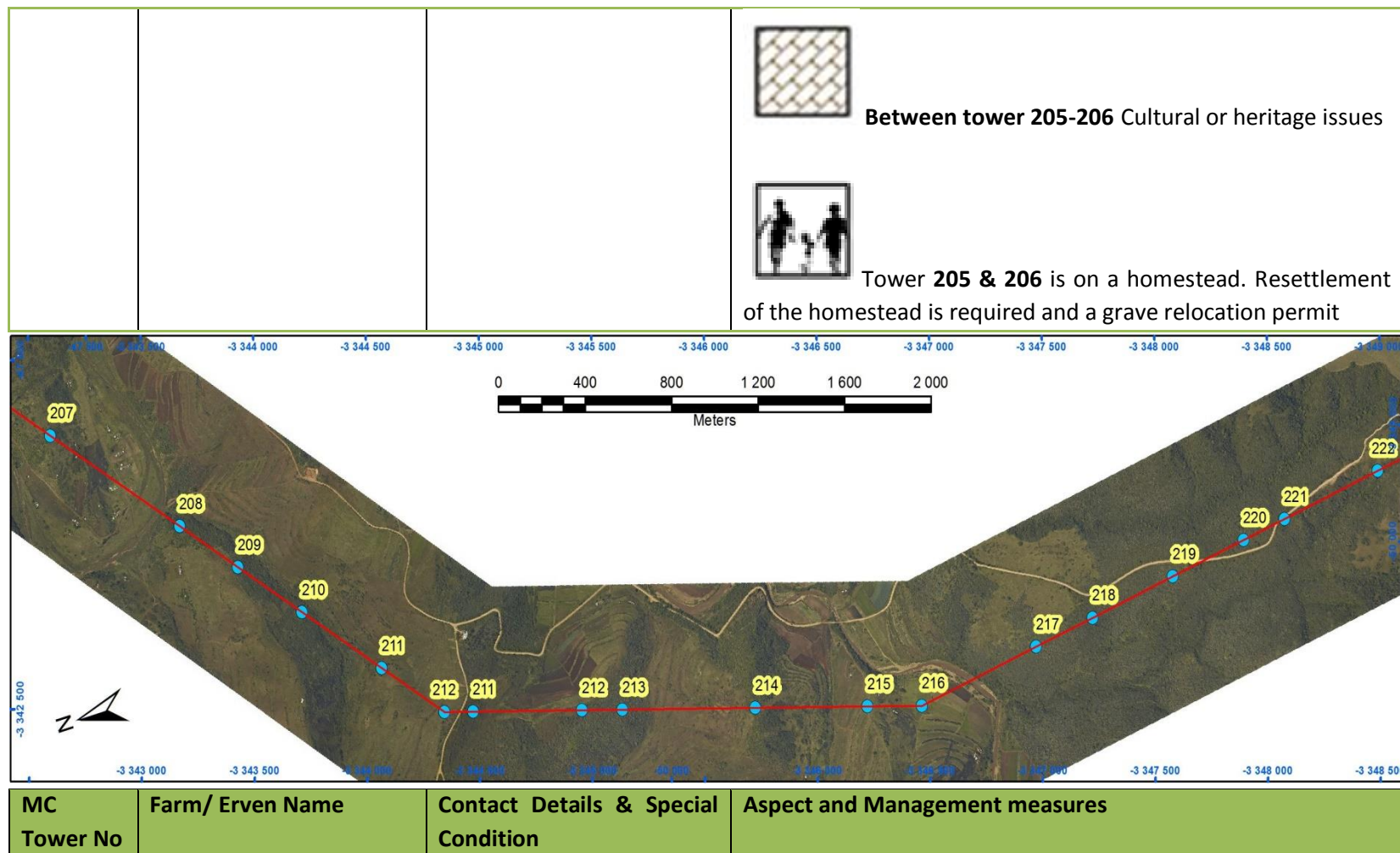
MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
199-202	Ashford 11276 ET portion 0	Falakhe Mkhize 083 487 3497	<p>Ecology Tower 199 to 200 are on long spans across secondary thicket and valley bushveld - fairly remote area. Fit all spans with Double Loop BFD. A remote area - limit construction of access roads. Tower 201 to 202 generic mitigation measures apply.</p> <p>Wetland: Generic mitigation measures apply Heritage: Tower 200-202 do affect dwellings which will result in relocations and possible burial heritage resources.</p>   Tower 200-202 Cultural or heritage issues  Tower 200-202: Social issues (mostly include an


			<p>indication of settlements next to the line or the resettlement of the affected communities).</p> <p>Example: Tower 199-202 are on a homestead. Resettlement of the homestead is required and a grave relocation permit</p>
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MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
203	Lot ES 10650 ET portion 0	No contact details	<p>Ecology Generic mitigation measures apply</p> <p>Wetland: Generic mitigation measures apply</p> <p>Heritage: there will be dwelling that will be relocated and possible burial heritage resources hidden there</p> <div> </div> <p>Tower 203 Cultural or heritage issues</p> <div> </div> <p>Tower 203 is on a homestead. Resettlement of the homestead is required and a grave relocation permit</p>




MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
204-206	Carvug 9961 ET portion 0	Mr Gambush. No contact details provided and special landowner condition.	<p>Ecology: Generic mitigation measures apply</p> <p>Wetland: Generic mitigation measures apply and erosion control measures must be implemented.</p> <p>Heritage: Between tower 205 and 206 there will be relocations of the dwellings within the servitude.</p> 



207-210	Broadvale 12747 ET portion 0	No contact details and special land owner conditions provided	<p>Ecology: Spanning river. Towers corresponding to valley thicket on steep slopes - erosion potential high. Fit all spans with Double Loop BFD.</p> <p>Wetland: Generic mitigation measures apply and erosion control measures must be implemented.</p> <p>Heritage: Generic mitigation measures apply</p> 
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

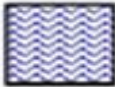
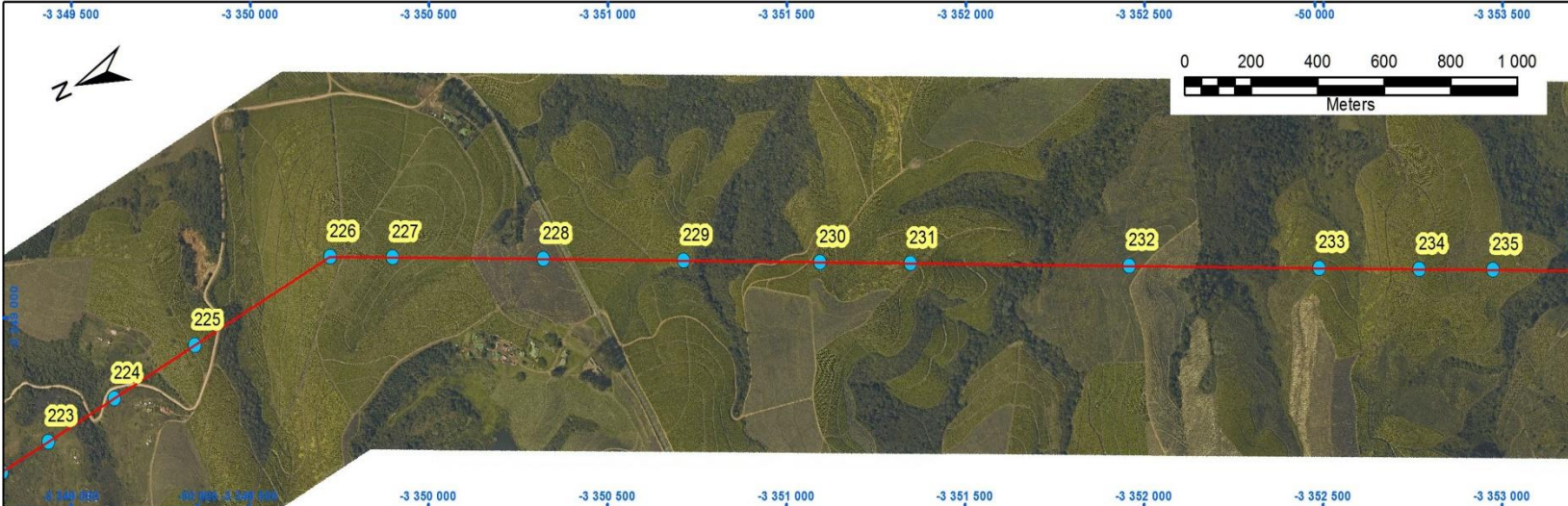

MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
211-213	Quembe 11043 ET portion 21, 22 & 29	<p>Mr Singh (Executor) 039 974 2525</p> <p>No need to call landowner</p>	<p>Ecology: Long span across deep valley .Fit span with Double Loop BFD on tower 211-213</p> <p>Wetland: Generic mitigation measures apply and erosion control measures must be implemented.</p> <p>Heritage: Generic mitigation measures apply</p> 


MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
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214-216	Quembe 11043 ET portion 21, 22 & 29	Mr Singh (Executor) 039 974 2525 No need to call landowner	<p>Ecology: Long span across deep valley .Fit span with Double Loop BFD on tower. Tower 216-217 spanning over the river.</p> <p>Wetland: Conditions of WUL will apply. Erosion control measures must be implemented.</p> <p>Heritage: Generic mitigation measures apply</p> 
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MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
217-220	Bobslaw 13016 ET portion 0	Mr Kinroy 083 357 3810 Please call landowner prior	<p>Ecology: Tower 218-220 generic mitigation measures. Tower 221-222 Spanning deep valleys - foraging habitat for birds of prey. Fit spans with Double Loop BFD.</p> <p>Wetland & Heritage: Generic mitigation measures apply</p> 



MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
221-222	Lewisdale 6899 ET portion 0	Mr Kinroy 083 357 3810 Please call landowner prior	<p>Ecology, & Heritage: Generic mitigation measures apply</p> <p>Wetland: Tower affects drainage line. Conditions of WUL will</p>

<div> <div>apply</div> <div>    </div> </div>			
<div>  </div>			
MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
223-226	Lot B 3 A 9926 ET portion 0	073 906 8153. Please call landowner prior entry	Ecology & Heritage: Generic mitigation measures apply Wetland: Erosion control must be implemented. 

			 <p>Cultivated lands (all anchors to be marked with a yellow slit). Towers 225 & 226 are on sugar cane plantation. Sugar cane mitigation, towers must be installed as per the MOU between Eskom and SASA or agreements with the affected landowner.</p>
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MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
227-229	Drumdarroch 6899 ET portion 0	<p>Mr Kinroy 083 357 3810</p> <p>Please call landowner prior entry</p>	<p>Ecology, Wetland & Heritage: Generic mitigation measures apply</p>  <p>Cultivated lands (all anchors to be marked with a yellow slit). Towers 225 & 226 are on sugar cane plantation. Sugar cane mitigation, towers must be installed as per the MOU between Eskom and SASA or agreements with the affected landowner.</p>

MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
230-232	Coolgardie 9300 ET portion 1	<p>Mr Kinroy 083 357 3810</p> <p>Please call landowner prior</p>	<p>Ecology: Long span across deep valley .Fit span with Double Loop BFD on tower 229-230. Tower 231-232 generic mitigation measures apply.</p> <p>Wetland & Heritage: Generic mitigation measures apply</p>

			  <p>Cultivated lands (all anchors to be marked with a yellow slit). Towers are on sugar cane plantation. Sugar cane mitigation, towers must be installed as per the MOU between Eskom and SASA or agreements with the affected landowner.</p>
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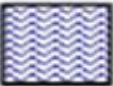
MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
233-235	Coolgardie 9300 ET portion 0	<p>Mr Kinroy 083 357 3810</p> <p>Please call landowner prior</p>	<p>Ecology, Wetland & Heritage: Generic mitigation measures apply</p>  <p>Cultivated lands (all anchors to be marked with a yellow slit). Towers are on sugar cane plantation. The agreement between Eskom and affected landowners apply with regards to sugar cane plantation.</p>



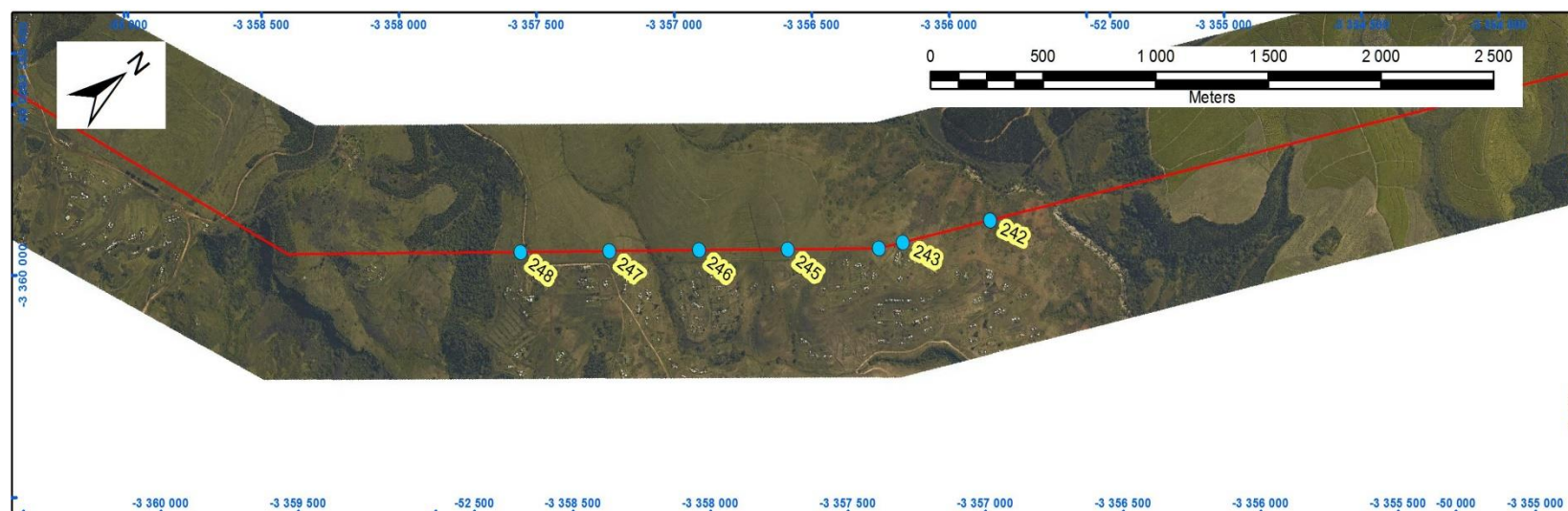
MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
236-238	Engweni 3783 ET portion 0	Chairman 073 567 5142. No special landowners condition provided	Ecology, Wetland & Heritage: Generic mitigation measures apply  Cultivated lands (all anchors to be marked with a yellow slit). Towers are on sugar cane plantation. Sugar cane mitigation, towers must be installed as per the MOU between Eskom and SASA or agreements with the affected landowner.

MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
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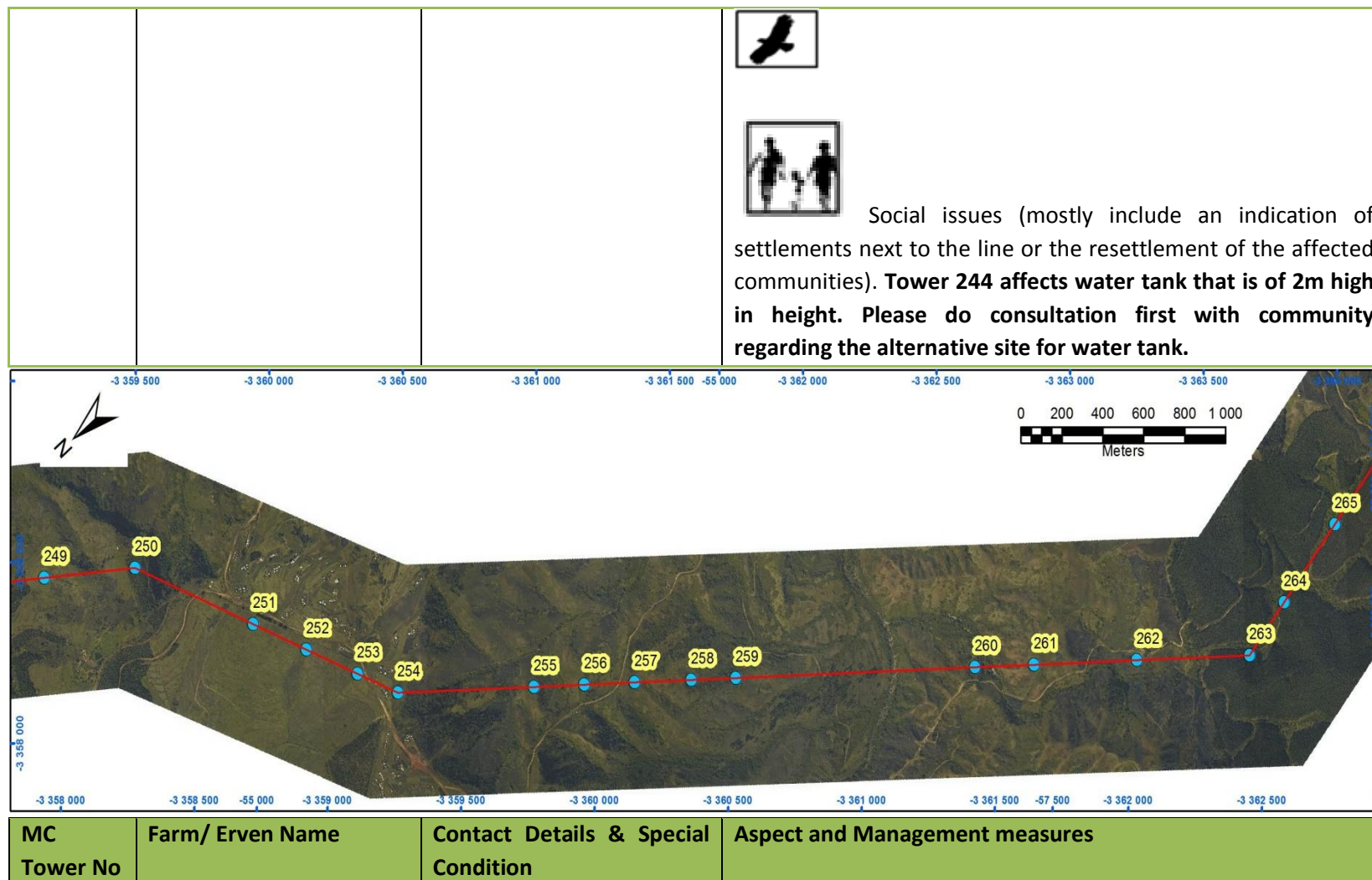
239-240	Lot 27 Umzinto Settlement 5502 ET portion 0	Chairman 073 567 5142	Ecology, Wetland & Heritage: Generic mitigation measures apply  Cultivated lands (all anchors to be marked with a yellow slit). Towers are on sugar cane plantation. Sugar cane mitigation, towers must be installed as per the MOU between Eskom and SASA or agreements with the affected landowner.
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MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
241	Engweni No 2 6798 ET portion 0	Chairman 073 567 5142	Ecology: Tower 241-242 spanning local escarpment and river - flyway for bird species. Fit spans with Double Loop BFD. Wetland Tower 241-242 spanning local escarpment and river - flyway for bird species.. Erosion control measures must be implemented Heritage: Generic mitigation measures apply     Cultivated lands (all anchors to be marked with a yellow slit). Tower 241 is on sugar cane plantation. Sugar cane mitigation, towers must be installed as per the MOU between

			Eskom and SASA or agreements with the affected landowner.
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MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
242-244	State Land	No Contact details	<p>Ecology: Spanning foraging/breeding habitat of "endangered" Grey Crowned Crane (<i>Balaerica regulorum</i>). Fit spans with LARGE Double Loop BFD (or better replace with large dynamic "flappers"). Use only existing access roads during construction.</p> <p>Wetland & Heritage: Generic mitigation measures apply</p>

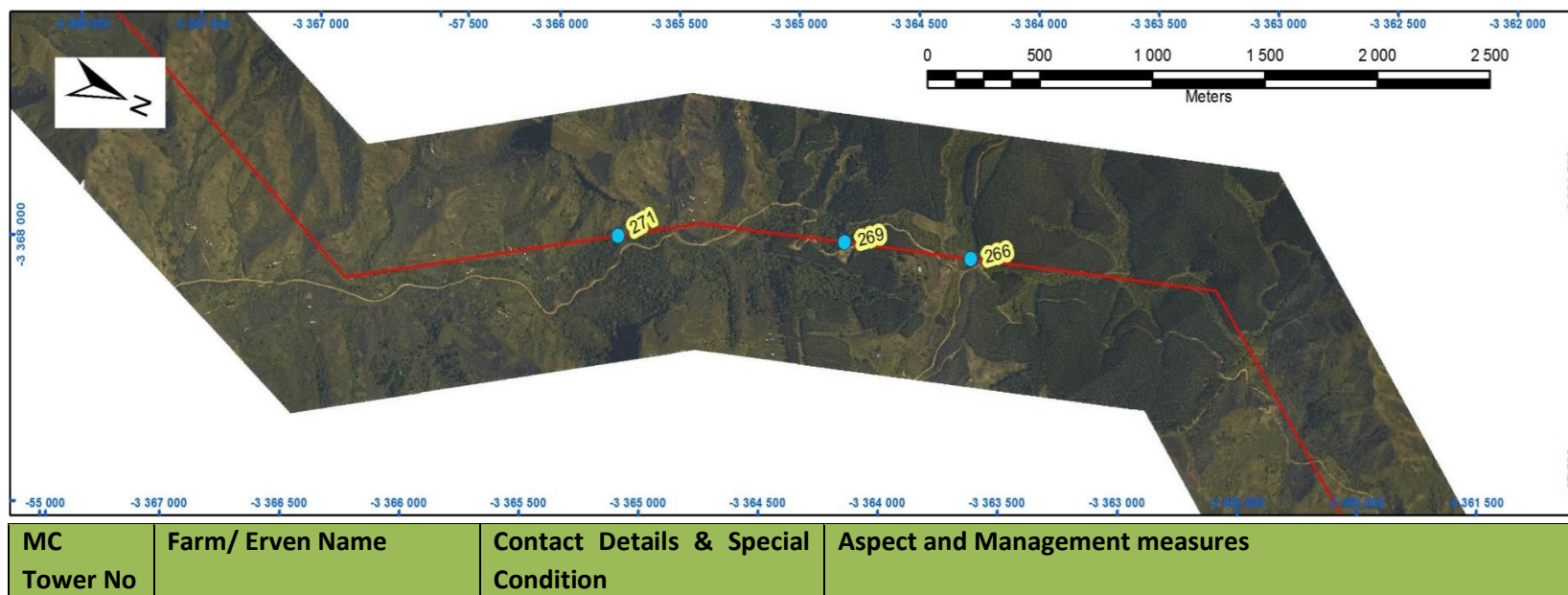




245-253	Lavana 15998 ET portion 2	No Contact details	<p>Ecology: Tower 245-249 spanning foraging/ breeding habitat of "endangered" Grey Crowned Crane (<i>Balaerica regulorum</i>). Fit spans with LARGE Double Loop BFD (or better replace with large dynamic "flappers"). Avoid placement of laydown camps. Tower 250-251 spanning deep gorge with Afromontane forest-good foraging/nesting habitat for "vulnerable" African Crowned Eagle (<i>Stephanoaetus coronatus</i>).</p> <p>Wetland: Tower 245 next to the seep. Avoid placing tower inside the seep. Conditions of WUL will apply.</p> <p>Heritage: Generic mitigation measures apply</p> 
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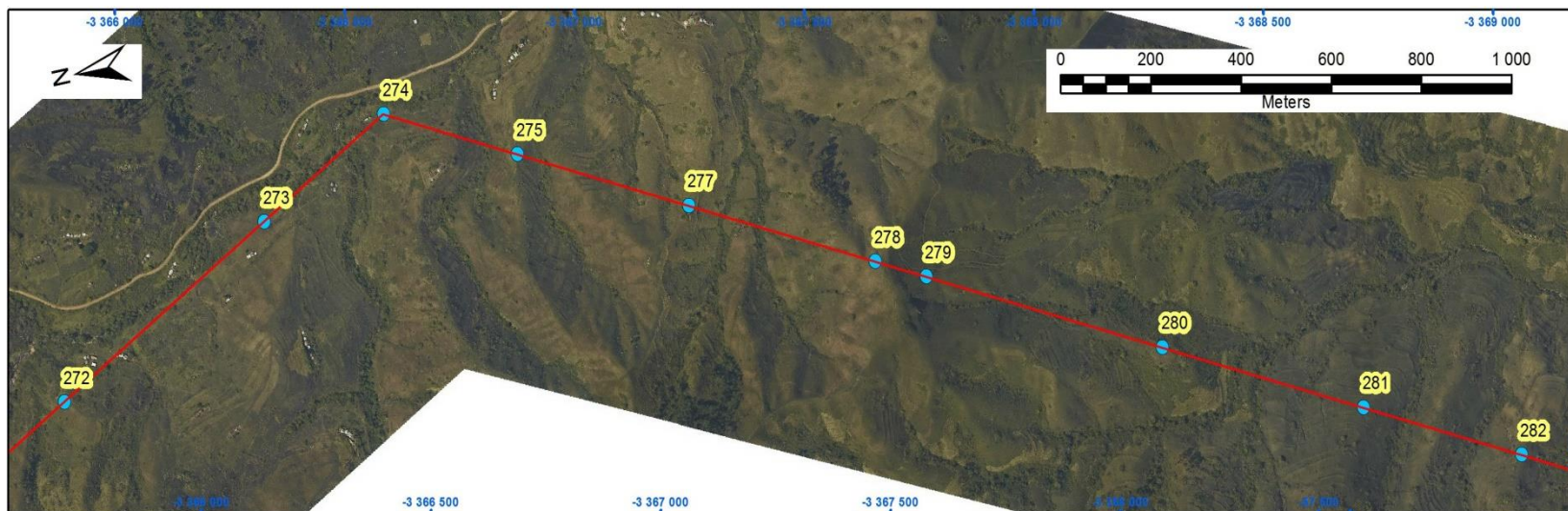
MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
254	Ridge 6264/Re	Mr. Skhumbuzo 033 355 4300 No need to call landowner	<p>Ecology: Fit spans with Double Loop BFD.</p> <p>Wetland & Heritage: Generic mitigation measures apply</p>  <p>Social issues (mostly include an indication of settlements next to the line or the resettlement of the affected communities). There are other dwellings affected within the alignment. Between Towers 253-254 there are dwellings that will be relocated and a grave relocation might be expected.</p>




MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
255-259	Inyanga 13789 ET portion 0	Mr. Skhumbuzo 033 355 4300 No need to call landowner	<p>Ecology: Crosses over drainage lines - important flyway for birds. Fit spans with LARGE Double Loop BFD.</p> <p>Wetland: Crossing over the drainage lines. Erosion control measures must be implemented. Conditions of the WUL will apply</p> <p>Heritage: Generic mitigation measures apply</p> 

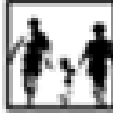
MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
260-262	Farm 14572 ET portion 0	No Contact details	<p>Ecology: Tower 259-260 spanning Mtwalume River - important flyway for birds. Fit spans with LARGE Double Loop BFD. Avoid placement of laydown camps.</p> <p>Wetland: Erosion control measures must be implemented. Conditions of WUL will apply</p> <p>Heritage: Generic mitigation measures apply</p> 



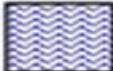



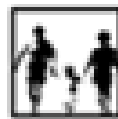
263-269	Lot RC 11600 ET portion 0	Mr. Skhumbuzo 033 355 4300 No need to call landowner	<p>Ecology: Alignment runs along drainage line – possible bird flyway. Tower 263-269 fit spans with Double Loop BFD.</p> <p>Wetland: The alignment runs parallel to the drainage lines. Erosion control measures must be implemented. Conditions of the WUL will apply</p> <p>&Heritage: Generic mitigation measures apply</p> <div>  </div> <div>  </div> <p>Plantations or orchards. Towers on the plantation whereby it affects riverine forest</p>
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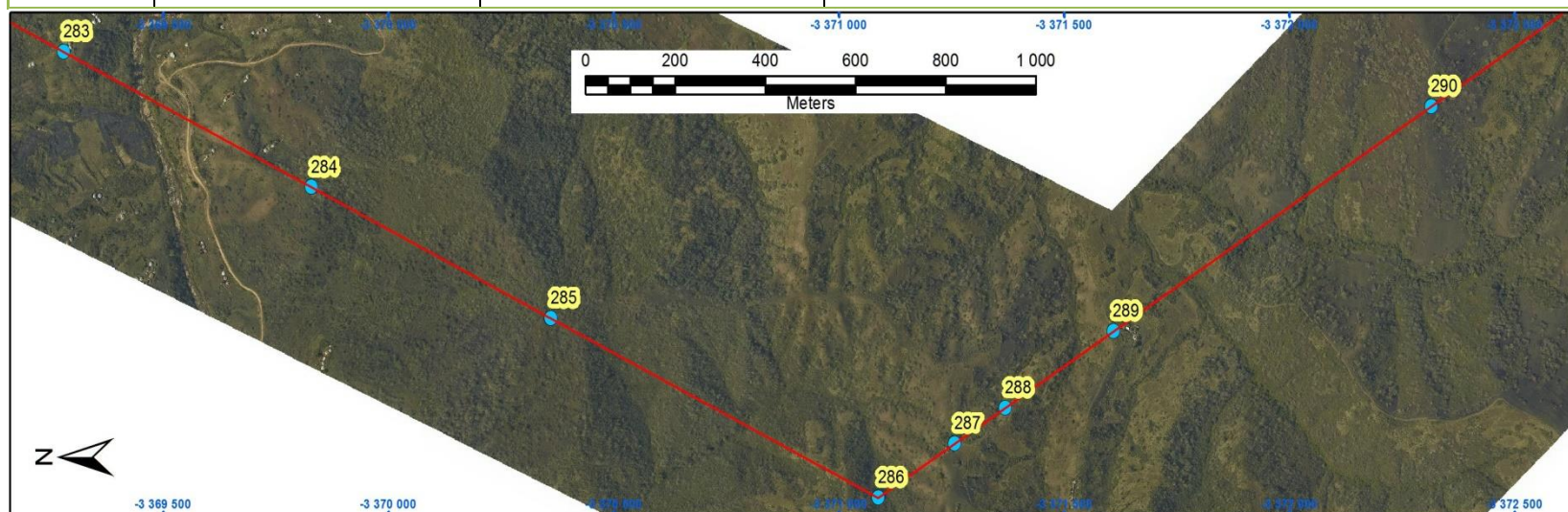
MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
270-275	Isangu 16629 ET portion 0	Mr. Skhumbuzo 033 355 4300 No need to call landowner	<p>Ecology: Fit spans with Double Loop BFD.</p> <p>Wetland: The alignment runs parallel to the drainage lines. Erosion control measures must be implemented</p> <p>Heritage: There are ruins within the alignment and there are possible burial heritage resources next to the ruins. Condition of heritage permits will apply.</p> <div>    </div>

			 <p>Social issues-Towers 270-274 there are dwellings that will be relocated.</p>
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MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
276-282	Alphine 17551 ET portion 0	Mr. Skhumbuzo 033 355 4300 No need to call landowner	<p>Ecology: Spanning open hilly grazed grassland interspersed with small drainage lines. Fit spans with Double Loop BFD.</p> <p>Wetland: Generic mitigation measures apply. Erosion control measures must be implemented.</p> <p>Heritage: Tower 282 is in a homestead. Consult with families of the homestead to relocate. Conditions of the heritage permit apply.</p> <div>    </div> <div>  <p>Cultural or heritage issues. Tower 282 has a grave and homestead that will be relocated. Grave relocation permit will apply</p> </div>


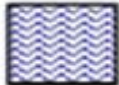

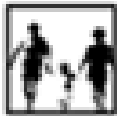


Social issues-Towers 282 is on the dwellings that need be relocated.

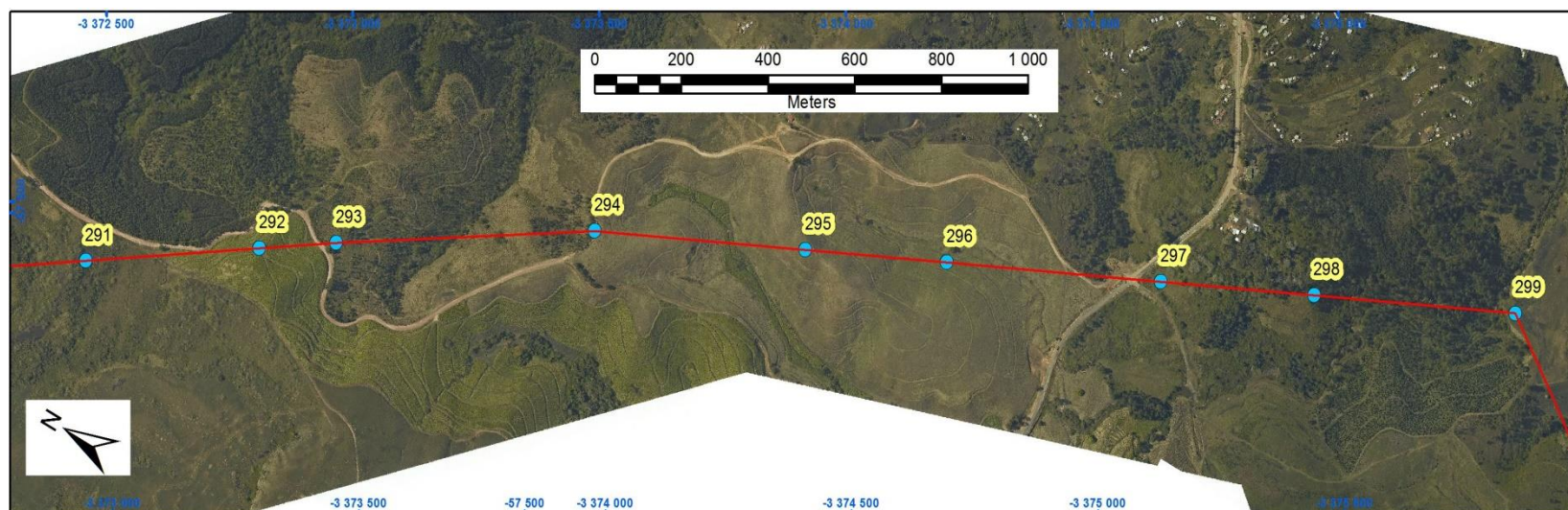


MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
283-285	Tophet 9000 ET portion 0	Mr. Skhumbuzo 033 355 4300 No need to call landowner	Ecology: Fit spans with Double Loop BFD. Wetland & Heritage: Generic mitigation measures apply 

MC	Farm/ Erven Name	Contact Details & Special	Aspect and Management measures
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Tower No		Condition	
286-288	Ccrru 9655 ET portion 3	No contact details provided	<p>Ecology: Fit spans with Double Loop BFD. Avoid placement of laydown camps</p> <p>Wetland: Channelled valley bottom.</p> <p>Heritage: The tower 286 & 288 is in a homestead. Consult with families of the homestead to relocate the homestead.</p> <div>   </div> <div>  <p>Cultural or heritage issues.</p> </div> <div>  <p>Social issues- Towers 286 & 288 is on the dwellings that need be relocated.</p> </div>

MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
289-290	Clifton Park 9219 ET portion 0	Mr. Baba Ushinga 078 935 6028 Call landowner before entry	Ecology, Wetland & heritage: Generic mitigation measures apply

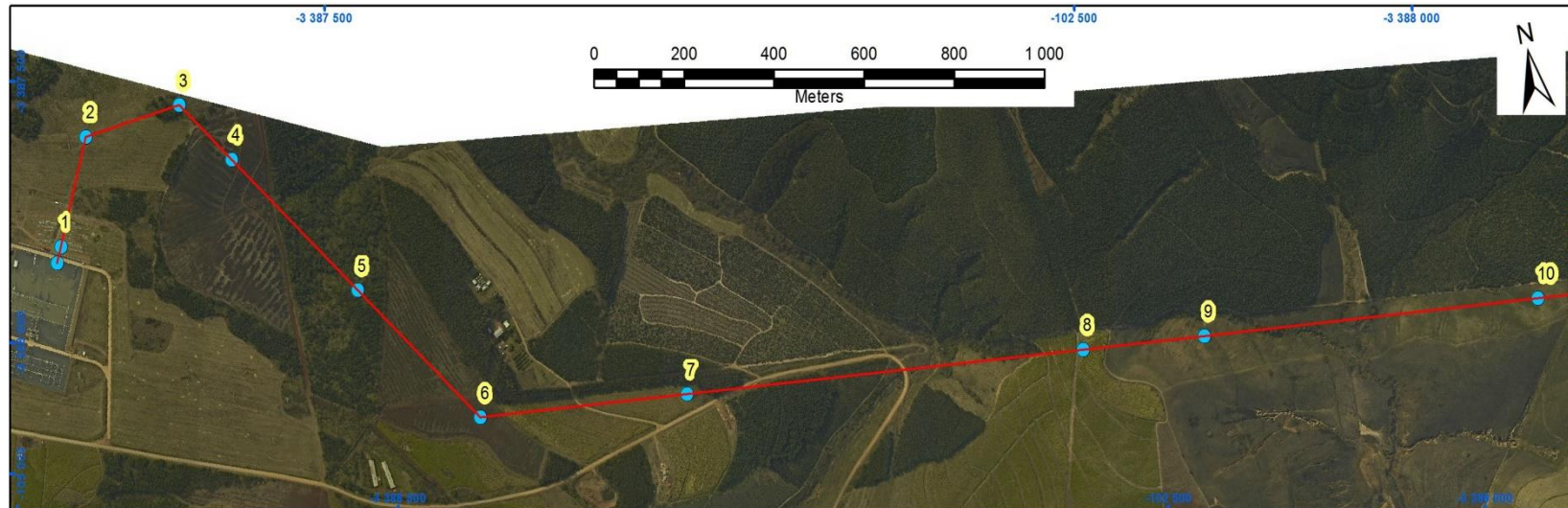


MC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
291-297	Clifton Park 9219 ET portion 0	Mr. Baba Ushinga 078 935 6028 Call landowner before entry	Ecology, Wetland & heritage: Generic mitigation measures apply  Cultivated lands (all anchors to be marked with a yellow slit). Towers (291, 292, 293, 294, and 295) are on sugar cane plantation. The agreement between Eskom and affected landowners apply with regards to sugar cane plantation.

MC	Farm/ Erven Name	Contact Details & Special	Aspect and Management measures
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Tower No		Condition	
298-299	Cumru 17562 ET portion 0	Mr. Skhumbuzo 033 355 4300 No need to call landowner	<p>Ecology: Spanning "freestone" stream. Fit spans with Double Loop BFD.</p> <p>Wetland: Generic mitigation measures apply. Erosion control measures must be implemented.</p> <p>Heritage: Generic mitigation measures apply</p> <div>  </div> <div>  </div> <p>Towers are on Plantations</p>



2.2. Biophysical & Heritage Aspects (Single-circuit 400kV Towers)




SC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
1-4	Harding Township 1302	No Contact details provided	Ecology, Wetland & Heritage: Generic mitigation measures apply.

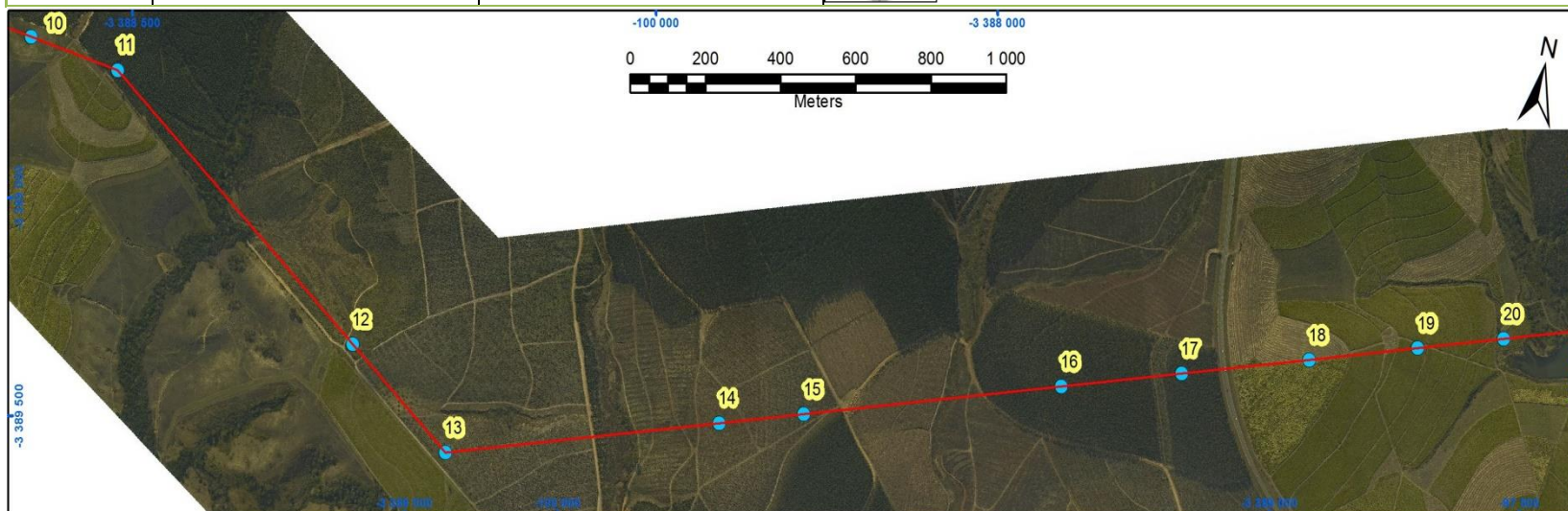
SC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
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5	Maboon 7510 ES	Anthony Dale Simpson 084 589 3380 Call landowner prior	Ecology, wetland & Heritage: Generic mitigation measures apply
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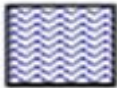


SC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
6-10	CP 1 7659 ES portion 5	Dorothy Sarjou 083 637 0854 Call landowner prior	<p>Ecology, Wetland & Heritage: Generic mitigation measures apply.</p> <div>  <p>Line span over the Plantations</p> </div> <div>  <p>Cultivated lands (all anchors to be marked with a yellow slit). Towers (6, 7, & 8) are on sugar cane plantation. Sugar cane mitigation, towers must be installed as per the MOU between Eskom and SASA or agreements with the affected landowner.</p> </div>

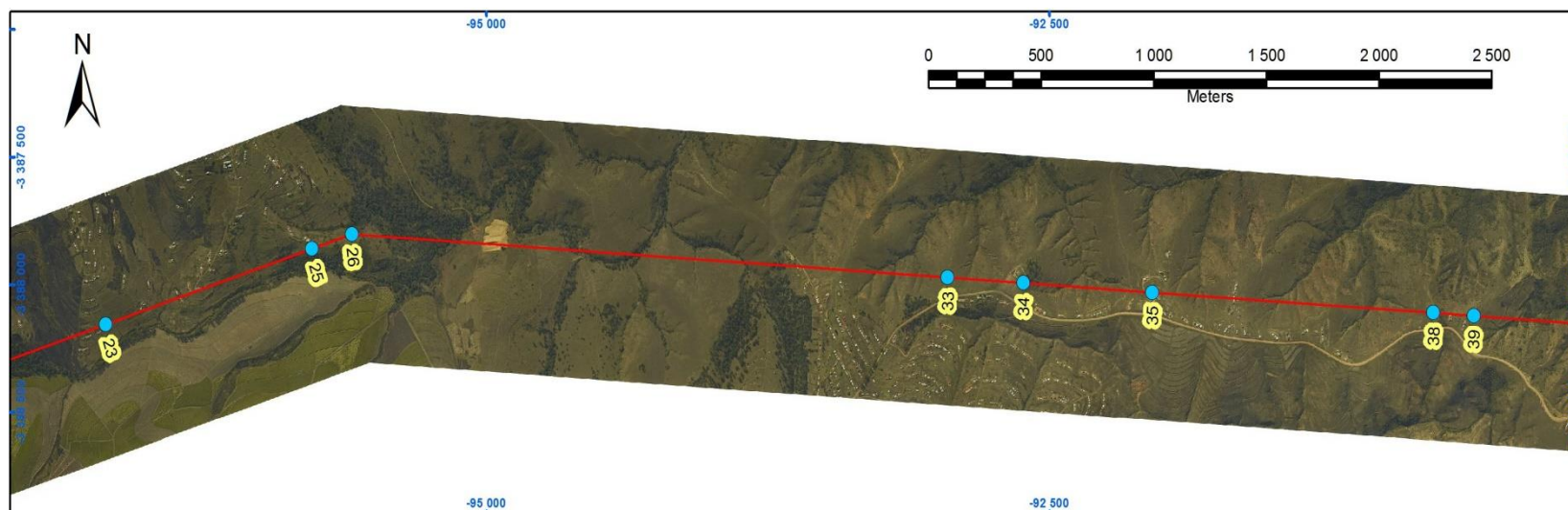
SC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
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11	Lot W 4989 ES	No Contact details	Ecology, wetland & heritage: Generic Mitigation measures apply  Tower is right on the plantation
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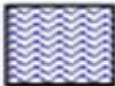






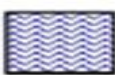
SC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
12-20	Lot V 5530 ES	Ronald Buhr 078 264 5348 Call landowner prior	Ecology: Generic Mitigation measures apply Wetland: Tower 20 on Channelled Valley Bottom. Conditions of WUL will apply Heritage: Generic mitigation measures apply

			  <p>Towers (16 & 17) are on the Plantations</p>  <p>Cultivated lands (all anchors to be marked with a yellow slit). Towers (12, 13, 14, 15, 18, 19 & 20) are on sugar cane plantation. Sugar cane mitigation, towers must be installed as per the MOU between Eskom and SASA or agreements with the affected landowner.</p>
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SC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
21-23	Mount Nebo 8178 ES portion 0, 11 & 15	No Contact details	<p>Ecology: Alignment parallel to drainage line - flyway for birds. Fit all spans with Double Loop BFD.</p> <p>Wetland: Tower 21 Channelled Valley Bottom. Erosion control measures must be implemented. Conditions of WUL will apply</p> <p>Heritage: Tower 23 has 3 graves and 2 are collapsed but they are 100m away from tower position but within the alignment. The tower is in human settlement - recently developed houses. Avoid the site and treat as a No-Go-Area. Consult with families and relocated the tower. Conditions of heritage permit will apply</p>

			    Cultural or heritage issues. Tower 23 has a graves and homestead that will be relocated.  Tower 23 is on the dwellings that need to be relocated.
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SC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
24-26	Lot Y A 6400 ES	Nkosi Umbotho 083 637 0854 Call landowner before entry (Landowner is a king and protocol must be observed)	Ecology: Alignment parallel to drainage line - flyway for birds. Fit all spans with Double Loop BFD. Wetland: Tower 25 Channelled Valley Bottom. Erosion control measures must be implemented. Conditions of WUL apply Heritage: Generic mitigation measures apply   

			 <p>Towers 24 & 25 are on the dwellings that need to be relocated.</p>
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SC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
27-30	Gorge 10302 ET portion 0	<p>Zwelethu Mbhele 082 489 3371</p> <p>Give the chairman a courtesy call</p>	<p>Ecology: Spanning open grassland - foraging habitat for large terrestrial bird species. Fit all spans with Double Loop BFD.</p> <p>Wetland: Channelled Valley Bottom next to tower 28. Erosion control measures must be implemented</p> <p>Heritage: Generic mitigation measures apply</p> 

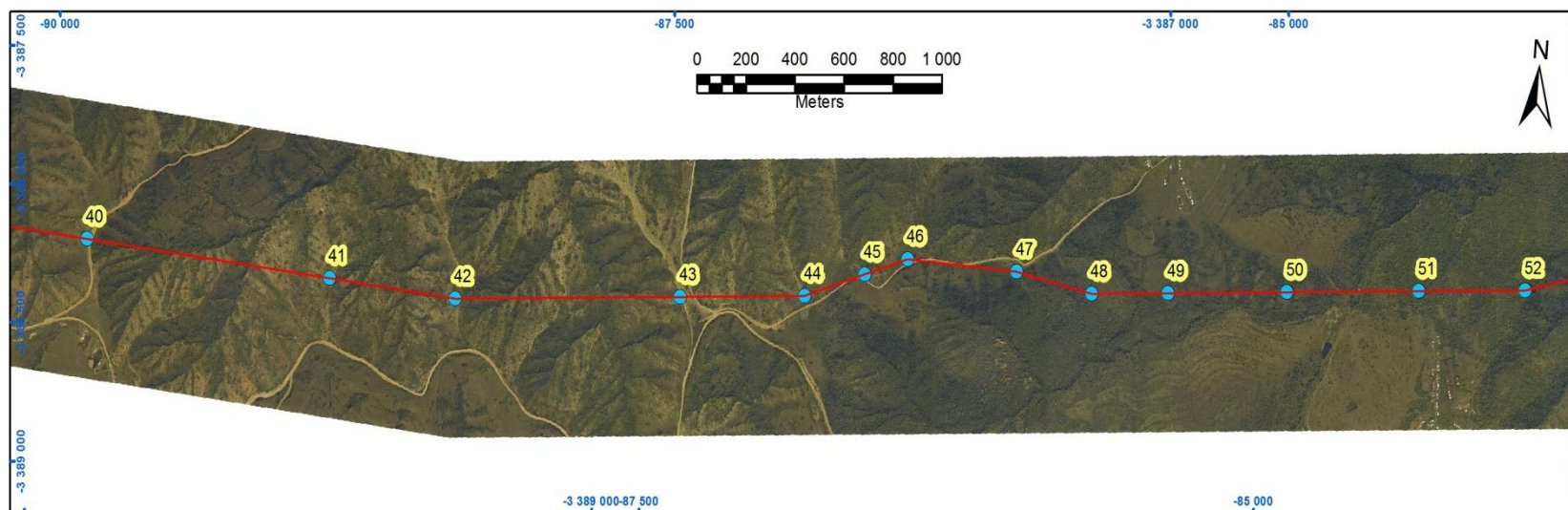
SC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
31-33	The Ridges 9564 ET portion 0	<p>Ingonyama Trust 033 386 2528</p> <p>No need to call</p>	<p>Ecology: Spanning open grassland - foraging habitat for large terrestrial bird species. Fit all spans with Double Loop BFD.</p> <p>Wetland & Heritage: Generic mitigation measures apply</p> 


			 <p>Tower 31 is on the dwellings that need to be relocated.</p>
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SC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
34-36	Location No 6A 16972 ET portion 0	Contact details and special conditions not provided	<p>Ecology: Tower 34-35 spanning open grassland - foraging habitat for large terrestrial bird species. Fit all spans with Double Loop BFD.</p> <p>Wetland: Generic mitigation measures apply</p> <p>Heritage: Fenced grave (cement dressing and headstone), Tower 34 is directly affecting Shembe-Church and the line goes over the church. Tower 35 within a homestead & near to the Kraal (potential graves). Care should be taken</p> <div style="display: flex; flex-direction: column; align-items: center;">   </div> <p>Cultural or heritage issues. Tower 34 has a fenced grave and homestead that will be relocated. Tower 35 affect household and there will be relocation of the homestead.</p>



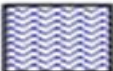
			 <p>Towers 34, 35 & 36 are on the dwellings that need to be relocated.</p>
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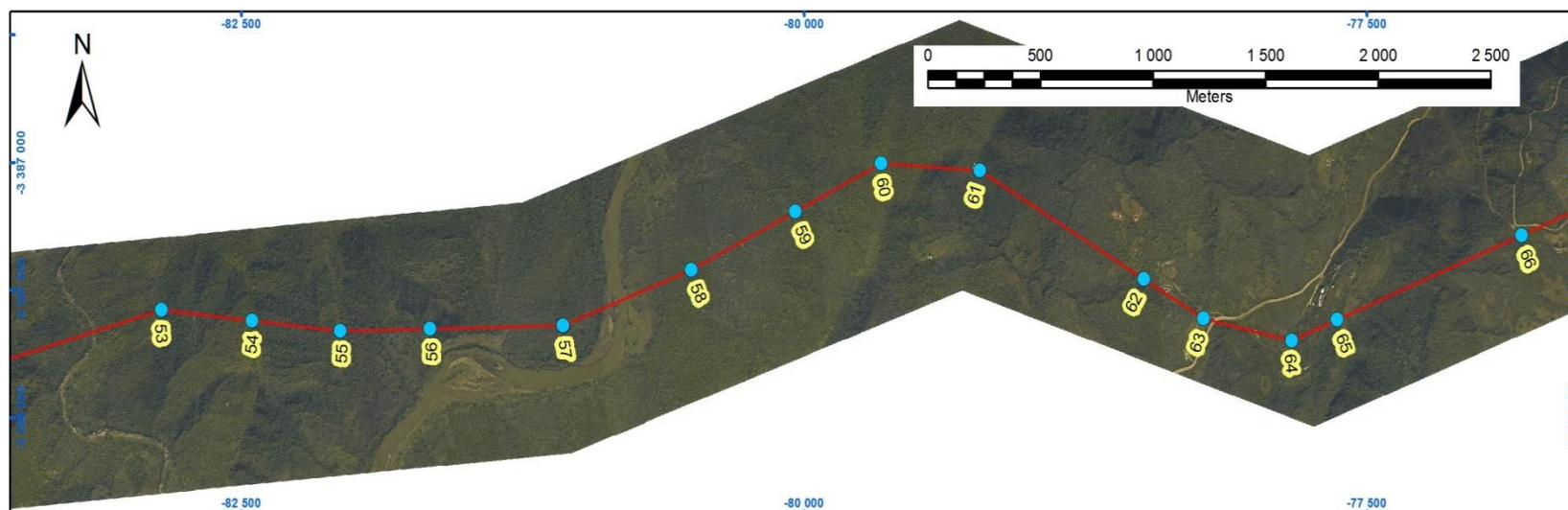
SC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
37-39	Location No 6A 16972 ET portion 0	Contact details and special conditions not provided	<p>Ecology: Towers spanning open grassland - foraging habitat for large terrestrial bird species. Fit all spans with Double Loop BFD. From</p> <p>Wetland: Generic mitigation measures apply</p> <p>Heritage: Possible burial grounds and tower 38 has got a grave. Conditions of heritage permit will apply.</p>   <p>Towers 38 & 39 are on the dwellings that need to be relocated.</p>




SC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
40-44	Location No 6A 16972 ET portion 0	Contact details and special landowner's details are not provided.	<p>Ecology: Towers spanning open grassland - foraging habitat for large terrestrial bird species. Fit all spans with Double Loop BFD.</p> <p>Wetland & Heritage: Generic mitigation measures apply.</p> 


SC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
45-50	Location No 6A 16972 ET portion 0	Contact details and special landowner's conditions are not provided.	<p>Ecology: Towers spanning open grassland - foraging habitat for large terrestrial bird species. Fit all spans with Double Loop BFD.</p> <p>Wetland & Heritage: Generic mitigation measures apply.</p> 

SC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
51-53	Location No 6A 16972 ET portion 0	Contact details and special landowner's conditions are not provided.	<p>Ecology: Towers spanning open grassland - foraging habitat for large terrestrial bird species. Fit all spans with Double Loop BFD.</p> <p>Wetland: Tower 52 to 53 cross Spruit river. Erosion control measures must be implemented. Conditions of WUL will apply</p> <p>Heritage: Generic mitigation measures apply.</p>   



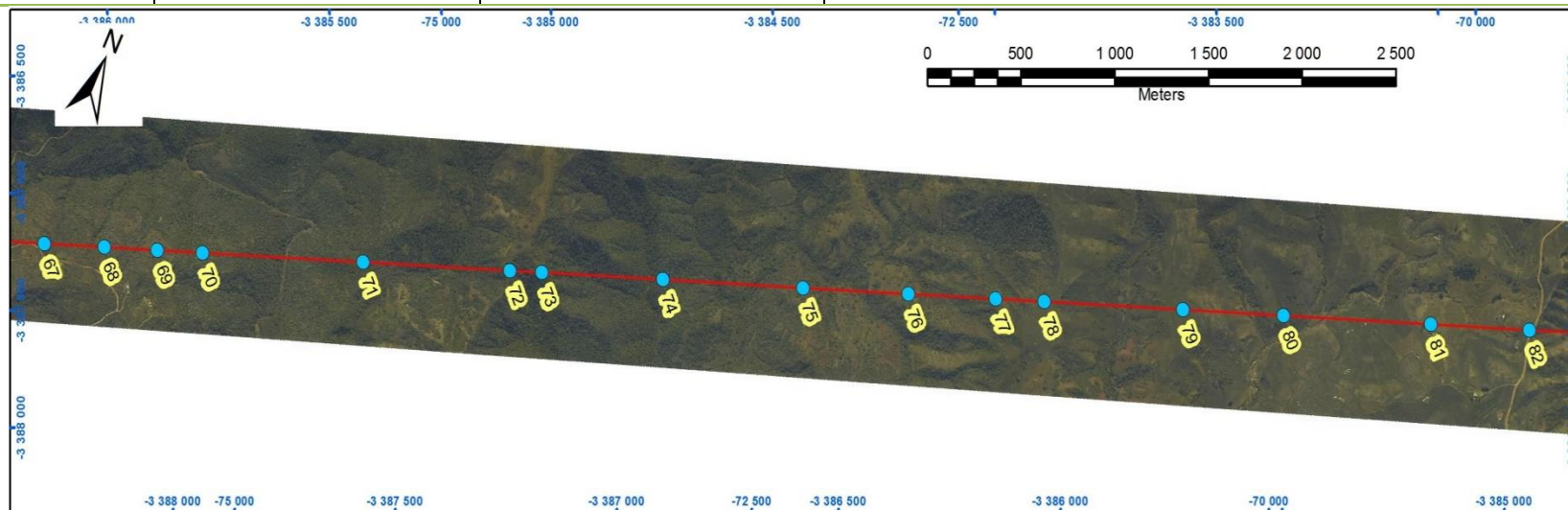
SC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
54-57	Location No 6A 16972 ET portion 0	Contact details and special landowner's details are not provided.	<p>Ecology: Towers spanning open grassland - foraging habitat for large terrestrial bird species. Fit all spans with Double Loop BFD. From Tower 54-57 spanning remote/wilderness area - foraging habitat of the "endangered" Cape Vulture (<i>Gyps coprotheres</i>). Fit all spans with Double Loop BFDs. A remote area - limit construction of access roads. Fit all strain towers with metal birds guards and all wire components at conductors with METAL SLEEVES to discourage roosting of vultures and reduce risk of electrocution. If possible helicopter can be used to minimise the impacts.</p> <p>Wetland: Tower 52 to 53 cross Spruit river. Erosion control</p>

			<p>measures must be implemented. Conditions of WUL will apply</p> <p>Heritage: Generic mitigation measures apply.</p> 
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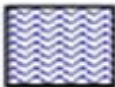
SC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
58-60	State Land	Contact details and special landowner's conditions apply	<p>Ecology: spanning remote/wilderness area - foraging habitat of the "endangered" Cape Vulture (<i>Gyps coprotheres</i>). Fit all spans with Double Loop BFDs. A remote area - limit construction of access roads. It is recommended that construction be done by means of air support (helicopter). Fit all strain towers with metal birds guards and all wire components at conductors with METAL SLEEVES to discourage roosting of vultures and reduce risk of electrocution.</p> <p>Wetland: Tower 57-58 crosses Mzimkhulu river. Erosion control measures must be implemented. Conditions of WUL will apply</p> <p>Heritage: Generic mitigation measures apply</p> 

SC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
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61-65	State Land	Contact details and special landowner's conditions apply	Ecology, Wetland & Heritage: Generic mitigation measures apply
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SC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
66-69	Farm Cele 17561 ET portion 0	Contact details and special landowner's conditions apply	Ecology: Spanning remote/wilderness area - foraging habitat of the "endangered" Cape Vulture (<i>Gyps coprotheres</i>). Area in close proximity to Oribi Gorge and Cape Vulture breeding colony. Fit all spans with Double Loop BFDs. A remote area - limit construction of access roads. It is recommended that construction be done by means of air support (helicopter). Fit


			<p>all strain towers with metal birds guards and all wire components at conductors with METAL SLEEVES to discourage roosting of vultures and reduce risk of electrocution</p> <p>Wetland: Drainage lines, avoid placing tower in the drainage line. Erosion control measures must be supplied</p> <p>Heritage: Generic mitigation measures apply</p> <div>    </div>
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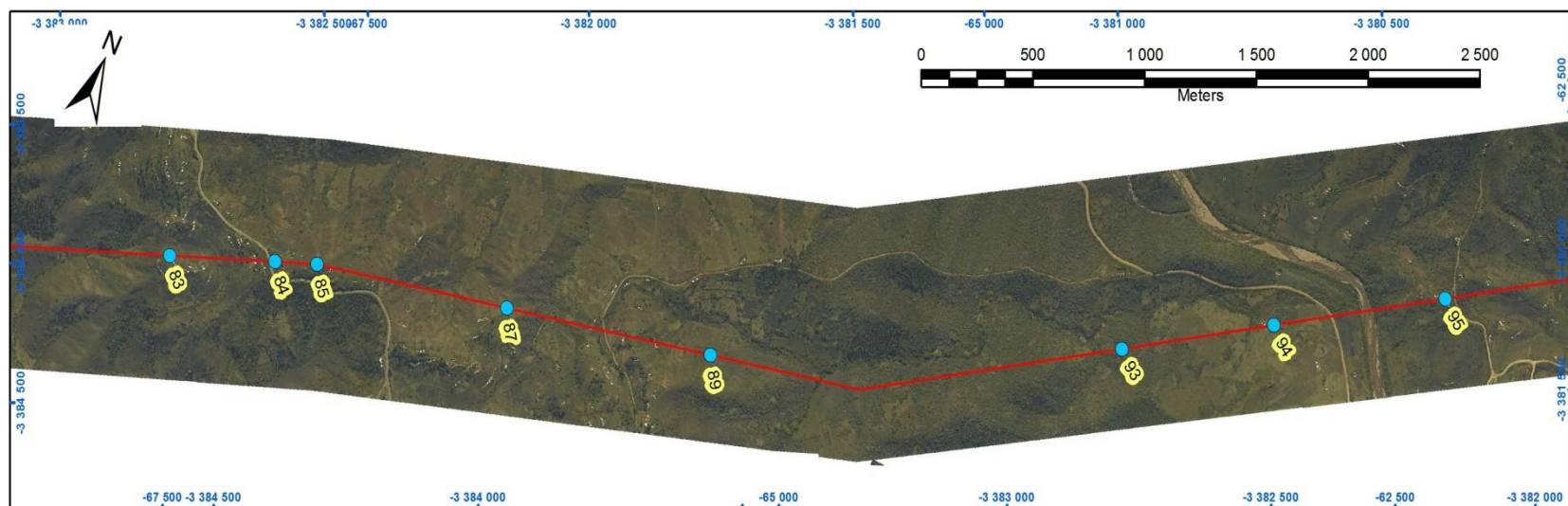
SC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
70-74	Farm Cele 17561 ET portion 0	Contact details and special landowner's conditions apply	<p>Ecology: Spanning remote/wilderness area - foraging habitat of the "endangered" Cape Vulture (<i>Gyps coprotheres</i>). Area in close proximity to Oripi Gorge and Cape Vulture breeding colony. Fit all spans with Double Loop BFDs. A remote area - limit construction of access roads. It is recommended that construction be done by means of air support (helicopter) if possible. Fit all strain towers with metal birds guards and all wire components at conductors with METAL SLEEVES to discourage roosting of vultures and reduce risk of electrocution. It is recommended that</p> <p>Wetland: Drainage lines. Erosion control measures must be supplied. Conditions of WUL will apply</p> <p>Heritage: Generic mitigation measures apply</p>



			
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SC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
75-78	Farm Cele 17561 ET portion 0	Contact details and special landowner's conditions apply	<p>Ecology: Spanning remote/wilderness area - foraging habitat of the "endangered" Cape Vulture (<i>Gyps coprotheres</i>). Area in close proximity to Oribi Gorge and Cape Vulture breeding colony. Fit all spans with Double Loop BFDs. A remote area - limit construction of access roads. It is recommended that construction be done by means of air support (helicopter) if possible. Fit all strain towers with metal birds guards and all wire components at conductors with METAL SLEEVES to discourage roosting of vultures and reduce risk of electrocution</p> <p>Wetland: Drainage lines, Erosion control measures must be supplied. Conditions of WUL will apply</p> <p>Heritage: Generic mitigation measures apply</p> 


SC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
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79-82	Farm Cele 17561 ET portion 0	Contact details and special landowner's conditions apply	<p>Ecology: Spanning remote/wilderness area - foraging habitat of the "endangered" Cape Vulture (<i>Gyps coprotheres</i>). Area in close proximity to Oribi Gorge and Cape Vulture breeding colony. Fit all spans with Double Loop BFDs. A remote area - limit construction of access roads. It is recommended that construction be done by means of air support (helicopter). Fit all strain towers with metal birds guards and all wire components at conductors with METAL SLEEVES to discourage roosting of vultures and reduce risk of electrocution</p> <p>Wetland: Drainage lines, Erosion control measures must be supplied</p> <p>Heritage: Generic mitigation measures apply</p> <div>  </div>
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

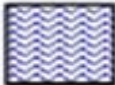





SC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
83-88	Farm Cele 17561 ET portion 0	No Contact details	<p>Ecology: Genetic mitigation measures apply</p> <p>Wetland: Drainage lines,. Erosion control measures must be implemented. Conditions of WUL will apply</p> <p>Heritage: Generic mitigation measures apply</p> <div>   </div>

			 Towers are on the dwellings that need to be relocated.
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SC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
89-91	Impunzi 10162 ET portion 1 & 20	Shazi Mashiyeni 071 171 6368 Please specify date of coming is very important	<p>Ecology: Spanning number of valleys in rural setting and numerous drainage lines. Fit all spans with Double Loop BFD.</p> <p>Wetland: Tower 90-91 span over the drainage line. Erosion control measures must be implemented. Conditions of WUL will apply</p> <p>Heritage: Generic mitigation measures apply</p> 

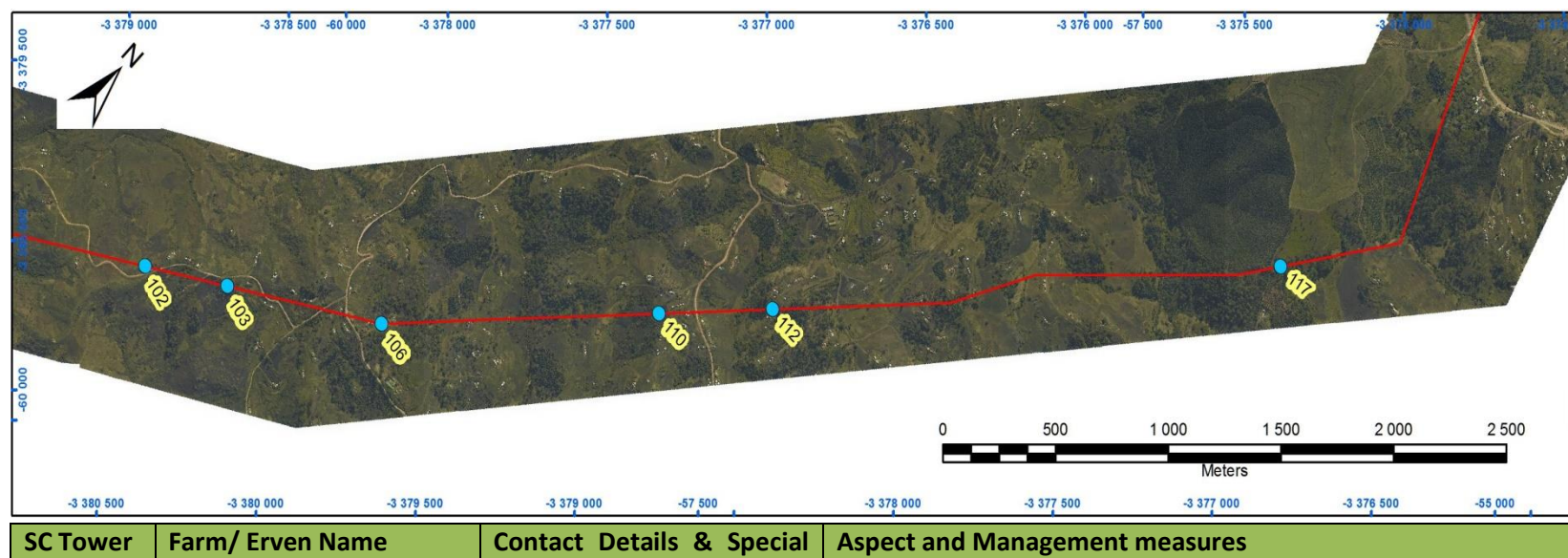
SC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
92-94	Farm Cele 17561 ET portion 0	Contact details and special landowner's conditions apply	<p>Ecology: Tower 94-95 Spanning Mzumbe River-important flyway for birds. Fit all spans with Double Loop BFD.</p> <p>Wetland: 94-95 span over the Mzumbe river. Erosion control measures must be implemented. Conditions of WUL apply</p> <p>Heritage: Tower 94 and 95, two graves next to the house plus one grave some distance. A gave X 2 grave type trees. The</p>


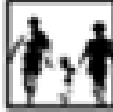
			<p>towers have been moved. The graves should be demarcated and treated as No-Go Area</p> <div>    </div> <div>  <p>Cultural or heritage issues. Tower 94 & 95 have homestead that will be relocated.</p> </div> <div>  <p>Towers 94 & 95 are on the dwellings that need to be relocated.</p> </div>
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SC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
95-97	CP 1 7659 ES portion 5	<p>Dorothy Sarjou 083 637 0854</p> <p>Call landowner prior</p>	<p>Ecology, Wetland & Heritage: Generic mitigation measures apply</p> <div>  <p>Line alignment (servitude) affects the dwellings</p> </div>

			which will lead to relocation of those homesteads. Tower 94 & 95 are affecting the dwellings.
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SC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
98-99	Swat 16091 ET portion 0	Skhumbuzo 033 355 4300 Call landowner before entry	Ecology, Wetland & Heritage: Generic mitigation measures apply



No		Condition	
100-115	CYMRU 17562 ET portion 0	<p>Skhumbuzo 033 355 4300</p> <p>Call landowner before entry</p>	<p>Ecology: Generic Mitigation measures apply</p> <p>Wetland: Generic mitigation measures apply</p> <p>Heritage: Tower 110, two graves fenced off using wood poles. Tower cannot be moved. Tower 112, graves. Tower cannot be moved.</p> <p> Cultural or heritage issues. Tower 110 & 112 have graves and homestead that will be relocated.</p> <p> Towers are on the dwellings that need to be relocated.</p>

SC Tower No	Farm/ Erven Name	Contact Details & Special Condition	Aspect and Management measures
116-118	CYMRU 17562 ET portion 0	<p>Skhumbuzo 033 355 4300</p> <p>Call landowner before entry</p>	<p>Ecology: Fit all spans with Double Loop BFD.</p> <p>Heritage: Tower 117, There is a hut on the tower position (potential graves) - high tree and grass cover currently. No site specific mitigation identified. On towers that cannot be moved, a permit for relocation of graves will be applied with Amafa. Conditions of heritage permit will apply.</p>

			<p>Wetland: Erosion control measures must be implemented</p> <p>Heritage: Generic mitigation measures apply</p> 
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C. SECTION 5: CONCLUSIONS

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

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

This EMPr was compiled in an iterative manner that allowed for a pre-screening of the pylons by the specialist team. This enabled specialists to identify pylons that could be moved slightly from one position to another to avoid more sensitive environmental features, such as drainage lines, areas susceptible to erosion and heritage artefacts. This in turn made it possible for the technical team to revise all the profiles to the agreement of all specialists concerned.

In order to have records of environmental incidences and the handling thereof, it is suggested that incidence logs (**Appendix 1**) be filled in by the Environmental Control Officer or Environmental Liaison Officer. The contract manager needs to be informed of such incidences and further actions need to be taken, should the need arise.

APPENDIX 1: INCIDENT AND ENVIRONMENTAL LOG

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

APPENDIX 2: DECLARATION OF UNDERSTANDING BY DEVELOPER, ENGINEER AND CONTRACTOR

DECLARATION OF UNDERSTANDING BY THE DEVELOPER

I, _____

Representing _____

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

Contract _____

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

Signed: _____

Place: _____

Date: _____

Witness 1: _____

Witness2: _____

DECLARATION OF UNDERSTANDING BY THE CONTRACTOR

I, _____

Representing _____

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

Contract _____

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

Signed: _____

Place: _____

Date: _____

Witness 1: _____

Witness2:

APPENDIX 3: OIL SPILL CLEAN-UP AND REHABILITATION

APPENDIX 4: SAFETY, HEALTH, ENVIRONMENT & QUALITY (SHEQ) POLICY

APPENDIX 5: ENVIRONMENTAL AUTHORISATION

APPENDIX 6: SPECIALIST REPORTS

6.1. WATERCOURSES AND WATER SURFACE ASSESSMENT REPORT

6.2. HIA REPORT

6.3. ECOLOGICAL COMPONENT REPORT

6.4. AVIFAUNA COMPONENT REPORT

APPENDIX 7: GATE INSTALLATION GUIDELINES

APPENDIX 8: ACCESS TO FARMS REPORT

APPENDIX 9: VEGETATION CLEARANCE GUIDELINES REPORT

APPENDIX 10: SERVITUDE MANAGEMENT STANDARD

APPENDIX 11: TOWER PROFILES