

**PREPARED FOR
TRANSMISSION SERVICES**



**ENVIRONMENTAL MANAGEMENT PLAN FOR
THE PROPOSED MAJUBA-UMFOLOZI 765Kv
TRANSMISSION POWER LINE**

DECEMBER 2007

**PREPARED BY:
BKS (PTY) LTD
P O BOX 3173
PRETORIA
0001**

**TEL (012) 421 3500 FAX (012) 421 3501
CONTACT PERSON: TERRY BAKER**

TABLE OF CONTENTS

1. SCOPE.....	1
1.1 REPORTING STRUCTURE.....	1
1.2 RESPONSIBILITY MATRIX.....	2
2. INTRODUCTION.....	2
3. TECHNICAL SPECIFICATIONS OF THE LINE.....	3
3.1 LENGTH.....	3
3.2 CONSTRUCTION AREA	3
3.3 TOWER PARAMETERS	4
3.4 TOWER DESIGN.....	4
3.5 MAJOR ACTIVITIES OF THE PROJECT	4
3.6 PROJECT EXECUTION AREA.....	5
3.7 SITE ESTABLISHMENT	6
3.8 WASTE MANAGEMENT.....	6
3.9 WORKSHOP AND EQUIPMENT STORAGE AREAS.....	7
3.10 STORAGE AREAS OF HAZARDOUS SUBSTANCES	7
4. PHYSICAL ISSUES AND THEIR CONTROL	8
4.1 TERRAIN.....	8
4.1.1 <i>Management Objective</i>	8
4.1.2 <i>Measurable Targets</i>	8
4.2 WET AREAS	8
4.2.1 <i>Management Objective</i>	8
4.2.2 <i>Measurable Targets</i>	9
4.3 RIVER CROSSINGS	9
4.3.1 <i>Management Objective</i>	9
4.3.2 <i>Measurable Targets</i>	9
4.4 EROSION AND DONGA CROSSINGS.....	9
4.4.1 <i>Management Objective</i>	10
4.4.2 <i>Measurable Targets</i>	10
4.5 ACCESS ROADS	10
4.5.1 <i>Management Objective</i>	11
4.5.2 <i>Measurable Targets</i>	11
4.6 RUBBLE AND REFUSE DISPOSAL	11
4.6.1 <i>Management Objective</i>	11
4.6.2 <i>Measurable Targets</i>	12
4.7 VEGETATION CLEARING	12
4.7.1 <i>Management Objective</i>	13
4.7.2 <i>Measurable Targets</i>	14
4.8 GATE INSTALLATION AND GATE CONTROL.....	14
4.8.1 <i>Management Objective</i>	14
4.8.2 <i>Measurable Targets</i>	15
4.9 FIRE PREVENTION	15
4.9.1 <i>Management Objective</i>	15
4.9.2 <i>Measurable Targets</i>	15

4.10	SERVICING OF VEHICLES.....	15
4.10.1	<i>Management Objective</i>	16
4.10.2	<i>Measurable Targets</i>	16
4.11	CLAIMS FOR DAMAGE	16
4.11.1	<i>Management Objective</i>	16
4.11.2	<i>Measurable Targets</i>	16
4.12	TOWER POSITIONS	17
4.12.1	<i>Management Objective</i>	17
4.12.2	<i>Measurable Targets</i>	17
4.13	WINCH AND TENSIONER STATIONS.....	18
4.13.1	<i>Management Objective</i>	18
4.13.2	<i>Measurable Targets</i>	18
4.14	BATCHING PLANTS.....	18
4.14.1	<i>Management Objective</i>	19
4.14.2	<i>Measurable Targets</i>	19
4.15	STRINGING OPERATIONS.....	19
4.15.1	<i>Management Objective</i>	19
4.15.2	<i>Measurable Targets</i>	19
5.	SOCIAL ISSUES AND THEIR CONTROL.....	20
5.1	SANITATION	20
5.1.1	<i>Management Objective</i>	20
5.1.2	<i>Measurable Targets</i>	20
5.2	PREVENTION OF DISEASE	20
5.2.1	<i>Management Objective</i>	20
5.2.2	<i>Measurable Targets</i>	20
5.3	INTERACTION WITH LANDOWNERS	20
5.3.1	<i>Management Objective</i>	21
5.3.2	<i>Measurable Targets</i>	21
5.4	LITTERING CONTROL	21
5.4.1	<i>Management Objective</i>	21
5.4.2	<i>Measurable Targets</i>	21
5.5	ACCESS CONTROL TO PROPERTIES	21
6.	BIOLOGICAL ISSUES AND THEIR CONTROL.....	22
6.1	FAUNA.....	22
6.1.1	<i>Management Objective</i>	23
6.1.2	<i>Measurable Targets</i>	23
6.2	FLORA.....	23
6.2.1	<i>Management Objective</i>	24
6.2.2	<i>Measurable Targets</i>	24
6.3	HERBICIDE USE	24
6.3.1	<i>Management Objective</i>	24
6.3.2	<i>Measurable Targets</i>	24
7.	CULTURAL ISSUES AND THEIR CONTROL.....	24
7.1	ARCHAEOLOGY	24
7.1.1	<i>Management Objective</i>	25

7.1.2	<i>Measurable Targets</i>	25
7.2	MONUMENTS/HISTORICAL SITES	25
7.2.1	<i>Management Objective</i>	25
7.2.2	<i>Measurable Targets</i>	25
7.3	FARMHOUSES/BUILDINGS	25
7.3.1	<i>Management Objective</i>	26
7.3.2	<i>Measurable Targets</i>	26
7.4	INFRASTRUCTURE	26
7.4.1	<i>Management Objective</i>	26
7.4.2	<i>Measurable Targets</i>	27
8.	REQUIREMENTS DURING CONSTRUCTION PERIOD	27
9.	TOWER SPECIFIC PROBLEM AREAS	28
9.1	LANDOWNER SPECIAL CONDITIONS	28
10.	PHYSICAL ACCESS PLAN	28
11.	SITE DOCUMENTATION/MONITORING/REPORTING	28
12.	REFERENCES	29
13.	APPENDICES	30

1. SCOPE

The scope of this document is to give environmental management specifications, to the Contractor constructing the Transmission power line, in fulfilment of ISO 14001 requirements, and the conditions set out in the Record of decision issued by the Department of Environmental Affairs and Tourism (DEAT) on 23 November 2006. This document is part of the contract and supplementary to Eskom's Specification for Transmission Line Towers and Line Construction (**TRMSCAAC1 REV 3**). **The recommendations and constraints, as set out in this document are enforceable under the general conditions of contract.**

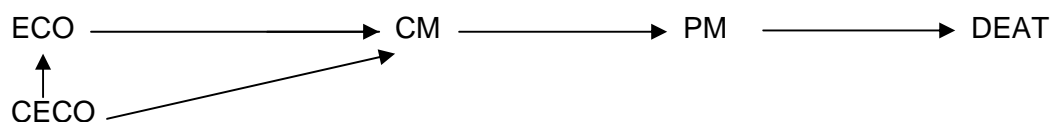
The management plan has a long-term objective to ensure that:

- 1) Environmental management conditions and requirements are implemented from the start of the project,
- 2) Precautions against damage and claims arising from damage are taken timeously, and
- 3) The completion date of the contract is not delayed due to problems with Landowners arising during the course of construction.

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

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

1.1 REPORTING STRUCTURE



ECO: - Environmental Control Officer (Can be the Eskom Site Supervisor depending on the size of the project)

C: - Contractor

CM: - Contract Manager (Eskom)

CECO: - Contractor Environmental Control Officer (Dedicated person)

PM: - Project Manager (Eskom)

DEAT: - Department of Environmental Affairs and Tourism

1.2 RESPONSIBILITY MATRIX

Function	Name / Cell No	Responsibility
Project Manager (PM) Eskom		Overall management of project and EMP implementation
Site Supervisor/ Contract Manager (CM) Eskom		Oversees site works, liaison with Contractor, PM and ECO
Environmental Control Officer (ECO) Eskom		Implementation of EMP and liaison between Eskom, Contractor and Landowners
Contractor (C)		Implementation and compliance with recommendations and conditions of the EMP, Appoints dedicated person (CELO) to work with ECO
Contractor Environmental Control Officer (CECO)		Implementation of EMP, landowner interaction, environmental control of site actions, re-mediation and rehabilitation work.
Tx Services Environmental Advisor (Eskom)		Environmental advice and auditing

(Table to be completed upon Contract award)

2. INTRODUCTION

This document is based on the Environmental Management Programme for Line Construction (Geeringh, 2005) provided by Eskom, and has been amended by BKS (Pty) Ltd based on the findings of the Environmental Impact Assessment as documented in the Environmental Impact Report (BKS, 2006).

The construction and refurbishment of Transmission power lines can have a major impact on the environment. It is thus imperative that better precautions be taken to ensure that environmental damage is minimised. This will take a concerted effort from the Contractor and proper planning is of the utmost importance.

The ECO shall convey the contents of this document, the conditions of the Record of Decision from DEAT as well as the 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. Record of the training date, attendance and discussion points shall be kept by the ECO.

The ECO shall make contact with the local Extension Officer of the Department of Agriculture and the Chairpersons of the Farmers Associations where the route traverses, as these contacts have valuable information about the area and the local farming community.

Most Landowners will see the construction period as interference with their daily activities. There will be a negative attitude towards the whole construction process. Landowners are always apprehensive toward changes they do not control. Good relations with Landowners need to be established and sustained. Landowners shall therefore be informed timeously of the construction programme, duration and all interference with their daily activities. This will help in the solving of problems and the prevention thereof. Lines of communication should always be open to ensure proper and timeous reaction to complaints. The contact numbers of the ECO and CECO shall be made available to Landowners. The reputation of both the Contractor and Eskom Transmission is at stake and should be the drive for everybody involved to perform in excellence.

All environmentally sensitive areas are indicated on the profiles and the Project Manager and Contractor shall take note of these. **The Contractor (TRMSCAAC1 REV 3 section 4.1.2) shall take all the necessary precautions against damage.**

During the construction period at least two (2) Environmental Audits shall be conducted to determine compliance with the recommendations of the EIA, EMP and conditions of the ROD. These can be internal audits or external by DEAT or the ISO14001 auditors or combined audits.

3. TECHNICAL SPECIFICATIONS OF THE LINE

3.1 LENGTH

The length of the line will be approximately 210 km.

3.2 CONSTRUCTION AREA

The servitude width is 80 m. Construction is limited to the width of the servitude in which the line will be constructed.

3.3 TOWER PARAMETERS

- Tower spacing : 450 m (Average)
- Tower height : 45 m (Average)
- Conductor attachment height : 36 m (Average)
- Conductor type : _____
- Minimum ground clearance : 10.4 m

3.4 TOWER DESIGN

The following types of towers are used on this project:

- Cross rope suspension tower (preference).
- Compact cross rope suspension tower.
- Guyed-V suspension tower.
- Self-supporting suspension tower.
- Self-supporting strain tower.

The Contractor shall ensure that the correct equipment for construction purposes is available at all times to ensure construction proceeds without unnecessary damage to the environment. Should alternative methods be used, it requires approval from site staff and the ECO must be informed to ensure environmental issues are addressed as per the ROD and in terms of the principles of the National Environmental Management Act (Act 107 of 1998).

3.5 MAJOR ACTIVITIES OF THE PROJECT

The project involves 21 major activities of which 5 are completed. These are:

1. Environmental Impact Study – Copy of ROD appended to this document.
2. Negotiations for the servitude –Landowners list and contact details and special conditions appended to this document.
3. Land survey to determine the exact routing of the line and tower placement.
4. Profiling work to produce the profiles for construction.
5. Pegging of bend tower by a Transmission surveyor.

The following activities are still to be performed and will take approximately 12 months to complete:

1. Erection of camp sites for the Contractors' workforce.
2. Negotiations with landowners for access roads to the servitude.
3. Servitude gate installation to facilitate access to the servitude.
4. Vegetation clearing to facilitate access, construction and the safe operation of the line.
5. Establishing of access roads on the servitude where required as per design parameters in **TRMSCAAC1 REV 3**.
6. Pegging of tower positions for construction by the contractor.

7. Transportation of equipment, materials and personnel to site and stores.
8. Installation of foundations for the towers.
9. Tower assembly and erection.
10. Conductor stringing and regulation.
11. Taking over the line from the contractor for commissioning.
12. Final inspection of the line, commissioning and hand over to the Grid Line and Servitude Manager for operation.
13. Rehabilitation of disturbed areas.
14. Signing off of all Landowners upon completion of the construction and rehabilitation.
15. Handing over and taking over of the servitude by the Grid Environmental Manager.
16. Operation and maintenance of the line by the Grid.

The final inspection for the release of the Contractors' guarantee takes place one year after completion of the project. The line will be in operation immediately after completion of the project and will stay operational for the lifetime of the plant. Subsequent maintenance and refurbishment can extend the operational lifetime of the plant substantially.

3.6 PROJECT EXECUTION AREA

Construction activities are limited to the area as demarcated by Eskom and shown on the site plans. Any area outside the Eskom servitude area, required to facilitate access, construction activities, construction camps or material storage areas, shall be negotiated with the affected Landowner and written agreements shall be obtained. **Location of construction camps must be carefully considered and approved by the ECO. Newcastle, Utrecht, and Vryheid are better locations compared to eMondlo, Osizweni, and Nquthu.** All construction areas shall be cleared in accordance with the Eskom Standard for Bushclearing **ESKASABG3**. Any extra space to be cleared outside the servitude shall be negotiated with the relevant Landowner and approved by Eskom. All areas marked as no go areas inside the servitude shall be treated with the utmost care and responsibility.

Should water be required from sources other than Eskom supply, a written agreement shall be reached between the Contractor and the Landowner. **Should the Contractor be required to use water from a water resource, the Contractor shall supply a method statement to that effect and obtain the required licences.** Strict control shall be maintained and the ECO shall regularly inspect the abstraction point and methods used.

No work shall commence until permission is granted from the Environmental Advisor from Transmission. The Project Manager shall ensure that all conditions in the ROD are fulfilled before the Contractor occupies the site. The

Grid shall be kept informed of all developments on construction at all times. All the requirements from the Grid must be considered during the construction phase to ensure smooth transition.

3.7 SITE ESTABLISHMENT

The siting of the Contractor's camp shall be done in conjunction with the Landowner, ecologist/botanist and archaeologist that participated in the completion of the EMP, where required, **as well as the ECO.**

Site establishment shall take place in an orderly manner and all amenities shall be installed at Camp sites before the main workforce move onto site. The Contractor camp shall have the necessary ablution facilities with chemical toilets where such facilities are not available at commencement of construction. The Contractor shall supply a wastewater management system that will comply with legal requirements and be acceptable to Eskom. Unless a connection to a waterborne sewer is available, a septic tank system is recommended to ensure the best practice environmental solution.

Where Eskom facilities are available the Contractor shall make use of such facilities where it is viable and negotiated with the Grid. The Contractor shall inform all site staff to make use of supplied ablution facilities and under no circumstances shall indiscriminate excretion and urinating be allowed other than in supplied facilities.

The Contractor is to supply a method statement for site establishment to the ECO for approval before the activity commences.

3.8 WASTE MANAGEMENT

The Contractor shall supply waste collection bins where such is not available and all solid waste collected shall be disposed of at a registered waste dump. A certificate of disposal shall be obtained by the Contractor and kept on file. 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. **Under no circumstances may solid waste be burned on site unless a suitable incinerator is available.**

All potentially hazardous and non-degradable waste shall be collected and removed to a registered waste site. A **certificate of disposal** shall be obtained by the Contractor and kept on file.

The Contractor is to supply a method statement for waste management to the ECO for approval before the activity commences.

3.9 WORKSHOP AND EQUIPMENT STORAGE AREAS

Where possible and practical all maintenance of vehicles and equipment shall take place in the workshop area. **The workshop area will be fitted with an impermeable surface and will be bunded.** During servicing of vehicles or equipment, a suitable drip tray shall be used to prevent spills onto the soil, especially where emergency repairs are affected outside the workshop area. **Hazardous material, i.e. hydrocarbons will be to an oiltrap that will be cleaned regularly and disposed of in a properly registered waste disposal facility.** Leaking equipment shall be repaired immediately or be removed from site to facilitate repair.

Workshop areas shall be monitored for oil and fuel spills and such spills shall be cleaned and re-mediated to the satisfaction of the ECO. The Contractor shall be in possession of an emergency spill kit that must be complete and available at all times on site.

The following shall apply to hazardous substance spills:

- 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 must be reported to the ECO and appointed Tx Services Environmental Advisor (**Tx Key Performance Indicator requirement**).
- New topsoil shall replace the removed contaminated soil.

The Contractor is to supply a method statement for workshop and equipment storage areas to the ECO for approval before the activity commences.

3.10 STORAGE AREAS OF HAZARDOUS SUBSTANCES

All hazardous substances shall be stored in suitable containers and storage areas shall be bunded to contain at least 110% of the content of the containers. This includes all carbon substances like fuel and oil as well as herbicides and battery acid. A register (including Material safety data sheets) shall be kept on all substances and be available for inspection at all times. Areas shall be monitored for spills and any spills shall be contained, cleaned and rehabilitated immediately. Any leaking containers shall be repaired or removed from site (See above for actions after spills). Used oils and lubricants shall be placed in a container obtainable from the Rose Foundation. This container will be collected and returned by the Rose Foundation.

The Contractor is to supply a method statement for storage areas of hazardous substances to the ECO for approval before the activity commences.

4. PHYSICAL ISSUES AND THEIR CONTROL

4.1 TERRAIN

The climate, geology, soils, topography, vegetation, wetlands and land use along the route are described in the Environmental Impact Report (BKS, 2006), and highlight that:

- The area receives a high number of lightning strikes;
- The northern section of the route may receive snow;
- The southern section of the route has a high soil erosion potential; and
- The first 45 km of the route traverse the proposed Ekangala Grassland Biosphere Reserve.

4.1.1 Management Objective

- Minimise scarring of the soil surface and land features
- Minimise damage to the Ekangala Grassland Biosphere Reserve
- Minimise disturbance and loss of topsoil
- Rehabilitate all disturbed areas along the servitude

4.1.2 Measurable Targets

- Where possible, no removal of grasses in servitude (especially within the Ekangala Grassland Biosphere Reserve)
- No visible erosion scars once construction is completed
- No claims regarding damage leading to litigation
- All damaged areas successfully rehabilitated one year after completion

4.2 WET AREAS

Permanently wet wetlands areas are shown on the profiles. No vehicular traffic shall be allowed in such wetlands. Only existing roads through such wetlands may be used with the approval of Eskom, the Department of Water Affairs and Tourism, and the Landowner. No equipment shall be used which may cause irreparable damage to wetlands. The contractor shall use alternative methods of construction in such wetlands. Refer to **TRMSCAAC1 REV 3 section 4.4.1** regarding access through seasonally wet wetlands.

4.2.1 Management Objective

- Avoid all types of wetlands to prevent damage

4.2.2 Measurable Targets

- No damage to wetlands (including digging and pegging)
- No complaints from authorities or landowners and litigation

4.3 RIVER CROSSINGS

No roads shall be cut through river- and stream banks as this may lead to erosion causing siltation of streams and downstream dams. Existing drifts and bridges may be used if the Landowner gives his written consent. 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. (Refer to **TRMSCAAC1 REV 3 section 4.4.1** regarding access across running water.) **Furthermore, permission will be sorted from DWAF before any new drifts and bridges are constructed.**

4.3.1 Management Objective

- Minimise damage to river and stream embankments
- Minimise erosion of embankments and subsequent siltation of rivers, streams and dams
- Follow NEMA Regulations for construction of new bridges

4.3.2 Measurable Targets

- No 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 approval before the activity commences.

4.4 EROSION AND DONGA CROSSINGS

Crossing of dongas and eroded areas shall be thoroughly planned in accordance with **TRMSCAAC1 REV 3 section 4.4.1**. 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.

4.4.1 Management Objective

- Minimise erosion damage on donga crossings
- Minimise impeding the natural flow of water
- Minimise initiation of erosion through donga embankments

4.4.2 Measurable Targets

- 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

The Contractor is to supply a method statement for erosion and donga to the ECO for approval before the activity commences.

4.5 ACCESS ROADS

Planning of access routes must be done in conjunction between the Contractor, Eskom and the Landowner. All agreements reached shall be documented in writing and no verbal agreements should be made. The condition of existing access / private roads to be used shall be documented with photographs.

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 (refer also **TRMSCAAC1 REV 3**). 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 must be done in accordance with **TRMSCAAC1 REV 3 section 4.4**. Water diversion berms shall be installed from the start of the contract in accordance with **TRMSCAAC1 REV 3 section 4.4.4**. 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.

No roads shall be constructed on slopes of more than 20% unless such roads follow contours. In such areas the Contractor shall only use existing roads or alternative methods of construction. The Contractor shall take such areas into consideration during the tender.

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 grass seed shall be used to re-seed damaged areas. Badly damaged areas shall be fenced in to enhance rehabilitation. The seed mixture should comply with the parameters as set out in **section 4.12** of this document.

4.5.1 Management Objective

- Minimise damage to existing access roads
- Minimise damage to environment due to construction of new access roads
- Minimise loss of topsoil and enhancement of erosion

4.5.2 Measurable Targets

- 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

The Contractor is to supply a method statement for access roads to the ECO for approval before the activity commences.

4.6 RUBBLE AND REFUSE DISPOSAL

The Contractor shall dispose of all excess material on site in an appropriate manner and at a designated place. All packaging material shall be removed from site and disposed of and not burned or buried on site. No landfill may be used without the consent from the Landowner. Should a landfill be used for biodegradable materials only, the rubble shall be compacted and at least 1 m of soil shall cover the waste material. No hazardous material, e.g. oil or diesel fuel shall be disposed of in any unregistered waste site. (Refer also **3.7**).

No material shall be left on site that may harm man, 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. Surplus concrete may not be dumped indiscriminately on site, but shall be disposed of in a registered waste disposal site, certified for a specific waste. Concrete trucks shall not be washed on site after depositing concrete into foundations. Any spilled concrete shall be cleaned up immediately. Any soil contaminated by concrete shall be removed and the topsoil shall be replaced.

4.6.1 Management Objective

- To keep the servitude neat and clean
- Disposal of rubble and refuse in an appropriate and legislated manner
- Minimise litigation

- Minimise Landowner complaints

4.6.2 Measurable Targets

- No rubble or refuse lying around on site
- No incidents of litigation
- No complaints from Landowners
- No concrete spillage on the servitude

The Contractor is to supply a method statement for rubble and refuse disposal to the ECO for approval before the activity commences.

4.7 VEGETATION CLEARING

The object of vegetation clearing is to trim, cut or clear the minimum number of trees and vegetation necessary for the safe mechanical construction and electrical operation of the transmission line. Vegetation clearing shall be done in accordance with **ESKASABG3 REV 0** (Standard for bush clearance and maintenance within overhead power line servitudes) and the Vegetation Management Guideline. **Only an 8 m strip may be cleared flush with the ground to allow vehicular passage during construction.**

No scalping shall be allowed on any part of the servitude road unless absolutely necessary and authorised by the ECO. The removal of all economically valuable trees or vegetation shall be negotiated with the Landowner before such vegetation is removed. 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.

Vegetation clearing on tower sites must be kept to a minimum. Big trees with large root systems shall be cut manually and removed, as the use of a bulldozer will cause major damage to the soil when the root systems are removed. Stumps shall be treated with an Eskom approved herbicide. Smaller vegetation can be flattened with a machine, but the blade should 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.

No vegetation clearing in the form of de-stumping, scalping or uprooting shall be allowed on river and stream banks. Vegetation shall only be cut to allow for the passage of the pilot-cables and headboard. **No vegetation clearing shall be allowed across ravines and gullies,** as this vegetation will 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. 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, will be considered as a separate case. With permission of the landowner, the total servitude under the line and up to 5m outside the outer phases can be cleared.

Protected or endangered species of plants shall not be removed unless they are interfering with a structure. Where such species have to be removed due to interference with a structure, the necessary permission and permits shall be obtained from Provincial Nature Conservation. All protected species not to be removed must be clearly marked and such areas fenced off if required by the ECO.

The use of herbicides shall only be allowed after a proper investigation into the necessity, the type to be used, the long-term effects and the effectiveness of the agent. Eskom's approval for the use of herbicides 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.

Upon completion of the stringing operations and before handover, the servitude must 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 herbicides. (Refer to the **Vegetation Management Guideline**).

IT IS RECOMMENDED THAT A CONTRACTOR FOR VEGETATION CLEARING SHOULD COMPLY WITH THE FOLLOWING PARAMETERS:

- THE CONTRACTOR MUST HAVE THE NECESSARY KNOWLEDGE TO BE ABLE TO IDENTIFY PROTECTED SPECIES AS WELL AS SPECIES NOT INTERFERING WITH THE OPERATION OF THE LINE DUE TO THEIR HEIGHT AND GROWTH RATE.
- THE CONTRACTOR MUST ALSO BE ABLE TO IDENTIFY DECLARED WEEDS AND ALIEN SPECIES THAT CAN BE TOTALLY ERADICATED.
- THE CONTRACTOR MUST BE IN POSSESSION OF A VALID HERBICIDE APPLICATORS LICENCE AND QUALIFIED PERSONNEL REGISTERED IN TERMS OF THE FERTILIZERS, FARM FEEDS, AGRICULTURAL REMEDIES AND STOCK REMEDIES ACT, ACT 36.

4.7.1 Management Objective

- Minimise 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
- Minimise spreading of alien invader species by collecting and destroying their seeds.

4.7.2 Measurable Targets

- Only 8 m 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.

The Contractor is to supply a method statement for vegetation clearing to the ECO for approval before the activity commences.

4.8 GATE INSTALLATION AND GATE CONTROL

The contractor is referred to the Fencing Act, Act no 31 of 1963 (as amended by Act 108 of 1991). Gate installation shall be according to **TRMSCAAC1 REV 3 section 4.5** and the drawing 0.00/10261 Rev 2 as stated in the specifications. Game gates, drawing 0.00/10280 Rev 0, 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.

4.8.1 Management Objective

- Properly installed gates to allow access to the servitude
- Minimise damage to fences
- Limit access to Eskom and Contractor personnel with gate keys

4.8.2 Measurable Targets

- 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

The Contractor is to supply a method statement for gate installation and gate control to the ECO for approval before the activity commences.

4.9 FIRE PREVENTION

No open fires shall be allowed on site under any circumstance (the National Veld and Forest Fire Act (Act 101 of 1998), National Forests Act (Act 30 of 1998), **TRMSCAAC1 REV 3 section 4.1.2**). The Contractor shall have fire-fighting equipment available on all vehicles working on site, at all time. All fire fighting equipment shall be in accordance with SANS 10228:2005. Staff in charge of fire fighting equipment shall be full trained and certified as a fire fighter.

4.9.1 Management Objective

- Minimise risk of veld fires
- Minimise damage to grazing
- Prevent runaway fires

4.9.2 Measurable Targets

- No veld fires started by the Contractor's work force
- No claims from Landowners for damages due to veld fires
- No litigation

4.10 SERVICING OF VEHICLES

Servicing of vehicles in the veld is strictly prohibited. Only emergency repairs shall be allowed on site and a drip tray shall be used to prevent oil spills. All vehicles shall be serviced in the designated area inside the Contractors camp. In the event of a breakdown in the veld, any oil spills shall be cleaned up immediately. (Refer also **3.8**)

The following shall apply:

- All contaminated soil shall be removed and be placed in containers. Contaminated soil can be taken to one central point at the Contractors campsite where bio-remediation can be done.

- Smaller spills can be treated on site.
- A specialist Contractor shall be used for the bio-remediation of contaminated soil.
- The area around the fuel storage drum at the Contractor's campsite shall also be re-mediated upon completion of the contract.

All old parts, packaging, old oil, etc. shall be disposed of in the correct manner and in a proper area designated for such waste materials. Under no circumstances shall such waste be buried on site.

4.10.1 Management Objective

- Prevention of pollution of the environment
- Minimise chances of transgression of the acts controlling pollution, as listed in the ROD

4.10.2 Measurable Targets

- No pollution of the environment
- No litigation due to transgression of pollution control acts, as listed in the ROD
- No complaints from Landowners

4.11 CLAIMS FOR DAMAGE

All anticipated crop damage shall be noted while access negotiations are underway. All damage to commercial crops shall be recorded immediately. The ECO should 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 should 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.**

4.11.1 Management Objective

- Minimise complaints from Landowners
- Prevent litigation due to outstanding claims
- Successful completion of the contract and all Landowners signing release forms

4.11.2 Measurable Targets

- All claims investigated within 24 hours and settled within one month
- No litigation due to unsettled claims
- All Landowners signing release forms within six months after completion of the contract

4.12 TOWER POSITIONS

Refer to **TRMSCAAC1 REV 3 section 4.4.5** for specifications concerning tower sites on slopes. 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. During backfilling operations, the Contractor shall take care not to dump the topsoil in the bottom of the foundation and then put spoil on top of that.

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% must be contoured and slopes in excess of 12% must be terraced. Other methods of rehabilitation of tower sites may also be used at the discretion of the 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 provided the mixture is carefully selected to ensure the following:

- a) Annual and perennial plants are chosen.**
- b) Pioneer species are included.**
- c) All the plants shall not be edible.**
- d) Species chosen will grow in the area without many problems.**
- e) Root systems must have a binding effect on the soil.**
- f) The final product should not cause an ecological imbalance in the area.**

To get the best results in a specific area a vegetation specialist or the local extension officer of the Department of Agriculture should be consulted. 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, will always be at the discretion of the ECO, in co-operation with the Landowner.

4.12.1 Management Objective

- Minimise damage to topsoil and environment at tower positions
- Successful rehabilitation of all damaged areas
- Prevention of erosion

4.12.2 Measurable Targets

- 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

4.13 WINCH AND TENSIONER STATIONS

The siting of winch and tensioner stations shall be done in conjunction with the Landowner and ecologist/botanist and archaeologist that participated in the compilation of the EMP where necessary.

Specifications require the protection of Eskom supplied material on site, especially conductor drums. This normally means that a firebreak is bladed around a drum station in the veld. Once the stringing of conductor has been completed in a certain area, the winch- and tensioner stations shall be rehabilitated where necessary. If the area was badly damaged, re-seeding shall be done and fencing in of the area shall be considered and carried out. For seeding the same provisions as in **4.12** shall apply (see also **4.12** regarding slopes).

Fencing in of the storage areas for drums on site is also proposed, as this will keep out animals and prevent injury. Should the Contractor want to leave guards on site, this should be discussed and negotiated with the Landowner. Proper facilities must be provided to ensure sanitation standards are met. Mobile chemical toilets shall be installed at such sites where a large number of the workforce is concentrated.

4.13.1 Management Objective

- Minimise damage to vegetation
- Minimise damage to topsoil
- Successful rehabilitation of barren areas

4.13.2 Measurable Targets

- 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

4.14 BATCHING PLANTS

The siting of batching plants shall be done in conjunction with the Landowner, ecologist/botanist, and archaeologist who participated in the compilation of the EMP where required, **as well as the ECO**.

Refer to **TRMSCAAC1 REV 3 section 4.8** for specifications regarding batching plants. 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. To this effect diversion berms can be installed to direct all wastewater to a contained catchment area.

Eskom shall ensure that all agreements reached with the Landowner are fulfilled, and that such areas be rehabilitated once construction is completed. Should 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. (Refer to **section 3.6** regarding use of water from a natural source at a batching plant)

4.14.1 Management 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

4.14.2 Measurable Targets

- 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.

4.15 STRINGING OPERATIONS

The necessary scaffolding / protection measures must 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 (Refer **TRMSCAAC1 REV 3 section 8.2.1**). 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 (see **Section 7.4**). All fences shall be protected against damage during stringing operations. Use of "rugby" posts to protect roads and telephone lines are sufficient.

4.15.1 Management Objective

- Prevent damage to structures and crops
- Prevent disruption of services

4.15.2 Measurable Targets

- No claims emanating from damage to supporting structures and crops
- No complaints or claims arising from disruption of services

5. SOCIAL ISSUES AND THEIR CONTROL

5.1 SANITATION

The Contractor shall install mobile chemical toilets on site (TRMSCAAC1 REV 3). Staff shall be sensitised to the fact that they should use these toilets at all times. No use of the veld shall be allowed, as this always create problems with the Landowners and lead to claims for problems with stock diseases. Toilet paper is also a source of littering in the veld, and the Contractor shall clean up any sanitary litter. Mobile chemical toilets shall also be regularly cleaned and replaced to prevent malodours and attraction of pests such as flies.

5.1.1 Management Objective

- Ensure that proper sanitation is achieved

5.1.2 Measurable Targets

- No complaints received from Landowners regarding sanitation

5.2 PREVENTION OF DISEASE

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 under livestock. Refer to **Section 5.1** and **TRMSCAAC1 REV 3** regarding prevention measures. A record shall be kept of drugs administered and the dates when this was done. This can then be used as evidence in court should any claims be instituted against Eskom or the Contractor.

5.2.1 Management Objective

- Prevent litigation due to infestation of livestock

5.2.2 Measurable Targets

- No complaints and claims from Landowners
- No litigation

5.3 INTERACTION WITH LANDOWNERS

The successful completion of the project depends a lot on the good relations with the Landowner. It is therefore required that the Contractor will supply one person to be the liaison officer (CECO) for the entire contract, and that this person shall be available to investigate all problems arising on the work sites concerning the Landowners (**TRMSCAAC1 REV 3**)

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. It is proposed that a photographic record of access roads be kept. This will then be available should any claims be instituted by any Landowners. Any claims instituted by the Landowners shall be investigated and treated promptly. Unnecessary delays should be avoided at all costs.

The Landowners shall always be kept informed about any changes to the construction programme should they be involved. If the ECO is not on site the Contractor's ECO should keep the Landowners informed. The contact numbers of the Contractor's ECO officer and the Eskom ECO shall be made available to the Landowners. This will ensure open channels of communication and prompt response to queries and claims.

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.

5.3.1 Management Objective

- Maintain good relations with Landowners

5.3.2 Measurable Targets

- No delays in the project due to Landowner interference
- Landowner signs final release form

5.4 LITTERING CONTROL

Littering by the employees of the Contractor's staff shall not be allowed (**TRMSCAAC1 REV 3 section 4.1.2** and Environment Conservation Act, Act 73 of 1989). The ECO shall monitor the neatness of the work sites as well as the campsite. (Refer to **section 3.8** regarding rubble and refuse disposal). The Contractor shall collect all litter and dispose thereof in a legislated manner.

5.4.1 Management Objective

- Neat workplace and site

5.4.2 Measurable Targets

- No complaints from Landowners
- All litter is removed and disposed of (with proof) at a registered landfill site

5.5 ACCESS CONTROL TO PROPERTIES

Due to the current security situation Landowners are not comfortable when strangers come on to their properties. They will 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.

The Landowners shall be kept abreast of all developments and shall be kept informed about the progress and phases of the contract. (Refer **TRMPVACV2 REV 1** – Procedure for Access to Farms)

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.

Damage to fencing, gates and other infrastructure may occur at any time. This will create problems with the Landowners and should be avoided as far as possible. All damage to be repaired immediately and to the satisfaction of the landowner (also see section 4.8).

6. BIOLOGICAL ISSUES AND THEIR CONTROL

6.1 FAUNA

Construction activities must be planned carefully so as not to interfere with the calving and lambing season for most animal species. The Contractor's workforce will have to be very careful not to disturb the animals as this may lead to fatalities which will give rise to claims from the Landowners.

The Contractor shall under no circumstances interfere with livestock without the Landowner being present. This includes the moving of livestock where they interfere with construction activities. Should the Contractor's workforce obtain any livestock for eating purposes, they must be in possession of a written note from the Landowner.

The breeding sites of raptors and other wild bird species shall be taken into consideration during the planning of the construction programme. There are many instances where protected and endangered species of birds are nesting on our transmission towers without causing any problems to the flow of electricity or network stability. These birds are highly territorial and some have been using the same nests for many years, i.e. Black Eagle (Witkruisarend). They are guarded jealously by the landowners and are monitored by many groups involved with ensuring their continued existence, including Nature Conservation officials at National and Provincial level.

It is therefore imperative that the breeding sites of these birds are kept intact and that the breeding pairs are not disturbed especially where there are young nestlings. The Contractor shall take all the necessary precautions and it is recommended that sites on parallel existing lines be noted, i.e. tower numbers. This

information must then be given to the avian specialist via the Tx Services Environmental Advisor so that the necessary action can be taken timeously.

Should any new sites or nests be found, during the construction process, they shall be assessed for merit and the necessary precautions be taken to ensure the least disturbance. The recommendations of the avian specialist shall be adhered to at all time to prevent unnecessary disruption of such species. Bird guards and diverters shall be installed, as per the recommendations of the avian specialist, on the new line.

An avi-faunal specialist must identify the sections of the line that require demarcation for anti-collision devices once the route has been finalised. The following areas should be marked:

- The entire section running through the Ekangala Grasslands Biosphere Reserve
- All sections of line crossing a wetland or within 500 metres of a wetland.
- All river crossings.
- All sections of line crossing a centre pivot or within 500 metres of it.
- Sections of grassland identified as being particularly sensitive for cranes, bustards and korhaans.

Self-supporting strain towers must be protected with bird guards.

Educate staff before they commence work in the area that poaching is against the law and transgressors will be criminally charged.

Notify the ECO (in cooperation with the provincial nature conservation official) to move any wildlife (mammals, fish, reptiles, amphibians, invertebrates and insects) encountered out of the way to a safe environment during the construction period.

6.1.1 Management Objective

- Minimise disruption of farming activities
- Minimise disturbance of animals
- Minimise interruption of breeding patterns of birds

6.1.2 Measurable Targets

- No stock losses where construction is underway
- No complaints from Landowners or Nature Conservation
- No litigation concerning stock losses and animal deaths

6.2 FLORA

Protected or endangered species may occur along the Tx Power line route. Special care should be taken not to damage or remove any such species unless absolutely

necessary. Permits for removal must be obtained from **Provincial Nature Conservation Department** should such species be affected. All plants not interfering with the operation of the Transmission Power Line shall be left undisturbed. **Collection of firewood is strictly prohibited** (see also section 4.7).

6.2.1 Management Objective

- Minimal disturbance to vegetation where such vegetation does not interfere with construction and operation of the line
- Prevention of litigation concerning removal of vegetation

6.2.2 Measurable Targets

- No litigation due to removal of vegetation without the necessary permits

6.3 HERBICIDE USE

Herbicide use shall only be allowed with the approval of Eskom. The application shall be according to set specifications and under supervision of a qualified technician. The possibility of leaching into the surrounding environment shall be properly investigated and only environmentally friendly herbicides shall be used (Refer **section 4.7.** regarding vegetation clearing and **section 3.9** regarding storage of hazardous substances).

6.3.1 Management Objective

- Control over the use of herbicides

6.3.2 Measurable Targets

- No signs of vegetation dying due to leaching of herbicides one year after completion of the vegetation clearing
- No Landowner complaints and litigation

7. CULTURAL ISSUES AND THEIR CONTROL

7.1 ARCHAEOLOGY

The position of known sites will be shown on the final profiles. Such areas shall be marked as no go areas. Artefacts shall not be removed under any circumstances. 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 the South African Heritage Resources Association (SAHRA) should the proposed line affect any World Heritage Sites or if any sites are to be destroyed or altered. No dolomite, breccia or stomatolites may be removed or disturbed without the required permits from SAHRA.

Should any archaeological sites be uncovered during construction, their existence shall be reported to Eskom immediately, John Geeringh to be informed at

011 800 2465. An archaeologist will then take the necessary action so that construction can continue.

7.1.1 Management Objective

- 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 new archaeological finds should these be discovered during construction

7.1.2 Measurable Targets

- No destruction of or damage to known archaeological sites
- Management of existing sites and new discoveries in accordance with the recommendations of the Archaeologist

7.2 MONUMENTS/HISTORICAL SITES

All monuments, heritage sites and historical sites shall be treated with the utmost respect. Any graves shall be clearly marked and treated as no go areas. No destruction of any site shall be allowed. Should it be necessary to remove any graves, the necessary procedures shall be followed and permits obtained. Should any bones be dug up, all work in the area will cease immediately and the ECO (who will in turn contact the archaeologist) shall be contacted.

7.2.1 Management Objective

- Protection of sites and land considered to be of cultural value
- Protection of known sites against vandalism, destruction and theft
- The preservation and appropriate management of new finds should these be discovered during construction

7.2.2 Measurable Targets

- No destruction of or damage to known sites
- Management of existing sites and new discoveries in accordance with legislation
- No litigation due to destruction of sites

7.3 FARMHOUSES/BUILDINGS

Where the line crosses an inhabited area, the necessary precautions shall be taken by the Contractor to safeguard the lives and property of the inhabitants. The Contractor shall under no circumstances interfere with the property of Landowners.

If water is required, the Contractor shall negotiate with the relevant Landowner and a written agreement shall be drawn up (**TRMSCAAC1 REV 3 section 4.8**). (See also section 3.6)

7.3.1 Management Objective

- Control over actions and activities in close proximity to inhabited areas

7.3.2 Measurable Targets

- No complaints from Landowners
- No damage to private property

7.4 INFRASTRUCTURE

If damaged infrastructure is not repaired to the expectations of the Landowners, they may refuse to sign the release forms and even engage in litigation. Outstanding claims may also result in release forms not being signed by the Landowners.

No telephone lines or fences shall be dropped during the stringing operations. All crossings shall be with at least rugby posts to protect the telephone lines and temporary measures to protect fences. Where pipe lines are found along the route, the depth of the pipes under the surface shall be determined to ensure that proper protection is afforded to such structures. All pipelines shall be clearly marked and protected. Any damage to pipe lines shall be repaired immediately.

The use of private roads for construction purposes always leads to damage due to heavy equipment and frequent use. It is foreseen that the Contractor will receive many complaints in this regard, especially during the rainy season. (Also see section 4.5)

All existing private access roads used for construction purposes, shall be maintained at all times to ensure that the local people have free access to and from their properties. Speed limits shall be enforced in such areas and all drivers shall be sensitised to this effect. Upon completion of the project all roads shall be repaired to their original state. (also see section 4.5).

Many Landowners use electrically driven farming practices such as irrigation or dairies. Power cuts to facilitate construction and especially stringing must be carefully planned. If possible disruptions must be kept to a minimum and should be well advertised and communicated to the Landowners. Care must be taken not to damage irrigation equipment, lines, channels and crops, as this could lead to major claims being instituted against Eskom and the Contractor. The position of all pipelines and irrigation lines must be obtained from the Landowners and be shown on the physical access plan.

Petronet requirements to be honoured where the line crosses the pipeline.

7.4.1 Management Objective

- The control of temporary or permanent damage to plant and installations

- Control of interference with the normal operation of plant and installations
- Securing of the safe use of infrastructure, plant and installations

7.4.2 Measurable Targets

- No unplanned disruptions of services
- No damage to any plant or installations
- No complaints from authorities or Landowners regarding disruption of services
- No litigation due to losses of plant, installations and crops

8. REQUIREMENTS DURING CONSTRUCTION PERIOD

1. Proper and continuous liaison between Eskom, the Contractor and Landowners to ensure everyone is informed at all times.
2. A physical access plan along the servitude shall be compiled and the Contractor shall adhere to this plan at all times. Proper planning when the physical access plan is drawn up by the ECO in conjunction with the Contractor shall be necessary to ensure access to all tower sites.
3. The Landowners shall be informed of the starting date of construction as well as the phases in which the construction shall take place.
4. The Contractor must adhere to all conditions of contract including the EMP and Landowner special conditions.
5. Proper planning of the construction process to allow for disruptions due to rain and very wet conditions.
6. All servitude gates on a section of the line route shall be completely installed before any construction activities are undertaken.
7. Where existing private roads are in a bad state of repair, such roads' condition shall be documented (including photographs) before they are used for construction purposes. If necessary some repairs should be done to prevent damage to equipment and plant.
8. All manmade structures shall be protected against damage at all times and any damage shall be rectified immediately.
9. Rehabilitation of the servitude roads shall be done properly to ensure all Landowners sign the release forms. The Contractor shall ensure that all damaged areas are rehabilitated to the satisfaction of Eskom and each and every property owner and that outstanding claims are settled.
10. Proper site management and regular monitoring of site works.
11. Proper documentation and record keeping of all complaints and actions taken.
12. Regular site inspections and good control over the construction process throughout the construction period.
13. Appointment of an CECO on behalf of the Contractor to implement this EMP as well as deal with all Landowner related matters.
14. Independent Environmental Audits to be carried out during and upon completion of construction (at least two for the project).

The Contractor shall not be released from site until all Landowners have signed off the release documentation to the satisfaction of the Eskom ECO.

9. TOWER SPECIFIC PROBLEM AREAS

Tower specific problems and no-go areas are shown on the profiles (**Appendix 2**) .

9.1 LANDOWNER SPECIAL CONDITIONS

Landowner special conditions are listed in **Appendix 1**.

10. PHYSICAL ACCESS PLAN

The Contractor (CECO), in conjunction with the ECO and Landowners, shall draft a physical access plan. No decisions shall be made without the consent of the Landowner. All agreements should be in writing and well documented and photographed.

The physical access plan shall allow for the installation of concrete pipes and drifts where such structures may be needed to facilitate access. The ECO in conjunction with the Contract Manager shall use discretion as to what special measures will be required to ensure access (refer also to **section 9.1**). The necessary agreements reached shall be implemented to the satisfaction of the Landowner.

11. SITE DOCUMENTATION/MONITORING/REPORTING

The standard Eskom site documentation shall be used to keep records on site. All documents shall be kept on site and be available for monitoring and auditing purposes. Site inspections by an Environmental Audit Team may require access to this documentation for auditing purposes. The documentation shall be signed by all parties to ensure that such documents are legitimate. Regular monitoring of all site works by the Environmental Control Officer is imperative to ensure that all problems encountered are solved punctually and amicably. When the Environmental Control Officer is not available, the Contract Manager/Site Supervisor shall keep abreast of all works to ensure no problems arise.

Two-weekly reports shall be forwarded to the appointed Transmission Engineering Environmental Advisor with all information relating to environmental matters. The following **Key Performance Indicators** must be reported on a two-weekly basis:

1. Complaints received from Landowners and actions taken.
2. Environmental incidents, such as oil spills, concrete spills, etc. and actions taken (litigation excluded).
3. Incidents possibly leading to litigation and legal contraventions.
4. Environmental damage that needs rehabilitation measures to be taken.

The following documentation shall be kept on site:

- Access negotiations and physical access plan.
- Complaints register.
- Site daily diary.
- Records of all remediation / rehabilitation activities.
- Copies of two-weekly reports to the Tx Engineering Environmental Advisor at MWP.
- Copy of the Environmental Management Programme (EMP) file.

12. REFERENCES

1. Conservation of Agricultural Resources Act, Act 43 of 1983 and amendments.
2. Corporate directive for the management of PCB, ESKADAAO3 REV 1.
3. Environmental Impact Report of the Project (BKS, 2006).
4. Eskom Guidelines for Herbicide Use, TRR/S91/032.
5. Environment Conservation Act, Act 73 of 1989 and amendments.
6. Fencing Act, Act 31 of 1963 and amendments.
7. Hazardous Substances Act, 15 of 1973 and amendments.
8. National Health Act.
9. Herbicide Management, ESKPBAAD4 REV 0.
10. Mineral and Petroleum Resources Development Act, Act 28 of 2002.
11. National Environmental Management Act, Act 107 of 1998 and amendments.
12. National Forests Act, Act 30 of 1998.
13. National Veld and Forest Fire Act, Act 101 of 1998.
14. National Heritage Resources Act, Act 25 of 1999.
15. National Water Act, Act 36 of 1998.
16. Occupational Health and Safety Act, Act 85 of 1993
17. Record of Decision and conditions– DEAT.
18. Standard passive fire protection for oil-filled equipment in High Voltage yards, TRMASAAQ8 REV 4
19. Standard for management of PCB, ESKASAAC2 REV1.
20. Vegetation Management Guideline
21. KZN Heritage Act
22. Farm Feeds Act of 1947

13. APPENDICES

1. LANDOWNER SPECIAL CONDITIONS
2. PROFILE SHEETS AND PHOTOGRAPHS
3. ESKOM BUSHCLEARING STANDARD – ESKASABG3 rev 0 (Issued to contractor only)
4. RECORD OF DECISION FROM DEAT
5. ASPECT AND IMPACT REGISTER FOR THE PROJECT ACTIVITIES
6. ADDITIONAL BIRD DIVERTERS
7. ADDITIONAL HERITAGE SITES

**PRO FORMA TO BE SIGNED BY THE CONTRACTOR AND ESKOM PROJECT
MANAGER AT CONTRACT AWARD.**

CONTRACT NAME: _____

CONTRACT NUMBER: _____

ENVIRONMENTAL COMPLIANCE

I _____ ON BEHALF OF _____ (C)

I _____ ON BEHALF OF ESKOM

DECLARE AS FOLLOWS:

1. I AM AWARE THAT CONSTRUCTION, REFURBISHMENT OR UPGRADING ACTIVITIES CAN HAVE A MAJOR IMPACT ON THE ENVIRONMENT.
2. I UNDERTAKE TO ADHERE TO THE REQUIREMENTS OF THE ENVIRONMENTAL MANAGEMENT PROGRAMME AND THE RECORD OF DECISION FROM DEAT.
3. I PLEDGE TO INFORM ALL SITE STAFF OF THEIR INVOLVEMENT IN MANAGING ENVIRONMENTAL IMPACTS ON SITE.
4. I COMMIT TO IMPLEMENTING ENVIRONMENTAL BEST PRACTISE ON SITE AT ALL TIMES DURING THE CONTRACT.

SIGNED: _____ DATE: _____

CONTRACTOR

SIGNED: _____ DATE: _____

ESKOM

Questionnaire to be completed during tender stage by the contractor for evaluation purposes of the tender for line construction:

PLEASE TICK APPROPRIATE BOX (All yes answers to be accompanied by proof)	YES	NO
ENVIRONMENTAL MANAGEMENT SYSTEM - GENERAL		
1-Is your company ISO 14001 certified?		
2-Is your company ISO 14001 compliant?		
3-Does your company have an Environmental Management System in place?		
4-Does your company have an Environmental Policy?		
5-Does your company have an Environmental Statement?		
6-Is your company in the process of implementing any of the above?		
7-Will you be using sub-contractors during the project?		
8-Does any of your proposed sub-contractors comply with 1-6 above?		
ENVIRONMENTAL MANAGEMENT PROGRAMME - GENERAL		
1-Do you understand the contents and context of this EMP attached to the tender document?		
2-Do you agree to implement the requirements of the EMP on site?		
3-Did you allow for the appointment of a specific person to act as the dedicated Contractor Environmental Control Officer (CECO) on site for the duration of the contract? (As per responsibility matrix on page 5 of the EMP)		
4-Is your CECO qualified to implement the EMP conditions? Please attach CV.		
5-Have you allowed sufficient funds for implementing the requirements of the EMP? (Environmental management requirements)		
ENVIRONMENTAL MANAGEMENT PROGRAMME - SPECIFIC		
1-Did you supply a method statement for water supply?		
2-Did you supply a method statement for solid waste management?		
3-Did allow for camp wastewater management?		
4-Did you allow for camp and site ablution management?		
5-Did allow for hazardous (oil, fuel, herbicides, etc) substance management?		
6-Did you allow for fire management on site and in the camp?		
7-Did you allow for waste concrete management?		
8-Did your tender allow for the installation of sealed and bunded fuel storage areas?		
9-Did you allow for a contained workshop area for servicing of vehicles?		
10-Did you allow for signage to mark access roads to the line?		
11-Did you allow for emergency spill kits to address possible spills of fuel and oil to prevent pollution?		
12-Does the vegetation-clearing contractor comply with section 4.7 of the EMP?		
13-Did you allow for suitable means and materials to safeguard excavations?		

